United Utilities

AMP7 performance commitments and outcome delivery incentives

Definition document

United Utilities

Water for the North West

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Outcome delivery – Introduction to performance commitments and ODIs

The outcome of a price review is a defined price and service package that companies are tasked to deliver for customers, the environment and other stakeholders. Delivery of service is described through a series of customer-focused outcomes which in turn are supported by more granular performance commitments.

We routinely report performance against these outcomes and performance commitments to customers, stakeholders and regulators, including to the YourVoice customer and stakeholder panel.

Having performance information that is easy to understand and navigate allows customers and other stakeholders to challenge water and sewerage companies on their performance and encourages them to deliver better levels of service. This helps everyone build trust and confidence.

We have committed to seven outcomes for the AMP7 period (2020–25):

- Your drinking water is safe and clean.
- You have a reliable supply of water now and in the future.
- The natural environment is protected and improved in the way we deliver our services.
- You're highly satisfied with our service and find it easy to do business with us.
- We will improve the way we work to keep bills down and improve services for you and future customers.
- We collect and recycle your wastewater.
- The risk of sewer flooding for homes and businesses is reduced.

Performance commitments

Underpinning each outcome is a set of performance commitments. These are service targets for specific types of activities that we undertake to deliver. If we achieve or outperform against these targets, then this supports the delivery of outcomes for customers, the environment and other stakeholders. Performance commitments are designed to be stretching and deliver an improved level of performance for customers and stakeholders compared to the levels achieved in the past.

There are 15 performance commitments that are being applied to all water companies during AMP7. These are 'common measures' and each has a standard definition set by Ofwat. These common measures are then supplemented by 'bespoke' performance commitments which reflect additional levels of service or focus for investment which are specific to each company's customers.

We need to deliver against 46 performance commitments in the AMP7 Final Determination, comprising the 15 common measures and 31 bespoke measures which are specific to UU.

Outcome delivery incentives (ODIs)

Outcome delivery incentives (ODIs) are incentives which apply to performance commitments.

There are four types of ODI incentive which can apply to performance commitments. These are:

Underperformance only – This is a financially driven incentive. When performance is worse than the target or deadband level, this results in an underperformance payment.

Outperformance only – This is a financially driven incentive. When performance is better than the target or deadband level, this results in an outperformance payment.

Underperformance and outperformance – This is a financially driven set of incentives. Underperformance payments are incurred when performance is worse than the target or deadband level, outperformance payments apply when performance is better.

Non-financial – This is an incentive driven by reputation only. Poor performance could cause reputational damage but good performance could enhance our reputation, but no direct financial incentives are applied.

39 of our 46 performance commitments have a financial incentive. The other seven performance commitments do not have a financial incentive and are therefore driven by reputation only.

Some ODIs have an outperformance cap or underperformance collar, beyond this point no further incentive is applied. Some performance commitments include a deadband. This is a narrow range of performance above and/or below the target level within which the company can operate without being subject to financial incentives. For measures without a deadband, any incentive applies as soon as our performance is above or below the target level for the performance commitment.

Most ODIs are applied on an annual basis during the AMP. These are referred to as 'in-period' incentives. Some ODIs, however, are applied only at the end of the AMP. These are known as 'end of period' incentives.

Outcome A – Your drinking water is safe and clean

Customers want a reliable supply of high quality water that they trust. To deliver this outcome we will continue to ensure water quality is at the heart of our decision making, achieving a significant reduction in water quality events and an improvement in the aesthetic parameters that impact customers' perceptions of water quality. Our water quality vision is 100% compliance with current and future drinking water quality standards, providing a reliable supply of safe clean drinking water for future generations.

Water quality compliance - CRI (A01-CF)

Purpose of this measure

The performance commitment incentivises the company to fully comply with water quality and sufficiency statutory obligations and to mitigate any issues affecting performance.

Benefits of this measure

This performance commitment incentivises companies to fully comply with statutory obligations which promotes customer confidence that water is clean and safe to drink.

Measure Description

The compliance risk index (CRI) is an industry common measure of drinking water quality that has been defined by the water quality regulator, the Drinking Water Inspectorate (DWI). Performance against this measure is calculated by the DWI and reported on a calendar year basis. It has replaced the mean zonal compliance metric which was in use during AMP6.

This measure is defined by the Drinking Water Inspectorate within their 28 March 2018 guidance document DWI Compliance Risk Index (CRI) as: 'The Compliance Risk Index (CRI) is a measure designed to illustrate the risk arising from treated water compliance failures, and it aligns with the current risk based approach to regulation of water supplies used by the Drinking Water Inspectorate (DWI). All compliance failures are assessed by DWI using the provisions of the Water Industry Act 1991. In doing so, DWI has regard to its published Enforcement Policy[1] (Securing safe, clean drinking water for all), and it also follows the principles of 'better regulation' to scrutinise company performance on the basis of their risk of failing to meet the requirements of the Regulations.'

CRI is calculated by the DWI taking into account not just an absolute number of water quality failures, but also:

- The significance of the parameter failing the standard.
- An impact effect, e.g. scale of population affected or size of water treatment works or service reservoir.
- The cause of the failure together with the company's handling of the failure by means of measuring the need for regulatory intervention.

Decreasing numbers indicate improving performance.

Measure Definition

The definition for this performance commitment was set by the Drinking Water Inspectorate (DWI) in collaboration with the industry. This is published as *DWI Compliance Risk Index (CRI)*, August 2018: https://www.ofwat.gov.uk/wp-content/uploads/2019/12/DWI-Compliance-Risk-Index-CRI_Def.pdf

A CRI score is calculated for every individual compliance failure at water supply zones, supply points, treatment works and service reservoirs. The annual CRI for a company, for any given calendar year, is the sum of the individual CRI scores for every compliance failure reported during the year. The calculation is summarised below (see the link above: DWI Compliance Risk Index for further detail on the full calculations).

[1] http://www.dwi.gov.uk/about/our-strategic-plan/dwi-enforcement.pdf

This measure is an index which is calculated by the DWI and reported in July of each year, within the Chief Inspector's Report.

A CRI score is calculated for every individual compliance failure as follows:

i. **Water supply zones:**

$$CRI = \frac{\text{Parameter Score x Assessment Score x Population affected}}{\text{Total company population served}}$$

ii. **Supply Points and treatment works:**

$$CRI = \frac{\text{Parameter Score x Assessment Score x volume supplied } (m^3/day)}{\text{Total daily volume supplied by the company } (m^3/day)}$$

iii. **Service reservoirs:**

$$CRI = \frac{\text{Parameter Score x Assessment Score x reservoir capacity } (m^3)}{\text{Total service reservoir capacity of the company } (m^3)}$$

The annual CRI for a company, for any given calendar year, is the sum of the individual CRI scores for every compliance failure reported during the year. The resulting number has no units, and as this is a common measure, can be used to compare the performance of each of the water companies. The individual elements are defined below:

Parameter score

Compliance failures for different parameters do not pose equal risk to consumers. The standards in the Regulations are based on different criteria: whilst some are set on a human health basis, others are based on aesthetic concerns. Those parameters that could pose a risk to human health attract a higher score in CRI. The scores are set by the DWI and laid out in their definition document so they are consistent across the industry.

The CRI Parameter score reflects this difference and scores allocated for each as follows:

Basis for standard	Score
Health Risk	5
Health Risk Indicator	4
Aesthetic	3
Regulatory Impact	2
Non Health Risk Indicator	1

Assessment score

All compliance failures are assessed to ensure that the wellbeing and interests of consumers were protected by best practice in management of compliance failures. The DWI assessment score includes a view on the root cause of the failure and whether it could have been avoided as well as the company's response. A well-managed response to a compliance failure with appropriate and speedy mitigation action poses a lower risk to consumers.

Score	DWI Inspector assessment
5	Enforce
4	Covered by legal instrument
3	Enforcement considered
2	Recommendations made
2	Suggestions made
1	Trivial
1	Unlikely to recur
1	Incorrect data
0	Outside operational limits

Impact score

This element accounts for the likely impact of the compliance failure and to reflect the potential number of people that may have been impacted by any infringement. The score for this element is related to the asset where the infringing sample was taken:

- For company assets this impact element relates to the size of the asset (output of water treatment works and capacity of service reservoirs).
- For failures occurring in water supply zones (WSZ) the impact will tend to relate to the size of the whole zone. The impact will therefore default to the population of the whole WSZ

Supply points and water supply zones: For some parameters, for example lead and pH, the amount found in the treated water can change because of interaction with the water supply pipes. The samples have to be collected from a customer's tap, and are known as water supply zone samples. For other parameters found in drinking water, for example pesticides, the amounts found in the drinking water do not change in the water distribution network. These unchanged parameters can be collected from the water treatment works 'or a designated supply point' and do not need to be sampled in a water supply zone. For these parameters, the water treatment works or 'location nominated' is known as a supply point.

Special rules

A limited number of risks may manifest themselves to a smaller population than the whole WSZ. Under this circumstance there is the option for DWI to consider whether the failure can be assigned to the Domestic Distribution System, or in the case of Lead, to the District Metered Area. The smaller population options will be fixed.

ii. Impact scores related to Domestic Distribution Systems (DDS)

The burden of proof rests with the company to provide compelling evidence that the DDS is the root cause of the failure. If the Inspectorate agree that the failure was caused by and isolated to the domestic system the impact (population) will automatically reduce to:

• 2.4 – Occurred at a single property (compelling evidence required)

• 50 – Occurred at a public building

iii. I mpact scores related to District Metered Areas (DMAs) - applies to lead failures only.

The burden of proof rests with the company to demonstrate the effectiveness of the company plumbosolvency strategy within the DMA. Companies will be expected to carry out a full and thorough investigation to include:

1. A review of plumbosolvency measures in place.

2. Whether there are other properties in the DMA with lead supply and communication pipes.

3. If there are other sources that might contribute to the lead failure apart from lead pipe. If the company's investigation can demonstrate that the plumbosolvency strategy is effective within the DMA and that the lead failure was an isolated, property specific failure then the single property multiplier above will be used. If the investigation cannot establish this, the fixed population of 1,000 (a standardised DMA) will be used as the default multiplier. If the WSZ is < 1,000 the whole zone population will be used.

Measurement units

This is a numerical index score reported to two decimal places. It will be measured on a calendar year basis to align with DWI reporting. The measure will be provisionally reported by the end of April each year, covering the previous calendar year (i.e. CRI for 2020 will be reported at the end of April 2021). This will include CRI scores for all compliance failures that occurred in the relevant calendar year. There may be a small number of compliance failures where investigations are still ongoing at the end of April. For these an estimation of the CRI will be included based on the evidence to date. An updated CRI will be reported in the Chief Inspector's Report in July by which time all compliance failure assessments for that year will have been completed.

Mitigation/exceptions/assumptions

There are no specific exclusions, however, for some special rules on calculation of risk score refer to the DWI definition.

The impact of the European Union adoption of a proposed revision to the Drinking Water Directive has not been considered within the commitments/targets of this performance measure.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

Financial – underperformance payment only

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
10%	90%	0%	0%	0%	0%	0%

This measure has been split across the water resources and water network+ price controls due to there being an element of control of water quality parameters with our water resources catchment management activities. Implementation of the safeguard zones means that steps are taken to reduce levels of nitrates, pesticides and algae management (which has a significant risk for organoleptic taste and odour related compounds, geosmin and 2-methylisoborneol (2MIB)). Whilst the majority of control for these parameters falls at the water treatment works, they can be reduced by effective catchment management to reduce the cost and increase the effectiveness of removal at the treatment works.

Performance commitment for AMP7

Our target for AMP7 is set at zero. This is extremely challenging for us to meet. CRI performance is volatile due to the inclusion of a risk based factor associated with the nature of the infringement, the impact of the infringement location and assessor score. There is also the impact of failures

associated with customer's plumbing or fittings. This will impact the CRI score despite the very limited control over these variable exercised by companies.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
	Calendar year 2020	Calendar year 2021	Calendar year 2022	Calendar year 2023	Calendar year 2024
Index Score	0.00	0.00	0.00	0.00	0.00

For reporting purposes the data reported in financial year 2020/21 aligns to the information reported to the DWI for calendar year 2020.

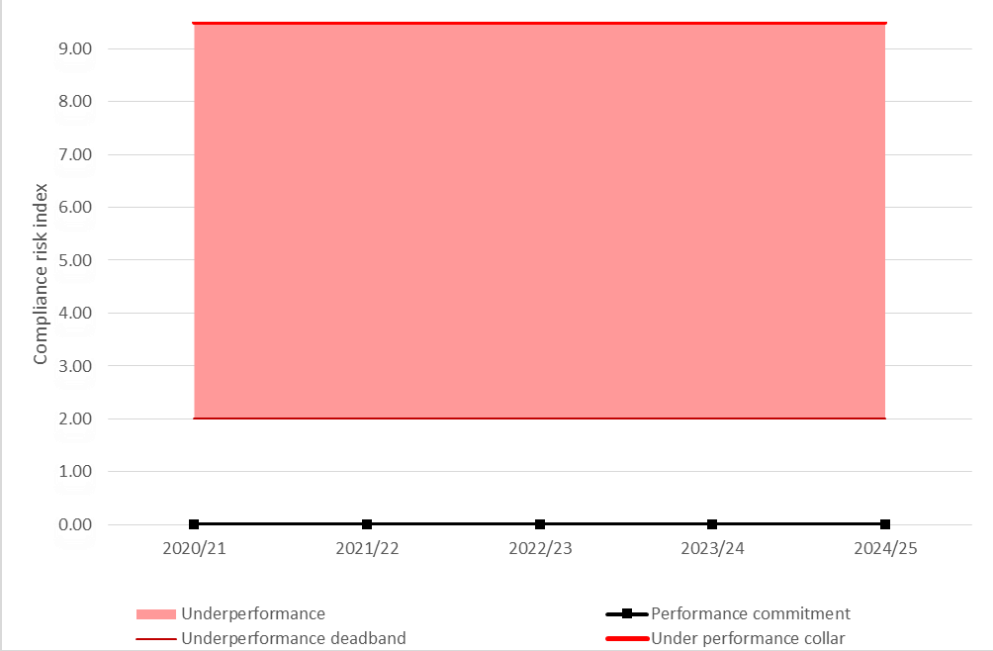


Figure 1

Deadbands, caps and collars

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
		Calendar year 2020	Calendar year 2021	Calendar year 2022	Calendar year 2023	Calendar year 2024
Underperformance collar	Index score	9.50	9.50	9.50	9.50	9.50
Underperformance deadband	Index score	2.00	2.00	2.00	2.00	2.00

Outcome Delivery Incentive

This measure is subject to an underperformance penalty only, which will be reconciled on an in-period basis.

Underperformance outperformance incentive rate

This measure is subject to an underperformance penalty only, which has been set at £1.125m per CRI point.

Worked examples

If in any year our performance resulted in an annual score of 1.20, the index value would be within the deadband (it is above the target of zero but below the deadband of 2.00), therefore no underperformance payment would be applied.

If our performance resulted in an annual score of 5.10, this would be above the deadband of 2.00 (and below the cap of 9.50), an underperformance payment would be incurred. The value of the underperformance payment would be calculated as:

Underperformance payment = (actual performance – underperformance deadband) x incentive rate

= (5.10 – 2.00) x -£1,125,000 = -£3,487,500 underperformance

If in any year our performance resulted in an annual score of 10.00, this would be above the cap of 9.50, an underperformance payment would be incurred but capped at the performance level of 9.50.

= (9.50 – 2.00) x -£1,125,000 = -£8,437,500 underperformance

Long-term ambition

Our long term ambition is to:

- Show an improving and sustainable trend in water quality performance and the compliance risk index.
- See customers reduce their consumption of bottled water because they are confident in the quality of tap water.
- Have a service that is 100% compliant with regulatory, quality and environmental requirements, and trusted by our community and stakeholders.

Reducing the need for customers to contact us about taste and smell of their drinking water (A02-WN)

Purpose of this measure

The performance commitment incentivises the company to reduce water quality contacts relating to appearance, taste and odour.

Benefits of this measure

This performance commitment improves the appearance, taste and odour of drinking water by incentivising the company to reduce the number of customer contacts it received in relation to the appearance of drinking water.

Measure Description

The number of times the company is contacted due to the appearance, taste and odour of drinking water, reported per 10,000 resident population.

Measure Definition

This measure counts the number of customer contacts received due to appearance, taste and odour. The number stated reflects the information reported in the Drinking Water Inspectorate Chief Inspector's Report on Drinking Water. The contacts counted use the definitions outlined in the Drinking Water Inspectorate's Information Letter 1/2006 which was issued on 6th January 2006. Should there be any future Drinking Water Inspectorate revision of the definition, our performance commitment will continue to be monitored against the criteria within information letter 1/2006 until the end of AMP7.

A contact should only be included when it is clear that the consumer's concern about their drinking water quality is clearly based on an observation (or a perception) that its appearance is other than "normal". Contacts included are those by phone, letter, email, in person, completion of web forms, messages left on a helpline and water quality contacts on social media (where the matter is associated with an address within our region and the address is obtained).

Customer contacts are only recorded if they relate to drinking water that is supplied within our region and falls into one of the categories below:

Discoloured water – brown/black/orange the colour of the water is the focus of the contact even though this may be understood by the company to be accompanied by mains deposits suspended in the water (also include here staining of laundry due to discoloured water and concerns arising from problems with tanks and boilers due to mains deposits after a burst).

Discoloured water – blue/green the colour of the water is the focus of the contact (do not include here if the colour is only mentioned as being present on deposits adherent to a tap, bath or shower tiles/tray – these should be recorded in the General Conditions category, see below).

Particles – the focus is reported as visible particles, either floating in the water or settled out in the bottom of a glass or jug (the water would be reported as clear).

White – air the contact refers to white or milky looking water and the glass test confirms that the cloudiness clears from the bottom up leaving no sediment.

White – chalk the contact refers to white or milky looking water and the glass test confirms that the cloudiness clears from the top down leaving white sediment on the bottom.

Animalcules the contact refers to seeing a creature, living or dead. Typically these will be either chironomid larvae or Ascellus and include here any contact where a specimen is subsequently provided and identified by the company's water quality scientist as an aquatic animal. (Exclude contacts about slimes adhering to a tap or water fitting – these should be recorded in the General Conditions category, see below).

General conditions the contact relates to the appearance of a deposit or slime or colour that is present on the outside of a tap or water fitting, included here are contacts about hardness deposits in kettles, staining of the sink, bath, shower cubicle, tiles etc. This category of contact deals with common consumer concerns where the water itself appears normal (it is clear and bright in appearance and free from taste and odour) and the phenomenon is arising within the household environment. A typical cause being inadequate ventilation combined with the use of aerosol dispensed household or personal products. This category should also be used for contacts relating to the quality of water in hot water systems or heating/cooling systems and humidifiers.

Some consumers may refer to more than one matter during a single contact; for example, a consumer may wish to query their bill at the same time as commenting on their drinking water quality. Companies should strive to ensure that these "multiple contacts" which deal in part with drinking water quality are recorded as a consumer contact about drinking water quality.

Measurement units

The number of customer contacts per 10,000 population, reported to one decimal place.

Mitigation/exceptions/assumptions

In line with Drinking Water Inspectorate guidance on the notification of events (2009), this measure does not include customer contacts for taste, smell or appearance where they are linked to a water quality event subject to a Drinking Water Inspectorate notification. This includes events where there is a breach of the parametric standard, which leads to deterioration in the aesthetic quality of the water supplied and resulting in customer concerns (e.g. taste/odour)'.

The customer contact must be in relation to water served by us within our region and this is validated using the contact address.

If a consumer contacts the company on more than one occasion about the same aspect of their drinking water quality this should only be recorded as a single contact if the second, or subsequent contacts, are progress seeking in nature e.g. asking for results of testing.

The original ODI definition did not state that the social media contacts were included. DWI carried out a Technical Audit of Consumer Complaints on 25 July 2017 and specifically asked about social media contacts. On 22 December 2017, we received the assessment letter, in Section 5.3 of the letter the DWI noted that UU excluded the vast majority of social media contacts. Only 17 of 3,235 in one quarterly report were captured. Whilst the auditor acknowledged that it is reasonable to exclude contacts where the address of the contact cannot be established, they recommended that the company reviews its processes to ensure that complaints from social media contacts can be more appropriately represented in the consumer contacts return. In our response on 24 January 2018 we stated that the process 'Managing Water Quality Contacts Via Social Media', Document Reference: 70650 had been issued and that this process ensures that when a customer reports a water quality concern on social media pages, the customer will either be directed to the website if there is an event in the area, or requested to provide their contact details to enable the Integrated Control Centre (ICC) to contact them or they contact the ICC directly on a telephone number given.

This contact will then be recorded on the company's customer contact system as a social media contact and included in the number of water quality contacts received.

Common performance commitment

This is an asset health measure which we have selected from Ofwat's asset health long list.

Incentive type

Financial – subject to outperformance payments and underperformance penalties.

Price control allocation

This performance commitment is allocated to the water network plus price control and will be subject to outperformance payments and underperformance penalties.

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

For reporting purposes the data reported in financial year 2020/21 aligns to the information reported to the Drinking Water Inspectorate for calendar year 2020.

This measure is aligned to the Drinking Water Inspectorate guidance and to their calendar year reporting process. When the data is normalised by 10,000 population it will be consistent with the way the measure is reported on the Discover Water dashboard.

At the final determination Ofwat revised the targets to align it with an upper quartile improvement of 34% based on companies' forecasts.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
	Calendar year 2020	Calendar year 2021	Calendar year 2022	Calendar year 2023	Calendar year 2024
Contacts per 10,000 population*	17.20	16.00	14.70	13.50	12.20

* N.B. The contacts per 10,000 population figures in the table above are based on PR19 population forecasts and are therefore subject to minor variation. The actual population figures are calculated on an annual basis and submitted to the DWI in December of the preceding year.

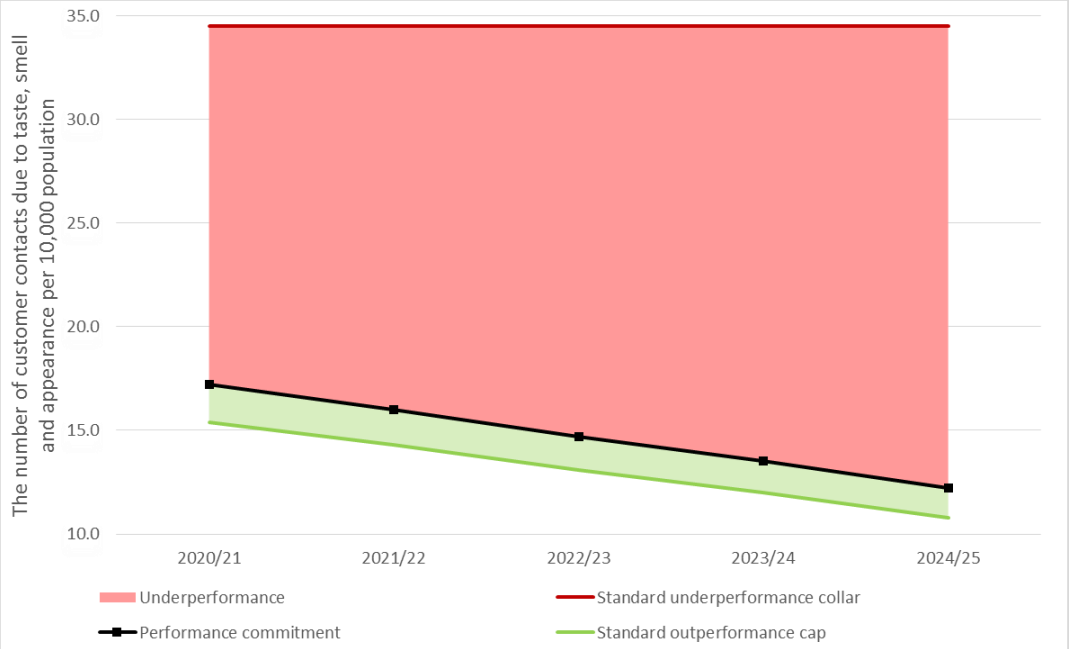


Figure 2

Deadbands, caps and collars

The measure is subject to an underperformance collar and an outperformance cap. There are no deadbands.

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
		Calendar year 2020	Calendar year 2021	Calendar year 2022	Calendar year 2023	Calendar year 2024
Underperformance collar	Number	34.5	34.5	34.5	34.5	34.5
Underperformance deadband	Number	15.4	14.3	13.1	12.0	10.8

Outcome Delivery Incentive

This measure is subject to an outperformance payment and an underperformance penalty, which will be reconciled on an in-period basis.

Underperformance and outperformance incentive rates

This measure is subject to an underperformance penalty, which has been set at £2.491m for every customer contact per 10,000 population. The outperformance payment has been set at £2.076m for every customer contact per 10,000 population.

Worked examples

Annual performance is calculated using the formula:

(A -B) x C

where:

A is the normalised number of customer contacts, as stated as our performance commitment, in any given year.

B is the normalised number of customer contacts that we actually receive in a calendar year, in relation to the taste and smell of drinking water in the North West.

C is the incentive rate associated with the measure.

Worked example:

In year one of AMP7, if we had 16.5 normalised customer contacts in relation to water quality, this would result in fewer customer contacts than the target and therefore will result in an outperformance payment:

(17.2 –16.5) x £2,491,000 = £1,743,700 outperformance

If in year one of AMP7 we had 18.2 normalised customer contacts in relation to water quality, this would result in a performance level above our target and therefore will result in an underperformance payment:

(17.2 –18.2) x £2,076,000 = -£2,076,000 underperformance

Long-term ambition

Our 2045 ambition is to ensure that:

- Customers will reduce their consumption of bottled water because they are confident in the taste and smell of their tap water.
- We will have reduced the need for customers to contact us about taste and smell, although we accept that there will remain a small number of customers who are most sensitive to the presence of chlorine. This will be achieved through a suite of improvements together with helping customers look after water in their home (recognising that some taste and smell contacts arise from issues in the customer's home) and targeted proactive customer communication.

For reporting purposes we will continue to align with reporting requirements for the Drinking Water Inspectorate. Therefore, data reported in financial year 2025/26 aligns to the information reported to the Drinking Water Inspectorate for calendar year 2025, and so on.

Number of properties with lead risk reduced (A03-WN)

Purpose of this measure

This performance commitment incentivises the company to reduce the amount of lead in drinking water.

Benefits of this measure

This performance commitment protects public health by encouraging the company to reduce the number of lead service pipes, reducing the amount of lead in drinking water.

Measure description

This measure sustainably addresses the long-term challenge of customers' exposure to lead in the north west of England by the complete removal of any lead pipework in the supplying service pipe. This includes the replacement of company owned and non-owned lead pipework from the water main connection to the point at which water quality performance is measured i.e. the first incoming tap at the customers' property.

Measure definition

The use of lead service pipes in water distribution (communication and supply pipes) stopped nearly half a century ago, but the majority of the lead pipes that were installed before this date are still in use, creating a potential risk to public health. This measure seeks to reduce the number of lead service pipes across our region and thereby sustainably reduce customer exposure to lead.

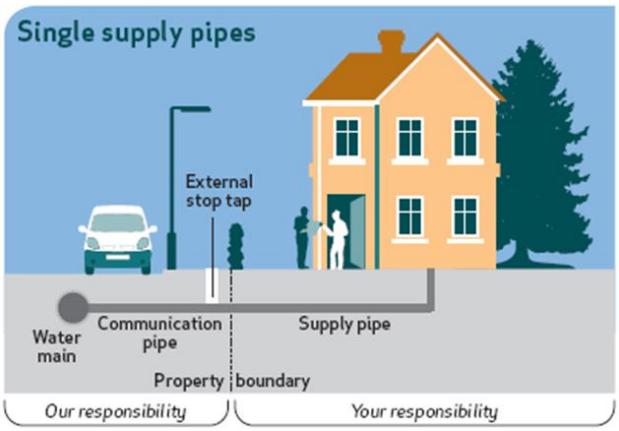


Figure 3

In counting lead replacements for this measure, we will include:

- Any property that has a full service pipe replacement from the water main to the first incoming tap, either with any new ownership model or within the existing legal framework
- Any property that has either its communication pipe or supply pipe replaced where the remainder of the service pipe is confirmed to already not be lead. We will not include any replacements where the work is funded through the lead and/or common supply pipe replacement scheme (LCSP)[1] as in these instances customers have paid for the work on the pipework that is within their ownership.

The number of replacements will be the total number of lead pipe replacements that meet the above criteria. This will be reported annually on a financial year basis.

Measure units

Number of qualifying complete lead service pipe replacements completed per year reported to zero decimal places.

Mitigation/exceptions/assumptions

The company will not include any replacements where the work is funded through the lead and/or common supply pipe replacement scheme (LCSP) as in these instances customers have paid for the work on the pipework that is within their ownership.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial - This measure is subject to both outperformance and underperformance payments, which will be reconciled annually on an in-period basis.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	**100%**	0%	0%	0%	0%	0%

Performance commitment for AMP7

The performance commitment level reflects the number of lead pipes we proposed to remove in that year. The profile has been generated based on a 12 to 18 month investigation and customer engagement project at the start of the period to confirm the appropriateness of supply pipe adoption.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Number lead service pipes replaced	0	500	800	750	750

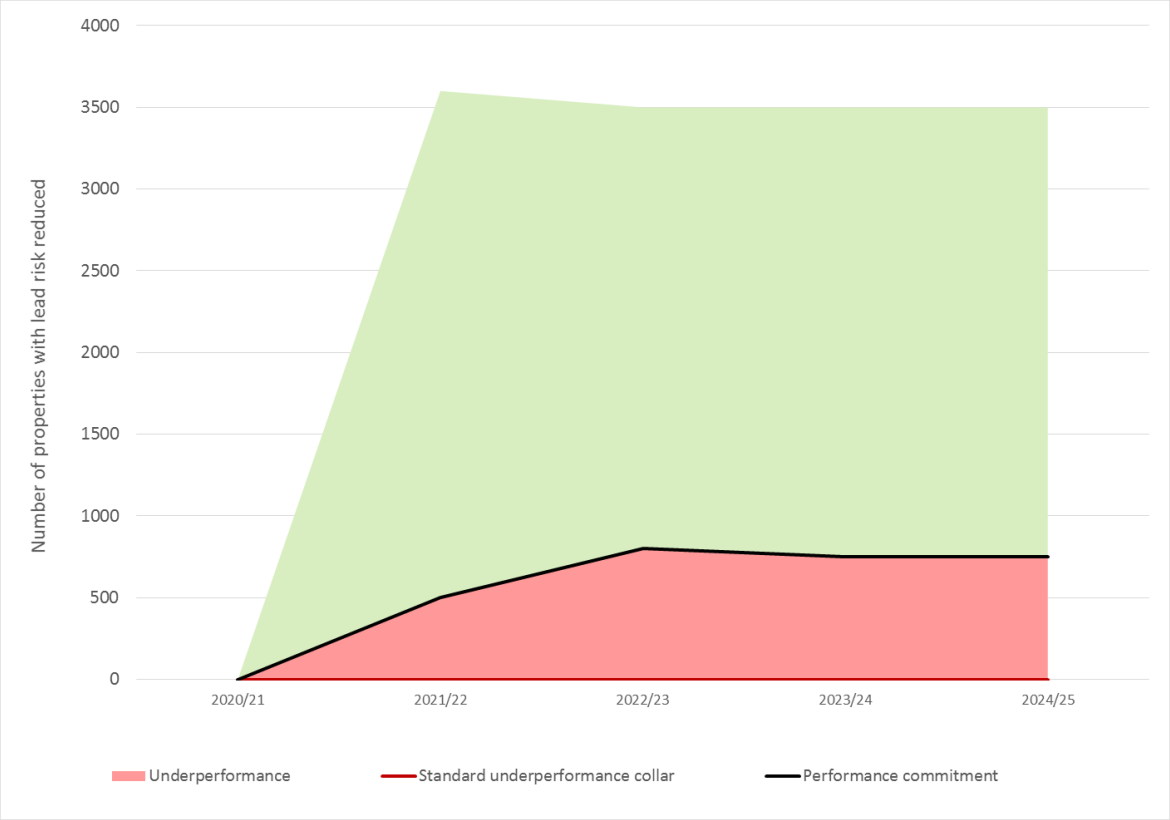


Figure 4

Deadbands, caps and collars

The outperformance collar reflects the P90 assumption of the number of pipes that we could remove in that year. The performance commitment does not allow outperformance payments in 2020/21. Performance in future years will be subject to an annual outperformance cap. As the underperformance and outperformance rates are equal this does not lead to a net impact on the company if there is outperformance in one year and underperformance in another year, unless the number of services replaced exceeds the outperformance collar.

There are no deadbands.

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Underperformance cap	Nr lead service pipes replaced	0	0	0	0	0
Outperformance collar	Nr lead service pipes replaced	0	3,600	3,500	3,500	3,500

Outcome Delivery Incentive

This measure is subject to outperformance payments, which will be reconciled annually on an in-period basis. This ODI allows us to recover £1,120 per lead service pipe replacement for every output delivered above the performance commitment.

Outperformance/underperformance incentive rate

We are proposing to equally share the outperformance/underperformance opportunity/risk with customers and have therefore determined that the incentive rate should be the equivalent of 50% of the average project costs, hence an AMP7 incentive rate of £1,120 per full lead service pipe replaced. This payment also recognises the grant provided under the new Lead Replacement Scheme

Worked examples

If in 2021/22 we deliver 550 lead replacements against a target of 500, this performance is above (i.e. better than) our target and therefore will result in an outperformance payment as set out below:

Outperformance payment = (actual performance – target performance) x incentive rate
(550 – 500) x £1,120 = £56,000 outperformance

If in 2022/23 we deliver 780 lead replacements against a target of 800, this performance is below our target and therefore will result in an underperformance payment as set out below:

Underperformance payment = (target performance – actual performance) x incentive rate
(800 – 780) x -£1,120 = -£22,400 underperformance

Long-term ambition

Our long-term ambition is to work towards a zero lead pipe water distribution network. Our ambitious time line is to have replaced all lead pipe work in the supply system (up to the first incoming tap) within 50 years of the start of AMP7.

[1] – In April 2021 the LCSP scheme was replaced by the Lead Replacement Scheme. The new scheme provides a grant to the customer which helps towards the cost of replacing the lead pipe in their ownership. We will include these replacements towards our target.

Helping customers look after water in their home (A04-WN)

Purpose of this measure

This performance commitment incentivises the company to deliver an awareness and support programme to its customers focused on the use of water in the home. Water in the home is inclusive of water usage and water quality experienced in the home and/or the personal effect a person can have on water efficiency/ quality.

Benefits on this measure

This performance commitment will increase customer awareness of the factors that can affect water quality and water efficiency in their home. This should lead to improved public health and reduced water demand.

Measure Description

The measure monitors the increased awareness of customers to their impact on both water quality and water efficiency within their home, in terms of the percentage increase from the 2018 baseline. The baselines was set on the responses to two questions:

Do you recall seeing or hearing anything about the following in recent months:

- Water Efficiency?

Do you recall seeing or hearing anything about the following in recent months:

- Water Quality?

The response rates were 22% and 17% respectively which when combined give an average baseline of 19.5% (22 + 17 = 39 / 2 = 19.5).

Measure Definition

Throughout AMP7 the same questions will be used, with surveys conducted at least annually, drawing from a statistically representative sample of domestic customers (in terms of age, gender, region, metered/ unmetered and urban/suburban) with a minimum sample of 1,000 customers.

The baseline is based on a survey carried out in 2018. This will be repeated at least annually, using the same set of questions and drawing from a statistically representative sample of domestic customers (in terms of age, gender, region, metered/unmetered and urban/suburban) with a minimum sample of 1,000 customers within the year.

Performance in each year will be calculated as the percentage awareness from the annual survey less the percentage awareness from the 2018 baseline survey.

Measurement units

Measured annually as the percentage increase in customer awareness to one decimal place.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Reputational.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
NA	100%	NA	NA	NA	NA	Na

Performance commitment (AMP7)

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Performance commitment	Percentage	2%	4%	6%	8%	10%

Deadbands, caps and collars

Not applicable.

Outcome Delivery Incentive

Not applicable.

Outperformance/underperformance incentive rate

Incentive type	Incentive rate (£m/unit)
Underperformance payment	-0.073
Outperformance payment	0.073

The incentive rate is £0.073m per percentage change in awareness from the baseline position reported to two decimal place above or below the performance commitment.

Worked examples

If our performance in 2020/21 results in an average combined response of 26.5% then this performance is above or better than the baseline. Our target is to be 2% above the baseline and therefore our overall target is 21.5% (19.5% + 2%). This will result in an outperformance payment as set out below: -

Outperformance payment = (actual performance-target performance) x incentive rate

(26.5 – 21.5) x £73,000 = £365000

If our performance in 2020/21 results in an average combined response of 17.5% then this performance is below or worse than the baseline which will result in an underperformance payment as set out below: -

Underperformance payment = (target performance - actual performance) x incentive rate

(19.5 – 17.5) x -£73000 = -£146,000

Long-term ambition

We are seeking a cultural change for the way people value water and understand the potential impact their home plumbing and fittings can have upon the quality of their water. We hope to see a shift in awareness of the population of the North West that is sustainable and passed down through the generations. However, there may be a need to revise the format of this measure in the long term, to ensure key messages continue to be delivered in innovative ways and are kept ”fresh”. It may be necessary to revise our long-term aspirations and develop entirely different approaches to ensure continued success in this area.

Reducing discolouration from the Vyrnwy treated water aqueduct (A05-WN)

Purpose of this measure

This performance commitment is designed to reduce discolouration events in drinking water supplies by measuring the length of the Vyrnwy treated water aqueduct that has been cleaned, relined or replaced.

Benefits of this measure

This performance commitment will reduce the number of discolouration events experienced by customers and improve the quality and appearance of drinking water.

Measure Description

This measure records the length of the Vyrnwy treated water aqueduct cleaned, relined or replaced if required by the Drinking Water Inspectorate (DWI) to meet the target for reduction in water discolouration.

Measure Definition

The 240km Vyrnwy treated water aqueduct supplies up to 210 Ml/d from Oswestry water treatment works on the Welsh border, to a population of over one million customers predominantly in Cheshire and Merseyside.

We have a regulatory obligation with the DWI to reduce the number of discolouration customer contacts. Cleaning of the Vyrnwy aqueduct started in the 2010-2015 period and over 40% of the aqueduct system was completed. Following a successful trial of enhanced manganese removal at Huntington water treatment works, leading directly to reduced discolouration in the zones directly supplied by the treatment works, we paused the Vyrnwy lining project to reassess the benefit of cleaning the remainder of the aqueduct and ensure that customer money is spent prudently.

An alternative solution was agreed with the DWI in 2013, to address the source of the discolouration at Oswestry water treatment works through the inclusion of enhanced manganese removal. The objective of this is to address the discolouration problem permanently at a lower cost. In addition the project would improve bacteriological compliance and treatment capability, addressing the long-term deterioration in raw water colour and dissolved organic carbon.

The AMP7 performance target agreed with the DWI included achieving a 50% reduction in discolouration customer contacts, to be assessed in a 12 month period following completion of the Oswestry water treatment works and Vyrnwy automation and control projects. This reduction applies to those water supply zones with over 50% supply from the Vyrnwy aqueduct. This will be measured on a zone by zone basis compared with the original baseline year of 2001.

The outcome delivery incentive associated with this measure will allow costs to be recovered, if the scheme is required, based upon a unit rate per kilometre. The maximum length of the Vyrnwy treated water aqueduct to be cleaned, relined or replaced will be the 139km of the aqueduct which has not yet been cleaned.

Measurement units

Measured as the number of kilometres of the Vyrnwy treated water aqueduct cleaned, relined or replaced reported to two decimal places.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance payments only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Km	0.00	0.00	0.00	0.00	0.00

This target assumes there is no requirement to undertake any cleaning/relining, so the commitment level is set at zero. As our target is zero and there is no expenditure for this project in our business plan, this measure is subject to outperformance payments only, which will be reconciled annually on an in-period basis.

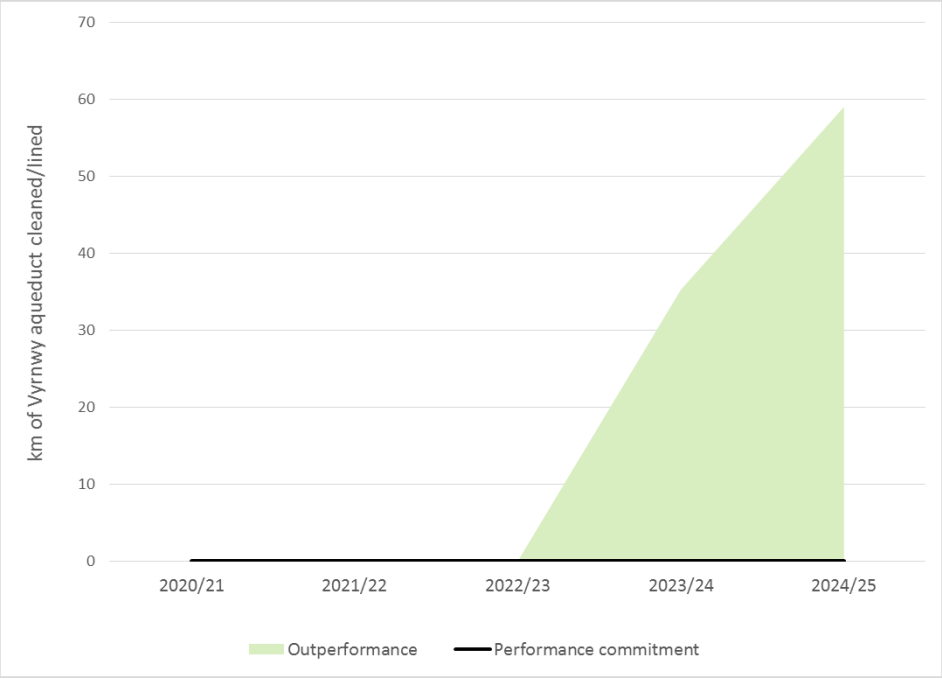


Figure 5

Deadbands, caps and collars

The measure has an annual outperformance cap, which protects customers by constraining the revenue that can be recovered through the mechanism in each year. The cap is set at zero for the

first three years meaning early delivery will not result in a reward either in the year the output is delivered or subsequent years. In year four we can recover costs for cleaning/relining 35.25km of the Vyrnwy LDTM and in year 5 for a further 58.99km.

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Outperformance cap	Km	0.00	0.00	0.00	35.25	58.99

Outcome Delivery Incentive

This measure is subject to outperformance payments, which will be reconciled annually on an in-period basis. This ODI allows us to recover £548,000 per km of aqueduct cleaned, lined or replaced each year up to the outperformance cap.

Outperformance incentive rate

The incentive rate has been valued based on the anticipated project costs as a unit rate per kilometre of aqueduct cleaned.

The total project cost for cleaning/lining the remaining sections of the aqueduct have been estimated at £152,250,539. The incentive rate is £0.548m per km of aqueduct cleaned/lined, which has been calculated as 50% of the total project cost divided by the total length (139km). The totex sharing mechanism should recover the remaining 50% of the costs. Therefore between the two mechanisms all of the planned costs would have been recoverable.

Incentive Rate = (Total project cost (£)/Total project scope (km))/2

= (£152,250,539/139)/2 = £547,664 rounded to £548,000

The required scope of work for the whole project comprises 139km of cleaning/lining across all three Vyrnwy 42” mains over two AMPs.

Scope	Length
Malpas to Bulkeley L1, L2 and L3	25.5km
Norton to Prescott L1 and L2 (including pressure jetting Mersey crossings)	30.4km
Bulkeley to Cotebrook L1, L2 and L3	30.6km
Cotebrook to Weaver L1, L2 and L3	36.3km
Weaver to Norton L1, L2 and L3	16.2km
Total	139km

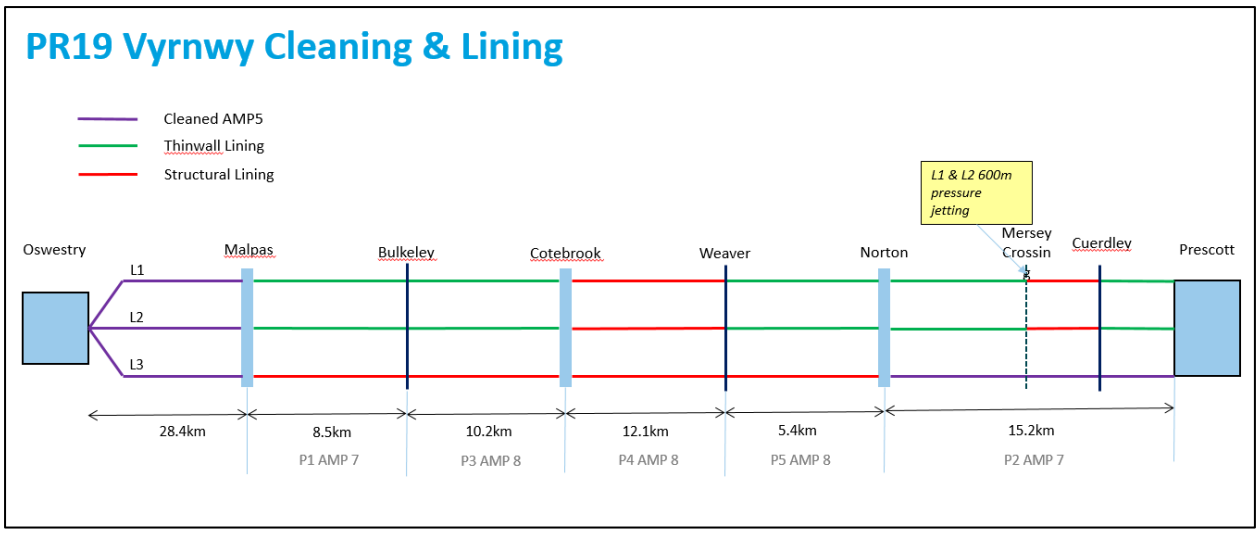


Figure 6

Worked examples

Outperformance payments for this measure will be calculated from the total length delivered in year.

If we deliver 30km of clean/relined aqueduct in the year 2023/24, this performance is higher (i.e. better than) our target of zero but lower than the outperformance cap and therefore will result in an outperformance payment as set out below: -

Outperformance payment = (actual performance – target performance) x incentive rate

(30) x £548,000 = £16,440,000

If we deliver 10km of clean aqueduct in the year 2022/23 this performance is above the outperformance cap of zero and as such would not generate any outperformance payment.

Long-term ambition

In September 2020 the DWI confirmed that work on cleaning/relining would need to occur during AMP7. We currently expect that this will extend to 58.99km and we are in the process of planning delivery of this work.

Outcome B – You have a reliable supply of water now and in the future

Customers want to rely on us to provide enough water resources to meet our current and future needs. We want to improve supply reliability, reducing both short-term interruptions and the risk of longer-term interruptions. We are targeting a reduction in leakage and encouraging water efficiency, which research has shown to be key priorities for customers.

Leakage (B01-WN)

Purpose of this measure

This performance commitment is designed to incentivise companies to reduce leakage.

Benefits of this measure

The benefits of reduced leakage are improved water resources resilience, improved supply-demand balance position, reduced need for water abstraction and increased supply network resilience.

Measure description

In line with Ofwat's PR19 guidance, we will present the percentage reduction from the three-year average 2019/20 baseline (447.1 Ml/d for leakage) and the three-year average in megalitres per day (Ml/d).

Measure definition

Leakage is presented as the sum of distribution system leakage, including service reservoir losses and trunk main leakage, and customer supply pipe leakage. It is reported as the annual arithmetic mean (referred to as 'average' in the guidance) daily leakage expressed in megalitres per day (Ml/d).

This measure will be expressed as a percentage change relative to the 2019/20 baseline position in accordance with the common measure definition https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-leakage.pdf. A reduction in leakage is expressed as a positive figure and an increase is shown as a negative figure. Baseline total leakage is calculated as a three-year average of annual values for 2017/18, 2018/19 and 2019/20 and expressed in megalitres per day (Ml/d).

Annual leakage (Ml/d)			3 year average Baseline leakage
2017/18	2018/19	2019/20	
449.4	452.0	439.8	447.1

Measurement units

Leakage is measured in megalitres per day (Ml/d) and reported to one decimal place on a three-year average basis. The performance commitment is based on a percentage reduction (%) from the baseline based on the three year average.

Mitigation/exceptions

In accordance with the common methodology, no elements of the water balance are excluded from the maximum likelihood estimate.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Description	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Percentage reduction from baseline (%)	0.0	0.8	1.9	3.7	6.6	10.8
Three-year average leakage (Ml/d)	447.1	443.5	438.6	430.6	417.6	398.8

In our PR19 business plan and our Water Resources Management Plan 2019 (WRMP19), we committed to a 15% reduction in annual leakage over AMP7 and a 50% leakage reduction by 2050. Our original proposals for the leakage base year were based upon (AMP6) leakage values for 2015/16 (451.9), 2016/17 (439.2) and 2017/18 (453.5) and produced a three year average figure of 448.2 Ml/d. The baseline was updated through the price review process to reflect actual performance in 2017/18 (449.4), 2018/19 (452.0) and 2019/20 (439.8) giving a three year average baseline of 447.1 Ml/d. We managed to reduce leakage levels lower than originally forecast in 2018/19 and 2019/20 meaning we start the AMP7 period in a better position.

The percentage reduction from baseline required to deliver our performance commitment is therefore lower than that originally forecast in the WRMP19. The performance commitment requires us to reduce three year average leakage by 10.8% between 2019/20 and 2024/25, which is equivalent to a 13.4% reduction in annual performance over the same period. However we are aiming to outperform this performance commitment and are targeting a 15 per cent reduction in annual leakage over the 2020–25 period to further protect the reliability of service and water resources.

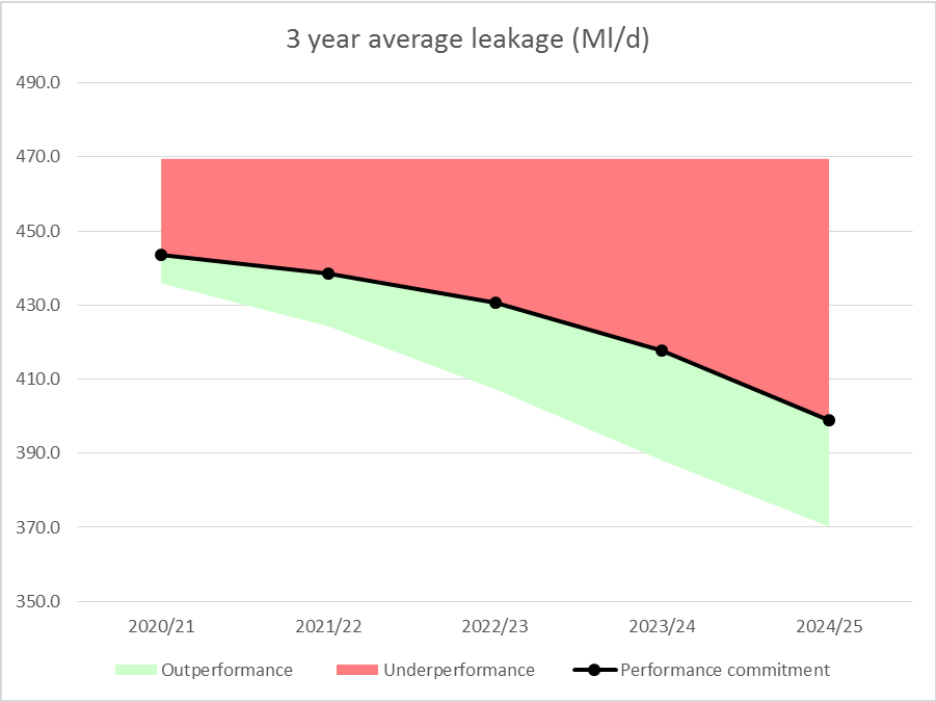


Figure 7

Deadbands, caps and collars

	Units	2020-21	2021-22	2022-23	2023-24	2024-25
Underperformance collar	% reduction from three-year average	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)
Outperformance cap	% reduction from three-year average	2.5	5.1	8.9	13.2	17.2

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance payments and will be reconciled annually on an in-year basis.

Outperformance/underperformance incentive rate

This measure is subject to an underperformance penalty, which has been set at £175,000 per Ml/d above the performance commitment. The outperformance payment has been set at £146,000 per Ml/d below the performance commitment.

Worked examples

Example 1: Success in delivering outperformance

Three-year average leakage target in 2022/23 = 430.6 Ml/d

Three-year average leakage performance in 2022/23 = 420 Ml/d

430.6 – 420 = 10.6 below performance commitment

Outperformance payment = 10.6 x £146,000 = £1,547,600

Example 2: Failure to achieve performance commitment

Three-year average leakage target in 2022/23 = 430.6 Ml/d

Three-year average leakage performance in 2022/23 = 450 Ml/d

450 – 430.6 = 19.4 above performance commitment

Underperformance payment = 19.4 x -£175,000 = -£3,395,000

Long-term ambition

Climate change and the resultant shifts in weather patterns have the potential to significantly impact our operations and the broader environment as hazards such as droughts and heatwaves become more frequent and more intense. Ensuring a reliable service in the face of a growing population, changing climate and increasing expectations of service requires integrated long-term thinking and targeting investment to ensure both short and longer-term reliability. We have first-hand experience of the impacts of extreme weather events on our operations and customers – during 2018 we experienced two weather extremes, with a deep freeze followed by rapid thaw in the early part of the year, and then extremely hot, dry weather coupled with significantly increased demand for water over the summer. Reducing leakage is a key part of securing sustainable supplies for the future. We are targeting a 15 per cent reduction in leakage over the 2020–25 period to further protect the reliability of service and water resources.

We maintain leakage levels well below the sustainable economic level of leakage. This means that any further reductions will require appropriate investment in order to deliver our performance commitment. This cost has the potential to impact customer bills or impact on our ability to address customers' other priorities, so we need to ensure that all changes we make are overall affordable to customers. With no leakage reduction, we are currently forecasting a small deficit in our Strategic Resource Zone supply-demand balance close to the end of the planning horizon to 2045, therefore, we consider it appropriate to forecast longer term reductions in leakage and set longer term goals and ambitions. We expect that technology and innovation over time will enable this, however the long term ambitions can be revisited at future plans. In our Water Resources Management Plan 2019 we said we would reduce leakage by just over 40% by 2045. As part of regional planning with Water Resources West (WRW) and in developing our WRMP24, we are looking to align to the National Framework for Water Resources expectation to "halve leakage rates by 2050".

This long term ambition will also have to consider and accommodate external factors beyond the company's control, such as climate change, population growth and changes to the industry & customer behaviour as a result of the COVID-19 pandemic. We also need to appreciate the influence of asset deterioration over the longer term and ensure that we adopt the correct delivery strategies maintain service levels and operational resilience. As our understanding of the influence of these factors evolves, our ambition may need to adapt, but we will always strive to achieve the best service outputs for customer and ensure the environment is protected and enhanced.

Mains repairs (B02-WN)

Purpose of this measure

This performance commitment is designed to incentivise the company to appropriately maintain and improve the asset health of the infrastructure and below ground water mains network and demonstrate its commitment to its asset stewardship responsibility.

Benefits of this measure

This performance commitment helps to ensure that the overall asset health of the water mains network is maintained and improved for the benefit of current and future generations.

Measure description

Mains repairs is reported as the number of mains repairs per thousand kilometres of the entire water main network (excluding communication and supply pipes).

Our definition for mains repairs per 1,000km is consistent with reporting guidance for PR19 published on 27 March 2018. https://www.ofwat.gov.uk/publication/reporting-guidance-mains-repairs-per-1000km/

Measure definition

Number of mains bursts per thousand kilometres of total length of mains. Mains bursts include all physical repair work to mains from which water is lost. This is attributable to pipes, joints or joint material failures or movement, or caused or deemed to be caused by conditions or original pipe laying or subsequent changes in ground conditions (such as changes to a road formation, loading, etc. where the costs of repair cannot be recovered from a third party). Any repair work undertaken on the water mains (i.e. all pipes conveying treated water around the distribution point but not including communication pipes or supply pipes) shall be included.

Any work that is not undertaken on the mains e.g. solely on a ferrule, hydrant, valve and clamp associated with the ancillary which does not involve a repair on the main shall be excluded. Clamps used to repair the main shall be included. All incidents should be included which involve over-pressure or pressure cycling, and surge failures, etc., which reflect the system operating conditions, even where these failures are accidental rather than associated with weaknesses in pipe condition. Once the main is recharged, and customers are back in supply, then if there is a new incident it is counted as a separate repair. If there is a secondary burst not at the point at where the repair took place during the recharge, then it should be captured as a separate reported burst. Self-laid mains, or other mains adopted should be treated as part of the incumbents' network from the time of adoption. If a developer has a burst on its main prior to adoption this is not included within the metric.

Total mains length will be calculated annually and as per the regulatory reporting guidelines for total mains length. The length of main is the length of all pipes conveying treated water around the distribution point but not including communication pipes or supply pipes.

The company is also required to report mains repaired proactively and reactively separately. The phrase 'proactive mains repair' denotes a mains where the need for a repair was identified by the company. The phrase 'reactive mains repair' denotes a mains where the need for a repair was reported to the company by a customer or third party.

Measurement units

Number of qualifying mains repairs per 1,000km of pipe, reported to three decimal places.

Mitigation/exceptions/assumptions

The default position is that the water company manages the risk of mains bursts and there are no exclusions. The cause of the mains burst is not relevant to the calculation of the reported figure, with the following exceptions and points of clarification:

- Any work that is not undertaken on the main e.g. solely on a ferrule, hydrant or valve and clamps associated with these ancillaries, which does not involve a repair on the main shall be excluded. Clamps used to repair the main shall be included.
- All third party damage should be excluded where costs are potentially (rather than actually) recovered from a third party. For a third party cost to be deemed as potentially recoverable we require the following information associated with the event;
    1. Date and time of the event.
    2. Supporting evidence / admission of responsibility.
    3. A registered company address for the 3rd party.
- Self-laid mains, or other mains adopted should be treated as part of the incumbents' network from the time of adoption. If a developer has a burst on its main prior to adoption this is not included within the metric.

Common performance commitment

This is a common performance commitment defined by Ofwat for AMP7.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Number of mains repairs per 1,000km of main	119.9	118.2	116.6	114.9	113.3

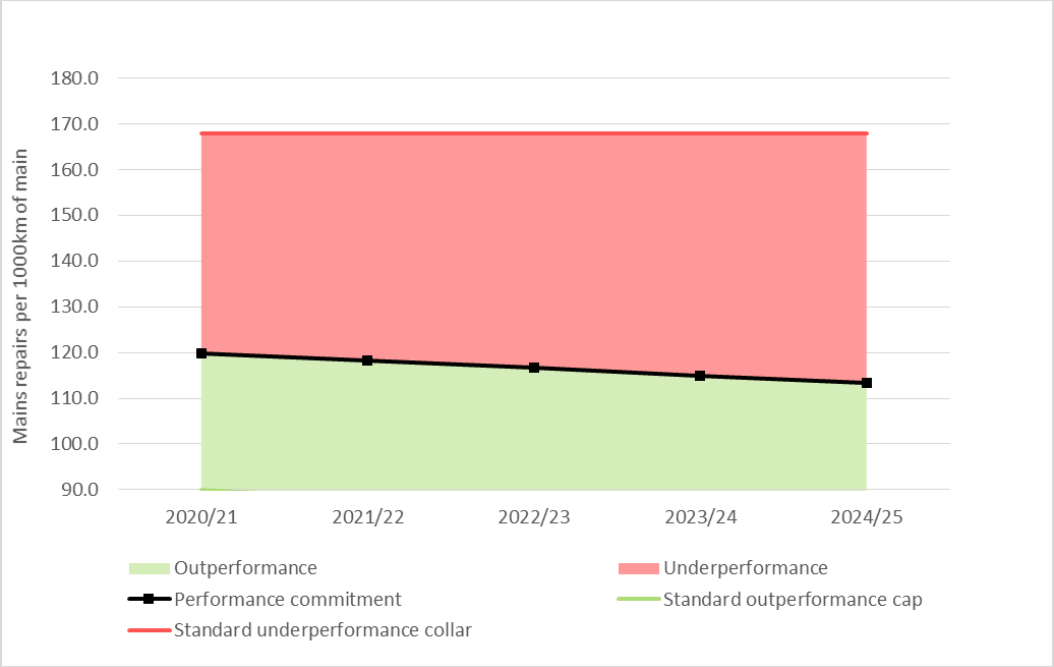


Figure 8

Deadbands, caps and collars

	Units	2020-21	2021-22	2022-23	2023-24	2024-25
Underperformance collar	Number of mains repairs per 1,000km of main	167.9	167.9	167.9	167.9	167.9
Outperformance cap	Number of mains repairs per 1,000km of main	89.9	88.3	86.6	84.9	83.3

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

This measure is subject to an underperformance penalty, which has been set at £235,000 for each burst/1000km over the performance commitment. The outperformance payment has been set at £132,000 for each burst/1000km under the performance commitment.

Worked examples

In 2020/21 we complete 4,333 mains repairs and the total length of mains is 42,262. The number of mains repairs per 1000km of mains is 102.0.

Outperformance payment = (target performance – actual performance) x incentive rate

(119.9-102.0)) x £132,000 = £2,362,800

In 2020/21 we completed 7135 mains repairs and the total length of mains is 42262. The number of mains repairs per 1000km of mains is 168.0. This is above the underperformance cap so the underperformance penalty is capped.

Underperformance payment = (underperformance cap – target performance) x incentive rate

(167.9- 119.9) x -£235,000 = -£28,176,332

Long-term ambition

Our long term ambition is to maintain a level of asset health, as measured by the numbers of mains repairs that we conduct that meets customer's service priorities for leakage, supply interruptions, and water pressure whilst representing the cheapest whole life costs to the business and customers.

The target of long term stable asset health for mains should not be viewed in isolation. Rather the service delivered via the water mains in terms of a reliable supply of water, the water pressure delivered, and reduced water leakage should be viewed holistically. The frequency of mains repairs will increase if any one of these service areas is targeted for improvement. Our long term ambition aligns to the volume of mains repairs we expect to have to complete in order to meet our long term leakage reduction targets. We plan to offset the increase in proactive mains repairs associated with more intensive leakage detection through innovation and a reduction in reactive mains repairs, but there remains uncertainty associated with these new technologies and approaches.

This long term ambition will also have to consider and accommodate external factors beyond the company's control, such as climate change, population growth and changes to the industry & customer behaviour as a result of the COVID-19 pandemic. We also need to appreciate the influence of asset deterioration over the longer term and ensure that we adopt the correct delivery strategies to maintain service levels and operational resilience. As our understanding of the influence of these factors evolves, our ambition may need to adapt, but we will always strive to achieve the best service outputs for customer and ensure the environment is protected and enhanced.

Interruptions to supply (B03-WN)

Purpose of this measure

This performance commitment is designed to incentivise companies to minimise the number and duration of supply interruptions.

Benefits of this measure

Reducing the number and duration of interruptions events improves the reliability of supply and reduces negative social and public health impacts on customers. Supply interruptions is the single biggest reason customers contact us, improving performance against this measure contributes to increasing overall customer satisfaction.

Measure description

This measure incentivises the successful delivery of an improved water supply interruption performance, as measured by the average number of minutes that each connected customer experienced a supply interruption per annum. This is an industry common measure that is an evolution of our AMP6 measure for average minutes lost.

Our definition for supply interruptions is consistent with reporting guidance for PR19 published on 27 March 2018. https://www.ofwat.gov.uk/publication/reporting-guidance-supply-interruptions/

Measure definition

The measure reports the mean duration customers are without a water supply in a given reporting year, against a target set through an assessment of the industry upper quartile performance for the same year.

Calculation:

$$Mean\ interruption\ time \sum\left(\frac{(P * iT)}{cP}\right)$$

Where: -

P = Number of properties affected by the interruption (may be in phases if partial restoration is accomplished)

iT = Total duration of the event, provided that it is ≥ =3 hours in duration, in minutes (MM:SS). Guidance requires caution to be used when multiplying time, the methodology states that it may be necessary to convert time to a decimal for the avoidance of doubt. For example 02:30 (time) would be converted to 2.5 (decimal) minutes

NB – P * iT is calculated for each event

cP = Total connected properties: Properties shall include billed mains pressure fed household and non-household properties connected to the distribution system on 31st March in the reporting year. This includes properties that are connected, but not billed (for example temporarily unoccupied), but should exclude properties which have been permanently disconnected. A group of properties supplied by a single connection shall be considered as several properties. They should only be considered as a single property if a single bill covers the whole property. The total connected properties figure shall be those connected at the end of the report year. Cattle troughs shall not be included.

Supply interruptions are defined as when properties are without a continuous supply of water. The property shall be considered as without a supply when water is lost from the first cold water tap –

taken as being operationally equivalent to ≤3m pressure at the main (adjusted for any difference in ground or property level). This can be inferred from local logging, network modelling or a customer contact indicating a loss of supply which was caused by the company operation and has not been demonstrably restored. Multiple-storey buildings shall be considered on a case-by-case and floor by floor basis, with properties on a particular floor being considered as receiving the same pressure. A supply interruption is determined to be over once the pressure in the adjacent supplying water main reaches 3m. This is also the threshold for resetting the interruption clock and starting a second interruption should a temporary restoration of supplies be achieved. Unless positive evidence can be obtained that water supply has been restored to the first incoming tap (i.e. customer contact). This measure includes all interruptions > 3 hours (180 minutes) in duration caused by the failure of company assets.

Duration is defined as the length of time for which properties are without a continuous supply of water. The duration shall only be considered in the calculation of the metric where the duration is 3 hours or greater.

Start time is when water is lost from the first cold water tap at a property – taken as being operationally equivalent to ≤3m pressure at the main (adjusted for any difference in ground or property level). In the event of applicable telemetry data or logging being unavailable, the time should be determined from the earliest of:

- As advised by "no water" contact from customer (where not due to a customer side issue);
- Indications from flow or pressure monitoring to infer a change in supply; or
- Verified modelled data (calibrated, maintained, reflective of the network at the time of the incident and validated with contemporaneous flow and/or pressure data). The company shall gain confirmation by consulting complainants (if any) and/or customers at high points on the system.

Stop time is when water is restored to the first cold water tap at a property – taken as being operational equivalent to >3m head of pressure at the main. In the event of pressure logging being unavailable, the time should be determined from the latest of:

- As advised by notification from customer;
- Indications from flow or pressure monitoring to indicate return to normal supply conditions; or
- Verified modelled data (calibrated, maintained, reflective of the network at the time of the incident and validated with contemporaneous flow and/or pressure data). It is the responsibility of the company to demonstrate that supply conditions have been restored and available to all previously affected customers from the time determined from the above.

In the absence of physical evidence, the company shall gain confirmation by consulting complainants (if any) and/or customers at high points on the system. The company shall apply the precautionary principle, using the start and finish times and the properties affected that will give the highest supply interruption value in the event of uncorroborated or conflicting data.

Property counts shall use the best available information. This should be from the GIS, but paper records and DMA or similar data can be used where recently connected properties have not yet been input to the GIS. Properties shall count as having lost supply whether or not occupied. Properties permanently disconnected will be excluded from the count. Attention should be paid to the incremental nature of supply loss. For example, for a burst when supply is lost progressively

across an affected area, the time/properties affected relationship should be established. Where the loss is gradual, the supply interruption should be considered incrementally.

Multiple interruptions - Properties which are affected by more than one interruption during the report year should be reported separately for each interruption. This means, for example, that a property affected by three supply interruptions would be reported three times, once for each interruption. A temporary restoration of ≥ 1 hour (60 minutes) must be achieved for the event clock to be re-set and a second event started.

Measurement units

Measured in minutes and seconds per connected property per year (hours:minutes:seconds/prop/yr).

Mitigation/exceptions/assumptions

The default position is that the water company manages the risk of supply interruptions and there are no exclusions. This measure covers planned and unplanned interruptions. The cause of the interruption is not relevant to the calculation of the reported figure. That is, asset failure caused by third parties would be treated the same as the failure of the company's assets and planned or unplanned interruptions are the same. Companies may make a representation to Ofwat for an exception to be granted on the basis of a civil emergency under the Civil Contingencies Act 2004, where the supply interruption is not the cause of the emergency.

Common performance commitment

This is a common performance commitment defined by Ofwat for AMP7.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Average minutes and seconds lost per customer per year (mm:ss)	06:30	06:08	05:45	05:23	05:00

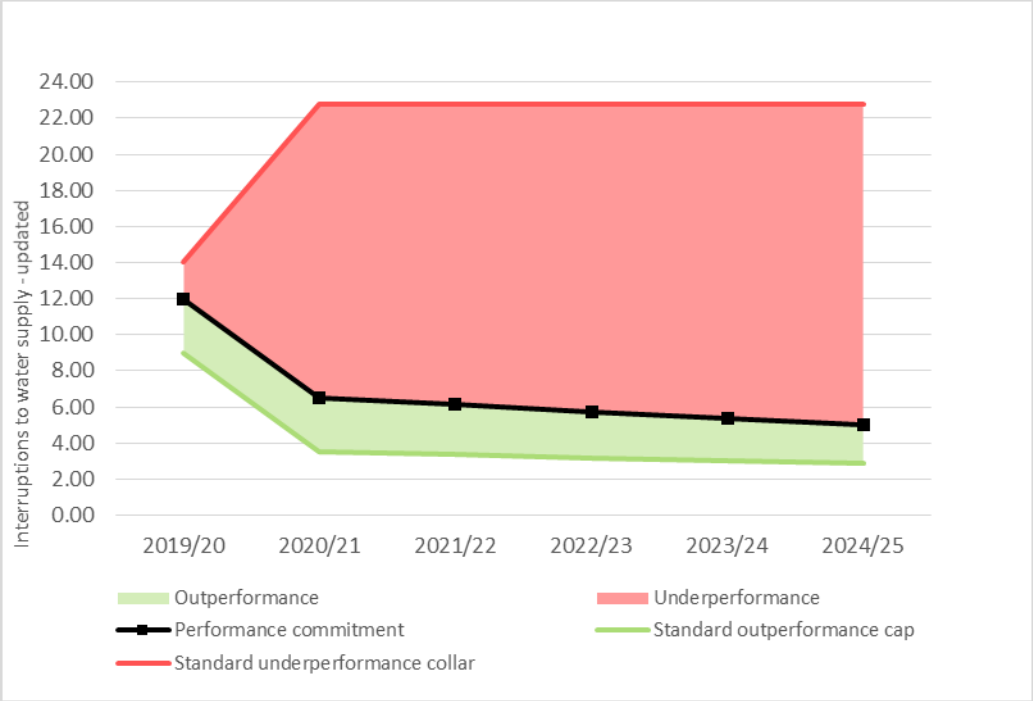


Figure 9

Deadbands, caps and collars

	Units	2020/21	2021/22	2022/23	2023/24	2024/25
Underperformance collar	% reduction from three-year average	22:45	22:45	22:45	22:45	22:45
Outperformance cap	% reduction from three-year average	03:30	03:21	03:11	03:02	02:54

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

This measure is subject to an underperformance penalty, which has been set at £936,000 for each average decimal minute lost over the performance commitment. The outperformance payment has been set at £936,000 for each average decimal minute lost under the performance commitment.

Worked examples

Below are some examples of interruption events and their time impacts.

Event	*P* (nr)	Duration of event (hh:mm:ss)	*iT* (minutes)	Calculation	*P * iT* (minutes)	Comments
1	150	02:59:00	0	=150*0	0	Event less than 3 hours so not included
2	2	11:30:00	690	=2*690	1,380	Isolate interruption for long time period, included in calculation
3	1,500	03:40:00	220	=1,500*220	330,000	Interruption duration > 3hours, so included in calculation

4	200	03:00:00	180	=200*180	36,000	Interruption duration = 3hours, so included in calculation.
5a	4,250	05:45:00	345	=4,250*345	1,466,250	Interruption of total 5000 properties with a partial restoration of water supplies to 4250 properties after 05:45:00. Remaining properties off supply for total of 07:15:00. Whilst this is the same interruption root cause due to the partial restoration of supplies the events have to be treated as separate for the calculation
5b	750	07:15:00	435	=750*435	326,250	
6a	7000	02:45:00	0	=7000*0	0	Interruption of total 7000 properties with a full restoration of supplies for > 1 hour after 02:45:00 of the incident start time. Followed by a second interruption (after >1 hour of the first interruption ending) affecting the same 7000 properties to allow for repairs to be completed
6b	7000	01:55:00	0	=7000*0	0	

Based on the above calculation and assuming that there are a total of 1,000,000 connected properties in the supply network the performance given the above example events would be;

$$Mean\ interruption\ time \sum \left(\frac{1{,}380 + 330{,}000 + 36{,}000 + 1{,}466{,}250 + 326{,}250}{1{,}000{,}000}\right)$$

$$Mean\ interruption\ time = 2.1598\ minutes\ (decimal)\ /\ \text{property / year}$$

$$\boldsymbol{Mean\ interruption\ time = 02{:}10\ (mm{:}ss)\ /\ \text{property / year}}$$

It is important to note that for calculation purposes all times should be recorded in decimal minutes, as per the output of the calculation above. This is to avoid complications with having to perform calculations involving time, which can easily lead to errors. Only after calculation of the outcome delivery incentive impact should the decimal time be converted to minutes and seconds for presentation purposes.

Worked examples

In 2020/21 average minutes lost is 02:10 which is 2.17 decimal minutes. The performance commitment is 06:30 which is 6.50 decimal minutes. This is below the outperformance cap so the outperformance reward is capped. The outperformance cap is 03:30 which is 3.5 in decimal minutes.

Outperformance payment = (performance commitment – outperformance cap) x incentive rate

(6.5-3.5)) x £936,000 = £2,808,000

In 2020/21 average minutes lost is 07:45 which is 7.75 decimal minutes. The performance commitment is 06:30 which is 6.50 decimal minutes.

Underperformance payment = (performance commitment – actual performance) x incentive rate

(7.75-6.5) x -£936,000 = -£1,170,000

Long-term ambition

Our long term ambition is minimise the time that a customer should experience a supply interruption of greater than 3 hours. We aim to achieve a performance of 03:40 (minutes:seconds) by the end of 2045.

During AMP6 we have started along this journey with the development of supply interruption risk based mains investment appraisal tools and through investment in a 24/7 detection and response team working within our Integrated Control Centre enabling intelligence lead responses to proactively detected supply interruption events. This is supported by an expanding fleet of Alternative Supply Vehicles (ASVs) and other innovative techniques helping to minimise customer impact. We have already started see improvements in performance associated with these new ways of working. Beyond AMP8 we have profiled an improving performance trend that meets our long term ambition of no customer supply interruptions by 2040.

This long term ambition will also have to consider and accommodate external factors beyond the company's control, such as climate change, population growth and changes to the industry & customer behaviour as a result of the COVID-19 pandemic. We also need to appreciate the influence of asset deterioration over the longer term and ensure that we adopt the correct delivery strategies maintain service levels and operational resilience. As our understanding of the influence of these factors evolves, our ambition may need to adapt, but we will always strive to achieve the best service outputs for customers and ensure the environment is protected and enhanced.

Unplanned outage (B04-CF)

Purpose of this measure

This performance commitment is designed to incentivise the company to appropriately maintain and improve the asset health of the non-infrastructure or above-ground water assets and demonstrate its commitment to its asset stewardship responsibilities.

Benefits of this measure

This performance commitment helps to ensure that the overall asset health of the above-ground water assets is maintained and improved for the benefit of current and future generations.

Measure description

This measure assesses asset health (primarily for non-infrastructure assets, i.e. above ground assets), for water abstraction and water treatment activities. The measure is reported as the temporary loss of peak week production capacity (PWPC) and is defined in Ofwat's final reporting guidance for PR19.

Our definition for unplanned outages is consistent with reporting guidance for PR19 published on 27 March 2018. https://www.ofwat.gov.uk/wp-content/uploads/2018/03/20190327-6.-Unplanned-outage-final-reporting-guidance.pdf

Measure definition

This measure is defined as the annualised unavailable flow, based on the peak week production capacity (or PWPC), for each company. This measure is proportionate to both the frequency of asset failure as well as the criticality and scale of the assets that are causing an outage. The failure or deterioration of any asset which impacts on the ability to produce the peak week production capacity should be recorded as an unplanned outage. This may be a failure which impacts part or all of the production plant which contributes to peak week production capacity. This can include:

- source abstraction assets (e.g. abstraction pumps, screens, boreholes);
- raw water transport assets (e.g. pumping plant and mains);
- raw water storage assets (e.g. balancing reservoirs);
- water treatment assets;
- treated water storage assets (e.g. contact tanks, pre-distribution storage); and
- treated water distribution assets before distribution input meter (e.g. treated water pumping).

It is important to understand planned and unplanned outage as they both reflect on asset health. 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). Outages arising from planned works should be recorded separately to outages arising from unplanned causes, such as asset failure. The proposed calculation for both figures is:

$$\frac{Reduction\ in\ peak\ week\ production\ capacity\ \times Duration\ in\ days}{365}$$

Unplanned outage for each water production site is calculated separately and then summed over the reporting year to give a total actual unplanned outage for the water resource zone. The company water resource zone weighted outage can then be summed (Ml/d) and normalised based on overall company peak week production capacity to be reported as a percentage.

Measurement units

The measure will be reported as the percentage of peak week production capacity reported to two decimal places.

Mitigation/exceptions/assumptions

Exclusions are as defined in the reporting guidance and include:

1. Planned outages

Planned outages are excluded from this measure however they are reported separately. Where the peak production capacity of the works is limited through planned works to address a design limitation, deliver an improvement or to address a newly identified need it is recorded as a planned outage. Where an asset has never had a capability, or a new requirement has been identified in order to safely and reliably operate at a design capability this is recorded as a planned outage. Planned outages are evidenced with a planned work order reference, project number or purchase order.

2. Proactive maintenance

If peak production capacity of the works is limited by proactive maintenance on an asset or process which has been identified through proactive inspection or condition based monitoring this should be recorded as a proactive maintenance. This outage should be evidenced with a proactive work order reference and is reported under the planned outage reporting line.

3. Outages causing no reduction in PWPC

The integrated water system in our region often means the impact of any unplanned outage is not felt by customers. A supply deficit can often be met by an alternative water treatment works and transported through our distribution network to ensure that customer demand is met and supplies are not interrupted.

Example 1

In some circumstances the failure of assets upstream of the treated water distribution assets may not impact on the peak week production capacity. Where a river abstraction is pumped to bankside storage and then stored water is pumped onto treatment works, the failure of an abstraction pump may not impact peak week production capacity as water onto the treatment works can be maintained from the raw water storage. The length of time that this asset is unavailable will determine whether the peak week production capacity is reduced and therefore contributes to unplanned outage.

Example 2

Where asset failures occur at water production sites with standby assets this may also not impact peak week production capacity. For example, a groundwater site with a peak week production capacity of 10Ml/d may have three boreholes on site, all with capacity of 5Ml/d. Under normal circumstances boreholes 1 and 2 may be operated to provide the site output of 10Ml/d. If the pump in borehole 1 fails then borehole 3 is switched on to replace the lost capacity. Providing borehole 3 is switched on within 24 hours to replace the failed asset in borehole 1 there would be no unplanned outage recorded. There may need to be an outage at a later stage to repair or replace the failed pump. Whilst this can be scheduled and planned for a convenient time the reason for the need to make the repair is an unforeseen failure of an asset and therefore the outage for the scheduled repair or replacement would also be classified as unplanned.

4. Outages lasting less than 24 hours

Only outage events which exceed 24 hours in duration are included in this measure. Outage duration is recorded to the nearest whole day with normal rounding rules applied. For the avoidance of doubt, all outages below 24 hours are excluded and rounding does not apply. The duration may span a calendar day. By way of an example of rounding, an unplanned outage of 79 hours would be 3 days whereas an unplanned outage of 115 hours would be 5 days.

The end of the unplanned outage period should be recorded as the time when the asset was returned to a state meaning the availability of peak week production capacity is restored. For the avoidance of doubt this should not be when the individual asset is repaired or planned work completed but when the recommissioning process is completed, except when there is no immediate requirement to put an asset back into service. In this case the repair time is taken as the end of the unplanned outage period. If when the asset is next required to be put into service, it operates in a way that would count as an unplanned outage, the start time for the reported unplanned outage should be that of the original outage.

Example 3

If a borehole pump is replaced due to an unexpected failure or planned works the end of the unplanned outage is not when the pump replacement is completed but when any subsequent pumping to waste and water quality testing is finished and full peak week production capacity is restored, if the pump is required in service immediately.

If the pump is not required in service immediately, then repair or replacement time is taken as the end of the unplanned outage. When the pump is next required to be put into service, should it operate in a way that would count as an unplanned outage, the start time for the reported unplanned outage should be that of the original outage. Where planned work exceeds the duration of the scheduled outage any extension is to be included within the planned outage figure.

5. Water quality beyond the normal water quality operating band

Unplanned outage arising from changes in raw water quality beyond the normal water quality operating band shall be excluded as this is not a measure of asset health. Exclusions will be evidence based including evidence to show what the normal water quality operating band for that production site is. This exclusion applies to transient changes to raw water quality such as turbidity, algae, pollution, spikes in nitrate and pesticide. If we choose to manage variable raw water quality by proactively temporarily restricting water production then this will be classed as an exclusion. Long-term trend based changes in raw water quality which result in unplanned outages are not permitted as exclusions as companies are expect to have the data to recognise a rising trend and foresee the need to plan for treatment etc.

6. Extreme weather

Peak week production capacity of the works can be limited through extreme weather or any other extreme event. This should be recorded as an extreme event, but would need to be well justified and assured. Examples of extreme events include third party asset failures, power supply outages, storms etc. Extreme dry weather is categorised separately as described in the category below.

7. Dry weather

If the production capacity of the works is limited by the available raw water then it can be excluded. If both the available volume and the quality of the raw water are constraints, the outage should be classified against raw water availability, e.g. a low level reservoir with turbid or high levels of algae. This outage should be evidenced with a link to the appropriate hydrogeological constraint, i.e. draw-down curve and current reservoir level.

For clarity repeat unplanned outages at the same production site should not be excluded and should be treated as separate events with independent start and finish times unless the initial outage repair and recommissioning was not concluded and there was not full restoration of available peak week production capacity.

Where a choice has been made not to respond immediately to an unplanned outage such as a failure at the weekend for which alternative water can be deployed the duration may be longer than it might otherwise have been, there will be no adjustment for this in the measurement of the duration of the unplanned outage. This may result in reporting higher unplanned outage figures but given that alternative sources are available it is unlikely that the unplanned outage in this example would be contributing a large amount to the overall peak week production capacity and so would therefore have a relatively small impact on the overall measure.

Common performance commitment

This is a common performance commitment defined by Ofwat for AMP7.

Incentive type

Financial – subject to underperformance penalties.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
5%	95%	0%	0%	0%	0%	0%

5% has been allocated to the water resources price control to reflect the percentage of water resource assets (e.g. borehole abstraction assets which directly supply water treatment works) and their production capacity on the overall company production capacity.

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Proportion of unplanned outage of the total company production capacity %	3.56%	3.26%	2.95%	2.65%	2.34%

Figure 10

Deadbands, caps and collars

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Underperformance collar	Proportion of unplanned outage of the total company production capacity %	7.13%	7.13%	7.13%	7.13%	7.13%

Outcome Delivery Incentive

This measure is subject to underperformance financial incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

This measure is subject to an underperformance penalty, which has been set at £2,703,000 per percentage above the performance commitment.

Worked example

If our total peak week production capacity is 3380.89Ml/d our performance commitment of 3.56% equates to an unplanned outages volume of 120.36 Ml/d.

1. **For a single source works**

A source works has a peak week production capacity of 30 Ml/d.

For 15 days the maximum production capacity is reduced to 15Ml/d due to a temporary unplanned outage (pump failure). This is a loss of peak week production capacity of 15 Ml/d for 15 days.

Weighted outage is calculated as:

$$\frac{\textit{Capacity reduction x Outage length}}{\textit{Number of days in financial year}}$$

The weighted unplanned outage for this source works = 15 x (15 / 365) = 0.62 Ml/d

Each weighted unplanned outage is then summed over the reporting year to give a total unplanned outage for the water resource zone.

2. **For a water resource zone**

First source works in zone – weighted unplanned outage = 0.62 Ml/d

Second source works in zone – weighted unplanned outage = 2.58 Ml/d

Third source works in zone – weighted unplanned outage = 3.67 Ml/d

Zonal weighted outage = 6.87 Ml/d

The company water resource zone weighted unplanned outage can then be summed and normalised based on overall company peak week production capacity.

3. **Company normalising**

Zone 1 weighted unplanned outage = 6.87 Ml/d

Zone 2 weighted unplanned outage = 7.95 Ml/d

Company weighted unplanned outage = 14.82 Ml/d

Company peak week production capacity = 300 Ml/d

Unplanned outage proportion = 4.94%

4. **Incentive payment calculation**

If the performance commitment is 3.56% then we have underperformed.

(4.94-3.56) x -£2.703m = -£3.73m underperformance penalty

Long-term ambition

The integrated nature of our supply zone, combined with headroom at some of our water treatment works is a fundamental component of our resilient supply. When outages occur, we have found the most effective method to mitigate the impact is our ability to bring in supplies from other areas within our network. Whilst this measure is not directly aligned with our historic approach to reducing customer impact of outages, we have committed to improving the resistance and reliability of our assets. In doing so, we hope to further reduce the chance of unplanned outages progressing to supply interruptions.

Per capita consumption (B05-WN)

Purpose of this measure

This performance commitment is designed to incentivise companies to help customers reduce their consumption.

Benefits of this measure

The benefit of reduced per capita consumption (PCC) is to improve longer term water resources resilience (improved supply-demand balance position) and reduce the need for water whilst keeping costs down for customers.

Measure description

Per capita consumption is defined as the sum of measured household consumption and unmeasured household consumption divided by the total household population.

The performance commitments for this measure are based on the percentage reduction of three year average per capita consumption in litres/person/day (l/p/d) from the 2019/20 baseline.

Our definition for PCC is consistent with reporting guidance for PR19 pubished on 27 March 2018. https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-per-capita-consumption.pdf

In order to account for weather variations and how this impacts on PCC the performance commitment is based on a three-year average. PCC will be reported annually and a company's performance will be measured as a three-year average of the annual figures. The performance commitment is based on the percentage reduction against the 2019/20 three-year average baseline 144.0 Ml/d.

Measure definition

Annual average per capita consumption is defined as the sum of measured household consumption and unmeasured household consumption divided by the total household population.

$$\frac{Measured\ household\ consumption + Unmeasured\ household\ consumption}{Total\ household\ population}$$

To derive per capita consumption, we will use the standard UK water balance approach, consistent with the new guidance on leakage reporting[2] which also covers the calculation of per capita consumption. The best practice is still to estimate leakage using two nationally-agreed methods, the integrated flow approach ('top down') and the minimum night flow approach ('bottom up') and providing that the water balance reconciles to within +/- 5%, undertake a reconciliation exercise. This is carried out using maximum likelihood estimation (MLE) to allocate the reconciliation gap across the individual components of the water balance. Per capita consumption is then calculated using the post reconciliation value of total household consumption divided by the total household population.

[2] (UKWIR, Consistency of Reporting Performance Measures - Leakage (17/RG/04/5), 2017)

The population estimates are updated every year, as part of our annual reporting processes, using data from the Office for National Statistics. The total household population value is the sum of the resident population in each of our water supply zones, where we provide supply directly to properties.

Occupancy rates of properties are updated every five years as a minimum, through customer surveys, and are used to inform the WRMP demand forecasts. In addition to being integral to demand forecasts, occupancy rates are also used to determine the population associated with the different consumption components in the water balance.

The definition of household properties is in line with our annual performance reporting and relate to mainstream household properties such as houses, bungalows and flats.

The forecast within this documents relates to our WRMP19, with options selected that represent best long-term value to customers. This process has involved all unconstrained options being considered, and reduced to constrained and feasible options that could be selected in the modelling, to solve any supply-demand balance deficits and form the preferred plan.

Our calculation approach:

Per capita consumption (PCC) performance commitment = A – B

Where:

A – annual performance commitment target expressed as % reduction from baseline

B – % reduction from baseline calculated from three-year rolling average of reported PCC

The approach is based on a three-year rolling average, in line with Ofwat's requirements for both PCC and leakage, especially given that both are subject to weather related volatility[3] and both form part of the same water balance calculation. In order to account for weather variations and how this impacts on PCC the performance commitment is based on a three-year average. The performance commitment is based on the percentage reduction against the 2019/20 three year average baseline 144.0 Ml/d.

	Unit	2017/18	2018/19	2019/20
Per capita consumption	litres/person/day	143.6	144.4	144.0
Three-year average per capita consumption	litres/person/day, 3 year average			144.0

Measurement units

Percentage reduction from 2019/20 baseline 144.0 Ml/d (average of 2017/18, 2018/19 and 2019/20).

Mitigation/exceptions/assumptions

All estimates of per capita consumption will exclude underground supply pipe losses, and relate to mainstream properties supplied, in line with the Regulatory Accounting Guidelines published by Ofwat.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

[3] Delivering Water 2020: Our methodology for the 2019 price review Appendix 2: Delivering outcomes for customers, Ofwat, Dec 2017

Incentive type

Financial – outperformance and underperformance payments

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Per capita consumption (PCC)	Percentage reduction in PCC from baseline using 3 year average (%)	1.3	2.6	3.9	5.1	6.3
	litres/person/day, three-year average	142.1	140.3	138.4	136.7	134.9

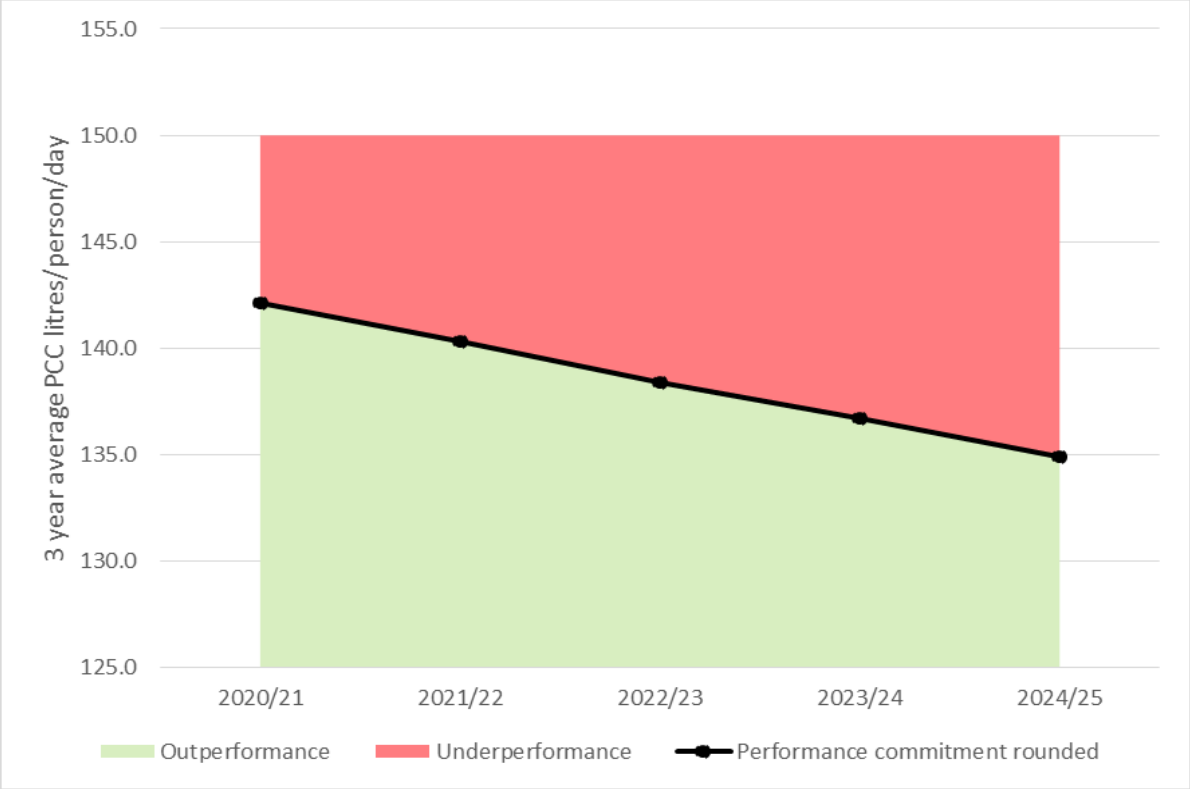


Figure 11

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance payment financial incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

This measure is subject to an underperformance penalty, which has been set at £396,000 for each litre/person/day over the performance commitment. The outperformance payment has been set at £330,000 for each litre/person/day under the performance commitment.

Worked examples

Example 1: Success in delivering outperformance

Three-year average PCC target in 2020/21 = 142.1 l/p/d

Three-year average PCC performance in 2020/21 = 140.0 l/p/d

142.1 – 140.0 = 2.1 l/p/d below performance commitment

2.1 x £330,000 = £693,000

Example 2: Failure to achieve performance commitment

Three-year average PCC target in 2020/21 = 142.1 l/p/d

Three-year average PCC performance in 2020/21 = 145.0 l/p/d

145.0 – 142.1 = 2.9 l/p/d above performance commitment

2.9 x -£396,000 = -£1,148,400

Long-term ambition

As part of regional planning with Water Resources West (WRW) and in developing our WRMP24, we are taking account of National Framework for Water Resources expectations and the call to reduce household demand and drive down water use across all sectors.

As discussed in our WRMP19, we are mindful that in order to maintain the long-term forecasts we need to keep our approach fresh. We are constantly looking for ways to enhance our offering to customers through research and partnership working, and we have undertaken customer research to understand the benefits, barriers and motivations to desired behaviours and willingness to act to achieve greater water efficiency. The results of the research will be used to better inform our approach and we will continue to drive behavioural change through our customer messaging via community engagement; social media and digital presence; and more traditional printed messaging on customer correspondence.

We recognise the important contribution of customer metering in reducing demand for water and, therefore, metering plays a key role in our demand management plans. We continue to promote free meters with inserts in unmeasured bills and from time to time we send out targeted mailshots to specific customer segments. We have also introduced our lowest bill guaranteed proposition. Initially we have promoted the offer, through a direct campaign supported by social and digital advertising and more than 90 per cent of those switching have made a saving on their bill. 30,000 customers have already made a combined saving of more than £4.2 million on their water bills.

In addition to this continuation and development of our activities to promote meter free meter optants, our decision making process has included the lowest AISC option of the metering options that go beyond our baseline activities, promoting metering in conjunction with mains/service pipe renewal activities.

Drought risk resilience (B06-CF)

Purpose of this measure

To measure resilience of each company to severe restrictions in a 1 in 200 drought and incentivise the improvement of this level of resilience in the short and longer term.

Benefits of this measure

A reduction in the risk of severe drought restrictions will reduce the associated risk of substantial costs and detrimental effects on customers' wellbeing.

Measure description

This new common measure relates to the risk of severe restrictions in a drought. Specifically, the measure reports the percentage of the customer population at risk of experiencing severe restrictions (for example, standpipes or rota cuts as part of emergency drought orders) in a 1 in 200 year drought, on average, over 25 years.

Our definition for drought resilience is consistent with reporting guidance for PR19 published on 27 March 2018. https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Drought-resilience-metric-March-18.pdf

Measure definition

The population is considered to be 'at risk' if the supply-demand balance calculation in each water resource zone (as used for water resource planning) for the 1 in 200 year drought event results in a shortfall (deficit). This will occur when the modelled deployable output minus outage allowance (available supply) is less than the dry year demand plus base year target headroom (demand plus uncertainty).

$$At\ risk\ if, DO-OA < DD+TH$$

Where:

- DO = Deployable output (supply)[4], including deployable output reductions due to climate change and sustainability reductions (licence changes)
- OA = Outage allowance (unavailable supply)
- DD = Dry year demand
- TH = Target headroom (uncertainty)[5]

The data and assumptions used for this metric will be consistent with those forecast and reported for the WRMP[6], which has technical guidance issued by the Environment Agency and Natural Resources Wales in collaboration with Defra, the Welsh Government and Ofwat.

[4] In line with calculating water available for use equivalent, we have also accounted for "Raw Water Losses and Operational Use" and "Treatment Works Losses and Operational Use".
[5] The methodology also states that, for target headroom, companies should use the 95th percentile certainty (or equivalent for complex methods) for the first five years of the planning period forecasts and for performance reporting. Beyond the 5 years the percentile should follow the same trend as the company's WRMP19.
[6] The calculation of this measure largely focuses on data in our WRMP19 table submission, in particular the new Drought Links table (Table 10).

The drought risk resilience ODI is calculated through the use of the supply demand balance data that was extracted from the Water Resources Management Plan (WRMP) tables and adjusted in-line with the 1 in 200 year deployable output (DO) values as reported in WRMP Table 10. It is important to note this is based on the change in our 'Integrated Resource Zone' to the 'Strategic Resource Zone', which results from completion of the Thirlmere transfer to West Cumbria early in the planning horizon.

A key element when reporting this performance commitment is the certainty grading, which indicates the accuracy of the data that has been submitted and is made up of a:

- Methodology grade: the rigour or sophistication of the drought definition process; and
- Risk score: how close each company may come to implementing restrictions.

We have calculated the methodology grade and risk score in line with the "Drought Resilience Metric: "Development of a 'Certainty Grade'" report (Atkins, 2018)[7].

Measurement units

The percentage of customers at risk of experiencing severe restrictions during a 1 in 200 year drought event, on average over 25 years, reported to one decimal place.

In line with the methodology, we will also report the number of customers at risk of experiencing severe restrictions during a 1 in 200 year drought event, on average over 25 years, as additional contextual data in the commentary.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a common performance commitment defined by Ofwat for AMP7.

Incentive type

This common measure is reputational.

Price control allocation

The measure will be evenly allocated across our water resources and water network+ price controls. The rationale for this allocation is that both price controls are responsible for maintaining assets related to the abstraction, treatment and distribution of water, to ensure drought resilience is maintained.

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
50%	50%	0%	0%	0%	0%	0%

Performance commitment for AMP7

The performance commitment is set to ensure that there are no customers experiencing severe supply restrictions in a 1 in 200 year drought.

[7] https://www.water.org.uk/publications/reports/drought-resilience-metric-development-%E2%80%98certainty-grade

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Percentage of customers that would experience severe supply restrictions in a 1 in 200 year drought (%)	0.0	0.0	0.0	0.0	0.0

The methodology grades, risk scores and acceptability or certainty grade for our resource zones is shown in the table below. We have calculated the Methodology Grade and Risk Score in line with the 'Drought Resilience Metric: Development of a Certainty Grade' report (Atkins, 2018)[8].

Resource zone	Methodology grade	Risk score/label	Acceptability or certainty grade
Strategic	B	2	Blue
Barepot	B	1	Blue
Carlisle	B	1	Blue
North Eden	C	1	Blue

As shown in the table above, the methodology grade for each of our resource zones is either 'B' or 'C'. The choice of approach was driven by the risk-based review of each resource zone, in line with UKWIR guidance[9]. The methodology grade of 'C' reflects the level of sophistication required to assess our smaller resource zones. The methodology grade of 'B' relates to the use of a 'weather generator' approach, which is one of the most advanced approaches used as part of the WRMP19 process[10].

The risk score/label relates to the confidence in the supply-demand balance, with our resource zones either scoring a '1' or '2', both of which represent a very secure surplus. Overall, our resource zones all achieve the 'Blue' acceptability colour, which means that they are very certain, with no need to review unless there is a large change to the supply-demand balance.

The 2019/20 baseline supply zone calculation was based on the values in the table below.

Component	2020/21	2025/26	2030/31	2035/36	2040/41	2044/45
1. Strategic Resource Zone						
Deployable output (1 in 200 year)	2019.7	2008.2	1997.9	1988.5	1978.9	1971.1
Outage allowance	101.3	101.3	101.3	101.3	101.3	101.3
Dry year demand	1706.3	1697.3	1685.2	1678.1	1675.4	1676.0
Target headroom	95.8	91.4	96.3	94.8	90.0	85.3
Supply-demand balance	116.3	118.2	115.1	114.3	112.2	108.4
1. Barepot Resource Zone						
Deployable output (1 in 200 year)	34.1	34.1	34.1	34.1	34.1	34.1
Outage allowance	0.0	0.0	0.0	0.0	0.0	0.0

[8] https://www.water.org.uk/publications/reports/drought-resilience-metric-development-%E2%80%98certainty-grade

[9] Specifically, WRMP 2019 Methods – Decision Making Process: Guidance (UKWIR, 2016) and WRMP 2019 Methods – Risk Based Planning (UKWIR, 2016).

[10] Methodology Grade "A" relates to the use of drought event data from the latest research outputs that have employed global climate model ensemble runs to simulate droughts.

Dry year demand	26.9	26.9	26.9	26.9	26.9	26.9
Target headroom	1.4	1.4	1.4	1.4	1.4	1.4
Supply-demand balance	5.8	5.8	5.8	5.8	5.8	5.8
2. **Carlisle Resource Zone**						
Deployable output (1 in 200 year)	34.7	34.6	34.6	34.5	34.5	34.4
Outage allowance	1.6	1.6	1.6	1.6	1.6	1.6
Dry year demand	28.0	28.2	28.3	28.2	28.1	28.0
Target headroom	2.3	2.0	1.7	1.3	1.0	0.8
Supply-demand balance	2.8	2.9	3.1	3.4	3.8	4.1
3. **North Eden Resource Zone**						
Deployable output (1 in 200 year)	13.0	13.0	13.0	13.0	13.0	13.0
Outage allowance	0.0	0.0	0.0	0.0	0.0	0.0
Dry year demand	6.1	6.2	6.2	6.2	6.2	6.1
Target headroom	0.3	0.3	0.3	0.3	0.3	0.3
Supply-demand balance	6.5	6.5	6.5	6.5	6.5	6.4

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

This is a reputational only ODI.

Outperformance/underperformance incentive rate

As a reputational measure, there is no incentive rate associated with this metric.

Worked examples

The below table shows an example calculation for our Strategic Resource Zone for our baseline (end of AMP6) and AMP7 performance.

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
1 in 200 deployable output (with the benefit drought permits and drought orders to augment supply) minus outage allowance (Ml/d)	1,923	1,922	1,920	1,917	1,915	1,912
Dry year demand plus target headroom (Ml/d)	1,799	1,802	1,795	1,788	1,778	1,745
1 in 200 supply-demand balance (with the benefit of drought permits and drought orders to augment supply) (Ml/d)	124	120	125	129	137	167
Total population at risk (number)	0.0	0.0	0.0	0.0	0.0	0.0
Percentage of total population at risk (%)	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Long-term ambition

As drought resilience is addressed as part of the WRMP process, all of our assessments cover a long-term view. The planning period for WRMP19 extends from 2020-2045, but we also take an even longer-term view out to the 2080's.

As such we have already forecasted the estimated frequency of emergency drought orders through to 2045. Our long-term ambition is to maintain and, if possible, improve our drought resilience (but this is subject to the risks and issues set out above).

Reducing areas of low water pressure (B07-WN)

Purpose of this measure

This performance commitment is designed to incentivise the company to reduce the number of customers that experience their water supply having a low pressure.

Benefits of this measure

This performance commitment reduces the number of customers suffering from poor or no water supply due to low pressure.

Measure description

The number of properties receiving pressure below the guaranteed standard. This measure is calculated as the total number of properties receiving pressure below standard, minus the number of properties that are covered by the predetermined allowable exclusion categories as detailed in the reporting guidance, divided by the number of connected properties in 10,000s.

Our definition for reducing low pressure is consistent with reporting guidance for PR19 published on 27 March 2018. https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Properties-at-risk-of-receiving-low-pressure.pdf

Measure definition

This measure is defined as the number of properties receiving pressure below that set out in the Ofwat guaranteed standards of service of 9 litres per minute at 10 meters pressure at the customer's first incoming tap. This will be reported per 10,000 connected properties, all property types will be included.

The reference level of service is a flow of 9l/min at a pressure of 10m head on the customer's side of the main stop tap (mst). The reference level applies to a single property. The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. Where a common service pipe serves more than one property, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served. For two properties, a flow of 18l/min at a pressure of 10m head on the customers' side of the mst is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS6700 or Institute of Plumbing handbook. See below for a tabulation of minimum mains pressures for the reporting of low pressures on common services.

Because of the difficulty in measuring pressure and flow in the customer's property a surrogate reference level is used. A surrogate of 15m head in the adjacent distribution main is used unless a different level can be shown to be suitable. In some circumstances companies may need to use a surrogate pressure greater than 15m to ensure that the reference level is supplied at the customer's side of the mst (for example in areas with small diameter or shared communication pipes).

Common supplies are where a communication pipe supplies more than one property. The required pressure in the adjacent water main used to estimate properties affected should exceed those given in the table in the table below.

Number of properties fed from one direction on common service	Pressure (in head) required in adjacent main			
	Half-inch communication pipe		Three quarter-inch communication pipe	
	Short side[1]	Long side	Short side	Long side
2*	10	11	10	11
3	12	14	11	13
4	15	18	13	16
5	19	23	16	20
6	25	29	21	24
7	30	35	25	28
8	37	42	31	33
9	45	51	38	40
10	54	61	46	48

Figure 12

This table is intended to be a guide to the absolute minimum service acceptable over an hour (i.e. it is not based on an instantaneous peak flow). The calculations assume delivery of 9 l/minute upstairs to a combination tank (not in the loft) in the end property on a common service of half-inch bore. The calculations use the BS 6700 loading units (LU) basis, but at 3 LUs per property (9 l/minute). The LU calculations on larger groups of properties (i.e. more than 100) give instantaneous flows of between 4 and 8 times the peak hour flow rates actually observed on local distribution systems, subject to leakage and hose pipe assumptions. Accordingly, the use of 3 LUs per property is taken as an acceptable minimum.

There are a number of circumstances under which properties identified as receiving low pressure should be excluded from the reported figure. The aim of these exclusions is to exclude properties which receive a low pressure as a result of a one-off event and which, under normal circumstances (including normal peaks in demand), will not receive pressure or flow below the reference level. For exclusions see the mitigation/exception/assumption section.

The measure is calculated simply as the cumulative total number of properties receiving pressure below standard, minus the number of those properties that are covered by the predetermined allowable exclusion categories detailed below, divided by the number of connected properties in 10,000's.

$$Properties\ receiving\ low\ pressure = \sum \frac{(p1 - p2)}{(n/10{,}000)}$$

Where;

p1 = total properties receiving water below standard

p2 = total properties receiving low water pressure that are covered by allowable exclusions

n = number of connect properties for water supply

Measurement units

Measured as the number of customers receiving low pressure per 10,000 connected properties and reported to three decimal places.

Mitigation/exceptions/assumptions

Verifiable, auditable records of all the exclusions that are applied will be kept in order to confirm the accuracy and validity of information. All properties identified as having received pressure or flow below the reference level must be reported, unless it can be confirmed that they are covered by one of the following exclusions.

- **Abnormal demand**. This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand which are normally expected. Some companies are more affected by low pressures caused by occasional prolonged peaks in demand than by a few abnormal peak days each year. In such cases, instead of excluding up to five days each year, companies may choose to apply the abnormal demand exclusion over a five-year period. This will allow companies to exclude from their figures properties affected by low pressures that occur on any 25 days in a rolling five-year period. The 'excluded day' may be applied to the company as a whole or at the level of individual zones. However, in either case, once a property has suffered low pressures on either more than five days in one year or 25 days in five years, it must be added to the reported figures.

    1. Option 1 - During the report year, companies may exclude for each property a maximum of 25 days of low pressure caused by abnormal demand in a rolling five year period. Companies should exclude from the reported figures properties that are affected by low pressure only on the days identified as "high demand" in the report year. In years where demand is normal (i.e. the exclusion is not being used), properties affected by relevant low pressure incidents should be reported as receiving low pressure (unless covered by one of the other exclusions). There are a number of circumstances under which properties identified as receiving low pressure will be excluded from the reported figure. The aim of these exclusions is to remove properties which receive a low pressure as a result of a one-off event and which, under normal circumstances (including normal peaks in demand), will not receive pressure or flow below the minimum pressure standard.

    2. Option 2 - Where extensive pressure logging covering the majority of properties in the supply area is used, the company may exclude properties where logger records verify that up to five incidents of low pressure lasting more than one hour have occurred. Under this option, it is not necessary to match the low pressure incidents with high demands. Companies that choose this method must include the number of properties that suffer more than five incidents of low pressure lasting more than one hour in the reported figure without necessarily identifying the specific occasions and reasons for abnormal demand. If this method is used, no other allowance may be made for abnormal demand but the other exclusions still apply. Companies must clearly state in their methodologies which approach they have adopted in applying this exclusion, list the distribution or supply zones they have chosen and the number of days excluded. If the exclusion is applied at the level of individual zones, rather than to the company as a whole, the company must maintain verifiable records which list the number of 'excluded days' used for each distribution zone each year.

- **Low pressure incidents of short duration** – an incident of less than one hour in duration will be excluded from the reported performance.

- **Planned maintenance activity** – low pressure caused by planned maintenance activity will be excluded from the reported performance. Evidence such as work orders will be required to demonstrate that planned maintenance activity was being undertaken.
- **One-off incidents** – low pressure caused by a one-off incident will be excluded from the reported performance. Such events included firefighting, company mains bursts or equipment failures and action of third parties operating the water network.

Common performance commitment

This is an asset health measure which we have selected from Ofwat's asset health long list.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	**100%**	0%	0%	0%	0%	0%

Performance commitment for AMP7

The performance commitments for AMP7 deliver a service to customers slightly better than our best ever performance.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
No. of properties with low pressure/poor supply (per 10,000 connections)	0.76	0.72	0.67	0.62	0.58

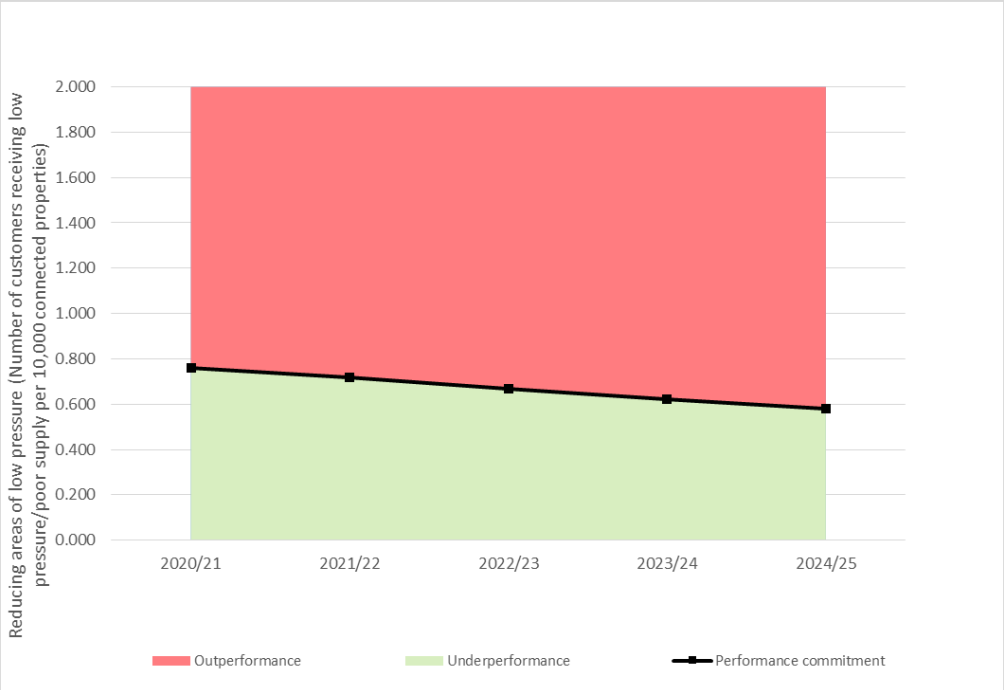


Figure 13

Deadbands, caps and collars

There are no deadbands, caps, or collars associated with the measure.

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

This performance commitment incentivises us if we outperform our best ever performance and protects customers' interests by penalising underperformance. The outperformance and underperformance incentive rate is applied symmetrically to provide equal motivation for improvement and avoided deterioration. The incentive rate is £342,000 per unit.

It is important to note that safeguarding against deterioration is central to this measure. The forecasted growth in new development across the North West region will place increasing demand on our water supplies and water distribution network. This measure will ensure we not only manage our existing network from service deterioration but also invest the infrastructure renewal charges from developers wisely and intelligently so that future development does not have an adverse impact on existing or new customers.

Worked examples

Below are some examples of the calculation based on the equation in the Measure definition section above.

Example	p1 (total properties receiving low pressure)	p2 (properties covered by allowable exclusions)	n connected properties (10,000s)	Calculation	Performance
1	1,500	1,000	329.31	=(1,500-1,000)/329.31	1.518
2	3,225	3,000	334.08	=(3225-3000)/334.08	0.673
3	5,068	5,000	341.81	=(5068-5000)/341.81	0.199

Outperformance financial payments will be awarded for performance below the AMP7 performance commitment. We will incur underperformance financial payments for performance above the AMP7 performance commitment. These are calculated by simply subtracting the actual performance from the performance target and multiplying by the incentive rate. The table below develops the examples from above to show how outperformance / underperformance payments would be calculated.

Example	Performance (per 10,000 connection)	Performance commitment (per 10,000 connections)	Incentive rate (£)	Calculation	Outperformance/ Underperformance payment
1	1.518	0.62	£342,000	=(0.62-1.518)* £342,000	-£307,116
2	0.673	0.62	£342,000	=(0.62-0.673)* £342,000	-£18,126
3	0.199	0.62	£342,588	=(0.62-0.199)* £342,000	£143,982

Long-term ambition

The performance commitments for AMP7 are challenging however we will continue to evaluate all properties that are on our low pressure register, to identify solutions and prioritise accordingly, and to ensure we can remove as many properties as viable from the low pressure register.

The greatest impact on low pressure performance is increasing demand for water from new developments, especially in some areas with limited additional network capacity. We anticipate an additional 20,000 new homes will be built each year, resulting in an increase of around 3% of connected properties. Without intervention, the number of properties affected by low water pressure is forecast to increase by over 50%. We will need to ensure that these new properties receive the appropriate level of service and protect our existing customers in order to maintain the stable position, in terms of numbers of customers receiving low pressure, which will be challenging.

Working with developers we are incentivising the building of more water efficient properties that have lower water loading impacts on the network, this will be in the form of a reduced infrastructure renewal charge to developers. We will also continue to work with Local Authorities to understand future development plans and demands, so we can focus investment in our network to facilitate development to help prevent determent to existing hydraulic capacity. We will deliver the improvement through delivery of efficient infrastructure investment and investment in innovative event detection, response, and restoration technology and practices. Continuing to deliver effective operation and maintenance of our asset base will enable us to mitigate the effects of asset failure resulting in customers receiving lower than standard water pressure.

This long term ambition will also have to consider and accommodate external factors beyond the company's control, such as climate change, population growth and changes to the industry & customer behaviour as a result of the COVID-19 pandemic. We also need to appreciate the influence of asset deterioration over the longer term and ensure that we adopt the correct delivery strategies maintain service levels and operational resilience. As our understanding of the influence of these factors evolves, our ambition may need to adapt, but we will always strive to achieve the best service outputs for customer and ensure the environment is protected and enhanced.

Water service resilience (B08-WN)

Purpose of this measure

This performance commitment is designed to measure the company's ability to maintain a reliable supply now and in the future by reducing the potential risks of longer duration interruptions.

Benefits of this measure

This performance commitment reduces the risk of longer-term water supply interruptions or of water quality issues, due to water main or water treatment works supply failures.

Measure description

This measure reports the delivery of water service improvements that reduce the risk of long-term interruptions to water supply, or of water quality issues, due to water main or water treatment works supply failures.

Performance is measured as a reduction against a baseline risk assessment for 31 March 2020, expressed in terms of an annual risk of customer water supply service days lost (customer service days lost or csd/yr). The measure monitors improvements that affect this risk against the baseline risk assessment for 2020.

The baseline risk assessment includes:

- those water treatment works that cannot be switched off for longer than five days and
- water mains where more than 4,000 customer properties could lose supply during a burst repair.

Measure definition

Our customer research has shown that reducing the risking of long-term water supply interruptions is a high priority for customers. Since such interruptions are infrequent, performance on delivering this improvement in service needs to be measured in terms of reduction in risk of interruptions. The risk is quantified in terms of the risk of customer supply days lost per year.

The baseline risk level for 31st March 2020 is made up from two components; the water treatment works baseline and the trunk main baseline. The Water Service Resilience baseline risk assessment is based upon the 28 water treatment works (WTWs) that serve demand that can't be met from alternative supplies on a sustainable basis. The primary data sources used to calculate the baseline position for WTWs assessments are hydraulic network models and at least 15 years of historic incident data. For water treatment works, risk is assessed based upon three factors:

- The probability of an incident (such as flooding or loss of power supply) occurring and its potential duration.
- The probability of a service impact, if an incident occurs, taking into account our ability to mitigate the impact using supply from other works and water storage.
- The number of customers potentially affected.

The Water Service Resilience baseline risk assessment is based upon 361 critical trunk mains. The primary data sources used to calculate the baseline position for water mains are the regional trunk mains model which covers the old integrated resource zone and the DMZ models for the remaining 3 resource zones; Eden, Allerdale and Copeland. For water mains, the risk assessment is based on:

- The number of customers who could not be supplied by alternative routes if a trunk mains fails
- The likely duration of repair
- The probability of the trunk main failing

The WTW and trunk mains risk assessments were independently audited to confirm the Water Resilience Service baseline risk as of 31st March 2020.

	unit	2019/20
WTW baseline assessment	customer supply days lost/year	14,893
Trunk mains baseline assessment	customer supply days lost/year	8,047
Overall water resilience baseline assessment	customer supply days lost/year	22,940

When future work is completed, resulting in a sustainable change to the risk of customer service failure from water mains and water treatment works, we will assess the resultant risk position against the baseline to quantify any change in risk, which we will report for this measure.

The risk assessment methodology and calculation of the baseline position for WTWs and water mains are provided in the document 'performance commitment technical document, chapter 5 supplementary document,' reference S3001 as submitted to Ofwat in September 2018. We will aim to use the same methodology and data each year and the resulting improvements will result from the company delivered water service improvements only and not from methodological or data changes.

Measurement units

Reduction in the number of customer water supply service days at risk per year reported to zero decimal places.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
csd/yr	0	382	764	1,145	1,526

The performance commitment measures the reduction in risk level relative to the baseline risk level of 22,940 customer supply days at risk per year. In developing the performance commitment target values we have identified our target risk reduction for the period and calculated a linear profile. This is on the assumption that any risk reduction work will be evenly delivered throughout the period.

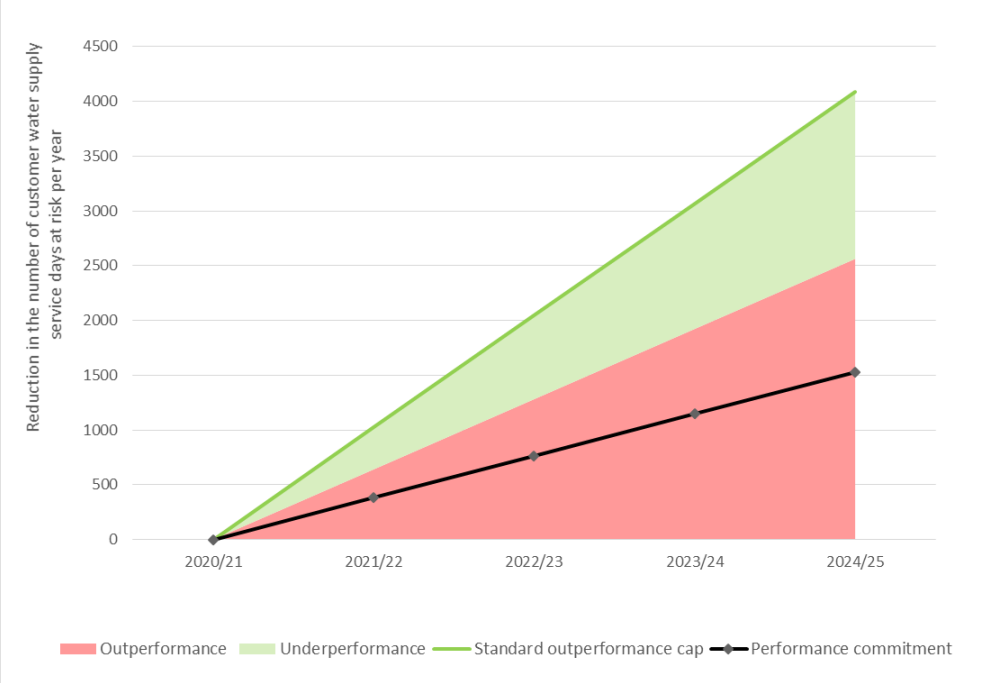


Figure 14

Deadbands, caps and collars

Caps and collars are associated with this measure although there are no deadbands. Outperformance caps and underperformance collars have been set at nominal, aggregate P90 and P10 performance levels across the AMP. These are not technically exceedance probabilities as there is no historic performance data to evaluate, they are instead credible delivery limits within our AMP7 plan.

		AMP7				
	Unit	2020/21	2021/22	2022/23	2023/24	2024/25
Underperformance collar	AMP7 Cumulative Reduction in risk csd/yr	0	0	0	0	0
Outperformance cap	AMP7 Cumulative Reduction in risk csd/yr	0	1,023	2,046	3,068	4,089

The outperformance cap has been set at a level which would mitigate significant additional risks and would be equivalent to managing the risk associated with a further 3 critical water treatment works, in addition to the performance commitment.

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance payments and will be reconciled annually on an in-year basis.

Outcome Delivery Incentive

Incentive type	Incentive rate (£m/unit)
Underperformance payment	-0.003617
Outperformance payment	0.003617

The incentive rate for this measure has therefore been set £3,617 per "customer service day" change in risk from the performance commitment.

Worked examples

If we had a cumulative risk reduction by the end of 2021/22 of 482, the risk reduction would be better than the target (382) and within the outperformance cap (1,023), and therefore an outperformance payment would be calculated as: -

Outperformance payment = (actual performance – target) x incentive rate

= (482 – 382) x £3,617

= 100 x £3,617 = £361,700

Long-term ambition

Our 2045 ambition is to reduce the risk and the associated water service failures from water treatment works and trunk mains to a level of risk similar to the level of drought risk, and to provide an even level of risk across the region that we serve.

For water mains, this means having a plan for the continued supply of customers from the majority of water mains that currently have a potential consequence of above 4,000 customers being affected through a mains failure.

As our maturity in understanding the resilience of our asset systems and the related hazards and risks increases, we may look to extend the scope of this measure to cover further parts of our asset base with inherit resilience risks in future price reviews.

Manchester and Pennine resilience (B09-DP)

Purpose of this measure

This performance commitment measures the progress of United Utilities in implementing the Direct Procurement for Customers (DPC) process to support the appointment of a competitively appointed provider (CAP) to design, build, finance and maintain the Haweswater Aqueduct Resilience Programme (previously referred to as the 'Manchester and Pennines Resilience' scheme.)

Progress is measured against the satisfactory delivery of three key DPC control points. These are the Strategic Outline Case (SOC), the Outline Business Case (OBC) and the Full Business Case (FBC).

These need to be successfully delivered to allow the scheme to progress to the point where a CAP can be appointed.

Benefits of this measure

This performance commitment incentivises the timely and effective completion of the procurement process to deliver a scheme to improve resilience of treated water supplies to 2.5 million people and 200,000 businesses customers in Greater Manchester, Cumbria and Lancashire.

In order for a project to proceed under DPC, Ofwat guidance requires the demonstration that the project and delivery approach provide best value for money for customers. It is anticipated that customers will benefit through innovation and lower whole life costs from outsourcing the delivery of infrastructure projects using DPC.

Measure description

This measure assesses whether United Utilities has been able to utilise a "Direct Procurement for Customers" approach to procuring a solution for the HARP programme, based on a series of target dates.

Delivery of HARP by way of Direct Procurement for Customers (DPC) is expected to deliver financial savings and promote innovation. Under this performance related mechanism United Utilities will have to pay an underperformance payment for delays in procuring the HARP scheme under DPC.

Measure definition

This performance commitment is designed to generate underperformance penalties as consequence of delays to the DPC process that are within the control of United Utilities (in this case, the submission of the Strategic Outline Case, the Outline Business Case and the Full Business Case).

The performance commitment measures successful and timely delivery of key DPC control points;

- the Strategic Outline Case submission (SOC),
- the Outline Business Case submission (OBC) and
- the Full Business Case submission (FBC).

The measure is reported as the number of control points delivered by the target date within each reporting year.

Delivery Point	Target Date	Weights of incentive
Strategic Outline Case (SOC)	30 April 2020	33%
Outline business Case (OBC)	1 May 2022	33%
Full Business Case (FBC)	1 May 2023	33%

We will only be able to claim completion of each control point following both

(a) United Utilities having provided the appropriate document by the prescribed date, and

(b) Ofwat subsequently agreeing that the submission is satisfactory.

At OBC and FBC stages, the procurement decision could recommend exit from DPC. If this were to be the optimum output from the process, then this would still be considered a successful completion of the control point, provided that Ofwat agrees that DPC-exit is an appropriate and a reasonable conclusion at that control point.

In that eventuality there would not be an underperformance payment in relation to any subsequent delivery point. The successful completion of each control point will be assessed against United Utilities meeting the specific date set out in the additional detail, section above.

Measurement units

The performance commitment measures, are the number of control points which were due to be delivered in that reporting year, which have been delivered on or before the target date.

The measure will be reported to no decimal places.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial underperformance payment only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

As set out above the performance commitment has been aligned to the delivery of the control points completed each year.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Control points delivered	**1 (SOC)**	**0**	**1 (OBC)**	**1 (FBC)**	**0**

Deadbands, caps and collars

There are no deadbands, caps or collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to underperformance payments only and will be reconciled at the end of the AMP period.

Outperformance/underperformance incentive rate

The underperformance incentive rate is £1,914,000 for every deliverable not completed by the target date. The underperformance payment is capped at £5.74m (2017/18, FYA, CPIH prices)

Worked examples

Deliverable not complete by target date	Underperformance payment
Strategic Outline Case (SOC)	£1,914,000
Outline business Case (OBC)	£1,914,000
Full Business Case (FBC)	£1,914,000

Long-term ambition

The initial work on this project is to determine the most cost effective approach for securing the required additional resilience to water supplies for the Greater Manchester, Cumbria and Lancashire areas. Irrespective of the procurement route we plan to implement this work, which will continue into AMP8.

Keeping reservoirs resilient (B10-WR)

Purpose of this measure

This performance commitment measures the reduction in risk of potential loss of life due to dam failure at the company's reservoir sites.

Benefits of this measure

The investment will reduce the individual and societal risks presented by reservoir failures. It will help ensure that the company has resilient raw water supplies in the future.

Measure description

This measure assesses the reduction in risk from planned improvements at dams, which reduce the risk of individual dam failure to a tolerable level as defined by the Health and Safety Executive, as a result of our risk reduction activities. A tolerable risk will have an annual probability below 1 in 10,000 or 1 in 1,000,000 depending upon the population at risk; the probability should be as low as reasonably practicable. Proactive risk reduction will be achieved through our industry leading Portfolio Risk Assessment methodology, which assesses the probability of failure at dams on an ongoing basis.

We prioritise and deliver work to lower the risk of failure at dams, lowering the probability of their failure until the dam is no longer in either the Health and Safety Executive's 'unacceptable individual risk' or 'unacceptable societal risk' category. Beyond this we seek to reduce the probability of risk to a level as low as reasonably practicable.

Measure definition

This measure counts the number of people[11] moved to a level of tolerable risk from catastrophic dam failure and therefore no longer exposed to 'unacceptable individual risk' or 'unacceptable societal risk' following our risk reduction activities. The Health and Safety Executive guidance is contained in the document 'Reducing Risk – Protecting People (R2P2)', Health and Safety Executive 2002, ISBN 0-7176-2151-0.

We will prioritise and deliver work which will lower the risk of the failure at dams, lowering the probability of their failure until the dam is no longer in either the 'unacceptable individual risk' or 'unacceptable societal risk' categories.

The measure is expressed in risk reduction units and is the difference (the risk reduction benefit) between the pre-intervention risk level, and the risk level at the boundary of the "Tolerable" risk category as defined by the Health and Safety Executive. Risk is defined as:

Equivalent population exposed x probability of dam failure

The equivalent population exposed is a weighted figure which primarily ensures that unacceptable risks to individuals are prioritized, followed by unacceptable societal risks. The cumulative risk reduction achieved by each project delivered in each year will be summed, and compared to the cumulative annual target.

Measurement units

Risk reduction units, reported to 5 decimal places.

[11] This is the actual number of people rather than the number of customers.

Mitigation/exceptions/assumptions

International best practice relating to dam safety risk assessment may change over time. The company may adapt its processes and methodologies as new techniques and tools for assessment become available. However reduction in risk achieved by changes in the Portfolio Risk Assessment methodology or any other changes in information about the dams does not count towards the measure. Only changes that are due to the company's physical actions can be taken into account in measuring performance.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance and underperformance payments based on performance in 2024/25 only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
100%	0%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Risk reduction	0.00000	0.00000	0.04439	2.99149	7.99180

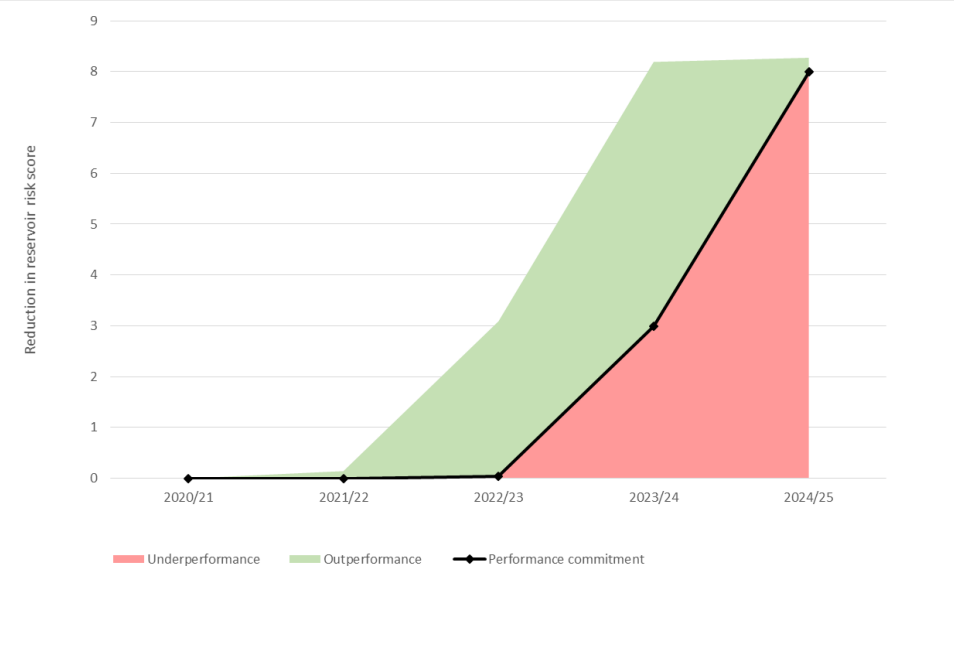


Figure 15

When setting the targets a balance was needed between delivering the maximum possible risk reduction benefits but without compromising our ability to maintain reliable supplies given reservoirs often need to be taken out of service during the construction phase of risk reduction projects, and we manage this activity so that our service outages do not affect customer supplies (multiple reservoirs cannot be taken out of service simultaneously). The performance commitment targets represent a stretching level of risk reduction, whilst considering customer affordability and supply security.

A target of zero has been set for the first two years of the AMP. As no transitional investment is permitted for the water resources price control, and the design and permitting process for reservoir safety projects regularly takes 24 months the first two years will be spent designing the risk reduction measures, with delivery of the projects in the final years three years.

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled on an in-period basis.

Outperformance/underperformance incentive rate

This measure is subject to an underperformance penalty, which has been set at £3,202,500 for each risk unit reduced under the performance commitment. The outperformance payment has been set at £3,202,500 for each risk unit above the performance commitment.

Worked example

Underperformance and outperformance payments are based on performance in 2024-25 only.

The performance commitment for 2024-25 is 7.99180. We outperform the performance commitment and deliver a larger risk reduction of 9.12345.

(Actual performance-performance commitment) x outperformance incentive rate = outperformance payment

(9.12345-7.99180) x 3,202,500 = £3,624,109 outperformance payment

Long-term ambition

Our long term ambition is to eliminate community risk exposure to ‘unacceptable individual risk’ and ‘unacceptable societal risk’. In future AMPs we will manage the programme delivery in order to allow time for planning and regulatory approvals, and to enable us to trial innovative new techniques prior to their deployment across the wider fleet.

Long term ambition is based on known outstanding ‘unacceptable societal risk’ dams requiring an intervention (the population de-risked) divided approximately evenly across future AMPs, which assumes that there is not a step change in the number of projects delivered across future AMPs. These future performance figures are based on the remaining population who require risk management benefits (de-risking from exposure to an unacceptable risk), based on our current view of the risk profile at March 2018. We will repeat the Portfolio Risk Assessment every AMP, in order to utilise evolving best practice for risk assessments, and to take account of any change in the condition of our dams over time. These future figures therefore may be subject to change, particularly as we complete further risk assessments.

We prioritise the risk reduction interventions that we undertake, with a view to addressing the dams with the largest population at risk first (where operational supply constraints allow). As such, we will expect to see the population de-risked decreasing over time, as we work our way down the prioritised list of sites for potential future interventions (i.e. fewer people exposed to risk per dam as we work through the prioritised list).

We have assumed that, as at PR19, transitional investment for the water resources price control will not be available for future AMPs. Reservoir risk reduction projects are subject to a comprehensive regulatory permitting and approvals process, resulting in projects typically takes two to three years from inception to delivery. We therefore propose targets of zero for the first two years of every AMP.

Thirlmere transfer into West Cumbria - AMP7 (B11-WN)

Purpose of this measure

This performance commitment monitors and incentivises the delivery of the Thirlmere transfer project which will allow water to be supplied from Thirlmere reservoir to customers in West Cumbria.

Benefits of this measure

This performance commitment protects customers from late delivery of the Thirlmere transfer scheme. This project will allow abstraction from Ennerdale Water to cease as soon as possible, thereby maintaining security of supply while meeting statutory environmental obligations.

Measure description

The measure tracks progress of the project through completion of project milestones as an indicator of earned value.

Measure definition

This metric measures the percentage progress which is similar to 'earned value' in project management, where completion of milestones is recognised as completing a proportion of the baseline project value. In 2019/20 99% of the project had been delivered this measure tracks delivery of the final 1% of the project milestones as an indicator of earned value.

The remaining milestones in 2020-2022 are:

- Service reservoirs complete 0.65%
- Water treatment works complete 0.65%

The 2021-22 performance commitment level (100% complete) will remain unchanged.

Measurement units

As a percentage of project completion milestones based on earned value to zero decimal places.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Reporting Period	Description	2020/21	2021/22	2022/23	2023/24	2024/25
Annual	% completion	99	100	100	100	100

Deadbands, caps and collars

The underperformance cap is set equal to the 2019-20 performance and the performance level in 2020-21 adjusted.

Reporting Period	Description	2020/21	2021/22	2022/23	2023/24	2024/25
Underperformance collar	% completion	99	100	100	100	100
Outperformance cap	% completion	100	100	100	100	100

Outcome delivery incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled on an in-period basis.

Outperformance/underperformance incentive rate

Incentive type	Incentive rate (£m/unit)
Underperformance payment	-2.34
Outperformance payment	1.17

Worked example

The final milestones are delivered in 2020/21 leading to completion of 100% of the project against a performance commitment of 99%.

(Actual performance - performance commitment) x outperformance incentive rate = outperformance payment

(100-99) x 1,170,000 = £1,170,000

In 2021/22 0.65% of the milestones are delivered leading to 99.35% completion of the project.

Performance is rounded to the nearest percentage which is 99% against a performance commitment of 100%.

(Performance commitment - actual performance) x underperformance incentive rate = underperformance payment

(100-99) x -2,340,000 = -£2,340,000

Long-term ambition

This is a one-off project that will be fully completed during AMP7.

Outcome C – The natural environment is protected and improved

Our customers, stakeholders and regulators expect us to improve the quality of the environment. We will deliver a programme of environmental improvements on our overflows and wastewater treatment works. Where possible, we will do this in a more sustainable way by recognising the value of natural capital. We will effectively operate and maintain our assets so that we can mitigate the impact of external factors such as climate change, population growth and changing customer behaviours and will reduce our abstraction from sensitive sites during periods of low flow.

Pollution incidents (C01-WWN)

Purpose of this measure

This performance commitment is designed to incentivise companies to reduce the number of pollution incidents that impact the environment.

Benefits of this measure

Delivery of this performance commitment will improve the quality of the environment by reducing the number of pollution incidents that occur.

Measure description

This measure counts the total number of category 1, 2 and 3 pollution incidents from discharges, to a controlled water, in a calendar year due to a discharge, or escapes of containment, from a sewerage company asset per 10,000km of sewerage network.

Measure definition

This measure counts the total number of category 1-3 pollution incidents from both consented and unconsented discharges. The methodology in year 1 of AMP7 used to identify discharges is compliant with the Environment Agency Environmental Performance assessment (EPA) Methodology (version 3) and the Incidents and their classification: the Common Incident Classification Scheme (CICS) version 12. From year 2 of AMP7, the methodology will be amended to align with the Environment Agency Environmental Performance assessment (EPA) Methodology (version 8).

Assets included in this measure are sewers, rising mains, wastewater pumping stations, combined sewer overflows, surface water outfalls, detention tanks, bioresources, and wastewater treatment works. The links below are to the Environment Agency guidance material.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/WatCoPerfEPAmethodology_v3-Nov-2017-Final.pdf

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/20171129-Incidents-and-their-classification-the-Common-Incident-Classification-Scheme-CICS-23.09.16.pdf

https://www.ofwat.gov.uk/wp-content/uploads/2021/01/EPA-methodology-version-8-October-2020.pdf

This includes incidents highlighted by event duration monitors (EDM) and those associated with transferred asset sewers. Incidents originating from a bioresource asset are also included.

Performance is assessed and reported on a calendar year basis in line with our reporting to the Environment Agency, applying the EA's Environmental Performance Assessment guidance.

	AMP7				
	2020	2021	2022	2023	2024
Sewer length (km)	77,914	77,339	77,339	77,339	77,339

The sewer length that will be applied throughout the AMP will be 77,914.00 km (as per version 3 of the EPA) in 2020, and 77,339.00 km (as per version 9 of the EPA) in the remaining four years. The total length of sewer includes transfer pipeline assets used by Bioresources.

Measurement units

Total number of category 1-3 pollution incidents per 10,000km of sewer network per calendar year to two decimal places. Details of the absolute number of incidents will be detailed each year is in our supporting commentary.

Mitigation /exceptions / assumptions

This measure excludes pollution incidents from water assets and incidents caused by third parties.

This measure does not include pollution incidents from transferred/adopted private pumping stations or transferred/adopted private rising mains (transferred in 2016).

It is assumed that only pollution incidents from the assets set out in the description section above are included in this measure. There is a risk that the Environment Agency may have a different view of pollution incident classification than UUW. Should this occur, any differences between the two positions will be documented, however regular liaison with the Environment Agency minimises this risk.

The inclusion and classification of pollution incidents will be agreed at quarterly liaison meetings between the EA and UU.

Significant changes in sewer length are noted in our supporting commentary. Evidence of any exclusions will be retained by the company and be made available for supplementary audit where necessary.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

This measure is subject to financial outperformance and underperformance incentive payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020	2021	2022	2023	2024
No. of incidents per 10,000km.	24.50	23.70	23.00	24.40	19.50

*Note – calendar year data is used for reporting in order to align with data reported to the Environment Agency for its Environmental Performance Assessment. Each calendar year will be reported to Ofwat in the following financial year.

The graph below highlights not only our historic performance but the performance commitments that we have agreed to for AMP7. We have been industry leading for this measure across AMP6 and intend to continue to strive for this level of exceptional performance throughout AMP7. We have made significant improvements to our operational practices and incident review processes over the past few years that have resulted in frontier or upper quartile performance in the industry for pollution. Improving our performance will become increasingly difficult as the AMP progresses and the targets tighten.

Figure 1 Pollution performance in AMP6 with AMP7 performance commitments, caps and collars

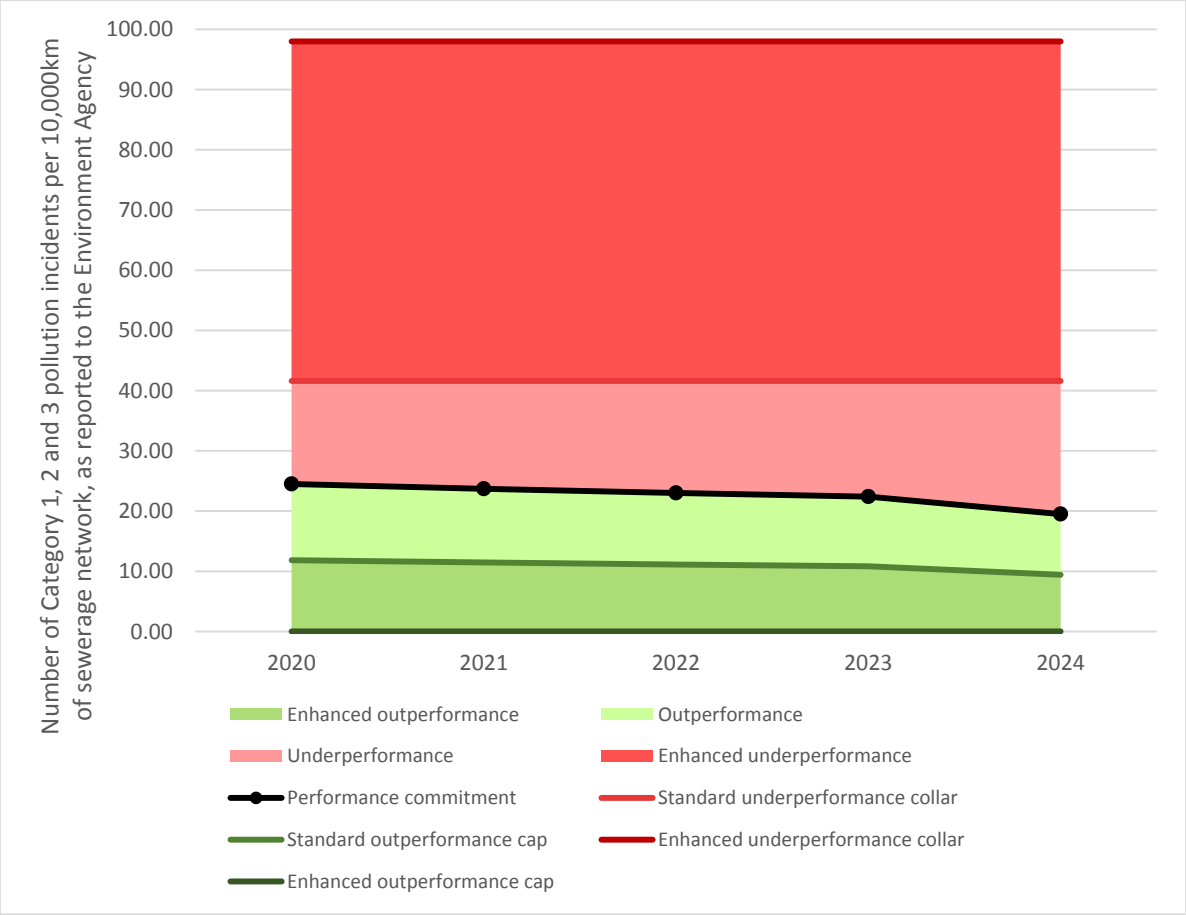


Figure 16

Deadbands, caps and collars

This measure has both caps and collars.

	Unit	AMP7				
		2020	2021	2022	2023	2024
Standard outperformance cap	No. of incidents per 10,000km of sewer	11.83	11.46	11.11	10.82	9.42
Enhanced outperformance cap	No. of incidents per 10,000km of sewer	0.00	0.00	0.00	0.00	0.00
Standard underperformance collar	No. of incidents per 10,000km of sewer	41.60	41.60	41.60	41.60	41.60
Enhanced underperformance collar	No. of incidents per 10,000km of sewer	98.00	98.00	98.00	98.00	98.00

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which are reconciled annually on an in-period basis. There are two tiers of incentive rates to be applied to this measure; standard and enhance performance.

Outperformance / underperformance incentive rate

The standard outperformance rate is set at £760,000 per incident / 10,000km of sewer.

The enhanced outperformance rate is set at £1,520,000 per incident / 10,000km of sewer.

The standard underperformance rate is set at £912,000 per incident / 10,000km of sewer.

The enhanced underperformance rate is set at £1,520,000 per incident / 10,000km of sewer.

Worked examples

There are three possible incentive scenarios with this measure. These are an outperformance payment, an underperformance payment and no payment. As this measure is set up for in-period payments, the payment is calculated at the end of each calendar year.

If the number of incidents is above the performance commitment, there would be an underperformance payment due on the measure. Each normalised incident above the performance commitment would result in a payment of £912,000. Should the performance exceed the forecast for lower quartile, each normalised incident from that point is £1,5200,000.

At the end of each year, the number of normalised incidents above the performance commitment and below lower quartile will be totalled and multiplied by £760,000 to calculate the underperformance payment. The number of normalised incidents above lower quartile would be totalled and multiplied by £1,520,000. The sum of these two calculations is the total underperformance payment.

Should the number of incidents be exactly the performance commitment, this would result in no payment.

As an example, the performance commitment for year one of AMP7 is 24.50 pollution incidents per 10,000km of sewer. Should we finish that year on 24.00 pollution incidents per 10,000km, there would be an outperformance payment of £380,000. This is calculated as below.

(Target performance – actual performance) x incentive rate

= (24.50 – 24.00) x £760,000 = £380,000 outperformance

We would not receive an additional payment for enhanced performance until our performance was below the standard outperformance cap.

Another example is if the performance commitment for year three of AMP7 is 23.00 pollution incidents per 10,000km of sewer. Should we finish that year on 23.85 pollution incidents per 10,000km of sewer, there would be an underperformance payment of £775,200. This is calculated as below.

(Target performance – actual performance) x incentive rate

= (23.00 – 23.85) x £912,000 = -£775,200 underperformance

We would only apply enhanced underperformance payments when performance was above the standard performance collar but below the enhanced underperformance collar.

Long-term ambition

Our long-term ambition is to reach zero pollution incidents. We plan to do this at an affordable rate for customers and so propose to phase the improvements in an incremental way over a number of Business Plan Periods.

Treatment works compliance (C02-CF)

Purpose of this measure

This performance commitment is primarily designed as an indicator of environmental protection. It also seeks to incentivise that the asset health of the non-infrastructure or above ground water and wastewater assets are being appropriately operated, maintained and improved and that the company is committed to both environmental and asset stewardship.

Benefits of this measure

This performance commitment helps to ensure that the appropriate levels of environmental protection are sustained, and that the overall asset health of the above-ground water and wastewater assets is maintained and improved.

Measure Description

This measure is a common performance commitment defined by Ofwat. It uses the same definition of treatment works compliance as the Environment Agency's Environmental Performance Assessment (EPA) Methodology, version 3 (November 2017) and reports the percentage of compliant treatment works, including both wastewater and water treatment works with discharge permit conditions as defined in the EPA methodology (a link to this document is provided below).

Measure Definition

This measure is a common performance commitment and includes discharge permit compliance at both water and wastewater treatment works.

Reporting of this measure is designed against the Environment Agency Environmental Performance Assessment methodology (version 3, November 2017), percentage of water and wastewater treatment works that are compliant.

This measure assesses the performance of:

- Wastewater treatment works when treating and disposing of sewage in line with its discharge permit conditions; and
- Water treatment works used for water supply in line with its discharge permit conditions.

Discharge permit compliance is reported using the percentage of compliant treatment works and not the percentage of compliant discharges. The number of discharges is agreed annually on a calendar year basis between the Environment Agency and the Environmental Regulation team.

This measure includes compliance with environmental laws including the Environmental Permitting (England & Wales) Regulations 2010. Compliance is assessed against the requirements of permits issued for water discharge activities and groundwater activities under the Environmental Permitting Regulations (2010). The measure only includes final effluent discharges from water or wastewater treatment works which are subject to the following conditions:

- Sanitary parameters numeric limits
- Sanitary parameters Look Up Table (LUT) numeric limits (12 months counting exceedances that have occurred in the year only)
- Sanitary parameters Upper Tier (UT) numeric limits
- Nutrient parameters numeric limits
- Non sanitary parameters numeric limits
- Urban Wastewater Treatment Directive (UWWTD) numeric parameters compliance

- UWWTD failure to collect or analyse required number of samples and/or parameters
- UWWTD LUT parameters numeric limits
- UWWTD UT parameters numeric limits
- UWWTD Nutrients parameters numeric limits
- Ultraviolet (UV) disinfection dose (failure to meet the annual or daily dose requirements)
- Water Treatment Works (WTW) compliance with numeric parameter limits

Note: 'sanitary parameters' mean Biochemical Oxygen Demand (BOD), ammonia and suspended solids.

The calculation of the metric is set out below.

(A-B)/A x 100 where:

A is the total number of treatment works with an environmental permit which includes any of the above requirements (in force) that are listed on the Environment Agency register during the calendar year; and
B is the number of treatment works where one or more discharges are confirmed as failing in a calendar year.

In line with the Environment Agency document Guidance on the Annual Confirmation of the number of WaSC assets for Performance Reporting the total number of treatment works shall include all wastewater numeric discharges. Water numeric discharges are included only where the volume is in excess of $20m^3/d$.

Numeric discharge sites closed within the reporting year will be included if the permit was live during part of the year. Likewise, numeric discharges from sites opened in the reporting year will be included if the permit was live during at least part of the year.

For example

If we have a combined total of 379 water and wastewater treatment works and five of those are classified as failing at the end of the calendar year, this would equate to a position of 98.68% compliance.

(379-5)/379 x 100 = 98.68% compliant

The number of treatment works included in this measure is subject to change on an annual basis. Therefore, if we have a combined total of 370 water and wastewater treatment works and five of those are classified as failing at the end of the calendar year, this would equate to a position of 98.64% compliance.

(370-5)/370 x 100 = 98.64% compliant

Measurement units

Percentage (%) of treatment works compliant to two decimal places in a calendar year.

Mitigation /exceptions /assumptions

This measure excludes any compliance failure where we have notified the Environment Agency and provided evidence to demonstrate that the failure is beyond our control. This includes elements such as illegal trade discharge and instances of abnormal operating conditions or unusual weather. Under such instances written acceptance will be obtained from the Environment Agency confirming that the number of samples is accepted, but the result has been discounted due to these conditions. We will be required to provide the Environment Agency with sufficient evidence to demonstrate that

the failure was beyond our control. If this evidence is not accepted by the Environment Agency then the failure will stand for this measure.

Performance is also be reported annually by the Environment Agency in its annual report.

Evidence of any exclusions will be retained by the company and be made available for supplementary audit where necessary.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

This measure is subject to financial underperformance payments only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	6%	94%	0%	0%	0%	0%

The percentage split in the price control allocation table above is based on the predicted number of treatment works sites with numeric environmental discharge permits subject to this performance commitment held by each price control in calendar year 2020 (21 Water network+, 369 Wastewater network+).

Underperformance payments are based on a dynamic split across the price controls annually, based on the actual ratio of performance in that particular year (see worked example 1 below). Any outperformance payment will be allocated based on number of permits each price control holds in that calendar year (see worked example below).

Performance commitment for AMP7

	Unit	AMP7				
		2020	2021	2022	2023	2024
Performance commitment	% compliance	100.00	100.00	100.00	100.00	100.00

The performance commitment is set at a stable level. We are reporting this performance commitment on a calendar year basis in line with the Environmental Performance Assessment, this means that calendar year 2020 data will be reported in our Annual Performance Report for the financial year 2020/21.

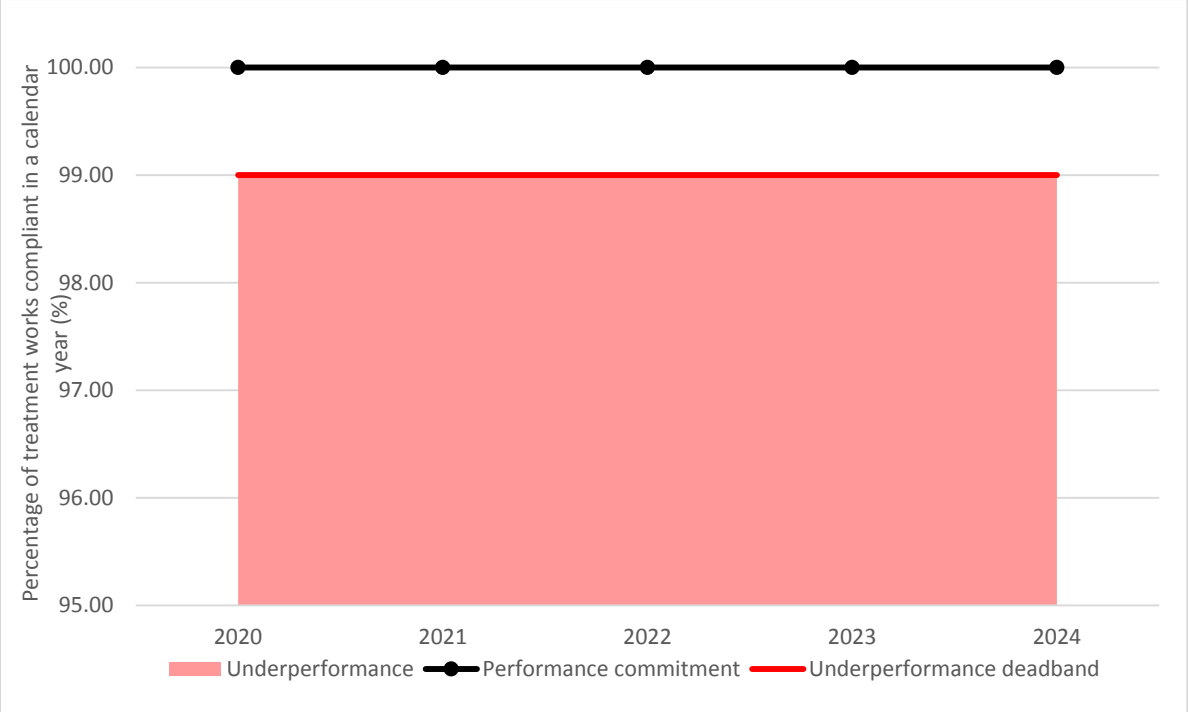


Figure 17

Deadbands, caps and collars

A deadband of 99.00% has been applied to this measure. Due to the nature of this measure, performance cannot exceed 100% compliance, meaning there is a natural cap on outperformance.

	Unit	AMP7				
		2020	2021	2022	2023	2024
Underperformance deadband	%	99.00	99.00	99.00	99.00	99.00

Outcome Delivery Incentive

This measure is subject to underperformance financial incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

This measure applies an underperformance rate of £1,525,000 per percentage point below the deadband.

Worked examples

Worked example 1:

In year one of AMP7, if we had five failing wastewater treatment works and one failing water treatment works, this would equate to a total of six failing works. If the total number of treatment works included under the measure that year was 390, this would equate to a performance level of 98.46% compliance, as this is below the deadband it would be subject to an underperformance payment of -£823,500.

(390-6)/390 x 100 = 98.46% compliant
99.00% - 98.46% = 0.54%

The incentive rate is £1,525,000 per 1%, therefore the underperformance payment would be -£823,500.

Long-term ambition

Our long-term ambition for this measure is that our service is 100% compliant with environmental requirements. We plan to provide a higher level of service, which will meet tighter environmental standards whilst reducing our operating costs to support our ambition to keep bills as low as we can.

Capital investment through our water and wastewater treatment works maintenance programmes will be prioritised through our corporate investment prioritisation system, to capture all risks as well as the costs of intervention. This allows us to manage risk across the business using values from customer research to underpin the benefit of the intervention to aid prioritisation of investment.

Abstraction incentive mechanism (C03-WR)

Purpose of this measure

The purpose of this performance commitment is to incentivise the company to reduce abstraction from environmentally sensitive sites when river flows are low.

Benefits of this measure

The benefit of this performance commitment is that environmentally sensitive sites are protected by reducing the amount of water abstracted during lower river flows.

Measure description

The abstraction incentive mechanism (AIM) reduces abstraction of water at environmentally sensitive sites when river flows are below an agreed point otherwise known as a trigger. The trigger point is based on a flow, below which the AIM is considered to be 'switched on'. This trigger will usually be related to the point at which damage is caused and is intended to prevent this from happening or ameliorate the negative impacts.

The company has included two sites for AIM for the period 2020-25:

- Old Water: This site has a baseline abstraction rate of 3.445 Ml/day and an AIM river flow trigger of 9.1 Ml/day (based on flows at the Environment Agency's Hynam Bridge gauging station on the River Gelt). The trigger is set at Q95 (the flow which is exceeded 95% of the time) of the Environment Agency's Hynam Bridge gauging station daily average flow data set for 28 July 1995 to 31 March 2017.
- Ennerdale: This site has a baseline of abstraction rate of 24.819 Ml/day and an AIM river flow trigger of 80.0 Ml/day (based on flows at the Environment Agency's Bleach Green gauging station on the River Ehen). The trigger is based on the upper band compensation flow release required in the impoundment licence. Abstraction from this site is expected to cease in 2022.

The abstraction incentive mechanism is defined in the reporting guidance – Guidelines on the abstraction incentive mechanism, published in 2016: https://www.ofwat.gov.uk/wp-content/uploads/2016/02/gud_pro20160226aim.pdf

Measure definition

For the period 2020 to 2025 we have reviewed our AIM sites in line with Ofwat's guidance; this has identified that Old Water (a tributary of the River Gelt) and Ennerdale are suitable AIM sites. This position has been endorsed by the Environment Agency. At Ennerdale we plan to cease abstraction in 2022 meaning that the potential for environmental impact will be removed, and it will fall out of AIM when we revoke the abstraction licence.

In calculating our AIM performance we will follow the AIM calculation methodology set out in Ofwat's 2016 guidance.

The AIM calculation looks back at a historic baseline period (2011-2017) and works out the average daily abstraction rate at the AIM site during periods when AIM was triggered (i.e. when the river flow is at or below the AIM trigger). Actual performance is compared against this historic baseline to judge if abstraction has been reduced or not.

AIM performance in Ml = (average daily abstraction during period when flows are at or below trigger – baseline average daily abstraction during period when flows are at or below trigger) x length of period (number of days) when river flows are at or below the trigger.

We will also report the additional information specified in the guidance:

1. AIM performance for individual sites
2. Overall company AIM performance
3. Cumulative overall company AIM performance for Years 2-5
4. Normalised AIM performance (no units) based on:
    - AIM performance (Ml) / (baseline average daily abstraction (Ml/day) x length of period when river flows are at or below the trigger (days))
5. Normalised AIM performance (%) = normalised AIM performance (no units) * 100%
6. Contextual information around AIM performance. For example, explain the environmental challenges that affect the region, the past, current and future measures we are taking to deal with unsustainable abstraction and other information relevant to put AIM performance into context

Measurement units

AIM performance measured as the number of megalitres (Ml) of water abstracted greater, or less, than historic baseline abstraction when the AIM river flow trigger is met, reported to one decimal place.

Mitigation/exceptions/assumptions

Exclusions are as defined in the reporting guidance.

Common performance commitment

This is a bespoke compulsory measure for AMP7.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
100%	0%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Performance commitment level Old Water	0.0	0.0	0.0	0.0	0.0
Performance commitment level Ennerdale	0.0	0.0			

The targets are zero for each year. This target figure means that we are not abstracting any more or less water than the long term baseline average, in the event of AIM being triggered by low river flows. A negative AIM performance would indicate that we had abstracted less water compared to the long term average (in the event of AIM being triggered by low river flows) and so would attract an outperformance payment, because we had reduced the environmental impact of our abstraction at a time of environmental stress. A positive figure would mean that we had abstracted more water

than the long term average (in the event of AIM being triggered by low river flows) and so would incur an underperformance payment, because the impact of our abstraction would have increased.

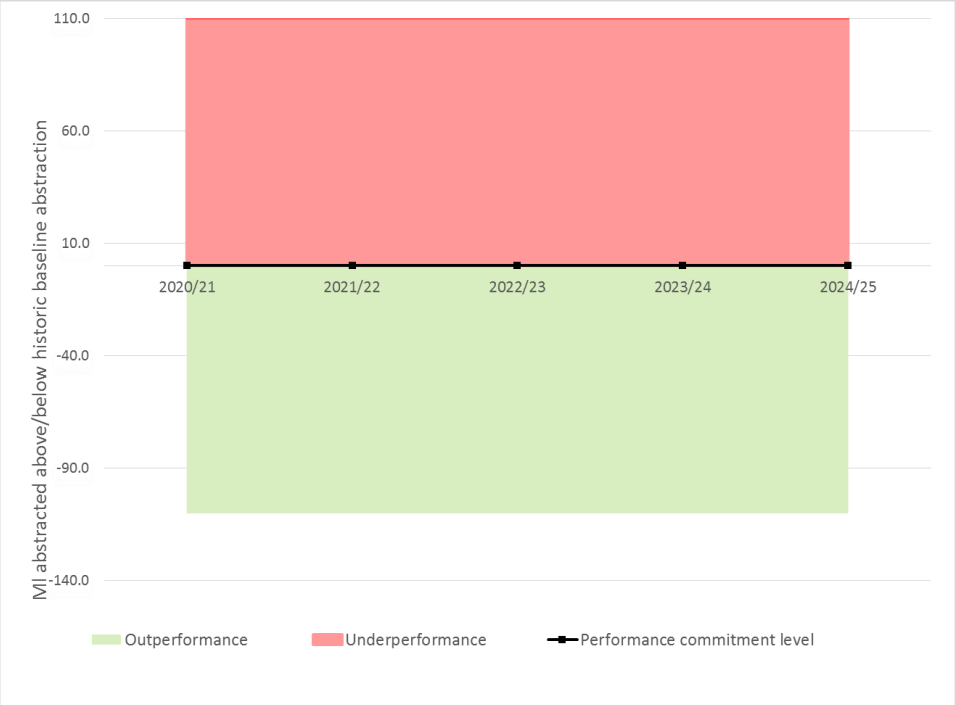


Figure 18

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives and will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

Incentive type	Incentive rate (£m/unit)
Underperformance payment – standard (Old Water)	-0.00080
Underperformance payment – standard (Ennerdale)	-0.00036
Outperformance payment – standard (Old Water)	0.00078
Outperformance payment – standard (Ennerdale)	0.00036

Worked examples

In calculating our AIM performance we will follow the AIM calculation methodology set out in Ofwat's 2016 guidance. The AIM calculation looks back at a historic period (2011-2017) and works out the average abstraction rate at the AIM site during periods when AIM is triggered (i.e. when the river flow is at or below the AIM trigger flow). Actual performance is then compared against the historic period to judge if abstraction has been reduced or not. Taking Ennerdale as an example of the calculation:

- The AIM trigger flow in the downstream River Ehen at the Environment Agency's Bleach Green gauging station is 80.0 Ml/day (this is used as it's the upper band compensation flow release required in the impoundment licence)
- The baseline (2011-17 period) abstraction rate during AIM periods when the river flow is at or below its AIM trigger flow is 24.8 Ml/day (rounded to 1 decimal place. This is based on our records of daily abstracted volumes)
- If, in a future year, AIM was triggered for 10 days and on these days we managed our abstraction so it averaged 23.0 Ml/day
- The resulting AIM performance (Ml) is: [(23.0-24.8) x 10 days] = -18.0 Ml i.e. over the period when AIM applies we abstracted 18.0 Ml less water than during the baseline period
- The resulting normalised AIM performance (no units) is: [-18.0/(24.8x10 days)] = -0.1
- The resulting normalised AIM performance (%) is: [-18.0/(24.8x10 days)]x100% = -7.3%

The AIM performance (Ml) is used to calculate the outperformance/underperformance. For this metric, a negative value is good, showing that abstraction is lower than the historic baseline (2011-2017).

The worked examples assume that AIM is triggered for 5% of the time i.e. 18 days per year. 5% has been used as the Q95 is a typical low flow statistic used in hydrology; it is the flow that is exceeded 95% of the time and hence, the river flow is lower than this for 5% of the time. The resulting financial reward/penalty is shown to the nearest pound.

Example 1: If abstraction at Old Water reduces by 50% (i.e. from the baseline abstraction rate of 3.4 Ml/day to 1.7 Ml/day)

Outperformance payment = -[AIM performance (Ml) x £780]

= -[(1.7-3.4) x 18] x £780

= 30.6 x £780

= £23,868

Example 2: If abstraction at Old Water increases by 50% (i.e. from the baseline abstraction rate of 3.4 Ml/day to 5.1 Ml/day)

Underperformance payment = -[AIM performance (Ml) x £800]

= -[(5.1-3.4) x 18] x £800

= -30.6 x £800

= -£24,480

Example 3: If abstraction from Ennerdale reduces by 4 Ml/day (i.e. from the baseline abstraction rate of 24.8 Ml/day to 20.8 Ml/day)

Outperformance payment = -[AIM performance (Ml) x £360]

= -[(20.8-24.8) x 18] x £360

= 72 x £360

= £25,920

Example 4: If abstraction from Ennerdale increases by 4 Ml/day (i.e. from the baseline abstraction rate of 24.8 Ml/day to 28.8 Ml/day)

Underperformance payment = -[AIM performance (Ml) * £360]

= -[(28.8-24.8) x 18] x £360

= -72 x £360

= -£25,920

Long-term ambition

The river flow that triggers AIM at Old Water is higher than in AMP6 (i.e. AIM will be triggered more often). This is because the calculation of the AIM river flow trigger for AMP7 is based on a longer dataset which includes the early years of AMP6 when we were managing our abstraction under AIM, resulting in higher river flows.

The table below shows how the AIM river flow triggers have altered from AMP6 to AMP7; showing that the AIM trigger flow at Old Water has increased meaning that AIM will be triggered more often and so is a more stretching target.

AIM site	AMP6 (2015-20) Business Plan AIM river flow trigger (Ml/d)		AMP7 (2020-25) Business Plan AIM river flow trigger (Ml/d)		Rationale for change
Old Water	8.8	Q95 of EA's Hynam Bridge gauging station daily average flow data set for 28 July 1995 to 22 October 2013	9.1	Q95 of EA's Hynam Bridge gauging station daily average flow data set for 28 July 1995 to 31 March 2017	Data set extended with more recent data
Ennerdale	80.0	Upper band compensation flow release required in the impoundment licence	80.0	Upper band compensation flow release required in the impoundment licence	No change

In the long term, i.e. by 2040, we want to have addressed environmental concerns associated with our abstractions through formal operational changes (e.g. changes to abstraction licences, development of alternative sources). Where this is not cost beneficial (e.g. at Old Water on the River Gelt), AIM provides an appropriate approach to encourage us to reduce the environmental impact of our abstractions wherever possible. Our water resources management plan sets our strategy for demand management, such as leakage reduction and water efficiency activities, which influence the volume of water we need to abstract, including at AIM sites. Changes in customer demand for water and climate change may result in new abstraction pressures being identified in the future.

Improving the water environment (C04-WR)

Purpose of this measure

This performance commitment measures the progress of the company in delivering its agreed Water Industry National Environment Programme (WINEP) water resources schemes in a timely manner. This measure protects customers from late delivery of our environmental improvement programme through incentives.

Benefits of this measure

This performance commitment improves the natural environment by encouraging the timely delivery of water resources environmental improvement schemes. It will help ensure that water can be abstracted from rivers and lakes without any negative impacts on the environment.

Measure description

This measure assesses the timely delivery of water resources schemes set out by the Environment Agency in its Water Industry National Environment Programme.

Measure definition

In AMP6 we had a measure of 'contribution to rivers improved – water', this combined both delivery of schemes in the Environment Agency's National Environment Programme and sites abstracting water from rivers at times of low flow, Abstraction Incentive Mechanism (AIM). In our Business Plan for 2015-2020 our performance against this measure was translated into an equivalent length of rivers improved in kilometres. We now consider that this was complex to calculate and difficult to explain to customers and stakeholders. We have therefore evolved this into two separate measures for AMP7, one which tracks the Environment Agency's WINEP scheme delivery and a separate Abstraction Incentive Mechanism (C03-WR) measure aligned to Ofwat's compulsory measure.

This performance commitment measures the net number of days early that the company's WINEP water resources schemes are delivered. The company agreed the programme of environmental improvement schemes with the Environment Agency, and these schemes are published in the Environment Agency's WINEP, along with a planned schedule. The scope of this performance commitment is limited to schemes under the FBG (fisheries, biodiversity and groundwater) and WR (water resources) and WQ (Water Quality) functions on the WINEP with the below drivers:

Driver	Description
DrWPA_INV	Catchment investigations by water companies to fully characterise groundwater and surface water SgZs, undertake an options appraisal and identify and recommend measures for catchment schemes to include in the next AMP period and carry out a cost benefit/cost effectiveness analysis. Monitoring as part of the investigation to understand the issue and identify the action can be included.
DrWPA_ND	Catchment scheme actions and measures recommended by either previous investigations; or, actions for water companies identified in safeguard zone action plans to prevent WQ deterioration to avoid the need for additional treatment (WFD 'must do'): subject to cost effectiveness, sustainability and measurement of effectiveness. Some limited post-scheme appraisal can be included in the catchment management driver. Ongoing surveillance monitoring does not form part of the WINEP and falls into the company's ongoing, business as usual operations, such as catchment monitoring for water safety plans.
EE_IMP	Schemes to improve abstractions and outfalls to prevent the entrainment of fish.
HD_IMP	Action is required to improve a site so as to contribute towards meeting conservation objectives of a Natura 2000 or RAMSAR site.

HD_INV	Investigation and/or options appraisal to determine impacts of Water Company activities, or permits or licence standards on the Natura 2000 or RAMSAR site or to determine the costs and technical feasibility of new targets.
INNS_INV	Includes pathway analysis, prevention of deterioration and measures to achieve conservation objectives.
INNS_ND	Schemes to prevent deterioration by reducing the risks of spread of INNS and reducing the impacts of INNS.
NERC_INV1	Undertake investigations and/or options appraisal on opportunities for priority habitat creation, restoration, species recovery or ecosystem services, so as to contribute towards biodiversity priorities and the NERC Act. This includes opportunities on water company owned landholdings or in catchments they influence and operate in when delivering landscape or catchment scale wider benefits and ecosystem services, either in isolation or in partnership.
SSSI_IMP	Action is required to improve a site so as to contribute towards meeting conservation objectives of a SSSI.
WFD_IMP_WRHMWB	Action to prevent deterioration of ecological potential of WR A/HMWB.
WFD_INV_FISH	Investigation to confirm or not, that the reason for not achieving good fish status in a WFD water body not designated as AHMWB is related to fish passage on a water company asset.
WFD_INV_WRFlow	Action to Investigate & undertake Options Appraisal for improvements to the hydrological regime to meet WFD objectives.
WFD_INV_WRHMWB	Action to Investigate & undertake Options Appraisal for improvements to ecological potential of WR A/HMWB.
WFD_ND_WRHMWB	Action to Investigate & undertake Options Appraisal for preventing deterioration of ecological status from flow pressures.
WFD_NDINV_WRFlow	Action to Investigate & undertake Options Appraisal for preventing deterioration of ecological potential of WR A/HMWB.
WFDGW_NDINV_GWR	Groundwater No deterioration investigation relating to water resource.

There are a number of schemes which fall into the above categories but are not included within this performance commitment. The 'Specific exclusions' section below provides details of these schemes. During each year of the 2020-25 period, we will record the actual delivery date of each included scheme compared with the scheduled delivery date set out in the WINEP to calculate the net number of days early or late for each scheme. The scheme-specific estimates will then be aggregated into a single company-wide estimate which records the net number of days early or late across all schemes combined.

There are 16 catchment schemes included within this performance commitment, and it will be possible for these schemes to be partly delivered, with certain elements being complete and other elements incomplete. In these cases, we will calculate the number of days late by multiplying the number of days that the incomplete elements are late by the proportion of overall scheme benefits represented by the incomplete elements. This calculated figure will then feed into the company-level aggregation of net days early or late, along with all other aggregation inputs.

If changes to the programme of water resources schemes are required during the 2020-25 period, we will work with the Environment Agency to agree changes to its WINEP programme through a change control process. Where such changes are formally agreed with the Environment Agency, as defined by the sign-off of an alterations form, performance against this commitment will subsequently be measured against the delivery dates agreed for the revised programme. This change control will be recorded in a separate audited document.

On completion of each scheme the company will ensure that detailed output in use packs are available for sharing with the Environment Agency to demonstrate completion of the work. For a scheme to be considered complete, the company will complete an 'output in use' certificate. If the scheme results in a licence change, the company will reference the licence change and include this on the Environment Agency tracker.

Measurement units

This performance commitment measures the extent to which the company's WINEP water resource schemes have been delivered, expressed as cumulative net aggregate number of days early or late. This will be assessed annually and reported to zero decimal places.

Mitigation/exceptions/assumptions

The following wastewater schemes fit within the aforementioned criteria for this performance commitment but are excluded because they are wastewater schemes and the measure is water resources only. Although the schemes are excluded from the ODI we still have a duty to deliver them and they are funded appropriately;

- Rochdale WWTW Weir scheme
- Stockport WWTW Weir scheme
- Ringley Weir scheme

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – underperformance payments only

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
100%	0%	0%	0%	0%	0%	0%

Performance commitment for AMP7

Our performance commitment requires us to deliver the projects we have agreed with the Environment Agency on time throughout the AMP7 period.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Net days early or late	0	0	0	0	0

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to underperformance payments, which will be reconciled annually on an in-period basis. Underperformance payments are only applicable until one year after the end of the Business Plan Period (31st March 2026).

We will assess the number of days early or late each scheme is delivered and the cumulative view of early or late delivery will be reported annually. There may be instances where it is necessary to follow the change process with the Environment Agency during the five year period and adjust the programme of work. Agreed changes with the Environment Agency as defined by the sign off of an alterations form will update and re-baseline the schemes to be delivered in the programme.

This change control will be recorded in a separate audited document. It is only late delivery of a scheme against these amended dates which would be subject to an underperformance payment. Any changes to schemes in or out of the programme is cost neutral.

Outperformance/underperformance incentive rate

£10,000 programme wide incentive rate, or £145 per net day late.

Incentive application

As set out in the Final Determination the 'programme wide' incentive rate is £0.01 (£m/day).

This programme originally included 69 schemes, therefore the incentive rate per scheme is £0.01m/day / 69 = £0.000145m/day. (£145/scheme per day)

In the case of partial delivery of a catchment scheme the number of days late will be calculated as the number of days that the incomplete elements are late by the proportion of overall scheme benefits represented by the incomplete elements. The net days early or late of catchment schemes will be added to the net days early or late for all other schemes included in this performance commitment before being multiplied by the scheme incentive rate.

Worked examples

In this example 6 schemes are delivered in the report year, which include three catchment schemes. One of the non-catchment schemes is delivered late, one of the catchment schemes is fully delivered early and two of the catchment schemes are partly delivered on time with a proportion of the schemes being delivered late. The net number of days early or late across all schemes is derived by summing the days early or late.

Scheme name			
Scheme A	On schedule	n/a	0
Scheme B	30 days late	n/a	-30
Scheme C	On schedule	n/a	0
Scheme D	30 days early	0%	30
Scheme E	31 days late	45%	-13.95
Scheme F	31 days late	66%	-20.46
Net days early or late			-34.41

The net number of days is rounded to the nearest whole number, in this case it is 34 days late. The underperformance payment is calculated as:

Underperformance payment = Net days late for schemes delivered in the year (to zero decimal places) x scheme level daily incentive rate

34 days x £145 day

= £4930 underperformance payment

Long-term ambition

It is assumed that by 2030 (end of AMP8) all required AMP7 WINEP environmental improvements will have been completed and this performance commitment will no longer be required. However if new environmental regulatory drivers are identified, then future programmes of work may be required to address them. In addition, investigations carried out in AMP7 may lead to implementation schemes being required in AMP8 (for example, schemes to avoid deterioration under the Water Framework Directive). We will work with the Environment Agency to identify any additional future needs and deliver our obligations.

Appendix - Schemes included in this measure

Unique ID	WINEP ID	Driver code	Project Name	Catchment schemes	Reg Date
7UU200364	CLA00364	DrWPA_INV	Mitchells AMP7 safeguard zone algae and geosmin investigation	X	31/03/2022
7UU200365	CLA00365	DrWPA_INV	Rivington AMP7 safeguard zone algae investigation	X	31/03/2022
7UU200375	CLA00375	INNS_INV	Water Company Activities & Recreational Pathway Investigation and Options Appraisal	X	31/03/2022
7UU200376	CLA00376	INNS_INV	Raw Water Transfer Investigation and Options Appraisal	X	31/03/2022
7UU100043	CLA00527	HD_INV	River Ehen Common Standards Monitoring Guidance (CSMG) investigation[1]	X	31/03/2022
7UU100058	CLA00529	WFD_NDINV_WRFlow	WFD no-deterioration investigations: Investigation into impact of groundwater abstractions in the Fylde Aquifer on surface water bodies	X	31/03/2022
7UU200485	CLA00531	WFD_INV_WRHMWB	Investigation of work to improve river morphology and minimise the impact of Stocks Reservoir on the River Hodder HMWB downstream.	X	31/03/2022
7UU100050	CLA00532	WFD_NDINV_WRFlow	WFD no-deterioration investigations - SWB - impact of abstraction at Laneshaw, Corn Close boreholes and Trawden Springs on Colne Water	X	31/03/2022
7UU100047	CLA00533	WFD_INV_WRFlow	WFD no-deterioration investigations - SWB CAT3 - surface water licences (Langden/Hareden/Cowley/Dean system)[2]	X	31/03/2022
7UU100059	CLA00534	WFDGW_NDINV_GWR	Investigation into sustainability of the Furness aquifer	X	31/03/2022
7UU300102	CLA00559	DrWPA_INV	Laneshaw AMP7 safeguard zone algae and geosmin investigation	X	31/03/2022
7UU300113	CLA00570	NERC_INV1	River Calder intake fish passage (new entry on WINEPv3)	X	31/03/2022
7UU100084y	GMC00001	WFD_NDINV_WRFlow	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers (Groundwater abstraction and surfacewater flows)	X	31/03/2022
7UU100085	GMC00035	WFD_NDINV_WRFlow	Manchester and East Cheshire Carboniferous Aquifer Investigation[3]	X	31/03/2022
7UU100084j	GMC00038	WFDGW_NDINV_GWR	Wirral and West Cheshire Permo-Triassic Sandstone Aquifer (Groundwater only)	X	31/03/2022
7UU1000856h	GMC00046	WFD_NDINV_WRFlow	Northern Manchester Carboniferous Aquifer[3]	X	31/03/2022
7UU1000857	GMC00047	WFD_NDINV_WRFlow	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	X	31/03/2022
7UU110092	GMC00050	WFD_INV_FISH	Investigation of fish passage solution at Hug Bridge abstraction weir, River Dane	X	31/03/2022
7UU200532	GMC00083	DrWPA_INV	Huntington and Sutton Hall AMP7 safeguard zone turbidity investigation	X	31/03/2022
7UU200537	GMC00088	DrWPA_INV	Ashworth Moor AMP7 safeguard zone algae investigation	X	31/03/2022

Unique ID	WINEP ID	Driver code	Project Name	Catchment schemes	Reg Date
7UU200542	GMC00093	DrWPA_INV	Ridgegate AMP7 safeguard zone algae investigation	X	31/03/2022
7UU200545	GMC00096	DrWPA_INV	Erwood and Fernilee AMP7 safeguard zone colour investigation	X	31/03/2022
7UU200546	GMC00097	DrWPA_INV	Wybersley (Horse Coppice) AMP7 safeguard zone colour investigation	X	31/03/2022
7UU200547	GMC00098	DrWPA_INV	Haslingden Grane AMP7 safeguard zone algae investigation	X	31/03/2022
7UU200549	GMC00100	DrWPA_INV	Piethorne AMP7 safeguard zone algae investigation	X	31/03/2022
7UU200710	GMC00272	DrWPA_INV	Winwick and Houghton Green bacti AMP7 safeguard zone bacti investigation	X	31/03/2022
7UU200914	GMC00497	WFD_INV_WRHMWB	Investigation of fish passage solution at Taxal gauging weir	X	31/03/2022
7UU200903	WMD00139	WFD_NDINV_WRFlow	WFD no-deterioration investigations - GWB CAT4 - Bearstone borehole	X	31/03/2022
7UU100017	CLA00499	HD_IMP	Ennerdale - revocation of abstraction licence	X	16/12/2022
7UU100020	CLA00502	HD_IMP	Overwater - Revocation of abstraction licence - compensatory measures	X	16/12/2022
7UU100021	CLA00504	HD_IMP	Crummock - Revocation of abstraction licence - compensatory measures	X	16/12/2022
7UU100023	CLA00506	HD_IMP	Chapel House - Revocation of abstraction licence - compensatory measures	X	16/12/2022
7UU200354	CLA00354	DrWPA_ND	Thirlmere AMP7 safeguard zone turbidity and colour and SSSI scheme	✓	22/12/2024
7UU200357	CLA00357	DrWPA_ND	Poaka Beck AMP7 safeguard zone pesticides and 2MIB	✓	22/12/2024
7UU200362	CLA00362	DrWPA_ND	Hodder/Stocks AMP7 safeguard zone colour	✓	22/12/2024
7UU200363	CLA00363	DrWPA_ND	Bowscar AMP7 safeguard zone nitrate	✓	22/12/2024
7UU100026	CLA00509	HD_IMP	Yearl weir improvement to geomorph and fish passage	X	22/12/2024
7UU100030	CLA00513	WFD_ND_WRHMWB	HMWB Stage 3s under investigation by UU in 2016/17: compensation flow change at Dean Clough	X	22/12/2024
7UU100039	CLA00522	WFD_ND_WRHMWB	HMWB Stage 2s still with the EA (for Stage 3 assessment by UU in 2019) - flow change at Grizedale	X	22/12/2024
7UU300103	CLA00560	DrWPA_ND	Castle Carrock AMP7 safeguard zone geosmin	✓	22/12/2024
7UU100072	GMC00020	WFD_IMP_WRHMWB	HMWB Stage 3s under investigation by UU in 2016/17: compensation flow change at Clowbridge	X	22/12/2024
7UU100079	GMC00027	WFD_IMP_WRHMWB	Pre and post flow change monitoring at Readycon Dean[1]	X	22/12/2024
7UU100080	GMC00028	WFD_IMP_WRHMWB	Adaptive Management schemes under investigation in AMP6: Castleshaw[2]	X	22/12/2024
7UU100082	GMC00029	WFD_IMP_WRHMWB	Adaptive Management schemes under investigation in AMP6: Fernilee[2]	X	22/12/2024

Unique ID	WINEP ID	Driver code	Project Name	Catchment schemes	Reg Date
7UU100083	GMC00030	WFD_ND_WRHMWB	Pre and post flow change monitoring at Horse Coppice[1]	X	22/12/2024
7UU200711	GMC00273	DrWPA_ND	Winwick and Houghton Green AMP7 safeguard zone nitrate	✓	22/12/2024
7UU200712	GMC00274	DrWPA_ND	Delamere AMP7 safeguard zone nitrate	✓	22/12/2024
7UU200713	GMC00275	DrWPA_ND	Manley Common AMP7 safeguard zone nitrate	✓	22/12/2024
7UU200714	GMC00276	DrWPA_ND	Five Crosses AMP7 safeguard zone nitrate	✓	22/12/2024
7UU200715	GMC00277	DrWPA_ND	Rushton Spencer AMP7 safeguard zone nitrate	✓	22/12/2024
7UU200716	GMC00280	DrWPA_ND	Pocket Nook AMP7 safeguard zone solvents	✓	22/12/2024
7UU200902	WMD00090	DrWPA_ND	Bearstone AMP7 safeguard zone nitrate	✓	22/12/2024
7UU200353	CLA00353	HD_IMP	Haweswater Catchment AMP7 SSSI scheme	✓	31/03/2025
7UU200367	CLA00367	INNS_ND	INNS biosecurity e-learning package	X	31/03/2025
7UU200374	CLA00374	INNS_ND	Company-wide Invasive Non-native Species Plan	X	31/03/2025
7UU200425	CLA00441	SSSI_IMP	Bowland AMP7 SSSI scheme	✓	31/03/2025
7UU200426	CLA00442	SSSI_IMP	West Pennine Moors AMP7 SSSI scheme	✓	31/03/2025
7UU100018	CLA00500	HD_IMP	Ennerdale Water - weir removal investigation and options appraisal	X	31/03/2025
7UU200483	CLA00503	HD_IMP	River Ehen Compensatory Measures - phase 1 infrastructure removal Overwater	X	31/03/2025
7UU100022	CLA00505	HD_IMP	River Ehen Compensatory Measures - infrastructure removal Crummock Water	X	31/03/2025
7UU100024	CLA00507	HD_IMP	River Ehen Compensatory Measures - infrastructure removal Chapel House	X	31/03/2025
7UU200486	CLA00536	SSSI_IMP	Blea Water - weir removal implementation	X	31/03/2025
7UU200905	CLA00553	EE_IMP	River Lune at LCUS (Halton) eel screen (pump house band screen replacement with fish recovery and return system)	X	31/03/2025
7UU200906	CLA00554	EE_IMP	River Lune at Caton – Eel Screening solution	X	31/03/2025
7UU200907	CLA00555	EE_IMP	Eel Regulations alternative measures payments for Poaka Beck[4]	X	31/03/2025
	CLA00576		Eel Regulations alternative measures payments for Harlock[5]	X	
7UU200908	CLA00556	EE_IMP	Eel Regulations alternative measures payments for Grizedale [6]	X	31/03/2025
7UU110093	GMC00051	EE_IMP	Eel Regulations sites under investigation in 2016-17: River Dee: Huntington (replacement of the band screens and provision of a fish recovery system)	X	31/03/2025
7UU110094	GMC00052	EE_IMP	Eel Regulations alternative measures payments for Heronbridge	X	31/03/2025
7UU200779	GMC00356	HD_IMP	South Pennine SPA AMP7 SSSI scheme	✓	31/03/2025

[1] The EA are in the process of removing this scheme from the WINEP

[2] The scheme was removed prior to agreement of the final WINEP

[3] The scheme has been formally removed from the WINEP

[4] The scheme originally included Harlock but this has been added as a new separate scheme

[5] The scheme was originally combined with Pocka Beck but has been separated into a new scheme by the EA

[6] Originally included Rivington but this has been removed from the scope of the project by the EA

Improving river water quality (C05-WWN)

Purpose of this measure

This performance commitment measures the progress of the company in delivering Water Framework Directive river water quality enhancement schemes within its agreed Water Industry National Environmental Programme (WINEP) in a timely manner.

Benefits of this measure

This performance commitment improves the natural environment by encouraging the timely delivery of Water Framework Directive river water quality enhancement schemes. It should deliver measurable environmental benefits by improving the cleanliness of local rivers and thereby support the preservation of river ecosystems including river-based wildlife.

Measure Description

This measure is designed to track and assess the successful delivery of the Water Framework Directive river water quality enhancement schemes within the Water Industry National Environment Programme. Changes or alterations to the programme identified within period are discussed with the Environment Agency and if needed are managed though a change control process.

Measure definition

In AMP6 we had a measure of 'contribution to rivers improved – wastewater' which assesses the lengths of river which had been improved as a result of our programme of projects. We have therefore evolved this for AMP7 to a measure which demonstrates to customers that our quality enhancement programme is being delivered to the planned schedule.

This measure focuses on the delivery of Wastewater network+ schemes that have an Environment Agency primary or secondary water quality improvement driver, WFD IMPg, WFD_IMPm, NERC_IMP1.

This measure focuses on the Water Framework Directive as this work should deliver measurable environmental improvements whereas the statutory programme is more likely to just maintain a stable level of river or bathing water quality. Customers are protected because the Environment Agency can hold us to account through the use of environmental permits for any non-delivery of the statutory programme. Additionally, a separate Water Industry National Environment Programme uncertainty mechanism will be used to manage costs borne by customers if there are any future changes in the scope of the programme.

There are 96 identified schemes under the performance commitment, which are detailed below in the table in section P. These schemes are then grouped into 16 catchments. The Final Determination sets out a banding for the schemes within this programme, which is based on the totex value of the schemes and designed to be used to weight the incentive applied to each scheme. These bandings are fixed for AMP7.

Band	Number of schemes	Cost of schemes	Ratio to apply
1	60	Below £6m	1
2	22	£6m-£10m	3
3	9	£10m-£17m	4
4	5	Greater than £17m	11

Each banding is associated with a ratio. These ratios serve as relative weightings which are then applied to the scheme-specific delivery timeliness recordings in order to calculate a cost-weighted net delivery timeliness position for the catchment.

Once all aggregated catchment level delivery timeliness positions have been calculated within a given year, these positions are added together to determine a company-level delivery timeliness figure for that year. This is then reported once the final scheme within a catchment has been delivered.

There may be instances where it is necessary to adjust the programme of work that has been agreed with the Environment Agency during the five year period. Any changes will be managed through a formal change control with the Environment Agency. Where changes to the programme result in either reductions or increases in scope this will be managed by a separate Water Industry National Environment Programme uncertainty mechanism. During the development of our Water Industry National Environment Programme we have worked closely with the Environment Agency to understand its requirements and worked with them to develop an appropriate list of schemes. Where changes to the programme are formally agreed with the Environment Agency we will track against the revised scheme for the delivery date.

Output in use packs are available once projects are complete. These packs help us track progress and demonstrates the completion of work to the Environment Agency.

Measurement units

This performance commitment measures the extent to which the company's Water Framework Directive river water quality enhancement schemes have been delivered, expressed as cumulative net aggregate number of days early or late. This will be assessed annually and reported to zero decimal places.

Mitigation/exceptions/ assumptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – underperformance payments only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

Our performance commitment requires us to deliver the projects we have agreed with the Environment Agency on time throughout the AMP7 period.

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Performance commitment	Net position of number of days early or late	0	0	0	0	0

Due to the complex nature of the project being developed and the challenging nature of some of the construction works it will be difficult to deliver the entire programme to time.

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

Delivery will be aligned to the Environment Agency regulatory date. Agreed changes with the Environment Agency as defined by the sign off of an amendment form will update and re-baseline the schemes to be delivered in the programme. It is only late delivery within a catchment (as defined below) against these amended dates which would be subject to underperformance payments. If schemes are not required or additional schemes come into the programme as agreed with the Environment Agency they will fall under the WINEP uncertainty mechanism. This will protect customers from changes to our programme. Any additions or removals from the programme will not change the annual incentive rate or banding for a scheme. Additions will fall into the appropriate banding based on the estimated capital expenditure required for scheme delivery.

Projects are deemed to be finished when our internal governance procedure for claiming outputs has been completed (as demonstrated through the completion of an output in use certificate) and the new environmental permit for that site has been issued by the Environment Agency and is in force. Where alternative permit approaches are used such as catchment permits or stretch targets, an individual site will have been delivered if enhancement requirements to achieve these alternative permits, and an output in use certificate has been completed. Where schemes are late with no agreement from the Environment Agency, the permit will come into force and we are at risk of failing it without the completion of the scheme.

Outperformance/underperformance incentive rate

£14,500 programme wide incentive rate, or £151 per net day late.

Incentive application

As set out in the Final Determination the ‘programme wide’ incentive rate is £0.0145 (£m/day).

This programme has 96 schemes, each of which is weighted. The incentive rate that applies to an ‘average weighted’ scheme is therefore £0.0145m/day / 96 = £0.000151m/day. (£151/scheme per day)

The incentive rate that applies to each scheme, is therefore, the average scheme specific rate, multiplied by a weighting factor. The weighting factor is determined by: the sum of the number of schemes (96) divided by sum of the bandings of all the schemes (220), this produces a weighting factor of 0.436363636.

The specific incentive rate applied to any project is then the average incentive rate multiplied by the weighting factor multiplied by the size band of the scheme. This scheme level incentive rate is then applied, on an annual basis, by determining a weighted net days late position for all the projects within each catchment that complete delivery in the report year.

Worked examples

Catchment A is the only catchment to deliver in the report year and has 5 schemes. In this example, two schemes are early and one is late. The two early schemes both have a banding of 1, the late scheme has a banding of 11. The net number of days early/late is calculated below:

Scheme name	Band	Weighting (band * weighting factor 0.436363636)	Days early / days late	net days early/late (weighted (3.d.p))
Scheme A	1	0.436	180 days early	78.545
Scheme B	4	1.745	0 days early or late	0
Scheme C	11	4.800	180 days late	-864.0
Scheme D	1	0.436	365 days early	159.272
Scheme E	1	0.436	0 days early or late	0
Net days early or late in catchment A				-626.182

The net number of days is rounded to the nearest whole number, in this case it is 626 days late. The underperformance payment is calculated as:

- Underperformance payment = Net days late for aggregated catchments delivered in the year (to zero decimal places) x scheme level daily incentive rate
- -626 days x £151 = -**£94,526 underperformance**

Long-term ambition

The long-term target for this measure will continue to require delivery on time of all outputs as required in our WINEP for the improvement of statutory plus driven schemes. This requirement will no longer be applicable if all rivers in the North West, which our assets discharge into, are achieving Water Framework Directive good ecological status and bathing waters are achieving good status or better. This will be dependent on the cost benefit analysis and customer willingness to pay for these improvements.

It is assumed that by 2030 all required environmental improvements to achieve Water Framework Directive and appropriate bathing waters standards will have been completed.

Schemes included in this measure

	Project Name	Catchment
1	Barnoldswick WwTW - AMP7	Big Ribble
2	Blackburn WwTW - WINEP Requirements - AMP7	Big Ribble
3	BUR0026 - WFD - AMP7	Big Ribble
4	BUR0036 - WFD - AMP7	Big Ribble
5	Burnley WwTW - WFD - AMP7	Big Ribble
6	Burnley WwTW - WFD - AMP7 STs	Big Ribble
7	PEN0056 - WFD - AMP7	Big Ribble
8	PEN0058 - WFD - AMP7	Big Ribble
9	Wilpshire WwTW - WFD Drivers - AMP7	Big Ribble
10	Hyndburn - WFD - AMP7 (No build Soln, confirmed by engineering)	Big Ribble
11	Chipping WwTW - P driver - AMP7	Big Ribble
12	Alderley Edge WwTW - WFD & UWWTD P Removal AMP7	Bollin Upper Mersey
13	Bowden WwTW - WFD - AMP7	Bollin Upper Mersey
14	Great Warford WwTW - WFD - AMP7	Bollin Upper Mersey
15	High Legh WwTW - WFD Drivers - AMP7	Bollin Upper Mersey
16	Knutsford WwTW - WFD Drivers - AMP7	Bollin Upper Mersey
17	Macclesfield WwTW - UWWTD & WFD - AMP7	Bollin Upper Mersey
18	Mobberley WwTW - WFD - AMP7	Bollin Upper Mersey
19	Moor Pumping Station MAC0144 - WFD - AMP7	Bollin Upper Mersey
20	Wilmslow WwTW - P Removal - AMP7	Bollin Upper Mersey
21	Bury WwTW - ND - AMP7	Croal/Irwell
22	BOL0056 - WFD - AMP7	Croal/Irwell
23	BOL0073 - WFD - AMP7	Croal/Irwell
24	BOL0095 - WFD - AMP7	Croal/Irwell
25	BOL0129 - WFD - AMP7	Croal/Irwell
26	BOL0144 - WFD - AMP7	Croal/Irwell
27	BOL0153 - WFD - AMP7	Croal/Irwell
28	BOL0176 - WFD - AMP7	Croal/Irwell
29	BOL0229 - WFD - AMP7	Croal/Irwell
30	Rossendale WwTW - WFD - AMP7	Croal/Irwell
31	Rossendale WwTW Storm Tanks - WFD - AMP7	Croal/Irwell
32	Burscough WwTW - WFD Drivers - AMP7	Crossens System
33	Mere Brow WwTW - WFD - AMP7	Crossens System
34	Alsager WwTW - WFD Drivers - AMP7	Dane
35	Biddulph WwTW - WFD - AMP7	Dane
36	CON0012 King Street CSO - WFD Drivers - AMP7	Dane
37	Congleton WwTW - Ammonia - AMP7	Dane
38	Holmes Chapel WwTW	Dane
39	Kidsgrove WwTW - WFD - AMP7	Dane
40	Lawton Gate WwTW - WFD - AMP7	Dane
41	Middlewich WwTW and Network - Supply Demand - AMP7	Dane

	Project Name	Catchment
42	Sandbach WwTW - WFD - AMP7	Dane
43	'South Park Hall Road/ Stocks Lane CSO, CHR0012	Douglas
44	Chorley WwTW - WFD - AMP7	Douglas
45	Horwich Storm Tanks - WFD - AMP7	Douglas
46	Horwich WwTW - WFD - AMP7 IO BOL0060	Douglas
47	Horwich WwTW - WFD - AMP7	Douglas
48	Leyland WwTW & Leyland Network - S&D - AMP7	Douglas
49	Westhead WwTW - WFD - AMP7	Douglas
50	Glazebury WwTW - WFD - AMP7	Glaze
51	Leigh WwTW - Biodiversity - AMP7	Glaze
52	Leigh WwTW - WFD - AMP7	Glaze
53	Tyldesley WwTW - WFD - AMP7	Glaze
54	Westhoughton WwTW - WFD - AMP7	Glaze
55	WIG0207 - WFD - AMP7	Glaze
56	Worsley WwTW & Inlet - WFD - AMP7	Glaze
57	Worsley WwTW & Inlet - WFD - AMP7 STs	Glaze
58	Worsley WwTW & Inlet - WFD - AMP7 IO	Glaze
59	Bunbury WwTW - WFD Drivers - AMP7	Gowy
60	Duddon WwTW - WFD P Removal AMP7	Gowy
61	Helsby WwTW - Q - AMP7	Gowy
62	Tarvin WwTW - WFD P Removal AMP7	Gowy
63	Utkinton WwTW - WFD P Removal AMP7	Gowy
64	Waverton WwTW - WFD P Removal AMP7	Gowy
65	Chapel-en-le-Frith WwTW - WFD - AMP7	Goyt Etherow Tame
66	Glossop WwTW - Q and X Requirements AMP7	Goyt Etherow Tame
67	Mossley WwTW	Goyt Etherow Tame
68	Mossley WwTW STs	Goyt Etherow Tame
69	Saddleworth WwTW	Goyt Etherow Tame
70	Whaley Bridge WwTW - Q and X Requirements - AMP7	Goyt Etherow Tame
71	Cotebrook WwTW - WFD Drivers - AMP7	Lower Weaver
72	Gawsworth WwTW - WFD Drivers - AMP7	Lower Weaver
73	Kingsley WwTW - WFD Drivers - AMP7	Lower Weaver
74	Little Budworth South WwTW - WFD Drivers - AMP7	Lower Weaver
75	Marton North WwTW - WFD - AMP7	Lower Weaver
76	Whitegate WwTW - WFD - AMP7	Lower Weaver
77	Forton WwTW - AMP7	Lune
78	Greystoke WwTW - Q - AMP7	Petteril
79	Southwaite WwTW - Q - AMP7	Petteril
80	Rochdale WwTW	Roch Irk Medlock
81	Castleton WwTW - WFD - AMP7	Roch Irk Medlock
82	Castleton WwTW - WFD - AMP7 STs	Roch Irk Medlock
83	Failsworth WwTW - WFD Phosphorous AMP7	Roch Irk Medlock
84	ROC0094 - WFD - AMP7	Roch Irk Medlock
85	Audlem WwTW - WFD Drivers - AMP7	Upper Weaver
86	Audley WwTW - WFD Drivers - AMP7	Upper Weaver
87	Betley WwTW - Q - AMP7	Upper Weaver

	Project Name	Catchment
88	Buerton South WwTW - WFD Drivers - AMP7	Upper Weaver
89	Bulkeley WwTW - WFD Drivers - AMP7	Upper Weaver
90	Little Budworth North WwTW - WFD Drivers - AMP7	Upper Weaver
91	Madeley WwTW WFD P AMP7	Upper Weaver
92	Rushton WwTW - WFD P Removal AMP7	Upper Weaver
93	Tarporley WwTW - WFD P Removal AMP7	Upper Weaver
94	Wrenbury WwTW - WFD P AMP7	Upper Weaver
95	Elswick WwTW - WFD Drivers - AMP7	Wyre
96	Inskip WwTW - WFD Drivers - AMP7	Wyre

Protecting the environment from growth and new development (C06-WWN)

Purpose of this measure

This performance commitment measures the equivalent number of new customers we can serve as a result of work completed to provide additional capacity at wastewater treatment works.

Benefits of this measure

This performance commitment ensures that the increase in demand caused by population and economic growth can be met and that the receiving environment is protected from the impact.

Measure description

This measure reports the total additional population equivalent that we can serve as a result of work completed to increase capacity at wastewater treatment works or remove/redirect flows away from areas with a shortfall in capacity.

This is aligned to our AMP6 (2015-20) measure of 'km of rivers protected from growth and new development'. We reported the km of river associated with the treatment works discharge that was protected from the impact of additional growth. We recognised that whilst this reflected the environmental outcome it was quite a complex measure for customers and stakeholders to understand and did not reflect the level of investment required, therefore we evolved the measure for AMP7 to assess the additional population equivalent capacity created to enable the wastewater treatment works to accommodate growth.

The population increase has a link to the scale of a project, this enables customers and stakeholders to hold our performance to account while providing protection from any underperformance.

Measure definition

This performance commitment is allocated to the wastewater network plus price control and will be subject to outperformance and underperformance payments.

This measure reports the total additional population equivalent that will be served as a result of investment to increase wastewater treatment works capacity or remove/redirect flows away from areas with a shortfall in wastewater treatment capacity, thus protecting the environment from decline. The measure reflects the level of protection we are providing at wastewater treatment works and will be measured as a cumulative total for each year, starting at 2021.

The target is defined by the additional population equivalent forecast that will discharge to a wastewater treatment works where capacity risk has been identified. The baseline population equivalent is that from which the design is developed for each works. The programme of work to meet the outcome has defined dates which, where appropriate, align with other drivers (e.g. where we are enhancing wastewater treatment works and delivering a solution to meet an Environment Agency requirement or carrying out maintenance) and the timing of the expected development.

The additional population equivalent is calculated on a scheme by scheme basis using a range of data sources for example:

- Local authority planning information and combined authority strategies such as Greater Manchester spatial strategy
- Planning applications and planning enquiries

- Knowledge from liaison with local authorities
- Knowledge of future trade effluent requirements

This information is used to assess the number of properties that are to be built, the extent of the risk and the timescale of the development for each wastewater treatment works drainage area. A standard occupancy rate is applied in line with the Water Resources Management Plan assumptions. Where an increase in trade effluent is forecast, a population equivalent for this trade increase is calculated from the forecast daily Biochemical Oxygen Demand assuming 60g per population equivalent per day. If more accurate occupancy information is available for a specific development or location, for example a collection of proposed single occupancy dwellings, then this information will be incorporated into the calculation where appropriate to do so.

The population equivalent forecast for individual wastewater treatment drainage areas may change over the business plan timescale if the size of the predicted development increases or reduces. The timescale or rate of development build may accelerate or slow down and unforeseen development in locations where a risk was not identified may also occur. A flexible programme has been created to accommodate these risks and enable reprioritisation of projects to meet the target. In addition to this there is an underperformance payment mechanism if the equivalent of the full programme is not realised or is delayed and investment is no longer required to the extent predicted and an outperformance payment mechanism if additional needs materialise.

For efficiency, the project is only identified for inclusion in the programme if an impact occurs within the business plan timescale. However, the solution design will incorporate *all* growth where there is certainty in the planning data available and includes growth beyond the business planning timescale. This will enable us to deliver solutions that are more resilient in the longer term. Additional drivers (quality or maintenance) are also addressed as part of the overall project with the relevant funding mechanism applied, which helps facilitate efficiencies.

The amount claimed is the additional population equivalent for which the wastewater treatment works can now serve as a result of intervention. In the example below this would be 11,500 population equivalent.

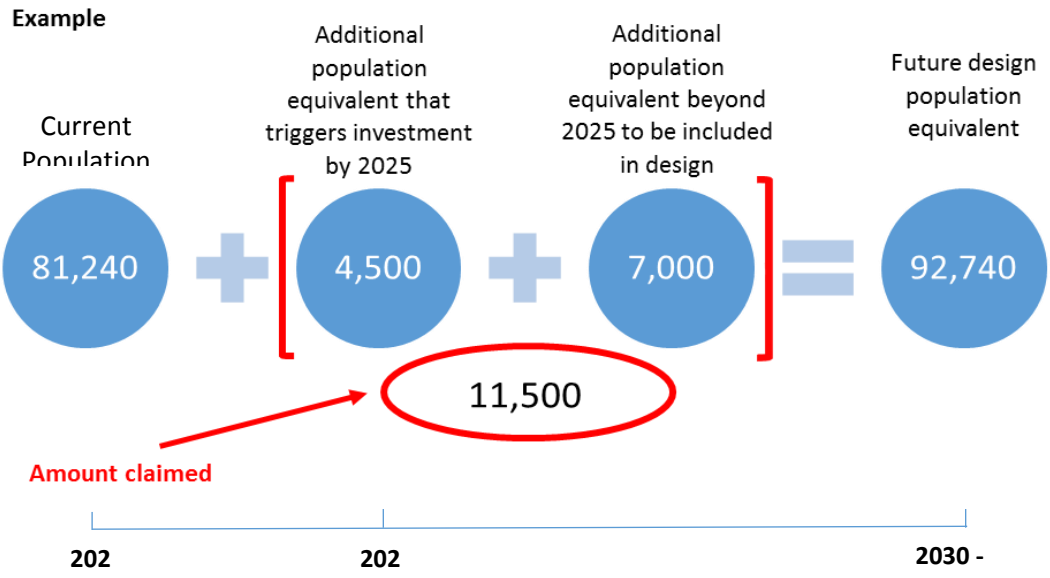


Figure 19

This measure will be delivered alongside the measures to reduce sewer flooding for a more resilient sewer network (measures G01-WWN, G02-WWN, G03-WWN, G05-WWN, G06-WWN); reducing pollution incidents (C01); raising customer awareness to reduce the risk of flooding (G04-WWN); enhancing natural capital value for customers (C08-CF); the investment of developer charges to mitigate the impact of new development on the sewer network and; the internal SuDS policy to encourage and facilitate the accommodation of surface water from new developments in a more sustainable way. This will help prevent exceedance of sewer network and wastewater treatment works capacity and ensure that we only invest when the need is clear.

Increases in sludge production as part of the bioresources plan have been calculated based on forecast trade and population changes as well as from changes in wastewater treatment technology required to deliver environmental regulatory improvements, notably phosphorus removal schemes. These changes will be tracked through the bioresources price control. Projects at wastewater treatment works which are co-located with sludge treatment centres will consider changes in sludge treatment as part of solution development. We have developed guidance on this which will be used as part of project development.

Ofwat require that the performance for this measure is externally audited to demonstrate that the additional capacity is required by 31 March 2025.

Measurement units

Measured as the additional population equivalent capacity at the wastewater treatment works reported annually to zero decimal places.

Mitigation/exceptions/assumptions

When a trader has requested an increase in the flow or load into our network above its current discharge permit, the impact is reviewed and in some circumstances work required to accommodate this change is funded by the trader as it is less costly than a pre-treatment option with more stringent trader permit limits. Such work will be delivered alongside any other projects at the wastewater treatment works or independently depending on the need and timing of the risk from the additional load and will not contribute to the additional population equivalent assessed for this measure. The measure does not include interventions required on the wastewater network to facilitate new connections as these are funded through the developer charging system. This is unless a network solution is developed to provide additional capacity for the downstream works but there will be collaboration with projects to accommodate growth in the networks so that the most efficient intervention is provided for all elements of the system.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

This measure is only assigned to the Wastewater Network+ price control.

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Performance commitment	Population Equivalent (cumulative)	0	8,848	8,848	8,848	75,113
Number of projects (subject to reprioritisation)	Cumulative	0	7	7	7	21

This is aligned to our AMP6 measure km of river protected from growth and new development but measures additional p.e. instead of kms of river associated with each project. The programme will be delivered in the same way.

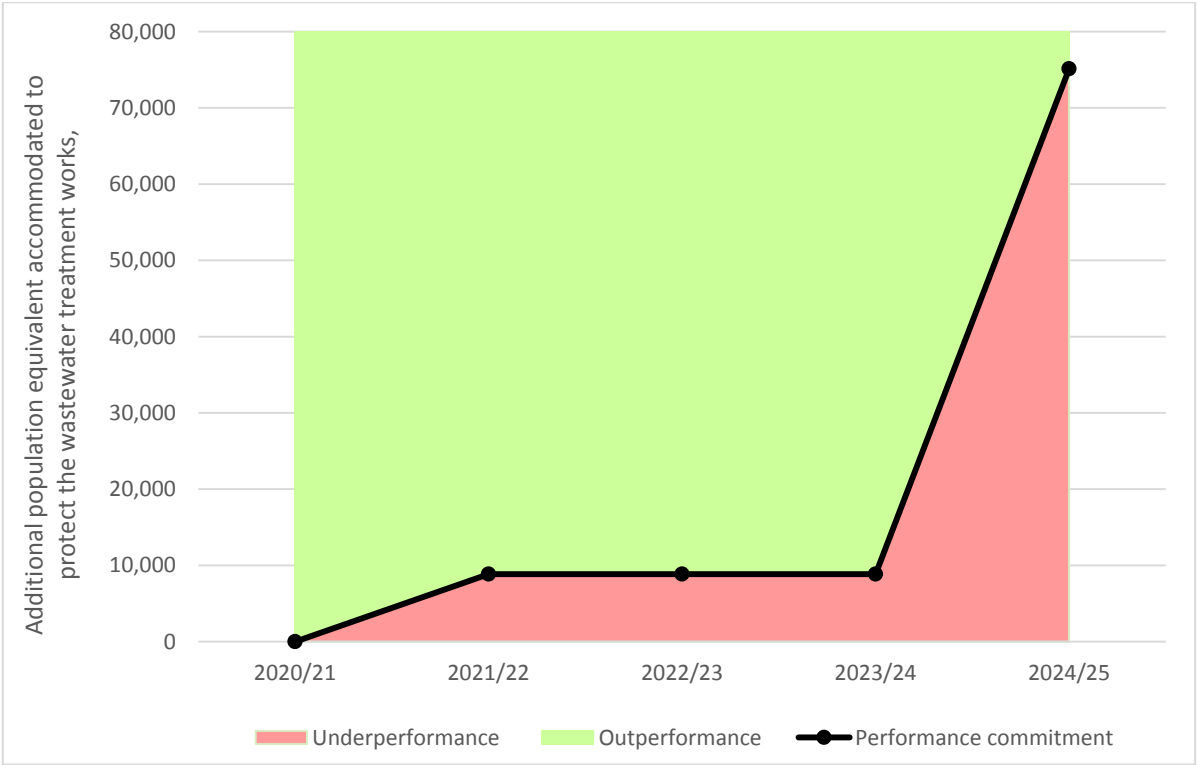


Figure 20

The graph above highlights our performance commitment for AMP7. By delivering against this profile it should allow us to provide the extra capacity that is required to enable development to progress. The timing of this is crucial so that we can provide the correct capacity at the right time without compromising our environmental performance.

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled at an end of AMP basis with an additional year for projects delayed outside the business plan timescale. A larger project that impacts on greater current and future population holds more risk if delayed. This will drive us to substitute equivalent sized projects (or several smaller projects) to accommodate the population increase, if the need arises.

Where unforeseen development occurs that has an impact on our treatment capacity, we will prioritise it along with the rest of the programme. Changes to the other projects within the programme (reduction in households being built or a delay in development build) may provide scope for inclusion of the additional development without reducing performance against the target for any delivery year. If the additional population equivalent from this unforeseen development exceeds the forecast for the project delivery year, it will lead to outperformance payments.

If additional projects have lower population equivalent to be accommodated than other deferred or removed projects, it will result in underperformance payments for the delivery year from which the target is not met. An example of the outperformance and underperformance calculation is shown below.

Outperformance/underperformance incentive rate

The incentive rate is:

Valuation per 1% of river length / 1% population equivalent x allowance for totex sharing mechanism x allowance for benefits beyond AMP7

£1,403,000 / 84,761 x 0.5 x 2 = £16.55 per population equivalent per year

We have rounded this to £17 per p.e. per year

This will be applied on a daily basis at a rate of £0.04657 per p.e. per day.

We have applied the value symmetrically to improvements and deterioration because our asset health customer research supported both outperformance payments for beating the target for maintaining compliance and payments for underperformance (87% support for outperformance payments for us to beat our targets, as meeting standards was seen by customers as very important).

The underperformance payment will apply if the full need does not materialise within the timescales and/or we don't provide the capacity in line with our targets.

Delivery, or outperformance, against our performance commitment will see us successfully increase the wastewater treatment works capacity that we are providing to accommodate growth and new development whilst ensuring we continue to protect the environment. It is essential that we are efficient in delivering interventions to accommodate a higher population equivalent for less investment. It will also drive our ambition to deliver additional customer benefits as part of our service, such as green infrastructure or combined network and treatment solutions

Enhancing natural capital value for customers (C08-CF)

Purpose of this measure

This performance commitment incentivises the company to use catchment approaches to deliver water quality improvements and encourages the uptake of nature based solutions, meeting our requirements through natural capital approaches and assets.

Benefits of this measure

This performance commitment will enhance the region's natural capital value by promoting solutions that have the capacity to generate ecosystem goods and services.

Measure description

This measure assesses the added natural capital value, in millions of pounds, created by delivering investment outcomes through non-conventional approaches, as compared to delivering outcomes through conventional approaches.

We will deliver these improvements through our integrated catchment strategy and innovative ways of working. This supports our Catchment Systems Thinking (CaST) approach and builds on our long-term vision of establishing a resilient systems operation approach to catchment planning and establishing a baseline natural capital account for our operational area. We will work in collaboration with landowners, environmental organisations, community groups and other stakeholders to deliver enhanced environmental outcomes and add value beyond our statutory requirements.

Measure definition

Natural Capital is defined by Defra as 'the sum of our ecosystems, species, freshwater, land, soils, minerals, our air and our seas'. In other words, elements of nature which produce value (e.g. timber production, water purification, recreation and amenity etc.) and benefit people directly or indirectly. The ecosystem service wheel below shows a typical breakdown of components which are measured in a Natural Capital Account.

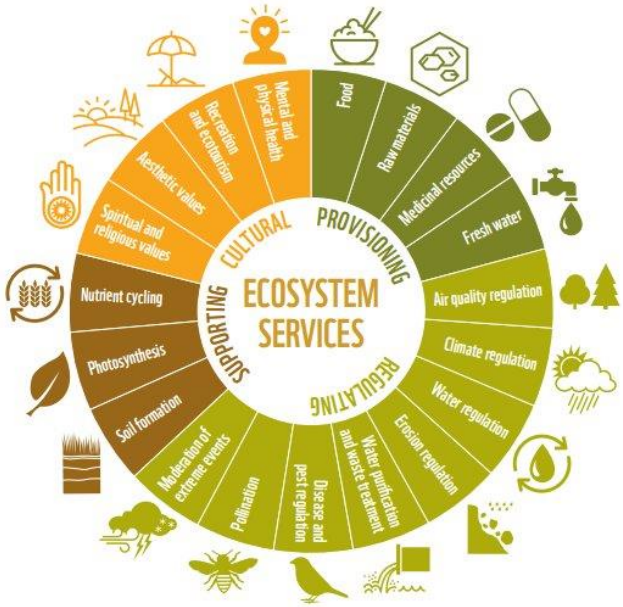


Figure 21: Ecosystem service summary (Source: www.wwf.eu/what_we_do/biodiversity)

For the purposes of this performance commitment:

- a non-conventional approach is defined as a solution that is not conventional but incorporates green solutions and/or catchment solutions to deliver on regulatory requirements and deliver added value;
- a conventional solution is defined as an intervention principally consisting of the construction of new hard engineered assets, the enhancement of existing hard engineered assets or the augmentation of the operation of an existing hard engineered asset.

A conventional solution also includes any existing operational activity undertaken outside of a capital scheme which has the potential to be improved to deliver added natural capital value.

We have set an independently audited and baselined level of performance based on the assumed delivery of statutory requirements for improvements to water quality, as set out in the Environment Agency's Water Industry National Environment Programme (WINEP) and other performance commitments, utilising the conventional solutions included within our PR19 business plan. This baseline level of performance has been subject to an independent audit to determine its reliability.

The added value of individual ecosystem services is calculated using a natural capital accounting approach with a 30-year time horizon. This adopts The Green Book[12] parameters to discount future flows of services to a "net present value" and assumes solutions will be maintained to standard for the full time horizon. The valuations for the prioritised services are based on peer-reviewed literature and industry recognised frameworks and will be subject to an independent third party review in AMP7.

The value of the enhanced services will be quantified using Ciria's independent B£ST tool in line with an independently assured methodology. To quantify added value we will assume that the statutory requirements are realised in both the conventional and natural capital solutions i.e. the additional

[12] The Green Book - Appraisal and Evaluation in Central Government (HM Treasury, 2011)

benefits of delivering our statutory requirements using the non-conventional approach relative to the benefits of delivering the schemes as set out within the audited baseline programme.

We will measure added natural capital value by identifying the ecosystem services that are delivered using a non-conventional approach. We will restrict our measurement of ecosystem services to six defined services which our customers consider to be important, as set out below.

1. Water quality
2. Flooding
3. Climate change
4. Biodiversity
5. Recreation and amenity
6. Health and wellbeing

When deciding whether to apply a conventional or nonconventional approach to deliver a particular scheme, we will apply a standard methodology that is aligned with price review guidance and best practice to select the solution which is the best value (for definition of best value see C08 appendix A) and manages the risk to the environment. This methodology will include an assessment of the whole life costs required to deliver each type of solution.

In order to protect customers in the event of outperformance, the possible outperformance payments that can be accrued from each scheme will be capped at 10% of the totex cost of the scheme.

The conventionality of the solution, assessment of best value option selected and claimed added value contributing to this performance commitment, will be subject to annual independent assurance.

The glossary of definitions, set out below in C08 Appendix A will apply for the purposes of measuring performance.

Measurement units

Total added natural capital value generated through the use of non-conventional solutions to deliver water quality improvement schemes (£m), measured to three decimal places.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
10%	0%	90%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Added value £m (3dp)	0.000	1.750	0.000	0.000	2.250

The performance commitment target is based upon delivering the non-conventional solutions for a number of the schemes identified in the Water Industry National Environment Programme (WINEP), which were embedded within our PR19 business plan. Outperformance would only be achieved if we deliver additional non-conventional solutions and underperformance would be generated if we do not deliver the non-conventional schemes proposed.

The profile of the performance commitment is based on the delivery dates of these schemes within the WINEP.

Deadbands, caps and collars

	Unit	AMP6	AMP7				
		2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Outperformance cap	Added value £m (3dp)	n/a	9.000	5.750	4.000	4.000	9.000

Outperformance/underperformance incentive rate

The outperformance and underperformance incentive is £0.5m per £1m of added natural capital value. The added value for any outperformance is also capped at 10% of the assumed totex allowance for that scheme. This will ensure that the added value (multiple benefits) for customers is always higher than the outperformance incentive.

A 50:50 split is assumed for both the capped outperformance reward with customers and underperformance.

Outcome delivery incentive

This measure is subject to both outperformance and under performance financial incentives, which will be reconciled annually on an in period basis.

Outperformance and underperformance incentive rate

This measure is subject to an underperformance penalty which has been set at £500k for each £1m natural capital value under the performance commitment, and subject to £500k reward for each £1m natural capital value added up to 10% totex of the scheme

Worked example

Worked example 1

Performance commitment in Year 1 = £0

Total scheme(s) totex= £20,000,000

Scheme cap (10%) = £2,000,000

Total added value delivered = £6,000,000 (calculated via B£ST)

The added value is greater than the 10% totex and so the 10% value will be utilised.

£2,000,000 -£0 = £2,000,000

£2,000,000 x 0.5 = £1,000,000 outperformance

Worked example 2

Performance commitment in Year 5 = £2,250,000

Total added value delivered in year = £1,750,000 (calculated via B£ST)

£1,750,000 -£2,250,000 = -£500,000

-£500,000 x 0.5 = -£250,000 underperformance

Long-term ambition

Our long-term ambition is that this becomes a business as usual approach and supports risk-based decision making by considering the multiple benefits of integrated solutions. This is emphasised in our vision to establish Catchment System Thinking (an approach to planning and service delivery), widening the focus of catchment investment beyond statutory requirements, ensuring we and our partners deliver more for customers, communities and the environment. Our long-term stepped approach to achieve this is summarised in Figure 81.

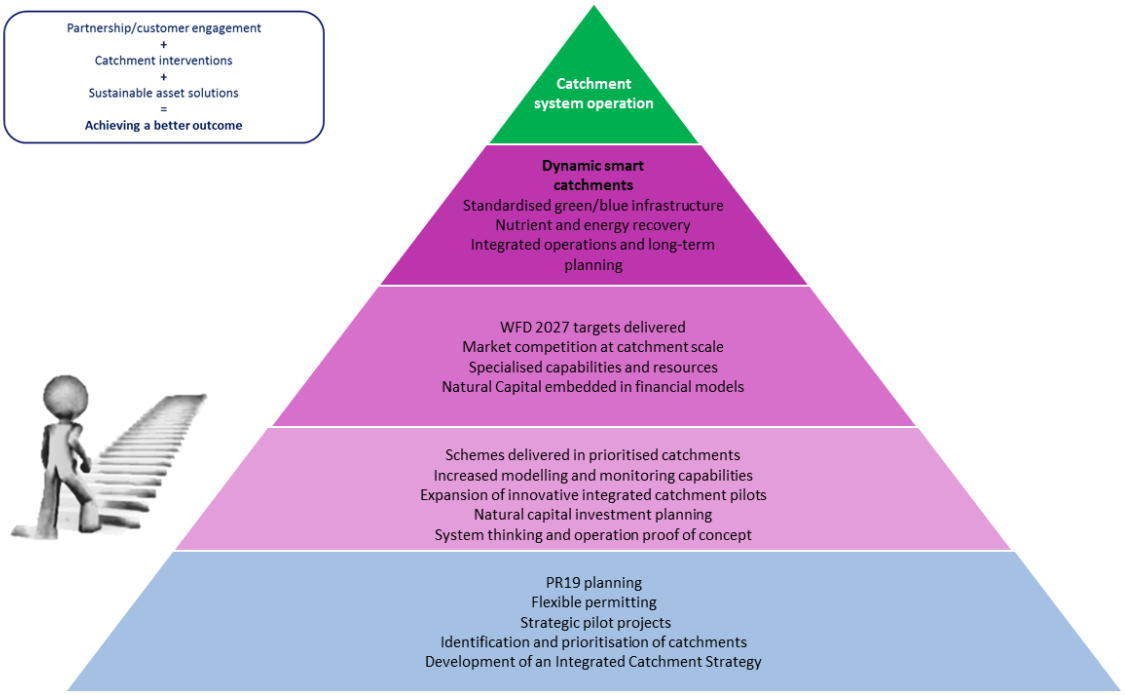


Figure 22 - Our vision for the future

Appendix: Natural Capital Calculator – glossary of definitions

The glossary of definitions set out in the table below, which is reproduced from the table with Annex 3 of the United Utilities PR19 final documentation - Outcomes performance commitments appendix, will be used in measuring performance.

Key Term	Definition	Evidence/reference (if applicable)
Added value	The benefits to customers and the environment provided by ecosystem services that enhance the natural capital beyond statutory or regulatory requirements.	
Alternative or Integrated or non-conventional solution	A solution that is not conventional but incorporates green solutions and / or catchment solutions to deliver on regulatory requirements and deliver added value	
Baseline natural capital	The current situation at the time of the investment which also reflects future trends (including delivery of future regulatory requirements). This allows the estimation of costs and benefits both when the supply (or quality) of goods and services are increased relative to current baseline, and when a deterioration of natural capital is halted.	NCC (2015) – The Economic Case for Investment in Natural Capital in England
Best value	Solutions where the whole life cost and added value (evidenced by willingness to pay) gives the greatest cost-to-benefit ratio across wholesale. This will be assessed using cost benefit analysis assessment.	
Catchment intervention	Catchment management options are those which use changes in land use, larger scale changes in activities (eg agricultural practices) and/or larger scale natural processes to deliver outcomes for water/wastewater services for customers. Catchment management options can also be used to deliver other obligations or ambitions such as for the environment (water quality and sustainability outcomes). The nature of catchment management options means that they often require partnership working to be effective and may provide multiple benefits through a single scheme, some of which might be societal and intergenerational in nature.	Ofwat – Table WS18 line 3 UU PR19 submission plan

Conventional solution	An intervention to provide an outcome that is demonstrably valued by customers, spending on which is directed principally on the construction of new hard engineered assets, the enhancement of existing hard engineered assets or the augmentation of the operation of an existing hard engineered asset. A conventional solution also includes any existing operational activity undertaken outside of a capital scheme which has the potential to be improved to deliver added value.	Water industry standards for water and wastewater treatment
Ecosystem services	Functions and products from nature that can be turned into benefits with varying degrees of human input. Examples include products such as food and clean water, protection from hazards such as regulation from floods, wildlife, and non-material benefits such as recreational benefits. The term "services" is usually used to encompass the tangible and intangible benefits that humans obtain from ecosystems, which are sometimes separated into "goods" and "services". For the purpose of this performance commitment this only includes services which customers have shown a preference for. These are water quality, biodiversity, climate change, flooding, health & wellbeing and recreation & amenity.	UK National Ecosystem Assessment Millennium Ecosystem Assessment
Ecosystems	Ecosystems are a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.	NCC (2015) - The Economic Case for Investment in Natural Capital in England
Enhanced ecosystems	See enhancement of natural capital	
Enhanced environmental outcomes	See enhancement of natural capital	
Enhanced services	See enhancement of natural capital	
Enhanced value	See added value	

Enhancement of natural capital	Improvement of natural capital assets and the ecosystem services they provide to some target condition (e.g. "good" from a "moderate" WFD status) or extent from a baseline, based on human and economic actions.	NCC (2015) - The Economic Case for Investment in Natural Capital in England
Flexible operating agreement	Refers to Operating Techniques Agreement developed with reference to the planning, permitting and compliance principles outlined by the Environment Agency, which sets out a flexible permitting approach to meet Water Framework Directive objectives, via an integrated approach, of both improved WwTW effluent quality and catchment solutions, to deliver regulatory requirements and added value to ecosystem services.	Environment Agency's position statements (Catchment Permitting (October 2018) and Catchment Nutrient Balancing (October 2018)
Green solutions	Nature-based technologies, systems, assets, or interventions that provide social, environmental and/or economic value. In this performance commitment it refers to physical, soft- engineered assets such as SuDS (sustainable urban drainage solutions, "green infrastructure") and wetlands.	SUDS manual; guidance manual for constructed wetlands: updated 11/11/2015.
Holistic planning	Working in partnership with multiple stakeholders to develop long-term aligned plans that address risks and needs (identified through holistic risk assessment) to deliver improvements to ecosystem services at catchment scale.	
Holistic risk assessment	Working in partnership with multiple stakeholders to understand and prioritise risks and needs that deteriorate or compromise ecosystem services at catchment scale.	
Infrastructure enhancement	Improvements made on existing infrastructure. Refers to physical, manufactured, hard-engineered assets.	
Innovative finance	Leveraging of multiple sources of environmental investment to improve natural capital and deliver holistic plans. This benefits customers by aligning water company funding to other investors to deliver more for less.	
	Incorporation of ecosystems services with asset management through natural capital valuation.	

Integrated catchment approach	This moves the water company away from a linear model of asset versus catchment, water versus wastewater divide, and more towards a systems thinking model.	
Investment beyond statutory requirements	See definition for added value	
Investment	Any costs associated with delivering a scheme or undertaking operational activities.	
Operating Technique	Agreed method for how catchments will be operated through both improved WwTW effluent quality and catchment solutions as part of a flexible operating agreement	Environment Agency's position statements (Catchment Permitting (October 2018) and Catchment Nutrient Balancing (October 2018)
Low technology	Soft-engineered technologies (see definition for green solutions)	
Manages risk to the environment	The company will bear the risk that if a solution does not deliver costs savings and environmental risk reduction that they will incur a performance commitment penalty. The delivery risk of environmental benefit will be managed by the water company through, for example, Asset Standards or EA permitting.	
Multiple benefits	See added value	
Multiple needs	See holistic risk assessment	
Natural capital	See natural capital assets	
Natural capital approaches	See natural capital assets	
Natural capital assets	Assets provided by nature with the capacity to generate ecosystem goods and services. The elements of nature that directly or indirectly produce value and benefit to people, including species; ecological communities (a group of actually or potentially, interacting species living in the same place); soils;	NCC (2015) - The Economic Case for Investment in Natural Capital in England

	freshwaters; land; atmosphere; minerals; sub- soil assets; oceans; coasts.	
Natural Capital tools	Industry standard tools used to calculate the natural capital value. To measure the value of natural and social capital created the company will use a tool called B£ST (Benefits of SuDS Tool). The B£ST Tool was first created in 2015 through a project commissioned by CIRIA (the Construction Industry Research and Information Association – an independent, member based, not-for-profit research organisation). The B£ST tool was developed through understanding the potential range of benefits that a SuDS (sustainable drainage system) could provide. These benefits were then quantified as a monetary equivalent value using a range of potential valuation data sources and methods. The company will use the updated 2019 version for the calculation of its performance commitment.	
Natural Capital Value	See natural capital assets	
Non-statutory services	See added value	
Nutrient recovery	Extracting nutrients from waste streams which can be reused rather than being lost. This will reduce the need for generation and purchase of new materials	
Offsetting	- Delivering elements of environmental obligations through catchment solutions to reduce the level of investment required through green or conventional solutions. These may include natural capital offsetting where one ecosystem service is offset with a different one.	

Regulatory/statutory requirements	Improvement and maintenance actions which the Water Industry is required by law to deliver/perform.	Water Industry National Environment Programme (WINEP) Statutory requirements (licences, net gain, etc.)
Siloed investment	Investment which is undertaken from the view of one stakeholder and does not consider the needs of the broader catchment	
Soft-engineered asset solutions	See green solutions	
Totex	Total expenditure (opex and capex) within AMP7	
WINEP scheme	A scheme which is named in the Water Industry National Environment Programme	Water Industry National Environment Programme (WINEP)

Recycling biosolids (C09-BR)

Purpose of this measure

This performance commitment measures the compliance of the company with the 'sludge (use in agriculture) regulations' as defined by the Environment Agency and the voluntary 'Biosolids Assurance Scheme'.

Benefits of this measure

This performance commitment protects the environment by ensuring that biosolids recycled to agricultural land are compliant with guidelines. Biosolids applied to agricultural land provide nutrient and soil structure.

Measure description

This measure assesses the successful disposal of treated material containing sewage sludge, known as biosolids. All biosolids will be compliant with regulatory requirements that apply to each end use in line with the water industry and Environment Agency agreed definition of satisfactory sludge use and disposal. As a further requirement, biosolids that are recycled to agriculture must also conform to the Biosolids Assurance Scheme (a voluntary scheme under the governance of WaterUK). The scheme incorporates best practice guidance and is independently audited. The total quantity of not compliant biosolids is divided by the total quantity of sludge which required treatment and disposal and subtracted from a hundred percent.

Measure definition

This performance commitment is allocated to the bioresources price control and is subject to outperformance payments and underperformance payments.

In AMP6 we had a measure for 'satisfactory sludge disposal' which assessed our performance against the regulatory requirements and the Safe Sludge Matrix. For AMP7 we have evolved the 'satisfactory sludge disposal' in to this measure so that it aligns with the ambition of customers to see more recycling of biosolids and our stakeholders who want recycling to agriculture to be in line with the Biosolids Assurance Scheme.

We currently produce approximately 190,000 tonnes of dry solids of sewage sludge each year as a result of the wastewater treatment process. Tonnes of dry solids is the industry standard measurement for the quantity of sludge after the water content has been removed. This sludge is treated either through chemical addition or through a digestion process, which has the benefits of treating it to a standard that is suitable for use in agriculture and producing biogas which is used to generate renewable energy. Approximately 100,000 tonnes of dry solids of biosolids remains after treatment each year. This is either recycled to agriculture as a fertiliser, recycled to restoration sites or disposed by burning it at an incineration facility with energy recovery. Recycling to agriculture is currently the lowest cost and most sustainable use of biosolids.

This performance commitment measures how well our sludge treatment and disposal activities are operating with respect to public health, environmental protection, statutory compliance and best practice across the water and agricultural sectors. The measure will help to maintain the confidence of both our regulators and stakeholders in the agricultural sector and wider food chain in the use of biosolids as an alternative to fertiliser. Maximising this outlet and retaining it over the long term helps to keep costs low.

Since 2015, the water industry and Environment Agency have agreed a definition and calculation for biosolids use and disposal which covers the regulatory requirements for all outlets. We have used this definition as the basis of the measure and included the additional requirements of the Biosolids Assurance Scheme.

The Environment Agency satisfactory sludge use and disposal definition is:

'Compliance with the Sludge (Use in Agriculture) Regulations, Environmental Permitting Regulations in so far as they apply to the recycling and or disposal of sewage sludge containing products and residual wastes, and compliance with the Safe Sludge Matrix.'

The satisfactory sludge use and disposal calculation assesses the total quantity of successfully used and disposed biosolids divided by the total quantity of sludge which required treatment and disposal, with performance expressed as a percentage.

We have used this definition and calculation approach for this measure with an additional step to account for the inclusion of the Biosolids Assurance Scheme. In line with the Final Determination we will report against Environment Agency Environmental Performance Assessment (EPA) Methodology (version 3) and Biosolids Assurance Scheme Issue 4. We will consider reporting against changes to these requirements only where it is in customers and stakeholders best interest. To be incorporated within the definition, any updates to these reporting requirements must firstly be endorsed by our customer challenge group, YourVoice, and then following consultation, approved by Ofwat.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/WatCoPerfEPAmethodology_v3-Nov-2017-Final.pdf

The scope of the scheme only applies to biosolids used on agricultural land and covers the entire end to end process including:

- confirming the nature of source materials which in turn form part of sewage sludge,
- sludge treatment requirements which ensures a suitable product quality is achieved,
- transport, storage and spreading of biosolids in agriculture which ensures plants receive the right amount of nutrients whilst minimising risk of pollution and disturbance to the public.

Conformance with the scheme is demonstrated through a site level audit regime, at least annually, undertaken by an independent organisation certified by the United Kingdom Accreditation Service (UKAS). This organisation is the sole national accreditation body recognised by the British government to assess the competence of organisations that provide certification, testing, and inspection and calibration services. Failure to comply with the requirements of the scheme can result in the removal of Certified Biosolids status for a site or sites. Information on which sites have Certified Biosolids status will be publically available on the Assured Biosolids Limited website. This ensures transparency and builds trust with stakeholders.

We will encourage the delivery of bioresource services through third parties. Third parties can contribute to delivering this performance commitment using existing reporting approaches for satisfactory sludge disposal and the Biosolids Assurance Scheme.

The Environment Agency agreement for satisfactory sludge use and disposal sets out how a service by a third party is considered. In terms of non-agricultural outlets; material will be deemed compliant with the measure, if at the point of entry to the non-agricultural outlet, an appropriate permit, exemption or regulatory position existed, allowing the sludge to be utilised in this manner.

This measure applies the same principle for biosolids used in agriculture. Where we use other companies to deliver this service; material will be deemed compliant with the measure, if at the point of entry to a site, the site is identified as conforming to the Biosolids Assurance Scheme.

The measure does not constrain the development of bioresource markets as additional bioresource material from other producers (water companies and waste producers) can be treated with sewage sludge. This additional bioresources material will be included in the calculation and will only be accepted for treatment and disposal if it is in the financial interest of customers.

The formula used for assessing successful biosolids use is:

(1-((A+B)/C))*100

Where:

A is the quantity of biosolids for all non-agricultural use or disposal, confirmed as not being compliant with satisfactory sludge disposal requirements, reported in thousand tonnes of dry solids (tTDS).

B is the quantity of biosolids used in agriculture, confirmed as not being compliant with the Biosolids Assurance Scheme or satisfactory sludge disposal requirements, reported in thousand tonnes of dry solids (tTDS)*.

C is the total sewage sludge produced by United Utilities Water**, reported in thousand tonnes of dry solids (tTDS).

This is converted to a percentage by multiplying by 100.

*The worst performance against either Biosolids Assurance Scheme or satisfactory sludge disposal requirements to agriculture is reported to avoid double counting.

** includes additional bioresources material from other producers

Worked example

	Satisfactory Sludge Disposal	Biosolids Assurance Scheme
A Quantity of Biosolids for all non-agricultural use or disposal, confirmed as not being compliant with satisfactory sludge disposal requirements (tTDS)	5	These outlets are not included in the Biosolids Assurance Scheme
B Quantity of Biosolids used in agriculture, confirmed as not being compliant with the Biosolids Assurance Scheme or satisfactory sludge disposal requirements (tTDS)	10	15
The worst performance against either Biosolids Assurance Scheme or satisfactory sludge disposal requirements to agriculture is reported to avoid double counting. Therefore B is 15tTDS.		
C is the total sewage sludge produced by United Utilities Water (tTDS)	200	

Using the information in the table, the formula can be populated as follows:

(1-((5+15)/200))*100

(1-(20/200))*100

(1-0.1)*100

0.9*100

90.00%

Measurement units

Satisfactory sludge disposal compliance and Biosolids Assurance Scheme conformance is measured annually in thousand tonnes of dry solid (tTDS).

For the purpose of this measure tTDS compliance is converted to a percentage and reported to two decimal places.

Mitigation/exceptions/assumption

We have used the Environment Agency satisfactory sludge use and disposal definition and calculation approach from 2018 for this measure. The definition includes the following notes on the reporting requirements.

In terms of non-agricultural outlets; materials are deemed compliant with the measure, if at the point of entry to the non-agricultural outlet, an appropriate permit, exemption or regulatory position existed, allowing the sludge to be utilised in this manner.

Solids added during the sludge treatment process, are excluded from the reporting e.g. lime added during the treatment process will be excluded.

Grit and screenings and water treatment sludge are excluded.

Treatment related breaches that do not result in non-compliant sludges or residual products going to any outlets are not included.

Incineration is considered an 'outlet' for these purposes rather than a treatment.

The Biosolids Assurance Scheme only applies to biosolids used on agricultural land. All other outlets are out of scope. These outlets are instead included in scope of satisfactory sludge use and disposal.

The mitigations and exceptions which apply to this measure may be reviewed to align with subsequent revisions to reporting requirements, where it is in the best interest of customers and stakeholders.

Common performance commitment

This is a bespoke measure.

Incentive type

This measure is subject to outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	100%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
%	100.00	100.00	100.00	100.00	100.00

The graph below highlights our AMP7 performance commitment. We have set our performance commitment at the highest possible level which requires us to dispose of all our biosolids in line with the Biosolids Assurance Scheme. This will be further challenged as we will only receive outperformance payments for multiple consecutive years of 100% compliance.

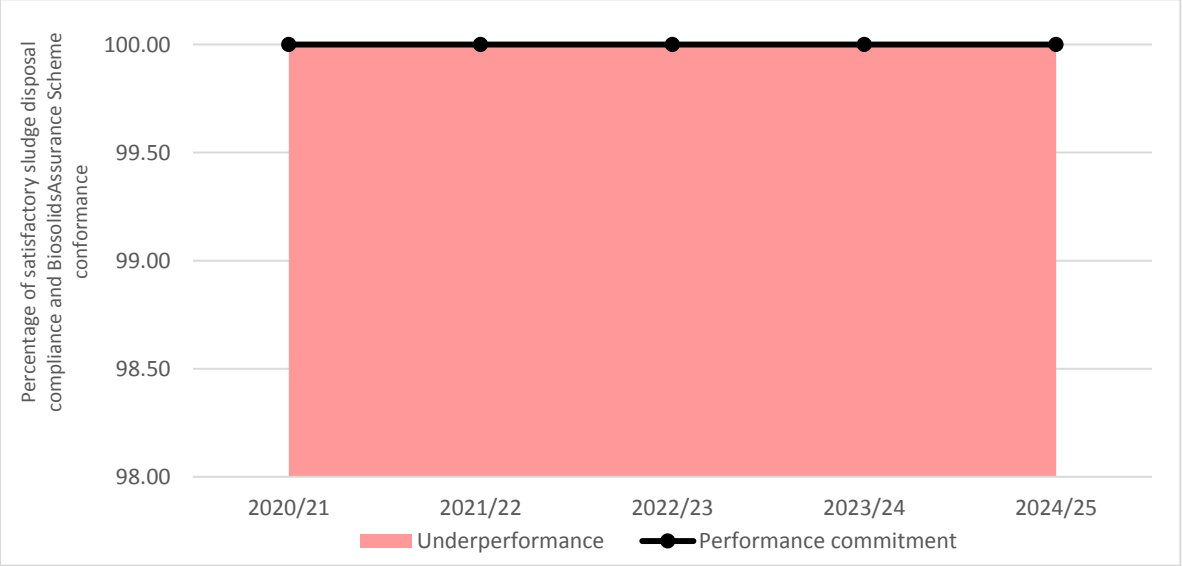


Figure 23

Deadbands, caps and collars

There are no deadbands, caps or collars for this measure.

Outcome Delivery Incentive

This measure is subject to financial outperformance and underperformance payments which will be reconciled annually on an in-period basis.

Outperformance / underperformance rate

The incentive rate is £160,000 per % for underperformance. Outperformance can be earned as a lump sum for any three years consecutive performance at 100% within the 2020-25 period of £1.5m. A further £1.5m payment can be received for five years performance at 100% performance.

Worked examples

In the theoretical scenario below, we are 100% for satisfactory sludge disposal but fail the Biosolids Assurance Scheme audit regime and produce biosolids without Certified Biosolids status across the region for a three month period. At which point we are audited again and successfully restore Certified Biosolids status for the remainder of the reporting period.

The formula used for assessing successful biosolids use is:

(1-((A+B)/C))*100	Satisfactory Sludge Disposal	Biosolids Assurance Scheme
A Quantity of Biosolids for all non-agricultural use or disposal, confirmed as not being compliant with satisfactory sludge disposal requirements (tTDS)	Biosolids not compliant to incineration = 0 Biosolids not compliant to restoration = 0 **Total = 0**	These outlets are not included in the Biosolids Assurance Scheme
B Quantity of Biosolids used in agriculture, confirmed as not being compliant with the Biosolids Assurance Scheme or satisfactory sludge disposal requirements (tTDS)	Biosolids not compliant to agriculture = 0 **Total = 0**	Biosolids not compliant to agriculture = 23 **Total = 23**
The worst performance against either Biosolids Assurance Scheme or satisfactory sludge disposal requirements to agriculture is reported to avoid double counting. Therefore B is 23tTDS.		
C is the total sewage sludge produced by United Utilities Water (tTDS)	189	

Therefore:

(1-((A+B)/C))*100

(1-((0+23)/189))*100

= 87.83%

The underperformance payment would therefore be 100-87.83 = 12.17*-£160,000 = -£1.947m

Long-term ambition

Our long-term ambition is to provide resilient services at the fairest cost to customers. We will do this by maximising the use of the lowest sustainable whole life cost outlet for biosolids in order to keep bills low for customers. Recycling biosolids is in line with customer preferences and the most economical outlet option for 2020-25. This is expected to continue into later business plan periods. However, the lowest whole life cost position will be reviewed at each Business Plan submission in light of changes in drivers including; regulations, costs and innovation in the sector delivering cheaper technologies or through recovering greater value from nutrients, metals, energy, water or other recoverable resources all of which will influence and could change the lowest sustainable whole life cost option.

Better air quality (C10-BR)

Purpose of this measure

This performance commitment incentivises the company to meet and maintain medium combustion directive nitrous oxide limits by 2020 and across 2020-25.

Benefits of this measure

This performance commitment improves air quality by reducing the nitrous oxide (NOx) emissions per unit of renewable electricity generated from biosolids activities.

Measure description

This is a new measure aligned to customer ambition for us to improve air quality. It focuses on reducing the nitrous oxide (NOx) emissions per unit of renewable electricity generated from bioresources. Sewage sludge from wastewater treatment is treated through digestion processes to a standard suitable for use in agriculture. This also produces biogas which is burned to generate renewable energy in combined heat and power engines. When the fuel is burned, waste gases including NOx are emitted. The measure includes emissions from combined heat and power engines and sewage sludge incineration. If biogas is supplied to the national gas grid, the electricity that could have been generated by burning it is included in the measure.

Measure definition

The UK government and local authorities within our region are committed to tackling air pollution and improving air quality. The impact of nitrous oxides pollution in the UK leads to an estimated 23,500 premature deaths and social cost of £13.3 billion a year. Reducing air pollution is vital for people's health and the environment.

We currently comply with local permitting requirements relating to air quality and the Industrial Emissions Directive for our digested sludge incinerator which requires us to reduce NOx emissions to air. The Medium Combustion Plant Directive (MCPD) 2018, will further reduce air pollution by introducing emission controls for combustion plants that will affect all our combined heat and power (CHP) engines associated with anaerobic digestion. The Directive requires all plants in scope to be registered or permitted and sets limits on the levels of pollutants that these plants can emit according to their type, size, age, fuel type and annual operating hours. It also requires operators to test emissions to demonstrate compliance with emission limits. The Medium Combustion Plant Directive has been implemented in England and Wales by an amendment to the Environmental Permitting Regulations.

We have legal obligations under the Medium Combustion Plant Directive to control our NOx emissions, which requires a change to the combined heat and power technology or abatement to remove it from combustion gases. We have designed a relative measure rather than an absolute measure as this enables the Bioresources business to continue to generate more renewable energy and associated income to keep costs low. The measure aims to reduce the amount of NOx emitted for every unit of electricity generated.

The measure is based on tonnes of NOx emitted per GWh electricity generated from bioresources. The scope of the measure includes:

- Electricity generation and NOx emissions from the treatment of sewage sludge and the co-treatment of other organic wastes with sewage sludge from Bioresources combined heat and power engines and incineration.
- Calculated electricity generated values for biogas used in gas to grid schemes that could otherwise have been used in combined heat and power engines.

The concentration of NOx emissions are currently measured from the gases emitted to atmosphere by a qualified external contractor at least annually. If an asset has multiple emissions tests within a fiscal year the average of all the test results is used in the calculation. In the event that modifications are made to an asset with the purpose of lowering the long-term NOx emissions, a further emissions test will be carried out upon completion of the modifications. The average NOx emissions pre and post modifications will then be weighted by the number of days within the fiscal year applicable to each in order to produce a representative value.

The concentration values are used to calculate the quantity of NOx that would be emitted under reference conditions for temperature and pressure. Each combined heat and power engine will be measured and the total tonnes of NOx emissions from each CHP engine for the year is calculated based on the amount of generation from each engine. These are then summed to provide a regional total of NOx emissions for the year in tonnes. The same approach is used for incineration gases (when used by the company). The standard we use for testing the engines to quantify and report the concentration of NOx emissions is BS EN 14792 Stationary source emissions. Determination of mass concentration of nitrogen oxides (NOx).

Electricity generated from each CHP engine is measured. The biogas to grid is measured at the point of injection into the grid and a calculation is used to convert the biogas into electrical energy as though it had been used in the site CHP engines and this is added to the site total. All of the sites are added together to give the regional total electricity generated for the year in GWh. All our operational data relating to energy, electricity generation and biomethane production is compliant with the international carbon reporting standard (ISO 14064, Part 1) and assured following an audit by the Certified Emissions Measurement and Reduction Scheme (CEMARS).

We will follow our existing assurance process for reporting performance each year. NOx levels must be verified by an independent third party engineer. All operational data relating to electricity generation and biomethane production must be compliant with international carbon reporting standards and assured via a CEMARS audit.

The scope of the measure is summarised in the following table:

Source	Fuel	NOx	Electricity Generation
Combined heat and power engines	Biogas	Measure concentration and convert to tonnes per year.	Total electricity generated from combined heat and power engines per year.
Biomethane Production	Biogas	Considered as zero emissions as fuel is used away from the sludge treatment centre.	Biogas quantity and quality is converted to amount of electricity as though it had been used on site in a combined heat and power engine.
Incineration	Sludge	Measure concentration and convert to tonnes per year.	Total electricity generated from incineration per year.

NOx emissions in tonnes per year is divided by the electricity generation in GWh per year to give a value in tonnes per GWh. A three year rolling average is used to measure performance due to the relatively small number of measurements taken.

The formula is A/B, where:

- A is the total tonnes of NOx emitted per year (tonnes/year) on a rolling three year average.
- B is the total renewable electricity generated per year (GWh/year) on a rolling three year average.

Measurement units

Measured annually as a ratio based on the quantity of NOx emitted (tonnes) per unit of renewable electricity generation (Gigawatt Hour, GWh). The measure will be reported to two decimal places.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

This measure is subject to financial outperformance and underperformance incentive payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	100%	0%	0%	0%

Performance commitment for AMP7

The performance commitment is based upon achieving the legal limit set by the Medium Combustion Plant Directive. Our business plan only includes investment to meet the Medium Combustion Plant Directive requirements, achievement of this will not result in any incentive. Maintaining our existing engines will only sustain current performance. Investment over and above this requirement will be needed to lower emissions.

We can improve our NOx emissions beyond the legal requirement by funding improvements outside our business plan. These include:

1. Installation of new control modes to existing engines so they burn more cleanly
2. Installing gas clean-up technology after the gases have been burned.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Nitrous Oxide (tonnes) per unit of renewable electricity generation (GWh)	1.42	1.42	1.42	1.42	1.42

Performance will be assessed on a rolling three year average. The graph below highlights the performance commitment that we have made for AMP7. This strives to consistently maintain the lowest performance that we have ever historically achieved.

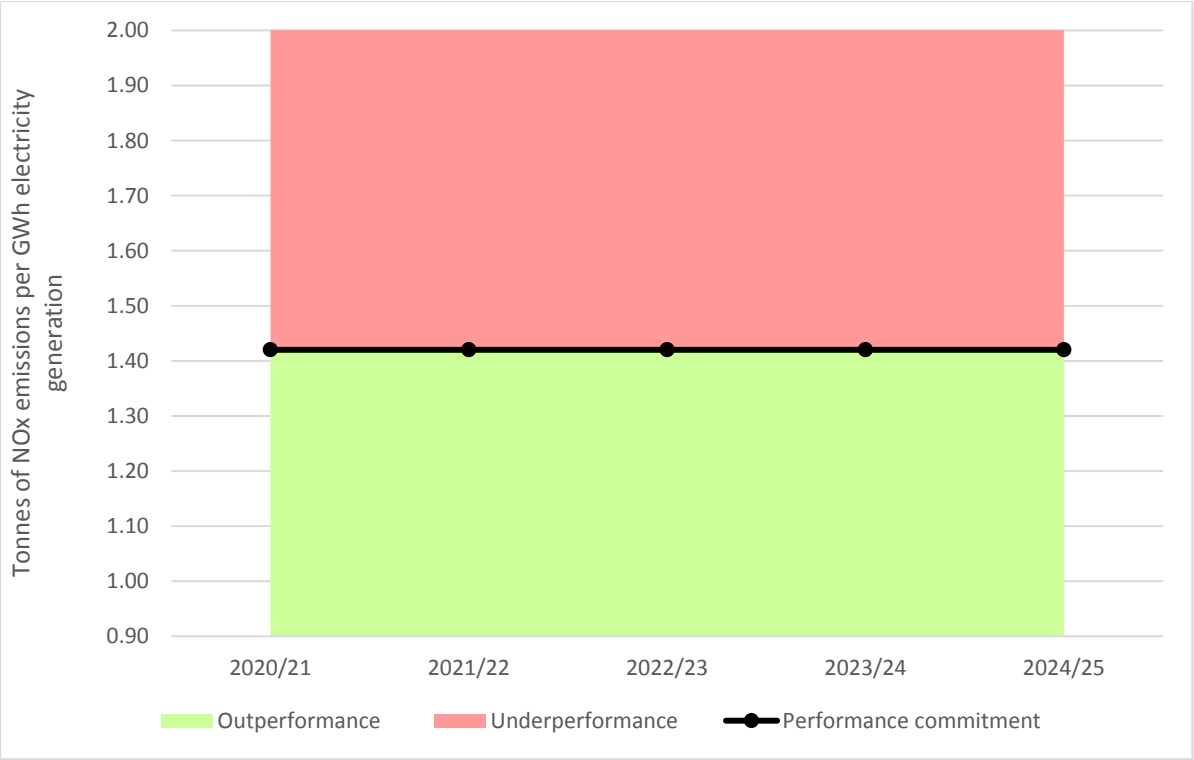


Figure 24

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

The incentive rate for underperformance and outperformance is £0.0269m.

Worked examples

The table below shows worked examples for underperformance and outperformance scenarios.

	Underperformance example	Outperformance example
A is the total tonnes of NOx emitted per year (tonnes/year) on a rolling three year average.	200	195
B is the total renewable electricity generated per year (GWh/year) on a rolling three year average	125	160
A/B (NOx/GWh)	1.60	1.22
Performance Commitment (NOx/GWh)	1.42	1.42
Difference between performance commitment and actual performance (NOx/GWh)	-0.18	0.20

0.01 point conversion*	-18	20
Incentive Rate (NOx per 0.01 tonnes per GWh)	£26,925	£26,925
Total (0.01 point conversion x incentive rate)	-£484,650.00	£538,500.00

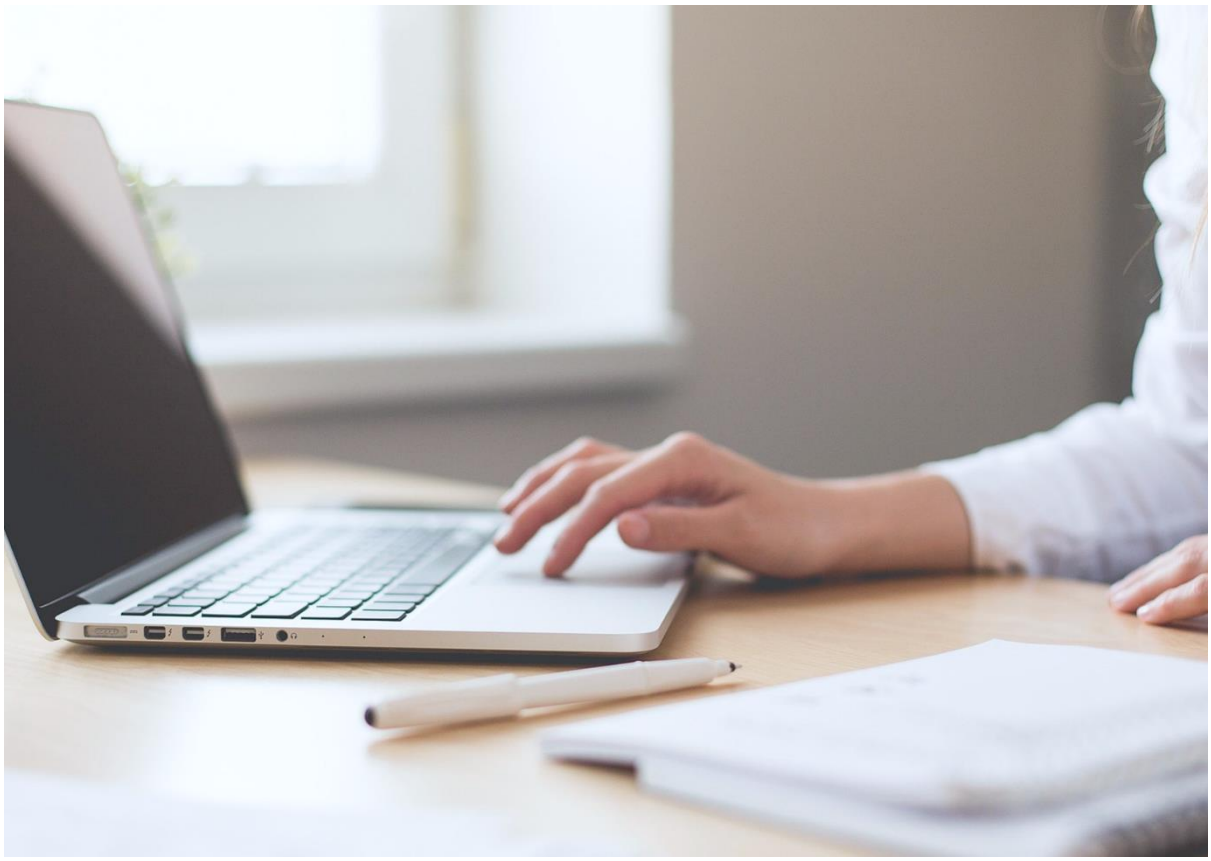
*** The 0.01 point conversion is required because the incentive rate is measured in 0.01 NOx/GWh point values.**

Long-term ambition

Our long-term ambition is to maximise energy generation and value from bioresources whilst maintaining a low level of NOx emissions. Our target is to maintain these at the legal limit that we are required to as part of the Medium Combustion Plant Directive and where cost beneficial reduce air emissions lower than the legal limit to the benefit of customers.

Outcome D – You're highly satisfied with our service and find it easy to do business with us

We are committed to delivering the best possible service for customers. We will seek to offer customer the services that they want and value. We will actively promote support for customers in vulnerable circumstances. We will provide assurance that the quality of support for customers in vulnerable circumstances is of a leading standard by achieving and maintaining certification under a British Standards Institution accreditation for inclusive service provision.



C-MeX (D01-HH)

Purpose of this measure

This performance commitment is designed to incentivise companies to improve the experience they provide to residential customers.

Benefits of this measure

This performance commitment should increase residential customer satisfaction, by improving both the overall customer experience and companies' handling of customer contacts.

Measure description

C-MeX is a mechanism designed to incentivise excellent levels of service for residential customers in the water sector. Each company receives a C-MeX score based on the results from two surveys:

- the customer service survey – a customer satisfaction survey of a sample of residential customers who have contacted their company which asks them how satisfied they are with how the company has handled their issue; and
- the customer experience survey – a customer satisfaction survey of a randomly selected sample of a company's overall residential customer base which asks them how satisfied they are with their company.

Measure definition

The customer measure of experience (C-MeX) is a measure of customer satisfaction.

A company's C-MeX score is calculated as the weighted average of customer satisfaction (CSAT) scores from customer service (CS) and customer experience (CE) surveys.

Standard and higher performance payments under C-MeX depend on a company's performance relative to those of other companies.

Higher performance payments are available if the company passes each of the following three 'gates':

- the company is one of the top three performers by C-MeX score;
- the company is at or above a cross-sector threshold of customer satisfaction performance based on the all-sector upper quartile (ASUQ) of the UK Customer Satisfaction Index (UKCSI); and
- the company has lower than the industry average number of household complaints (per 10,000 connections).

The company's C-MeX score (determined before the application of any adjustment for the number of channels offered) is calculated using the following formula: $C\text{-}MeX\ score$ = 50%$*CS\text{-}CSAT$ + 50%$*CE\text{-}CSAT$

Each CSAT score is rescaled to be out of 100.

Three points are deducted from the C-MeX score if the company does not offer at least five communication channels, including three online channels, to receive contacts from customers.

Standard payments

The company's C-MeX incentive rate (determined before the application of any higher performance payment for passing the three gates) depends on its C-MeX score relative to those of other companies. Specifically, it depends on the company's score relative to the median company's score and either the highest or lowest performing company's score. This is demonstrated as follows:

- $if\ score{>}median$: $(score-median)*(6\%/(maximum-median))$
- $if\ score{<}median$: $(score-median)*(12\%/(median-minimum))$
- $if\ score{=}median$: 0%

where:

- 'score' is the company's C-MeX score in the reporting year;
- 'median' is the median score of all companies' C-MeX scores in the reporting year;
- 'maximum' is the highest score achieved by a company in the reporting year; and
- 'minimum' is the lowest score achieved by a company in the reporting year.

Higher performance payments

Up to three companies could receive higher performance payments. The company with the highest score that passes the three gates receives an additional 6% of that year's annual allowed residential retail revenue, potentially taking its total outperformance payments to 12%. If a second company qualifies, it will receive an additional 4% and if a third company qualifies it will receive an additional 2%. For the avoidance of doubt, if only one company passes the three gates it will receive an additional 6% regardless of whether it is has the highest C-MeX score across all companies.

The 'C-MeX ASUQ' threshold referred to in the three gates for higher rewards, above, is calculated using the following formula:

- $C\text{-}MeX\ ASUQ = C\text{-}MeX\ Mean + (UKCSI\ ASUQ - UKCSI\ Mean)\ /\ UKCSI\ SD * C\text{-}MeX\ SD$

where:

- 'C-MeX Mean' is the mean average of all water companies' C-MeX scores;
- 'UKCSI ASUQ' is the upper quartile of the CSI scores of all companies in the UKCSI report relating to the relevant year (e.g. for C-MeX in 2020/21, the UKCSI ASUQ would be based on data from the July 2021 UKCSI surveys);
- 'UKCSI Mean' is the mean average score of water companies in the UKCSI report relating to the relevant year;
- 'UKCSI SD' is the standard deviation of water companies' scores in the UKCSI report relating to the relevant year; and
- 'C-MeX SD' is the standard deviation of the C-MeX scores of all water companies.

The underlying methodology for the UKCSI may change during the 2020-25 period. Ofwat will continue to use future iterations of the UKCSI upper quartile, mean and standard deviation for the purposes of C-MeX. However, if the UKCSI methodology moves away from a league table approach such that Ofwat cannot quantify an upper quartile or no longer has a sufficient number of water companies in its sample, Ofwat will use the last appropriate UKCSI results instead in companies' in-period determinations.

Links to relevant external documents: 'PR19 final determinations – Customer measure of experience (C-MeX) and developer services measure of experience (DMeX) policy appendix 3' https://www.ccwater.org.uk/ https://www.instituteofcustomerservice.com/

Measurement units

Score out of 100 to two decimal places.

Mitigation /exceptions / assumptions

None.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

Financial – Outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	0%	100%	0%	0%

Performance commitment for AMP7

C-MeX is based upon relative performance between companies.

Outcome Delivery Incentive

C-MeX payments are calculated by multiplying the incentive rate by the company's annual allowed residential retail revenue (as described in the United Utilities PR19 final determination 'Allowed revenue appendix' or as updated following any interim determinations or in-period ODI adjustments in the 2020-25 period).

Outperformance/underperformance incentive rate

The underperformance rates are shown in the table below.

Incentive type	Incentive rate (% of annual actual developer services revenue)
Underperformance payment – standard rate if company's score < median score	$(score - median) * (12\%/(median - minimum))$
Deadband If company's score = median score	*0%*
Outperformance payment – standard rate if company's score > median score	$(score - median) * (6\%/(maximum - median))$
Outperformance payment – higher rate (Applies if meeting the three gates for highest payments and additional to standard incentive rates)	*+6% if the company has the highest C-MeX score of companies passing the three gates*

Long-term ambition

Our long-term ambition is to deliver the highest possible level of customer services at the lowest cost in order to achieve the highest reward possible. We will continue to look at ways to reduce complaints and improve service.

D-MeX (D02-CF)

Purpose of this measure

This performance commitment is designed to incentivise companies to improve the experience they provide to developer services (new connections) customers, including property developers, self-lay providers and those with new appointments and variations (NAVs).

Benefits of this measure

This performance commitment should increase developer customer satisfaction, by improving the overall customer experience for all developer services customers.

Measure description

D-MeX is a measure of customer satisfaction. A company's overall D-MeX score is calculated from two components that contribute equally:

- Qualitative D-MeX score, based on the ratings provided by developer services customers who transacted with the company throughout the reporting year to a customer satisfaction survey; and
- Quantitative D-MeX score, based on the company's performance against a set of selected Water UK performance metrics throughout the reporting year.

The survey results which are used to calculate the qualitative component of the company's D-MeX score will be supplied by a survey agent appointed by Ofwat. This is supplied out of 100 to form the score for the qualitative component of D-MeX.

The set of Water UK performance metrics which are used to calculate the quantitative component of the company's D-MeX score, in place at the time of PR19 final determinations publication, are set out in annex 2 of 'PR19 final determinations: Customer measure of experience (C-MeX) and developer services measure of experience (D-MeX) policy appendix'. For each metric, a percentage is reported and a simple average of these metrics is taken. This is rescaled to be out of 100 to form the score for the quantitative component of D-MeX.

Measure definition

The company's D-MeX score is calculated using the following formula:

$$D\text{-}MeX\ score = 50\% * Qual + 50\% * Quant$$

where:

- 'Qual' is a simple average of satisfaction scores given by developer customers surveyed in the developer customer satisfaction survey in the reporting year; and
- 'Quant' is a simple average of the selected Water UK performance metrics which have non-zero volumes in the reporting year.

The company's D-MeX incentive rate depends on its D-MeX score relative to those of other companies. Specifically, it depends on the company's score relative to the median company's score and either the highest or lowest performing company's score. This is demonstrated as follows:

$$if\ score > median : (score - median) * (6\%/(maximum - median))$$

$$if\ score < median : (score - median) * (12\%/(median - minimum))$$

$$if\ score = median : 0\%$$

where:

- ‘score’ is the company’s D-MeX score in the reporting year;
- ‘median’ is the median score of all companies’ D-MeX scores in the reporting year;
- ‘maximum’ is the highest score achieved by a company in the reporting year; and
- ‘minimum’ is the lowest score achieved by a company in the reporting year.

Measurement units

Score out of 100 to two decimal places.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

Financial – Outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	Variable %	Variable %	0%	0%	0%	0%

The allocation between the Water network plus and wastewater network plus both controls will vary each reporting year based on the relative outturn developer services revenues collected by the company for water and wastewater services.

Performance commitment for AMP7

D-MeX is based upon relative performance between companies.

Outcome Delivery Incentive

D-MeX payments are calculated by multiplying the incentive rate by the company’s annual actual developer services revenue as reported for the following components (for each of water and wastewater):

- connection charges;
- infrastructure charge receipts – new connections;
- requisitioned mains;
- requisitioned sewers;
- diversions; and
- other contributions (price control).

The Water UK metrics that form the basis of the quantitative component of D-MeX may change in the 2020-25 period. The Water UK metrics that contribute to the qualitative survey may change as well.

In determining whether to make changes to D-MeX as a performance commitment in light of changes to the Water UK metrics, Ofwat's decision will be based on the principles that revisions are in customer interests, support consistent and fair comparisons between companies and align with their wider duties. They will consult with stakeholders prior to making any changes.

Outperformance/underperformance incentive rate

The underperformance rates are shown in the table below.

Incentive type	Incentive rate (% of annual actual developer services revenue)
Underperformance payment – standard rate if company's score < median score	$(score - median) * (12\%/(median - minimum))$
Deadband If company's score = median score	*0%*
Outperformance payment – standard rate if company's score > median score	$(score - median) * (6\%/(maximum - median))$

Long-term ambition

Our long-term ambition is to deliver the best possible service to developer services customers, increasing Developer Services customers' satisfaction in all aspects of the service we are providing to them.

Priority services for customers in vulnerable circumstances (D03-HH)

Purpose of this measure

To ensure a minimum standard across all companies for the number of households registered on the Priority Service Register (PSR) and for PSR data checking.

Benefits of this measure

This performance commitment will help to increase the number of customers in vulnerable circumstances that receive the most appropriate service to their needs. It will also ensure the register is kept up to date.

Measure description

This common performance commitment is defined in the reporting guidance: 'Reporting guidance – Common performance commitment for the Priority Service Register'.

This performance commitment consists of the following criteria:

- The PSR reach: percentage of households that the company supplies with water and/or wastewater services that are registered on the company's PSR;
- Attempted contact: percentage of distinct households on the PSR that the company has attempted to contact over a two-year period;
- Actual contact: percentage of distinct households on the PSR that the company has actually contacted over a two-year period.

To achieve compliance with this performance commitment the reach, attempted contact and actual contact targets should be achieved.

Measure definition

The performance commitment is calculated using the following formulas:

$$PSR\ Reach = (PSR\ households\ /\ Total\ households) \times 100$$

$$Attempted\ contacts = (Number\ of\ attempted\ contacts\ /\ PSR\ households) \times 100$$

$$Actual\ contacts = (Number\ of\ actual\ contacts\ /\ PSR\ households) \times 100$$

In the above formulas:

- 'PSR households' equals the number of households on the PSR (recorded on 31 March)
- 'Total households' equals the total number of households served (recorded on 31 March)
- 'Attempted contact' equals the distinct households which the company has attempted to contact over a two-year period (recorded on 31 March)
- 'Actual contact' equals the distinct households where the company had actual contact over a two-year period (recorded on 31 March)

We will also report the following information:

- PSR reach: we will present PSR membership by separately reporting forecast annual figures for individuals registered receiving support through PSR services for

a) communication,

b) support with mobility and access restrictions,

c) support with supply interruption,

d) support with security and

e) support with other needs.

- PSR data-checking: We will report the number of households added and removed from the PSR if the data is not available to report numbers of individuals. Where possible, we will report the corresponding figure for individuals alongside this.
- On PSR data-checking, Ofwat considers it appropriate to exclude households that have been added within the last two years on the company's PSR. This is because these entries should be up to date and therefore Ofwat would not expect companies to attempt to contact households until after they have been on the PSR for over two years.
- A reportable attempt is where we have tried to contact the customer on two occasions.

Regardless of whether an 'attempted' contact is undertaken through the company or a third party, we will report all performance as part of the single 'attempted contact' measure in our overall performance reporting to Ofwat.

Measurement units

PSR reach: percentage of applicable households, reported to one decimal place.

Actual contacts: percentage of applicable households, reported to one decimal place.

PSR data checking: percentage of applicable households, reported to one decimal place.

Mitigation/exceptions

None.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

Reputational.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	0%	100%	0%	0%

Although this performance commitment and ODI is 100% allocated to the residential retail price control delivery of Priority Services support also requires activity and engagement in areas that fall under the Water Network+ and Wastewater Network+ price controls.

Performance commitment for AMP7

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Performance commitment : Reach	%	4.0	4.8	5.5	6.3	7.0
Performance commitment : Actual contact	%	17.5	35	35	35	35
Performance commitment : Attempted contact	%	45.0	90	90	90	90

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

Not applicable.

Outperformance/underperformance incentive rate

Not applicable.

Long-term ambition

Our Priority Services offer and other support for customers in vulnerable circumstances continues to develop. In the last few years the level and quality of support has improved substantially both within UU and across the water and energy sectors. We believe that our current commitments will prove industry leading for an extended period beyond 2025. Our long-term ambition is therefore to drive a substantial increase in awareness and Priority Service uptake.

We estimate it will take up to ten years to achieve full community awareness and registration. There after we anticipate broadly stable registration levels.

Street works performance (D04-CF)

Purpose of this measure

This performance commitment measures the safety, quality and compliance of the company's street works activities in the public highway against the New Roads and Street Works Act (NRSWA) 1991.

Benefits of this measure

This performance commitment will improve the quality of the company's activities in the public highway through compliance with the New Roads and Street Works Act (NRSWA) 1991.

Measure description

This measure assesses the successful and safe delivery of our street works activities. It will measure safety, quality and compliance against the codes of practice currently in place (as at 2018) under the New Roads and Street Works act (NRSWA) 1991.

Measure definition

The New Roads and Street Works Act 1991 (NRSWA) allows codes of practice to be introduced to set the standards undertakers are required to work to whilst executing their street works. Failure to meet the standards causes disruption both during and after works, this can either be through poorly setup work sites which disrupt road users via taking up excessive road space or causing confusion resulting in increased congestion. Additionally, there may be a need to occupy the highway further when we are undertaking remedial works to rectify non-compliant reinstatements. This would mean we are occupying road space for a second time by setting up signing, lighting and guarding while we undertake the remedial works.

This measure will report the percentage non-compliance of street works activities undertaken in the public highway as assessed by our street works audit compliance team. The compliance team audit a percentage of in-progress excavation work and permanent standard reinstatements to determine the level of non-compliance against current legislation. They will assess each set of works against the standards set out in law (Safety at Street Works and Road Works a code of practice (October 2013)) using a standard set of questions that mirror and go beyond the statutory (Category A) inspections used by highway authorities.

Any non-compliances found are photographed and reported via mobile devices in real time, notifications are sent to our delivery partners notifying them of the failure to comply and an action given to them to rectify the non-compliance found. The details are stored on an interactive website which allows reports to be produced and actions to be closed down with supporting evidence i.e. team reports showing their actions to fix any issues. When the works have been completed the excavation is reinstated and the signing, lighting and guarding is removed from site. This then removes any disruption to pedestrians and road users.

The reinstatement work is also subject to meeting a defined standard. These standards are set out in the Specification for the Reinstatement of Openings in Highways 3rd edition (SROH), this standard must be adhered to by all statutory undertakers. The standard allows a reinstatement to be 'interim' or 'permanent', all interim reinstatements need to be replaced by a permanent standard reinstatement within six months of the interim reinstatement date. We aim to reinstate all of our works to permanent standard on the first visit, this means we reinstate using the correct materials, construction techniques and compaction equipment as per the requirements of the standards.

The standards have three key areas for determining compliance, visual assessment, depth/material assessment and air void assessment.

Visual assessment takes into account how flat and flush the reinstatement is to the surrounding area making sure there are no trip hazards, surface depressions, edge cracks etc. The audit compliance team undertake a percentage of visual assessment audits on permanent reinstatements on a monthly basis with audits being completed within the same month the reinstatement was completed. The audit compliance team will assess the reinstatement against the requirements of the SROH using mobile devices with a question set that mirrors statutory (Category B) inspections used by highway authorities.

Depth/material assessments look at the materials that have been used for the reinstatement and also the depth that the materials have been laid. The SROH has absolute minimum depths for various road and footway types for example, a footway must be a minimum of 60mm deep.

Air void content assessment looks at the amount of air contained within a reinstatement. Too much air will reduce the life expectancy of the reinstatement by allowing water and air ingress. The SROH has a minimum and maximum value range for percentage air content depending on material type.

The only way to assess if a reinstatement has the correct depth/material and correct air void content is to take a section of the reinstatement known as a core sample from a selection of permanent reinstatements and test them in our United Kingdom Accreditation Services (UKAS) accredited laboratory

The testing detail will be captured on our audit website and any non-compliances found are reported via the website in real time, notifications are sent to our delivery partners notifying them of the failure and an action given to them to rectify the non-compliance. The website allows reports to be produced and actions to be closed down with supporting evidence i.e. team reports showing their actions to fix any issues.

The audit compliance team are UKAS assessed every year as part of our independent water quality laboratory accreditation. All auditors are assessed for competency every year as part of their training requirements. The audit team are part of an independent proficiency testing scheme where core samples of an unknown material type are provided to several testing laboratories across Europe. The results are sent back to the schemes owner who then shares all results to all participants.

The audit compliance team will use the street works noticing system to determine locations suitable for auditing. The noticing system is used to communicate with highway authorities to agree what works can be undertaken and when. The system sends electronic notifications to and from the highway authorities providing updated information as to the works statuses, i.e. in-progress or permanently reinstated.

All audit data findings are captured and reported monthly and then rolled up into an annual total.

Measurement units

Measured as the percentage (%) non-compliance against the Safety at Street works and Roads Works Code of Practice and the Specification for the Reinstatement of Openings in Highways (3rd Edition). This will be reported annually to two decimal places.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Reputational.

Price control allocation

Not applicable.

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
% non-compliance	11.00	10.50	10.00	9.50	9.00

The performance commitment is set to drive a reduction in the number of defects identified in street works and the subsequent need to revisit work that has been undertaken.

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

Not applicable.

Outperformance/underperformance incentive rate

Not applicable.

Long-term ambition

We recognise the impact that street works can have on customers and stakeholders. We also recognise the financial costs of poor quality street works. Our ambition is to continue to drive down the level of non-compliance and minimise disruption making us a leading organisation for street works activity.

Priority services - BSI accreditation (D05-HH)

Purpose of this measure

This measure commits United Utilities to provide assurance that the quality of support for customers in vulnerable circumstances is of a standard in line with the British Standards Institution (BSI) inclusive service provision.

Benefits of this measure

This performance commitment will help ensure that the company provides an independently assured fair, flexible service and transparent service that can be used by all customers equally, regardless of their health, age or personal circumstances.

Measure Description

This measure assesses the quality of the Priority Services scheme via the British Standard for Inclusive Service Provision certification BS 18477.

Measure Definition

To meet its targets for this performance commitment the company must achieve the BS 18477 standard in 2020/21 and maintain the standard thereafter. United Utilities meets this performance commitment if it has in place on the 31 March of the reporting year a BSI certification for standard BS 18477. If this certification from BSI is not in place on 31 March of the reporting year, the performance commitment is reported as not achieved or not maintained (depending on prior reporting year performance).

The performance commitment applies each reporting year, and demonstration that the certification is in place must be tested and reported each reporting year. The BS 18477 certification is awarded by BSI Group (also known as the British Standards Institution).

In the event that BSI Group cease providing certification for BS 18477 during the period 2020-25, the company should adopt any standard designed to directly succeed the existing standard. If one is not available, it will assess whether there exists other appropriate standards that can be used as an alternative independently assessed indicator of the quality of support for customers in vulnerable circumstances.

Measurement units

This measure is reported as achieved/maintained or not achieved/not maintained.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Reputational.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	0%	100%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Text	Achieved	Maintained	Maintained	Maintained	Maintained

Long-term ambition

We intend to maintain the BSI accreditation and provide for the best service possible to our PSR customers. Maintaining this standard will assist us to continuously improve the service offering.

Outcome E – We will improve the way we work to keep bills down and improve services

We aim to keep future bills down for customers by helping more people to pay, and seeking to ensure that all those receiving our services are being billed. We will continue to support customers who have affordability issues by ensuring that they are on the most suitable tariff and payment plan for their circumstances and employing other non-financial assistance schemes.

Number of customers lifted out of water poverty (E01-HH)

Purpose of this measure

This performance commitment measures the number of customers lifted out of water poverty following the implementation of support measures by the company.

Benefits of this measure

This performance commitment will improve the levels of affordability support available to customers over the 2020-25 period, particularly for those customers that are most in need.

Measure description

This measure commits us to providing additional support to customers in water poverty, primarily through the effective promotion of discounted social and support tariffs. In addition, it ensures support is effectively targeted at those most in need by only recognising this support where it acts to ensure a customer is out of water poverty.

The measure assesses the number of customers who have been lifted out of water poverty each year due to our actions. The definition for water poverty used for this measure is 'customers spending more than 3% of their annual household income, after housing costs, on water and wastewater services'. We will demonstrate that individual customer financial circumstances have been assessed when determining whether or not tariff discounts and other interventions have been sufficient to prevent an individual customer being in water poverty.

This measure is unique in that it seeks to incentivise both the scale and effectiveness of affordability support by focussing efforts on the core outcome of 'customers lifted out of water poverty'. This definition and focus seeks to ensure company effort and resources are focused on customers where there are clear indications of financial stress, and where water company charges are very likely to be contributing to that stress. It is also helping focus company efforts on achieving wide ranging, collaborative solutions to water poverty, ensuring that benefit from the financial support provided by other customers and the company is utilised to the best possible benefit.

Measure definition

The threshold for water poverty used for this measure is defined as customers spending more than 3% of annual household income, after housing costs, on water and wastewater services. This is aligned to the UK water poverty benchmark, as set out in the report Water Poverty in England and Wales, Fitch and Price, Centre for Utility Consumer Law, 2002.

Historically, water companies have sought to encourage customers to apply for financial support schemes with only a limited understanding of how the support provided is translating into better outcomes for customers. In particular whilst many industry support schemes use measures of income or receipt of benefits as a gateway for acceptance onto support schemes there is little or no assessment of whether company interventions effectively assist in relieving financial stress. This performance commitment helps address these limitations.

The measure of success will be the number of unique customers lifted out of water poverty as a result of our action at any point in the year. Evidence for this will be:

- The number of unique customers on a qualifying discounted tariff, for example “Help to Pay” or “Back on Track”, where charges are reduced to a sufficient level to ensure annual charges are less than 3% of annual income.
- The number of unique customers on the Payment Matching scheme where outstanding customer payments are reduced sufficiently to lift customers out of water poverty
- The number of unique customers where a trust fund grant has alleviated their indebtedness to a sufficient level that outstanding customer payments for the current year are reduced to less than 3% of annual income.
- The number of unique customers where other forms of UU action has enabled them to reduce current year charges and/or increase income (e.g. via a Town Action Plan visit or a successful benefit maximisation referral) that results in their being lifted out of water poverty.

Assessment of household income will be based on, in order of preference:

- An income assessment provided directly by the customer;
- An income assessment provided on behalf of a customer by a recognised debt advice partner (including organisations such as Citizen Advice, StepChange, and similar);
- An individualised indication of income using a range of third party financial data, for example Credit Reference Agency insight data, Department for Work and Pensions information on customer qualification for various forms of state benefits, other third party data provided through recognised data share and or customer history.

Indications of income that are not specific to an individual, such as street or postcode level customer segmentation data will not qualify as an income assessment for the purposes of this performance commitment.

We will retain evidence of the household income level upon which we have based our assessment. In addition we will carry out a validation process at least every three years after this has been obtained to check if this income level has changed.

Water companies are currently engaged in discussions to establish a common definition of water poverty. Once a common definition has been established, we would expect to notify Ofwat, in accordance with the procedures for changing performance commitments set out in Annex 2 of the PR19 final documentation: United Utilities - Outcomes performance commitments appendix, with a view to updating the definition of this performance commitment to align it, as appropriate, with the common definition.

Measurement units

Number of customers lifted out of water poverty due to our intervention in year, where numbers lifted out of water poverty is verified by individual customer income assessments. This measure will be reported to zero decimal places.

Mitigation/exceptions

Indications of income that are not specific to an individual, such as street or postcode level customer segmentation data do not qualify as an income assessment for the purposes of this performance commitment.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – revenue adjustment - subject to outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	0%	100%	0%	0%

Performance commitment for AMP7

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Performance commitment	No. of customers	57,600	59,800	62,100	64,300	66,500
Underperformance collar	No. of customers	46,102	47,875	49,648	51,422	53,195
outperformance cap	No. of customers	69,153	71,813	74,473	77,132	79,792

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled on an in-period basis.

Outperformance/underperformance incentive rate

Incentove type	Incentive rate (£m/customer)
Underperformance payment	-0.00022
Outperformance payment	0.00022

The incentive rate is £220 per customer helped out of water poverty above or below the performance commitment.

Worked examples

If our performance in 2020/21 results in 58,000 customers being lifted out of poverty in the year this performance is above (i.e. better than) our target and therefore will result in an outperformance payment as set out below:

Outperformance payment = (actual performance – target performance) x incentive rate

(58,000 – 57,600) x £220 = £88,000

If our performance in 2020/21 results in 57,000 customers being lifted out of poverty in the year this performance is below our target and therefore will result in an underperformance payment as set out below: -

Underperformance payment = (actual performance – target performance) x incentive rate

(57,000 – 57,600) x £220 = -£132,000

Long-term ambition

We will continue to support customers who have affordability issues by ensuring they are on the most suitable tariff and payment plan for their circumstances, and employing other non-financial assistance schemes, such as Payment Breaks. We will also work with community stakeholders, regulators and government with the aim of introducing new mechanisms for supporting customers under financial stress.

All long-term targets have been developed based on best available views of future costs, benefits, and customer expectations. As our understanding of ODI performance and outcomes develops in coming years we will revisit these long-term performance forecast as a natural part of the business planning cycle.

Non-household vacancy incentive (E03-CF)

Purpose of this measure

This performance commitment is designed to identify occupied non-household premises that are showing as vacant and should therefore be billed.

Benefits of this measure

Reducing the number of void properties, which are occupied but not billed, will result in fairer charges between customers and lower bills for customers already paying.

Measure description

This measure incentivises business retailers who work in our area to identify and change occupied premises that are showing as vacant within the Central Market Operator System. For charges to be correct it is essential that the occupancy status of each premises is marked correctly i.e. whether the premises is 'occupied' or 'vacant'.

On identifying an occupied premises that is showing as vacant within CMOS the retailer will notify us that they have changed the status to occupied and apply for an incentive payment. The measure records the number of vacancy incentive payments made to retailers following a successful application i.e. the occupancy status being corrected within Central Market Operator System. Controls will need to be in place to limit the opportunities for gaming of the process to occur.

Measure definition

We recognise the important role that effective management of property data has in supporting the fair billing of all customers. It is in all customers' interests that do all we can to identify occupiers or confirm that properties are truly unoccupied. Equally we need to actively ensure that all household and non-household properties connected for water and wastewater services are registered on billing systems and appropriately charged.

This is one of two related performance commitments for business customers, which are designed to ensure that we can recover revenue which is due, keeping bills down for other customers. This measure (E03-CF) is designed to incentivise retailers to identify sites which are recorded as vacant but are occupied and should be billed. Measure E04-CF is designed to incentivise retailers to reduce gap sites.

Vacant premises are shown in the Central Market Operator System by the presence of a 'Vacancy Flag' against the relevant non-household premises. This is the system that records all business customers and connects all the wholesalers and retailers in the market. The data is used to calculate the wholesale charges that retailers must pay to wholesalers for the services provided to each premises and is subsequently used to calculate the charges to the end customers

The Market Codes set out the rules of the business retail market and the interactions between the retailers and wholesalers in the market. This includes the rules and responsibilities regarding data ownership, updates and maintenance. The Market Codes state that the retailer is responsible for maintaining the correct occupancy status with the Central Market Operator System. Thus, 'Vacancy Flag' is a retail owned data item and only the retailer can change the occupancy status as part of business as usual activity.

The market codes set out the detailed definitions for both 'occupied' and 'vacant' premises. In summary, an 'occupied' premises is one which is in use, either manned or used for storage. A 'vacant' premises is one which is not occupied, is not in use and is empty of all equipment and stock.

The market codes allow wholesalers to challenge the occupancy status of a premises where they believe it to be incorrectly market as vacant. This is done by submitting a Vacancy Challenge Application to the Market Operator.

Our proposed incentive scheme will encourage retailers to identify premises that are incorrectly marked as vacant so that the challenge applications can be submitted and thus the occupancy status can be corrected.

Measurement units

Measured as the number of vacancy incentive payments made by us to licenced retailers annually and reported to zero decimal places.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

This is outperformance payment only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	50%	50%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Number of incentive payments per annum	0	0	0	0	0

Due to the relative immaturity of the business retail market and the absence to date of a vacancy incentive scheme in England there are a number of risks and issues that have been considered in developing this performance commitment. The performance commitment for this ODI has been set at zero because we are wholly dependent on retailers submitting vacancy incentive applications. Therefore as a wholesaler we cannot control the level of activity in this area. In addition as work continues to minimise the number of incorrectly flagged vacant premises, and it is unclear as to the true scale of the issue it is difficult to know what would be achievable.

In view of the uncertainty about potential numbers, we consider that it is in customers' interests to have a zero performance commitment and that we recover costs only through the ODI, so that customer bills will only reflect actual payments made.

Deadbands, caps and collars

There are no deadbands, caps or collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to outperformance financial incentives only, which will be reconciled on an annual in-period basis.

Outperformance/underperformance incentive rate

A £136 incentive will be achieved for every successful vacancy incentive application from the retailer which results in a premises occupancy status being corrected in the Central Market Operator System. The measure will recover our costs of operating the scheme and the cost of vacancy incentive payments made to retailers. The incentive is set at half the £273 cost per payment made, to reflect the totex sharing mechanism.

The £273 cost is made up of two elements:

1. Vacancy incentive payment to retailers: The vacancy incentive payment made to retailers will be £200 per SPID successfully corrected in the market. This is consistent with the vacancy incentive payments made by Scottish Water to retailers in Scotland under the equivalent Scottish Water scheme.
2. Cost to us of administering the successful vacancy incentive application: We have estimated the administrative cost per successful vacancy incentive application to be £73. This is based on a 51% application success rate and factors in the costs of dealing with speculative and unsuccessful applications.

The administration costs include:

- Desktop review of application, including processing of the application, and handling disputes and queries.
- Processing vacancy challenge application to MOSL.
- Monitoring application progress and processing incentive payment.

Worked example

n/a

Long-term ambition

Our long-term ambition is for all cases of incorrect vacancy status to be quickly identified and corrected in the Central Market Operating System, and that this is managed effectively within the market as part of business as usual processes. This will help to ensure that revenue is being recovered fairly for all services provided to premises in our area of appointment and as a result, ensure that tariffs are kept as low as possible for all customers.

	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Incentive payments per annum	0	0	0	0	0	0	0	0

	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2044/45
Incentive payments per annum	0	0	0	0	0	0	0	0

Gap sites - Wholesale (E04-CF)

Purpose of this measure

This performance commitment measures the number of incentive payments made to retailers for finding non-household properties where water and/or wastewater services are being used, but the property is not being billed ('gap sites').

Benefits of this measure

Reducing the number of gap sites, which are occupied but not billed, will result in fairer charges between customers and lower bills for customers already paying.

Measure description

This measure is designed to encourage identification of non-household properties by retailers where water and/or wastewater services are being used, but the property is not being billed ("gap sites"). Identifying these sites will bring in more revenue from business customers, so keeping down bills for other customers. The measure will facilitate incentive payments to retailers who identify customers who are not being billed or are only being partially billed.

The performance commitment records the number of incentive payments made by UUW to business retailers who identify non-household premises using water or wastewater services which are not registered within the Central Market Operator System (CMOS). The CMOS records all business customers and connects wholesalers and retailers in the market.

Measure definition

This is one of two related performance commitments for business customers, which are designed to ensure that we can recover revenue which is due, keeping bills down for other customers. This measure (E04-CF) is designed to incentivise retailers to reduce the number of gap sites. Measure E03-CF is designed to incentivise retailers to reduce the number of sites recorded as vacant but which are occupied and should be billed.

Ofwat expects business plans to clearly explain how companies plan to manage gap sites in the business market.

As part of this, Ofwat has stated that companies should:

- Explain how they use internal and external data to inform and validate their approach; and
- Consider providing a financial incentive to retailers in the business market to identify gap sites, if they have not already done so.

We recognise the importance of ensuring that all customers are billed appropriately and are, therefore, proposing introduction of a financial incentive.

The incentive payments will provide for costs of administering the incentive and payments to retailers, while still providing a net benefit to customers from the additional revenue gained from billing previously unbilled properties.

It is in the nature of gap sites that it is difficult to establish how many exist. They are likely to require a combination of desktop studies and site visits to identify them. We do not currently know how many such sites there are but the incentive will contribute to establishing the extent of the issue.

This performance commitment is cross functional and allocated to the water network plus and wastewater network plus price controls. The measure is subject to outperformance payments only.

A gap site is any premise which is in receipt of water services and/or sewerage services where no supply points or insufficient supply points are registered within the CMOS. A supply point is the point at which water services or sewerage services are provided.

It will be measured as the number of new supply points registered by the wholesaler through the retailer-identified gap site process. If a premise identified by the retailer is a valid gap site we will register the supply point into the CMOS and at this point the retailer is eligible for the incentive payment.

Retailer-identified gap sites are added to the market via an established market process set out in the Wholesale-Retail Code for enabling wholesalers and retailers to work together effectively (process C3). The market operator reports on the number of C3 processes completed by each wholesaler.

Any eligible premise that receives both water services and sewerage services should have two supply points registered. Any eligible premise that receives either water services or sewerage services only should have one supply point registered, so if the site has a sewerage and water supply point registered that would be two supply points.

The measure will lead to us incurring additional administrative costs but it could lead to more gap sites being identified. The incentive is structured to ensure that our additional costs are covered and the retailer incentive payment is attractive enough to encourage retailers to participate in the scheme.

Measurement units

This performance commitment records the annual number of gap site incentive payments paid by UUW to retailers following the successful registration of the supply point in the market. This will be reported to zero decimal places.

Mitigation/exceptions

If we are already aware of the premises we will not pay the incentive to a retailer. Supply points being processed through new connections or being processed through the wholesaler identified gap sites process will not be eligible for an incentive payment.

The incentive scheme is only available to business retailers.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance payments only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	50%	50%	0%	0%	0%	0%

The non-household revenue split between price controls is based on the proposed RCV allocations.

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Number of incentive payments / additional sites registered in the market as a result of the scheme	0	0	0	0	0

Due to the relative immaturity of the business retail market, the limited experience to date of a gap site incentive scheme in England, a lack of detail across the industry regarding the volume of gap sites and the proactive management approach we have adopted, alongside a number of risks and issues have been considered in developing this performance commitment and incentive proposal (detailed below in a separate section). The number of incentive applications is not within our direct control, it is solely dependent on retailers submitting valid gap site incentive applications.

In view of the uncertainty about potential numbers, we consider that it is in customers' interests to have a zero performance commitment and that we recover costs only through the ODI, so that customer bills will only reflect actual payments made.

Deadbands, caps and collars

There are no deadbands, caps and collars associated with this measure.

Outcome Delivery Incentive

This measure is structured to cover the cost of the incentive payment to the retailer and to recover the additional administrative costs borne by the wholesaler, not to deliver any reward to the wholesaler.

Outperformance/underperformance incentive rate

A £306 outcome delivery incentive will be achieved for every successful gap site application received from the retailer which results in the registration of a new premise into the Central Market Operating System (CMOS). The measure will recover our costs of operating the scheme and the cost of gap site incentive payments made to retailers. This reflects half the cost per incentive payment made, to allow for the totex sharing mechanism.

The £613 cost is made up of two elements:

1. Gap site incentive payment to retailers: The incentive payment made to retailers will be £250 per supply point (SPID) successfully registered in the market. Anglian Water currently has a gap site incentive scheme which pays £350. Whilst our proposed incentive is lower we have calculated this amount based on cost estimates of a retailer's activity to identify, validate and process a gap site, plus an amount which we believe will still make this an attractive scheme for the retailers.
2. Our cost of administering the successful gap site application. We have estimated the administrative cost per successful gap site incentive application to be £363. This is based on a 50% application success rate and factors in the costs of dealing with unsuccessful applications. We will consider steps to reduce the number of vexatious claims, possibly through the introduction of an administration charge for incorrect applications.

The administration costs include review and processing of the application, site visits, and registering the site in the market.

Worked example

Not applicable

Long-term ambition

Our long-term ambition is to maintain and continuously improve the accuracy and completeness of our data. Given the existing activity on gaps we would expect the number of gap sites remaining in our area to be greatly reduced by 2025 and therefore the potential for further improvement limited. We would, however, continue to work to identify further sites.

Gap sites – Retail (E05-HH)

Purpose of this measure

This performance commitment measures the number of household properties that are identified where water and/or wastewater services are being used, but the property is not known to the company ('gap sites').

Benefits of this measure

Reducing the number of gap sites, which are occupied but not billed, will result in fairer charges between customers and lower bills for customers already paying.

Measure description

The number of connected properties in the company's supply area which the company identifies as not being billed for water and/or wastewater services each year and are added to the company's billing system as residential customers.

This performance commitment measures the number of domestic connected properties in our area which we identify as not being billed for water and/or wastewater services each year and add to our billing system. We will use external and internal data sources to verify if we have properties in our region which we have not captured onto our billing system.

This measure has been developed to ensure that we actively manage connected properties within United Utilities service area which are not on the billing system and raise bills wherever possible, thereby supporting the lowest possible bills for all household customers.

As part of our continuous improvement process we have been developing alternative methods for identifying missing properties for some time. We started to develop new techniques, utilising third party data, to identify these properties and also the follow up activity to verify occupancy details. This work has resulted in a number of gap sites, or missing properties, being identified and has helped us to put in place an improved enduring process to address this issue. We believe that on an on-going basis the volume of gap sites is not high but it is in customers' interest that we have an on-going regular activity to validate our billing records.

Measure definition

This is one of two related performance commitments for residential customers, which are designed to ensure that we can recover revenue which is due, keeping bills down for other customers. This measure (E05-HH) is designed to incentivise identification of unbilled households which are not on the billing system. Measure E02-HH is designed to incentivise identifying sites which are recorded as vacant on the billing system but are actually occupied and should be billed.

We recognise the important role that effective management of property data has in supporting the fair billing of all customers. It is in all customers' interests that we do all we can to identify occupiers or confirm that properties are truly unoccupied. Equally we need to actively ensure that all household and non-household properties connected for water and wastewater services are registered on billing systems and appropriately charged.

In recent years we have substantially improved the processes, systems and data used to manage property and occupier records. The introduction of business retail competition has changed the way that the industry collectively manages property records, and has helped focus our efforts to identify and correctly classify household and non-household properties and customers.

The performance commitment measures the number of household property connections in our area which we identify and verify as not being billed for water and/or wastewater services each year and add to our billing system.

We will use external and internal data sources to verify if we have properties in our region which we have not captured onto our billing system.

Properties which are listed on AddressBase Premium or other third party data sets but not already registered on internal UU billing or geographic information systems will be put forward for verification.

As part of verification we will conduct manual checks on the properties we believe are missing from our billing system to ensure we are correct in identifying them as gap sites. This includes checking if the property is connected for services on the billing system already, potentially with a slightly different address, or if the property is listed on Council Tax registers or Land Registry.

When we have verified that the property is connected for water and/or wastewater services and is actually missing from our records we will add an account to our billing system, at which point the gap will be judged to have been resolved, and be recorded as a resolved gap site for performance commitment reporting purposes.

A property will not be counted as an identified gap site where a developer, self-lay organisation, or other organisation involved in new household water connections reports a new connection directly to United Utilities. Non-household connections will not be counted as part of this ODI.

We will carry out this verification process on a quarterly basis each charging year.

Measurement units

This performance commitment measures the number of household connected properties identified as not being billed by United Utilities which are subsequently recorded onto our billing system annually, excluding connections raised by developers through established 'new connections' processes. This will be reported to zero decimal places.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial, set to recover the marginal costs of identifying, verifying and processing household sites which are not currently being billed.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	0%	100%	0%	0%

Performance commitments set to zero as the measure has been designed as a cost recovery mechanism, equalising incentives to investigate household gap sites.

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Number of gap sites identified	0	0	0	0	0

Deadbands, caps and collars

There are no deadbands, caps or collars associated with this measure.

Outcome Delivery Incentive

This measure is subject to outperformance financial incentives, which will be reconciled on an in-period basis.

Outperformance/underperformance incentive rate

The incentive will be set to recover the costs of identifying, verifying and processing records for household sites which are not currently being billed. We have set a valuation of £13 for each gap site identified. This is based on the 2017/18 cost of processing manual checks on the property identified and the costs for our usage of the AddressBase Premium system.

Average cost of processing checks	£11.10
Average system use costs	£2.04
Total cost of identifying gap site	£13.14
Rounded to	**£13**

Worked examples

If our performance in 2020/21 results in 1,000 gap sites being identified in the year this performance is above (i.e. better than) our target and therefore will result in an outperformance payment as set out below:

Outperformance payment = (actual performance – target performance) x incentive rate

(1,000 – 0) x £13 = £13,000

Long-term ambition

Our long-term ambition is to maintain and improve the accuracy and completeness of our data. We believe that due to current activity the gap sites remaining in our region have already been greatly reduced, and that there will only be a small number of annual gap sites identified from 2025 onward. There is limited opportunity for further improvement in performance but we expect our efforts to identify gap sites to continue.

Systems thinking capability (E06-CF)

Purpose of this measure

This performance commitment measures improvement in the company's 'Systems Thinking' maturity. Systems thinking is an approach for day to day business management that involves looking at your end-to-end system in order to understand interdependencies, predict performance and therefore optimise business decisions.

Benefits of this measure

Improvements in Systems Thinking maturity enables the company to deliver more efficient performance and also enables improvements in other key service levels, for example reducing leakage or reducing pollution incidents.

Measure description

Systems Thinking capability is assessed at a business level against benchmarked 'maturity levels' which range from one (the lowest level and therefore least mature) to five (the highest attainable level and therefore the most mature). The level of maturity refers to the company's progress in improving a set of core capabilities, which aim to increase the levels of automation and connectedness across the business, and therefore embed a systems thinking approach.

The measure tracks the annual year on year movement in maturity levels. The measure is incremental, not cumulative,

Measure definition

The assessment methodology measures the end to end systems capability with a pass or fail assessment against a 220 point assessment across 44 questions, grouped into eight areas, each with a five point maturity scale of assessment.

A third party will make an assessment to ascertain the maturity level on an annual basis.

In order to achieve an improvement in one level of organisational-level capability maturity, UU must achieve the improvement in capability in all eight capability areas (see below) and against the requirements of all 44 questions at the appropriate maturity level.

- Customer Experience
- Work Scheduling
- Operational Monitoring
- Data and Information Management
- Operational Control
- Process Excellence
- Product Planning & Optimisation
- Asset Lifecycle Management

There is no aggregation, offsetting or averaging of different capability attributes in assigning an overall level of systems thinking maturity; all 44 questions must reach the target maturity level for the performance commitment, at a company level, to be met.

Capability levels

As a part of our Capability Model, we have defined the characteristics of people, process, and technology across *a five level performance maturity scale*. This scale allows the maturity assessment

to identify how 'mature' we are as a business from the most basic connections to following a collaborative approach to technology development, overlaying key emerging technologies and disruptors and start to exploit the opportunities they bring.

Our system thinking capability is therefore assessed against this single maturity scale from 1 to 5.

Where maturity level 1 is a basic level; demonstrating well established systems, processes and technologies with traditional organisation structures for delivery in discrete parts and only some connectivity between business operations. However a level 5 would require significant innovations, such as new operating models, machine robotics, artificial intelligence and yet to be established business processes at a system scale.

The figure below illustrates the changes in business capability at each of the 5 levels of maturity.

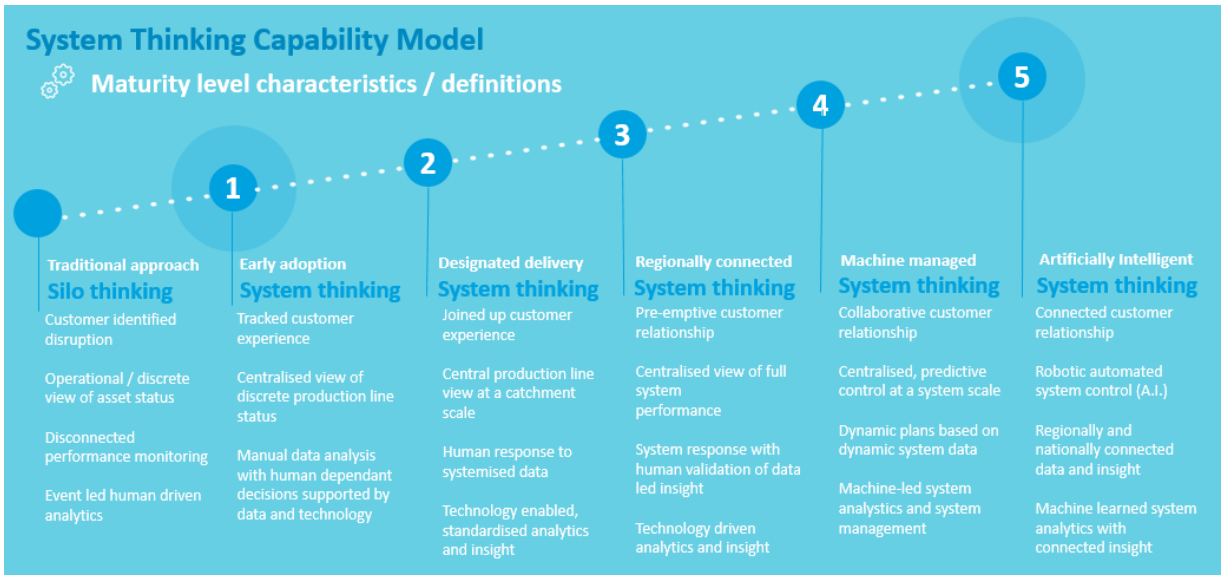


Figure 25

We have taken this model approach to develop detailed definitions for each level on the maturity scale. These definitions include the core attributes for systems, people and process which will ensure innovation is considered in all aspects of the business.

Measurement units

Maturity level, reported as a number to zero decimal places.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Reputational.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
NA	NA	NA	NA	NA	NA	NA

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Capability Maturity Level	1	2	2	2	2

In developing this measure we have identified our target level of maturity based on maintaining the stretching performance we have already delivered in our systems thinking capability maturity.

Deadbands, caps and collars

Not applicable.

Outcome Delivery Incentive

Not applicable.

Outperformance/underperformance incentive rate

Not applicable.

Worked example

Not applicable

Long-term ambition

We have set an ambitious long term target, which assumes we achieve the stretching outperformance in AMP7 that is underpinned by this ODI. We then expect to maintain and improve upon our frontier leading position further into the future.

However we know through working with other sectors and those leading the way with a systems thinking strategy that the levels of maturity will change over time as technology and industry capability develops, much in the same way dynamic frontiers operate.

So, whilst the definitions have been fixed and assured for AMP7, a full review will need to be undertaken to unlock the yet unknown benefits that will come from systems thinking in the next decade. For example 10 years ago what is today assessed as only a level 1 may have been assessed as a level 3.

Successful delivery of direct procurement of Manchester and Pennine resilience (E07-DP)

Purpose of this measure

This performance commitment measures the progress of United Utilities in implementing the Direct Procurement for Customers (DPC) process to support the appointment of a competitively appointed provider (CAP) to design, build, finance and maintain the Haweswater Aqueduct Resilience Programme (previously referred to as the "Manchester and Pennines Resilience" scheme.)

Progress is measured against the satisfactory delivery of three key DPC control points. These are the Strategic Outline Case (SOC), the Outline Business Case (OBC) and the Full Business Case (FBC).

These need to be successfully delivered to allow the scheme to progress to the point where a CAP can be appointed.

Benefits of this measure

This performance commitment incentivises the timely and effective completion of the procurement process to deliver a scheme to improve resilience of treated water supplies to 2.5 million people and 200,000 businesses customers in Greater Manchester, Cumbria and Lancashire. In doing this under DPC it is expected to bring financial savings and innovation.

In order for a project to proceed under DPC, Ofwat guidance requires the demonstration that the project and delivery approach provide best value for money for customers. It is anticipated that customers will benefit through innovation and lower whole life costs from outsourcing the delivery of infrastructure projects using DPC.

Measure description

This measure assesses whether United Utilities has been able to utilise a "Direct Procurement for Customers" approach to procuring a solution for the HARP programme, based on a series of target dates.

Where United Utilities successfully completes an agreed procurement process and, following approval by Ofwat, awards the HARP scheme to a competitively appointed provider (CAP) such that the contract is signed and fully effective in accordance with its terms, it would be entitled to receive an incentive payment which would reflect the size and complexity of the HARP scheme and the procurement undertaken.

Measure definition

This performance commitment is designed to generate an outperformance payment of £5.74m payable if the contract award of the HARP scheme to the CAP, occurs prior to 1 May 2023. The full value of outperformance payment will be payable if the contract award of the HARP scheme to the CAP, occurs prior to 1 May 2023. The payment will be zero if the contract is awarded after 1 May 2023.

Where United Utilities will develop and carry out a procurement process as agreed with Ofwat and award a contract to a CAP to deliver HARP scheme. In general, the process comprises of United Utilities competitively tendering for a third-party to design, build, finance, and maintain the scheme. It is anticipated that customers will benefit through innovation and lower whole life costs from outsourcing the delivery of infrastructure projects using DPC.

Ofwat will, when the Full Business Case (FBC) is formally submitted for approval, assess whether the scheme meets the qualifying criteria for the procurement of the scheme by way of a direct procurement for customers process.

At the FBC submission Ofwat shall consider all relevant information. This shall include the 'Principles applying to the DPC procurement process' set out in Ofwat's publication 'Delivering Water 2020: Our methodology for the 2019 price review, Appendix 9: Direct procurement for customers' and as maybe revised from time to time.

United Utilities shall not be eligible to receive the incentive payment prior to award of a contract to a competitively appointed provider.

Further details are provided in PR19 DPC Technical Appendix Delivering Customer value in large projects https://www.ofwat.gov.uk/publication/pr19-final-determinations-delivering-customer-value-in-large-projects/

Measurement units

The performance commitment measures whether a competitively appointed provider is appointed in circumstances where the direct procurement for customers scheme meets the qualifying criteria (principles).

Achievement will be when a contract is signed and fully effective in accordance with its terms.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – revenue - outperformance payment only.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	100%	0%	0%	0%	0%	0%

Performance commitment for AMP7

We are committed to successfully delivering a direct procurement contract with contract award by 1st May 2023.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Contract award	In progress	In progress	In progress	1st May 2023 contract award (signed and fully effective)	NA

Deadbands, caps and collars

There are no deadbands, caps, or collars associated with the measure.

Outcome Delivery Incentive

This measure is subject to an outperformance financial incentive, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

The incentive rate for this outcome delivery incentive is £5.740m.

Long-term ambition

This is a bespoke, one-off measure relating to a particular project.

Customers say that we offer value for money (E09-HH)

Purpose of this measure

This performance commitment is designed to incentivise the company to deliver a water and wastewater service that represents value for money for customers.

Benefits on this measure

Assessing customer views on value for money is an important factor in understanding drivers of legitimacy with customers and in ensuring that the quality of service provided to customers continues to improve.

Measure Description

This measure assesses the percentage of household customers that provide a positive response that United Utilities provides value for money.

Value for money performance is assessed from the results of customer surveys that ask United Utilities residential customers "How satisfied are you with value for money of water and sewerage services in your area?"

Positive responses occur if the customer states that United Utilities provides value for money. Neutral or negative responses will be judged as United Utilities does not provide value for money these responses do not count towards this measure.

Measure Definition

In implementing the survey, we will:

- Align the survey methodology to existing cross sector research conducted by CCWater;
- Receive external assurance that the survey methodology is conducted in line with social research best practice;
- Conduct the survey at least annually and report results;
- Ensure the survey sample size is sufficiently large to ensure a statistically robust result; and

The methodology is likely to remain unchanged for the duration of the performance commitment, however if changes in question structure or methodology are required in period, we will consult with our independent CCG, YourVoice and Ofwat before implementing changes.

The performance commitment figure captures the average of all responses throughout the reporting year.

Measurement units

Measured annually as the percentage of household customers (as surveyed) reported to zero decimal places.

Mitigation/exceptions

None – any variations that occur through the process of customer research will be accepted by us as being within the allowed margins of error.

Common performance commitment

This is a bespoke measure.

Incentive type

Reputational.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
NA	NA	NA	NA	NA	NA	Na

Performance commitment (AMP7)

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Percentage positive response	71	72	73	74	75

Deadbands, caps and collars

Not applicable.

Outcome Delivery Incentive

Not applicable.

Long-term ambition

We intend to review our targets at the end of each business plan period and will reset our baseline to reflect the latest awareness levels.

Voids (E010-DP)

Purpose of this measure

This performance commitment is designed to incentivise the company to reduce the number of residential void properties.

Benefits of this measure

Reducing the number of void properties, which are occupied but not billed, will result in fairer charges between customers and lower bills for customers already paying.

Measure description

This is the number of household properties classified as void as a percentage of the total number of household properties served by the company.

Measure definition

Void properties are defined as properties, within the company's supply area, which are connected for either a water service only, a wastewater service only or both services but do not receive a charge, as there are no occupants. Additionally a property connected for both services that is not occupied, only counts as one void property.

The proportion of void properties will be measured as an average over the year. The same method to calculate the average will be used each year.

Non-household properties are excluded from this performance commitment.

Measurement units

Percentage household properties classified as void, reported to two decimal places.

Mitigation/exceptions

None.

Common performance commitment

This is a bespoke performance commitment.

Incentive type

Financial – revenue adjustment - subject to outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	0%	0%	100%	0%	0%

Performance commitment for AMP7

	Unit	AMP7				
		2020/21	2021/22	2022/23	2023/24	2024/25
Performance commitment	%	6.70	6.31	5.92	5.53	5.15
underperformance collar	%	7.38	7.38	7.38	7.38	7.38
outperformance cap	%	6.02	5.24	4.46	3.68	2.92

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled on an in-period basis.

Outperformance/underperformance incentive rate

Incentive type	Incentive rate (£m/unit)
Underperformance payment	-5.630
Outperformance payment	5.630

The incentive rate is £5.63m per percentage change in household properties classified as void, reported to two decimal place above or below the performance commitment.

Worked examples

If our performance in 2020/21 results in 6.2 % of household properties classified as void in the year this performance is above (i.e. better than) our target and therefore will result in an outperformance payment as set out below:

Outperformance payment = (target performance -actual performance) x incentive rate

(6.70 – 6.20) x £5,630,000 = £2,815,000

If our performance in 2020/21 results in 7.70 % of household properties classified as void in the year this performance is below our target and therefore will result in an underperformance payment as set out below:

Underperformance payment = (actual performance – target performance) x incentive rate

(7.00 – 6.70) x -£5,630,000 = -£1,689,000

Long-term ambition

Our long-term ambition is to continue to reduce the percentage of household properties classified as void.

Outcome F – We collect and recycle your wastewater

Customers rightly prioritise the removal of wastewater as a discrete service which should not interfere with their day-to-day lives. Operational issues such as blockages are the principle cause of incidents of surcharging drainage systems, which can lead to flooding and pollution incidents. There is strong customer and stakeholder support for reducing both flooding and pollution incidents which we will achieve through innovative technologies and planned programmes to proactively manage our risks.

Sewer collapses (F01-WWN)

Purpose of this measure

This performance commitment is designed to incentivise that the asset health of the infrastructure, or below-ground wastewater assets, are being appropriately maintained and improved and that the company is committed to its asset stewardship responsibility.

Benefits of this measure

This performance commitment helps to ensure that the overall asset health of the below-ground wastewater assets is maintained and improved for the benefit of current and future generations.

Measure description

This common performance commitment measures the number of sewer collapses per 1,000 kilometres of sewer causing an impact on service to customers or the environment.

This measure is easy for customers and stakeholders to understand enabling them to hold our performance to account. This is particularly important as collapses are an indicator of asset health.

In AMP6 sewer collapses were measured as one of four elements comprising our network performance index measure and one of seven elements of the private sewers service index. In AMP7 we are measuring sewer collapses as a stand-alone measure, aligning to Ofwat's reporting guidance.

Measure definition

This common performance commitment measures the number of sewer collapses per 1,000 kilometres of all sewers causing an impact on service to customers or the environment. The sewer length that will be applied throughout AMP7 should be based on the latest measurements of the length, as published in the APR data table.

This measure seeks to reflect failures, due to structural weakness in the asset, causing an impact on service to customers or the environment.

A sewer collapse is defined as a structural failure to a pipe which results in a loss of flow, causing a service impact to a customer or the environment where action is taken to replace or restore the pipe to reinstate normal service. The measure also includes rising mains.

The impact on service to customers is the loss of pass forward flow at the location of the collapse. Where there has been no impact on a customer but there has been flooding or pollution there will be deemed to have been an impact on the environment.

This measure includes all public sewer and lateral drains suffering collapses, inclusive of those incidents that have also been reported as flooding or pollution failures, if the primary cause of the flooding or pollution was a sewer collapse.

Multiple incidents on the same length of sewer (manhole to manhole/ valve to valve) count as a single incident if all work is carried out as part of the same repair activity. This assumes that the locations are in close proximity. This would not be the case if separate locations were more than 25m apart.

In line with the Ofwat guidance for this common measure, the definition is a move away from our current classification of a collapse which uses a percentage deformation of 25%. This means that the new measure is no longer directly comparable with the measure used in AMP6.

Measurement units

Total number of sewer collapses per 1,000 kilometres of sewer, per financial year, reported to two decimal places.

Mitigation/exceptions/assumptions

The primary test for whether a collapse is reportable is whether 'normal service' had been 'reinstated' before any excavation type repairs, external to any manhole chambers, were carried out and if the pipework that United Utilities dig down to is actually defective.

As a point of clarity, any investigation showing a restriction of flow is still in situ or a leak from a sewer pipes is still occurring, are clear demonstrations that normal service had not been reinstated.

The collapse measure is focused on failures of the pipe that cause an impact on customer service, with the exception of those failures identified as excludable in the Ofwat guidance. These exclusions are detailed below:

- Proactively identified collapses – Should a collapse be found as a result of proactive activity (survey or proactive sewer maintenance work) on the network unrelated to the reported reactive activity to restore service then it is excluded. Proactive works in the main include enhanced targeting, cyclic works (desilting, ancillary inspections etc.), ad hoc inspections, planned flushing or any other attendance not instigated by a reactive report from customers.
- On some reactive incidents UU proactively CCTV survey sewer lengths upstream of a blockage etc. to look for secondary blockages and any significant defects. Structural defects found as part of this proactive activity, despite being found during a reactive attendance, will be excluded from the measure.
- Third party damage – Third party structural damage (including water utility damage) of the sewer is not an indicator of asset health and hence is excluded. Examples of this type of damage include third parties putting fence posts or sheet piles through a pipe or concrete ingress.
- Manhole damage, any pipework within a manhole and internal backdrops are excluded. Where pipework replacement extends beyond internal manhole activity but done in accordance with civil engineering best practice, such pipework replacement can be excluded.
- Repairs to or replacement of interceptor traps is excluded where the works is within the manhole.
- Displaced joints, cracked or fractured pipes, open joints, intruding connections, minor pipe breaks and hard blockages do not reflect sufficiently significant structural failure hence are excluded from the measure.
- Where sewer defects can be repaired by no-dig techniques (e.g. sewer lining) these incidents will be excluded from the measure.
- Defects caused by tree root intrusion will be excluded from the measure unless it necessitates the need for pipe replacement.
- Excavation to access pipework to facilitate investigations or blockage removal is excluded.

All of the above shall be recorded as 'non-reportable collapses' and, with the exception of excavation to facilitate blockage removal, should not be captured under the blockage performance commitment.

With regard to repeat incidents, if the company records a collapse incident at a specific location, then any subsequent serviceability incidents at the same location must automatically be recorded as a blockage (i.e. a defective pipe can't collapse twice).

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

Financial – Underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
No. per 1,000 km of sewer	15.51	14.90	14.29	13.68	13.07

The graph below highlights the performance level that we have committed to deliver in AMP7.

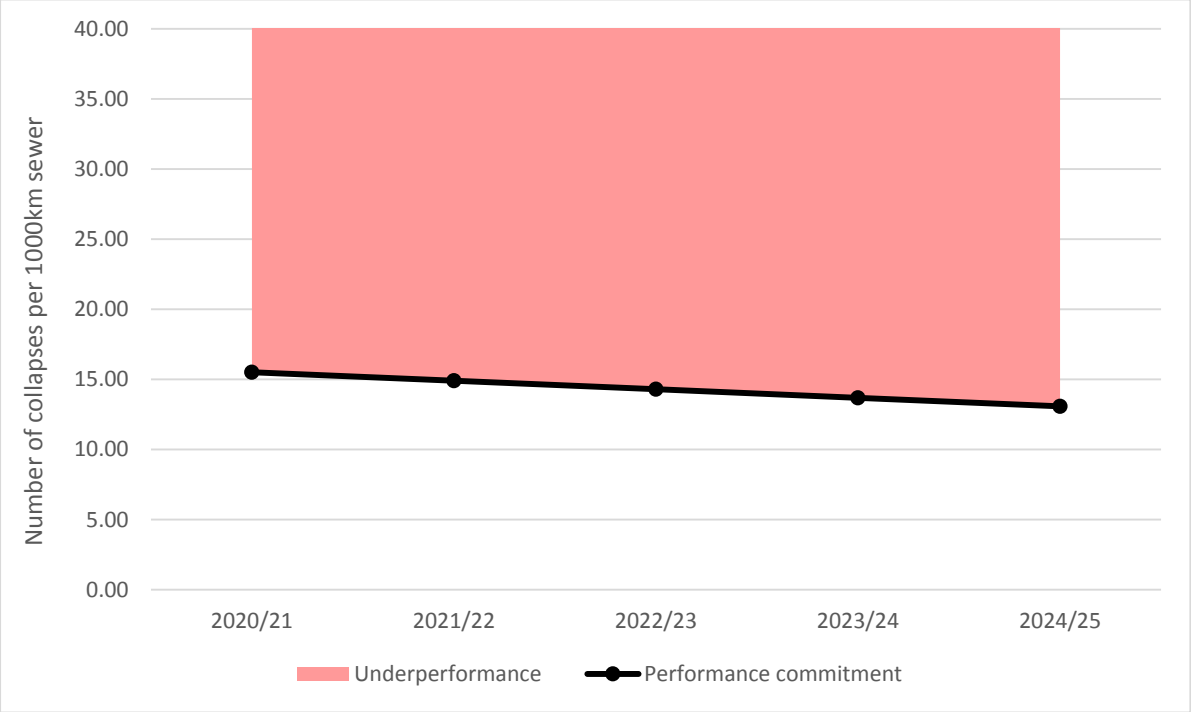


Figure 26

Outcome Delivery Incentive

This measure is subject to underperformance payments only, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

The underperformance rate for this measure is £0.311m per normalised incident.

Worked examples

There are two possible incentive scenarios with this measure. These are an underperformance payment and no payment. As this measure is set up for in-period payments, the payment is to be calculated at the end of each year.

In 2022/23 our performance commitment is 14.29 and we actually achieve 16.56 collapses per 1,00km of sewer,

(16.59-14.29)*-£311,000 = -£715,300 underperformance

Long-term ambition

Our long-term ambition is to remove all collapses reported by customers. However, we are also keen that this improvement should be achieved at the lowest possible cost to customers.

This long-term ambition will also have to consider and accommodate external factors beyond the company's control, such as climate change, population growth and changes to the industry & customer behaviour as a result of the COVID-19 pandemic. We also need to appreciate the influence of asset deterioration over the longer term and ensure that we adopt the correct delivery strategies maintain service levels and operational resilience. As our understanding of the influence of these factors evolves, our ambition may need to adapt, but we will always strive to achieve the best service outputs for customers and ensure the environment is protected and enhanced.

Sewer blockages (F02-WWN)

Purpose of this measure

The purpose of this performance commitment is to incentivise the company to reduce the number of sewer blockages, which is a significant contributing factor to sewer flooding.

Benefits of this measure

The performance commitment will help reduce the number of sewer flooding incidents and pollution incident. It will also improve customer service by reducing disruption.

Measure description

This measure counts the number of sewer blockages that have been reported and cleared. Blockages are a major cause of flooding and pollution incidents. They are often caused by items which should not be flushed. As such, it is important that our performance around this area is visible to customers. Blockages can also be caused by other factors such as tree roots or sewer defects.

Measure definition

This performance commitment is allocated to the wastewater network plus price control and is subject to outperformance and underperformance payments.

In AMP6 sewer blockages were measured as one of four sub-measures within the network performance index and one of the sub-measures for the private sewers service index measures. We recognised that index measures are complex for customers and stakeholders to understand and therefore in AMP7 sewer blockages are a standalone measure that we have selected from Ofwat's the asset health long-list. We have adopted this as it is a leading indicator of sewer network performance.

In assessing this measure we will use the following definition: -

A blockage is defined as an obstruction in the sewer that has been reported and cleared.

Blockages can be caused by a number of factors, including:

- Fats, oils and greases
- Siltation
- Tree roots
- Pipe defects and traps
- Soft blockages/wipes
- The influence of storm surcharge events and the settlement of solids etc. that they can cause.

This measure includes blockages on both our existing network and the network serving a property connected to the network before 1st July 2011 (which transferred to UU ownership as part of the private sewers transfer legislation on 1st October 2011). We will not include any blockages that we identify through proactive cleaning or which were not reported to us by a customer or stakeholder. Flooding caused by the blockage or failure of a gully that is shared by two or more properties and connected to a public sewer shall be excluded. Likewise, the blockage of the gully grating, or the failure of any pipework above ground.

Blockages will be included which occur on any type of sewer or the on the following sewer apparatus - combined sewer overflows, traps, flow control devices, manholes, penstocks, pipebridges, rising mains, manholes, backdrops, rodding eyes, storage tanks and syphons.

Measurement units

Measured annually as the number of sewer blockages that have been reported and cleared. This is reported to zero decimal places.

Mitigation/exceptions

Notable exclusions from this reporting definition are:

- Proactively cleaned silt or other blockages that are removed which are not reported to us by customers or stakeholders and have no customer impact are excluded from this measure.
- Blockages cleared by third party contractors. These shall be assumed to have been on private drain lines unless demonstrated otherwise and as such are not reportable.
- Silt and tree roots removed as part of a customer reported incident, but that did not constitute a blockage in the sewer.
- Blockages caused by upstream defects on private drains that reduce resuspension flow, bulk convey material (e.g. a private line pipe “belly” that conveys a “rag sausage” or uncapped road gulleys that convey matter into public sewers) or ground material.
- Any pump blockage, as a pump is not an in-line sewer asset/apparatus identified within the measure definition.
- Any FOC blockage that occurs as a direct result of a greater than 1 in 100 year storm event. These are legitimately recorded as a hydraulic severe weather events, as the likelihood in such a storm is that the flooding would have occurred anyway, regardless of the presence of any silt or blockage material. This is because the sewer is not designed to operate with such volumes of run off.
- In line with Ofwat flooding guidance, blockages in shared gulleys serving property built and connected to the sewer network before 01/07/2011 shall be recorded but are not reportable.
- Incidents caused by systematic repeat customer abuse where those customers have been continually advised/ warned about their discharge behaviours and the resultant blockage risk are not included.
- Sewer incidents that qualify as “non-reportable” sewer collapses as per the Ofwat collapse definition as these are not necessarily blockages by default.

Evidence of any exclusions must be stored and saved on to the INS system.

Conversely, notable inclusions are:

- Blockages caused by material that we are not bound to receive (e.g. bricks, balls, toys, rubble, refuse etc.). These must be reported as a blockage where we are unable to apply one of the exclusions above.
- Blockages that are as a result of third party interference unless cause by a wilful or highly negligent act (e.g. a person deliberately pouring concrete into the sewer). This includes blockages as a result of breaches of building regulations or the Highways Act and Land Drainage Act.

With regard to repeat incidents, if the company records a collapse incident at a specific location but fails to carry out repairs before a subsequent serviceability event occurs, then any subsequent serviceability incidents at the same location must automatically be recorded as a blockage (i.e. a defective pipe can't collapse twice).

Common performance commitment

This is a bespoke measure from the asset health long list.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Number	20,664	20,328	19,992	19,656	19,320

Our blockage performance over the long term, along with the customer research supporting improvements in this area, led to us setting a stretching performance commitment for AMP7.

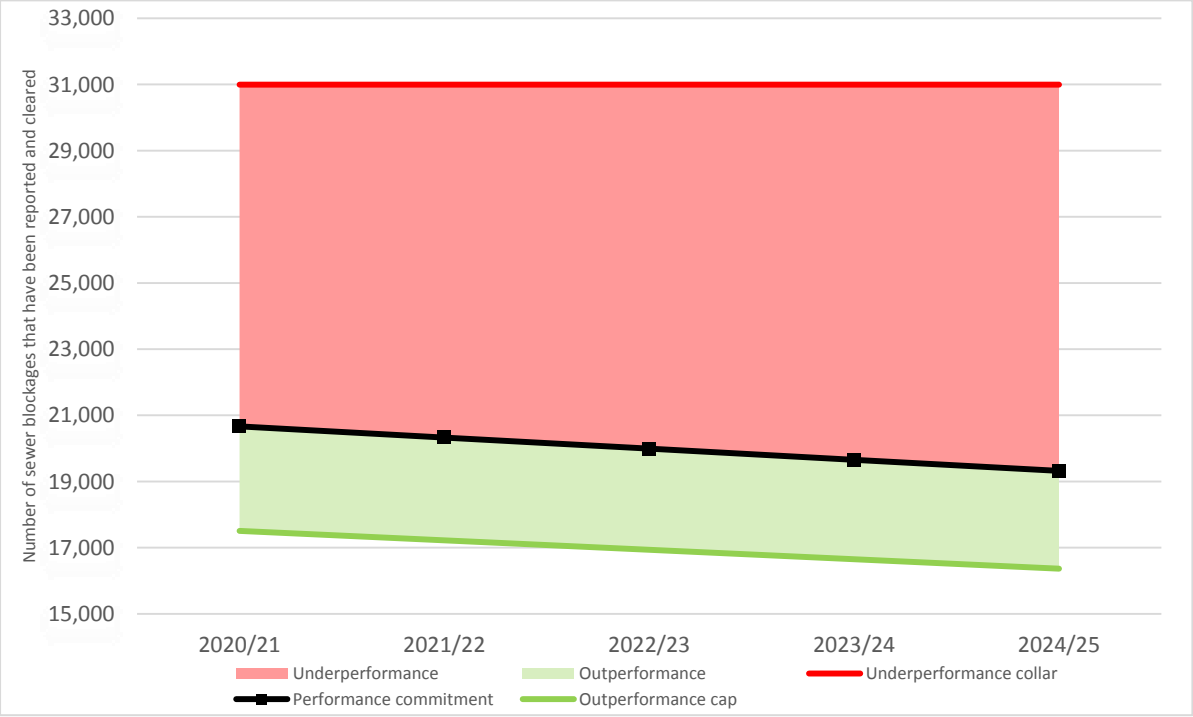


Figure 27

Deadbands, caps and collars

		2020/21	2021/22	2022/23	2023/24	2024/25
Outperformance cap	Number	17,505	17,220	16,935	16,651	16,366
Underperformance collar	Number	30,996	30,996	30,996	30,996	30,996

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance payments, which are reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

The rate for both out and under performance is £1,400 per blockage.

Worked examples

The incentive rate for this measure is £1,400 per blockage variation from the performance commitment target and applies equally to both outperformance and underperformance.

Example 1:

The performance commitment for 2020/21 is 20,664 blockages. Should we finish that year on 19,500 blockages, there would be an outperformance payment of £1,629,600. This is calculated as follows:

(Performance commitment – actual performance) x outperformance rate

= (20,664 – 19,500) x £1,400 = £1,629,600

Example 2:

The performance commitment for 2022/23 is 19,992 blockages. Should we finish that year on 20,800 blockages, there would be an underperformance payment of £1,131,000. This is calculated as follows:

(Actual performance – performance commitment) x underperformance rate

= (20,800 – 19,992) x -£1,400 = -£1,131,200

Long-term ambition

In the long-term, we aim to continue to significantly reduce the number of blockage incidents and maintain our industry frontier performance position. To achieve this will require significant innovation and investment, which we plan to manage effectively across the following Business Plan Periods to ensure it is affordable to customers. It will also require an influence of customer behaviours, leading to a cultural change in the long term to reduce the risk in an incremental way over a number of Business Plan Periods. The reduction in blockage incidents is dependent on the delivery of this investment.

This long term ambition will also have to consider and accommodate external factors beyond the company's control, such as climate change, population growth and changes to the industry & customer behaviour as a result of the COVID-19 pandemic. We also need to appreciate the influence of asset deterioration over the longer term and ensure that we adopt the correct delivery strategies maintain service levels and operational resilience. As our understanding of the influence of these

factors evolves, our ambition may need to adapt, but we will always strive to achieve the best service outputs for customers and ensure the environment is protected and enhanced.

If innovations developed through Dynamic Network Management (DNM), such as enhancement monitoring, “Stop the Block” campaigns and improved hot-spotting yield greater than expected benefits we hope to outperform our long-term targets. However, there are uncertainties in these new approaches, and if they turn out to be less successful than we had hoped we may need more physical interventions over a longer period of time and at higher cost.

Outcome G – The risk of sewer flooding for homes and businesses is reduced

Sewer flooding is one of the worst service failures that customers can experience and we understand the significant long-term impact flooding can have on customers in the North West. Customers want us to reduce flooding incidents that occur and our long-term aspiration is to eliminate internal flooding incidents.

Risk of sewer flooding in a storm (G01-WWN)

Purpose of this measure

This performance commitment is designed to incentivise companies to reduce the number of properties at risk of flooding in a storm. The performance commitment is also designed to encourage companies to develop a better understanding of the flood risks within their regions through improved quality and coverage of models.

Benefits on this measure

Reduction of flood risk during storm events protects customers and the environment from the disruption and costs associated with flood events. Improved understanding of the risk of flooding to our customers will support our long-term drainage planning processes. This will have a positive impact on the cost of flood resilience for customers through a better understanding of flood risk.

Measure description

The aim of this common measure is to understand the percentage of population at risk of internal hydraulic sewer flooding in a 1 in 50 year storm. The targeted reduction of percentage at risk across AMP7 is influenced significantly by population growth and maintaining adequate supply and demand of the network. There may also be contribution in improved performance via our internal hydraulic flood risk resilience measure (G05-WWN).

Measure definition

This measure records the percentage of the region's population at risk from internal hydraulic flooding from a 1 in 50 year storm, based on modelled predictions. The recording and reporting methodology developed by the industry offered two modelling methods for calculating the percentage of population at risk: a one dimensional (1D) or a two dimensional (2D) approach. We have chosen to utilise our regional and more detailed 2D model coverage that was used to develop our AMP6 future flood risk measure. This method provides a more accurate projection of areas likely to flood as it considers the volume of flooding as well as the extent, identifying where flood water is likely to pool. It is also worth noting that most of our drainage areas, including those that are relatively small, are predominantly drained by combined systems and therefore qualify for the full assessment required in the methodology.

There is no specific guidance within the methodology on whether this measure is to include internal, external or both forms of flooding. We know from our extensive customer research that internal flooding is one of the worst service failures customers can experience. This research, along with cross-industry conversations held at the Water UK Sewer Infrastructure Network group, has led us to prioritise risk from internal flooding only under this measure.

Flood depth was not specified in the methodology to guide when a property would be considered affected when using the 2D modelling approach. To account for both newer development regulations for a level door threshold and older developments with a higher threshold as well as considering the height of airbricks, a 5mm threshold was applied to the modelling results. Following additional industry guidance we have reduced this figure to a threshold of >0mm.

In summary, our assumptions are:

- Properties modelled to be affected by internal flooding are included

- A 0mm threshold depth is applied, only when this is exceeded is a property deemed affected
- Only buildings classed as a 'dwelling' have been included
- All properties within a high-rise block are included

As this is a common measure, the model criteria has been defined centrally. The model simulates a 1 in 50 year storm for both summer and winter scenarios under three time durations; 60, 240 and 480 minutes. The percentage of the population at risk will be calculated based on the worst case modelled results.

A property would be considered affected if modelled flooding from a manhole or gully reaches the actual property building. An occupancy rate is then applied to the affected property to determine the population equivalent. Occupancy rates were calculated based on the outputs from the Edge Analytics report. We commissioned Edge Analytics to provide a long-term population forecast for the region, allocating households and population data to wastewater treatment works drainage areas up until 2045. Edge Analytics is a specialist in democratic analysis and forecasting, providing evidence to support planning and policy development across a range of industry sectors. Occupancy rates are assessed for each catchment to ensure the variation in our region is accounted for and accurately assesses the differences in population density. As the calculations which have set the targets for this measure are based on forecasted population data, the performance for this measure will be recalculated annually once actual figures are available.

We had to prioritise activities associated with this measure due to the late nature of the guidance. We focused on applying the 2D modelling approach to a spot sample of catchments which our engineering experts considered to represent the variation in environmental and social factors across our region. The outputs have then been extrapolated up to calculate the regional percentage at risk. Models will be re-run towards the end of AMP7 for the entire region to account for the catchment vulnerability assessments which have not been applied to the sample set.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Developing-and-Trialling-Wastewater-Resilience-Metrics-Atkins.pdf

Measurement units

This measure is represented as the percentage of the population considered to be at risk from internal flooding in a 1 in 50 year storm. We calculate and reported this measure on an annual basis to two decimal places.

Mitigation/exceptions/assumptions

As set out above, on the basis of our customer research we have excluded external flooding in this measure.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

This is a reputational measure.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

	AMP7				
Unit	2020/21	2021/22	2022/23	2023/24	2024/25
Percentage of population at risk of sewer flooding in a 1 in 50 year storm	15.44	15.33	15.22	15.12	15.02

The target for this measure accounts for the increase in population and aims for no increase in the percentage of our population at risk from sewer flooding in a storm. As a guide, over AMP7 we expect approximately an additional 87,395 properties (this assumes 100% of the population increase is due to development) this equates to a reduction in the percentage of population at risk, shown in the table, of 0.42%.

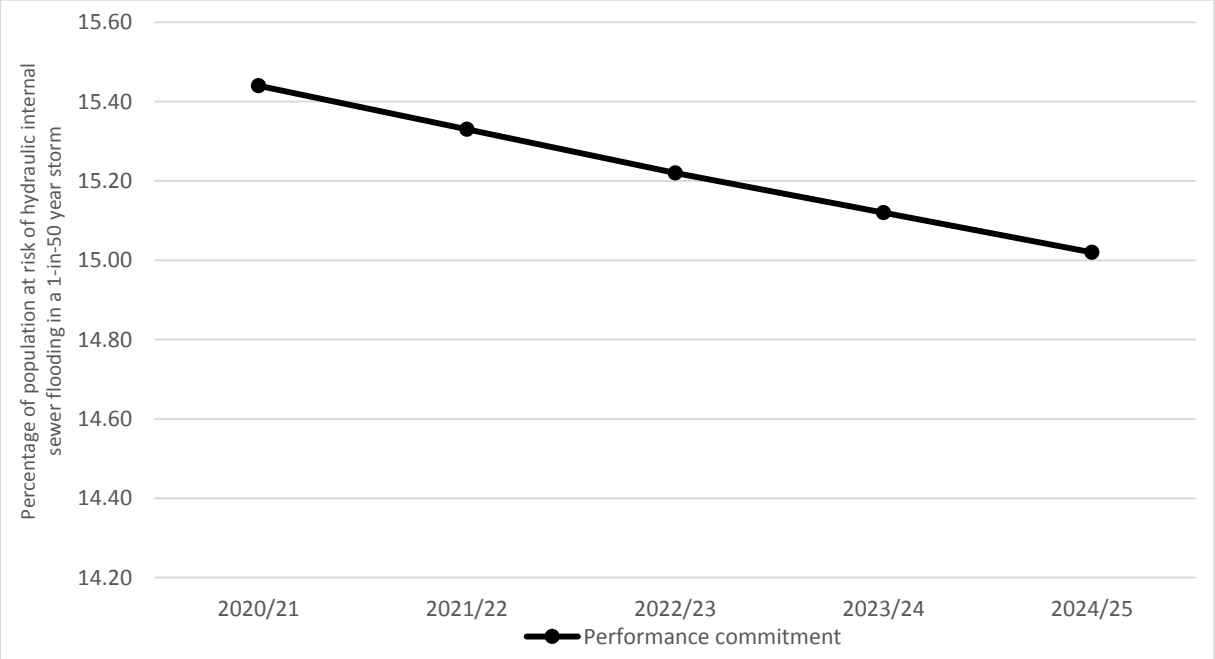


Figure 28

Deadbands, caps and collars

There are no deadbands, caps, or collars associated with this measure.

Outcome Delivery Incentive

This is a reputational measure and so not subject to outperformance or underperformance financial incentives. This measure is new for AMP7. Historically we have monitored flood risk based on actual flooding incidents, our predictive AMP6 future flood risk measure was based on properties, not population.

Throughout AMP6 we have invested in maintaining and updating our hydraulic sewer models to ensure that the predictive outputs they produce are verifiable against historical data. We will continue to update our models throughout AMP7 and will supplement their verification using historic incident data along with level data from the Dynamic Network Management monitors (DNM) and the spill information from the event duration monitors (EDM) installed this AMP.

The risk of flooding in a storm measure is part of a wider suite of performance commitments which monitor flooding performance, with the rest of the measures being financially incentivised. This, along with the fact that the measure is new for AMP7, demonstrates the appropriateness at this time of having the measure as reputational.

Outperformance / underperformance incentive rate

This is a reputation only measure.

Worked examples

The example below is based on the methodology being employed following FY20 Reporting. Prior to this, the updated model outputs were not available and was carried out through an extrapolation. Following FY20, the method is fully consistent with the Ofwat method. The calculation is based on running the method shown in the diagram below.

RoFiaS regulatory reporting process and example calculation

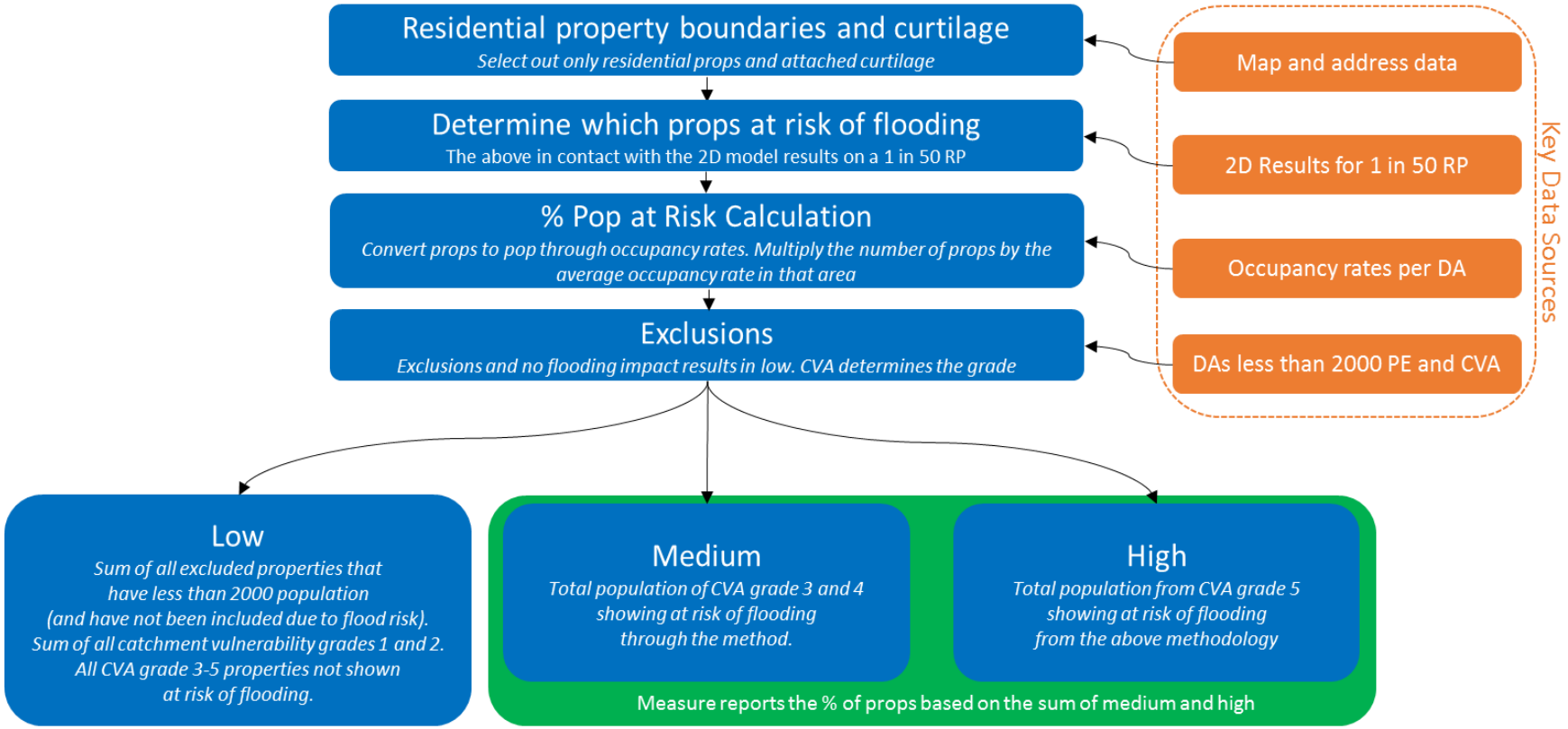


Figure 29

Long-term ambition

We recognise that sewer flooding is a dreadful experience for any customer. Our long-term ambition is to minimise the risk of hydraulic flooding incidents that impact customer properties. This measure will be used in conjunction with the other flood measures as a driver to tackle flooding proactively and consider where flooding is likely to occur even if there is no history. Investing in hydraulic flooding solutions is expensive and we continue to work with the supply chain to seek more innovative approaches. These include things like integrated catchment schemes with partnership organisations and working with developers on sustainable urban drainage schemes (SUDS). That said, to manage the impact of achieving this long-term ambition we plan to do this at an affordable rate for customers and so propose to phase the improvements across the next few investment periods. We plan to achieve this through managing supply and demand on the network as the region's population continues to grow and climate change impacts on the frequency of extreme events

We strive for our models to be as up to date as possible, our ultimate goal is for 100% 2D model coverage across the region. We will continue to strive for increased accuracy through fully verified models to ensure model outputs are as representative as possible. As this improves so will the level of confidence in the outputs produced for the calculation of this measure.

Internal sewer flooding (G02-WWN)

Purpose of this measure

This performance commitment is designed to incentivise companies to reduce the number of internal sewer flooding incidents.

Benefits of this measure

A reduction in internal sewer flooding, which is one of the worst service failures customers can experience.

Measure description

The measure aligns to the common measure that was proposed by Ofwat for AMP7, it is a count of the number of internal flooding incidents to have occurred each financial year, normalised per 10,000 sewer connections.

The measure focusses on the customer priority of internal sewer flooding, we recognise this is an important issue for customers and we are striving to improve in performance and are actively exploring new ways to solve sewer flooding incidents.

In AMP6, we measured internal flooding using two measures; the sewer flooding index measure and the private sewers service index measure. Properties flooded for hydraulic inadequacy, flooding other causes and repeat incidents were three of the five elements comprising the sewer flooding index measure that look across our non-transferred asset base. On the transferred network, internal flooding of properties was measured as part of the private sewers service index measure. In AMP7, we are measuring all internal flooding incidents (existing and transferred assets), irrespective of cause, as a single measure. This measure is easy for customers to understand and as a common industry measure it will be possible to ensure alignment of the measure with the rest of the industry. However, further work and industry calibration is required to ensure full compliance with the findings of the Ofwat horizontal audit.

Measure definition

This measure counts the number of internal flooding incidents occurring each financial year. This includes incidents on both existing and transferred assets from both hydraulic and flooding other causes.

As set out in the guidance for the common measure, in reporting internal flooding we are using the following definitions:

- Internal flooding is defined as flooding which enters a building or passes below a suspended floor. In this context, buildings are defined as those normally used for residential, public, community, commercial, business or industrial purposes.
- If a property floods internally and externally, only the internal flooding is counted. This means that the incident would be included in this measure but the external incident would not be included in the corresponding external measure (G03-WWN).
- This measure is a count of incidents not events, for example, if three properties flood during one event, this will count as three incidents.
- Flooding due to third party actions that cause sewer damage and subsequent flooding are included in all cases.

- Damp patches caused by seepage through walls or floors are excluded, but any area which has visible standing or running water or which has visible deposits of silt or sewage solids is included.
- Severe weather incidents are included in this measure. This adds a significant level of volatility to the number of reported incidents.

The industry guidance document which outlines all of these points can be found at:

https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-sewer-flooding-updated-April-2018.pdf

Measurement units

This measure is reported as the number of internal sewer flooding incidents which occur in each financial year to two decimal places per 10,000 sewer connections. We also report an absolute value for flooding each financial year in our supporting commentary.

Mitigation/exceptions/assumptions

The measure is intended to be consistent with the industry converged flooding methodology at any given time of reporting.

Notable exclusions from this measure are:

- Damp patches caused by seepage through walls or floors are excluded. However, any area which has visible standing or running water or which has visible deposits of silt or sewage solids is included.
- Any standing or running water that has been generated through the fully attributable source of flooding investigation work, such as dye testing.
- Incidents where flooded rivers and watercourses etc. inundate the public sewers and cause internal/external flooding of individual properties. These incidents are legitimately excluded, as they were caused by fluvial flooding.
- Incidents where watercourses are inappropriately connected to the sewer, leading to flow from the surcharging watercourse entering a combined sewer (effectively acting like a reverse CSO). In this instance, the water causing/exacerbating the flooding did not originate from a public sewer.
- Incidents where land drainage, or surface water runoff, is found to have overwhelmed the available headroom in the sewers (that were not designed to deal with the additional water) resulting in sewer networks surcharging and generating subsequent flooding.
- Incidents where burst water mains and private services generate flows that nearby sewers and drains were not designed to convey, resulting in the sewer network becoming overwhelmed and generating subsequent flooding.
- Flooding caused by upstream defects on private drains that reduce resuspension flow, bulk convey material (e.g. a private line pipe “belly” that conveys a “rag sausage” or uncapped road gulleys that convey matter into public sewers) or ground material.
- Incidents where unauthorised third party contractors work on private systems or the public network and their actions result in flooding from a public sewer asset.
- Incidents where flooding occurs specifically due to vehicle movements, within the highway, through sewer flood water and the “bow wave” results in flooding of a property.

Further details of allowable exclusions can be found in the Ofwat guidance note linked above.

Common performance commitment

This is a common performance commitment developed by Ofwat for AMP7.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

In line with Ofwat's PR19 methodology and upper quartile target has been set for each year of the period, which are outlined in the table below.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Number	1.69	1.63	1.58	1.44	1.34

The graph below highlights our AMP7 performance commitment for this measure. This measure is very challenging for us to achieve and will require a step change in performance for us as we are perceived to be an industry outlier.

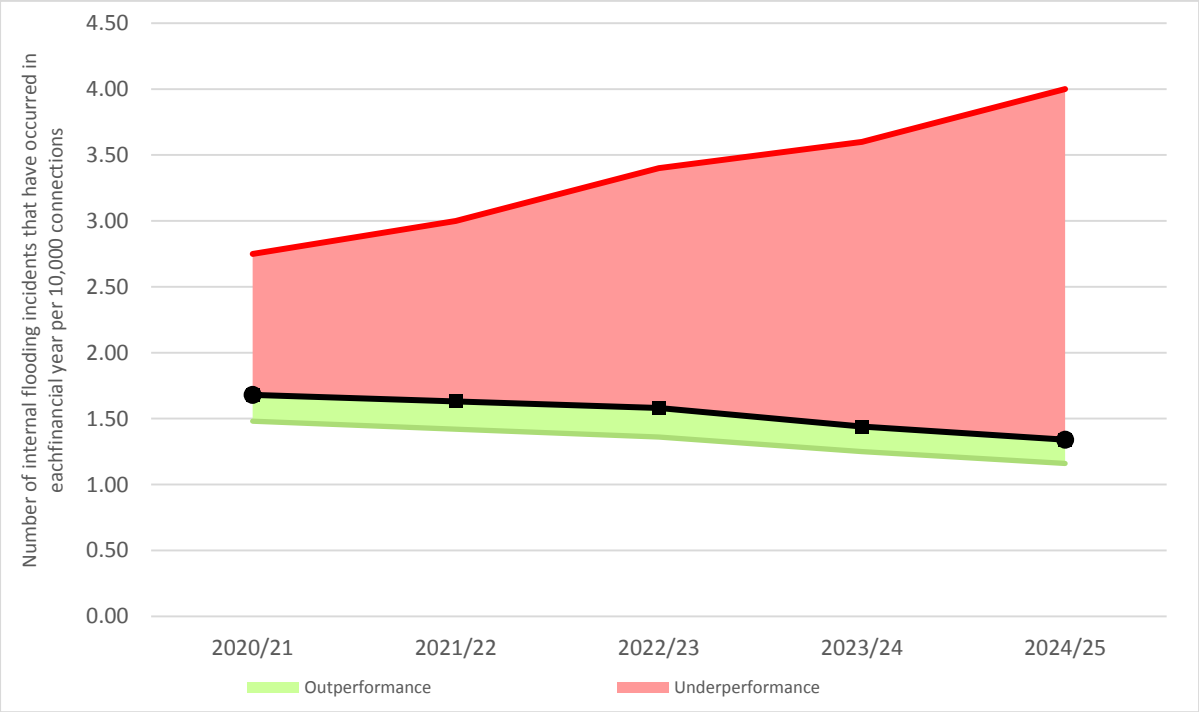


Figure 30

Deadbands, caps and collars

An underperformance collar and outperformance cap have been applied to this measure which is outlined in the table below.

Unit - No. of internal flooding incidents	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Under performance collar	2.75	3.00	3.40	3.60	4.00
Out performance cap	1.48	1.42	1.36	1.25	1.16

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, to be reconciled annually on an in-period basis.

Outcome Delivery Incentive rate

The outperformance and underperformance incentive rate is £6.751m per normalised incident. This equates to £19,695 per un-normalised incident.

Worked examples

There are three possible incentive scenarios with this measure. These are an outperformance payment, an underperformance payment and no payment. As this measure is set up for payments within the Business Plan Period, the payment is to be calculated at the end of each financial year.

If the number of normalised incidents is above the performance commitment, there would be an underperformance payment due on the measure of £6.751m per normalised incident. At the end of each year, the number of normalised incidents above the performance commitment would be totalled and multiplied by £6.751m to calculate the underperformance payment.

For example in 2020/21 if we achieved a performance of 2.09 we would incur an underperformance payment of £2.700m.

1.69-2.09 * £6.751 = -£2.700m

If the number of incidents is below the performance commitment, there would be an outperformance payment on the measure. Each incident above the performance commitment would result in an outperformance payment of £6.751. At the end of each year, the number of normalised incidents below the performance commitment would be totalled and multiplied by £6.751 to calculate the outperformance payment.

For example in 2020/21 if we achieved a performance of 1.50 we would incur an outperformance payment of £1.283m.

1.69-1.50 * £6.751 = £1.283m

Should the number of normalised incidents equal the performance commitment, this would result in no payment.

Long-term ambition

Through our 10 year strategy for sewer flooding we are aiming to move to an upper quartile position in relation to other companies. In line with the Ofwat methodology we have set a target for AMP7 which requires us to reach upper quartile in year one.

Given the level of reduction required, we recognise that this is extremely stretching and therefore we are likely to only achieve upper quartile over a 10 year period. However we are striving to achieve this level of service to customers as soon as possible through innovations set out in the 10 year plan.

In the longer term, we aim to prevent all internal flooding incidents, within our control, i.e. due to operational causes. Additionally it is our aspiration to create sufficient network capacity, through storage provision and SW discharge reduction, to reduce the risk of flooding posed by severe weather. To achieve this will require significant innovation and investment, which we plan to manage effectively across the following Business Plan Periods to ensure it is affordable to customers. It will also require an influence of customer behaviours, leading to a cultural change in the long term to reduce the risk in an incremental way over a number of Business Plan periods. The reduction in flooding incidents is dependent on the delivery of this investment.

We will also continue to work with Ofwat on improving common definitions and promoting further consistency of reporting. Both of these will benefit activities will benefit customers over the longer term.

External sewer flooding incidents (G03-WWN)

Purpose of this measure

This performance commitment is designed to incentivise companies to reduce the number of external sewer flooding events.

Benefits of this measure

A reduction in the number of external sewer flooding incidents reduces disruption and other negative social impacts for customers.

Measure description

This measure counts the number of external flooding incidents, which occur each financial year. An external flooding incident is defined as flooding within the curtilage of a building normally used for residential, public, community or business purposes. It includes any buildings in those curtilages which do not comply with the definition for internal flooding e.g. sheds, detached garages or attached garages with no door access to the living accommodation. A flooding incident is defined as an event of external flooding from a public or transferred sewer (whether foul, combined or surface water).

Measure definition

This performance commitment is allocated to the wastewater network plus price control and is subject to outperformance and underperformance payments.

In AMP6 we monitored external flooding as a sub-measure within our sewer flooding index. We recognised that index measures can be complex for customers and stakeholders to understand. Therefore in AMP7 we are measuring external flooding as a standalone measure that we have selected from Ofwat's asset health long list.

In assessing this measure we define external flooding as flooding within the curtilage of a building that is normally used for residential, public, community or business purposes. It includes buildings in those curtilages which do not comply with the definition for internal flooding e.g. sheds, detached garages or attached garages with no door access to the living accommodation.

A flooding incident is defined as an event of external flooding from a public or transferred sewer (whether foul, combined or surface water). The following areas are included in the reported numbers for external flooding:

- Buildings where the prime purpose is not habitation or occupied business premises
- Farms, golf clubs etc.
- Flooding of the immediate curtilage of the main buildings (gardens, patios etc.)

The following areas are excluded from the reported numbers for external flooding:

- Highways – including footpaths
- Public open spaces - agricultural land, car parks.

Below are some examples to show how we will count external flooding incidents:

- In the case of a flooding event affecting an area in the same ownership, such as an industrial park, retail park, hospital site, university site etc., this will be counted as one incident.

- Where a property floods both internally and externally during the same event it is only recorded as an internal flooding incident.
- Flooding due to third party actions that cause sewer damage and subsequent flooding are included in all cases. However, flooding as direct result of inundation will be excluded.
- Damp patches caused by seepage through walls or floors is excluded, but any area which has visible standing or running water or which has visible deposits of silt or sewage solids is included.

In the example below a street has been affected by a flooding event.

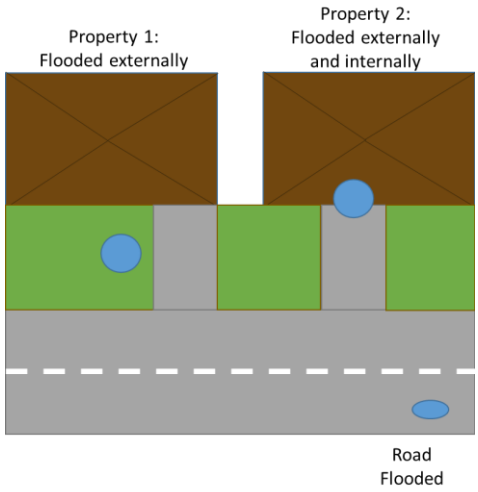


Figure 31 - Example of internal and external flooding event scenario

- One property has flooded externally only within the curtilage of the property.
- One property has flooded externally within the curtilage of the property and internally.
- The road has flooded.

This event counts as one external flooding incident. This is because the property that has flooded both internally and externally would be counted as an internal flooding incident and contribute towards the separate internal flooding measure, the highway flooding on the road is excluded as this doesn't count towards either the internal or the external measure. Therefore, only property one contributes towards this external flooding measure.

Following the recent industry horizontal audit, we consider that there remains inconsistency across water companies in terms of the levels of investigation applied to establish the true extent of any individual flood event. From this process we believe that our methodology is robust however we know there are inconsistencies in reporting approach across the industry. Examples of this include differing operating models/contractor usage and the approach companies adopt to reactively identify flooded properties (i.e. those in neighbouring properties, as opposed to the properties proactively identified by the customer contact). However, we are committed to industry workshops that were recommended from the horizontal audit carried out early 2018.

Currently comparison of flooding incident performance across the industry is difficult due to companies using differing methodologies, definitions and measurement metrics. We will continue to work with Ofwat and across the industry to ensure that the performance data that we report is as comparable as possible with that provided by other companies. The current industry guidance on external flooding can be found at the link below.

https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-sewer-flooding-updated-April-2018.pdf

Our sewer flooding process has developed over a number of years from lessons learned and is under continual review to confirm it remains up to date, customer focused and robust to ensure flooding incidents are accurately recorded. We believe this is an industry leading process and we will continue to investigate and report to this methodology in AMP7.

Measurement units

Measured as the number of external flooding incidents that have occurred in each financial year, reported to zero decimal places.

Mitigation/exceptions/ assumptions

Notable exclusions from this measure are:

- Flooding of external spaces not within the curtilage of a property are excluded i.e. roads, fields.
- Flooding caused by the failure of equipment (i.e. a citiflex unit) after the sewage has already exited the network system.
- Damp patches caused by seepage through walls or floors are excluded. However, any area which has visible standing or running water or which has visible deposits of silt or sewage solids is included.
- Any standing or running water that has been generated through the fully attributable source of flooding investigation work, such as dye testing.
- Incidents where flooded rivers and watercourses etc. inundate the public sewers and cause internal/external flooding of individual properties. These incidents are legitimately excluded, as they were caused by fluvial flooding.
- Incidents where watercourses are inappropriately connected to the sewer, leading to flow from the surcharging watercourse entering a combined sewer (effectively acting like a reverse CSO). In this instance, the water causing/exacerbating the flooding did not originate from a public sewer.
- Incidents where land drainage, or surface water runoff, is found to have overwhelmed the available headroom in the sewers (that were not designed to deal with the additional water) resulting in sewer networks surcharging and generating subsequent flooding.
- Incidents where burst water mains and private services generate flows that nearby sewers and drains were not designed to convey, resulting in the sewer network becoming overwhelmed and generating subsequent flooding.
- Flooding caused by upstream defects on private drains that reduce resuspension flow, bulk convey material (e.g. a private line pipe ‘belly’ that conveys a ‘rag sausage’ or uncapped road gulleys that convey matter into public sewers) or ground material.
- Incidents where unauthorised third party contractors work on private systems or the public network and their actions result in flooding from a public sewer asset.
- Incidents where flooding occurs specifically due to vehicle movements, within the highway, through sewer flood water and the ‘bow wave’ results in flooding of a property.

Common performance commitment

This is a bespoke measure which we have selected from Ofwat’s asset health long-list.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

The performance commitment for Business Plan Period 2020 - 2025 is to achieve upper quartile performance by the first year of the period. This is an area of positive performance for us and we are seeing the benefits of innovations tested as part of our Wastewater Network Management programme. We forecast that as we roll these new techniques and ways of working out across the region we will continue to improve, achieve and maintain upper quartile status.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
No. of external flooding incidents	6,845	6,599	6,352	6,106	5,859

The graph below shows the performance level that we have committed to achieve in AMP7.

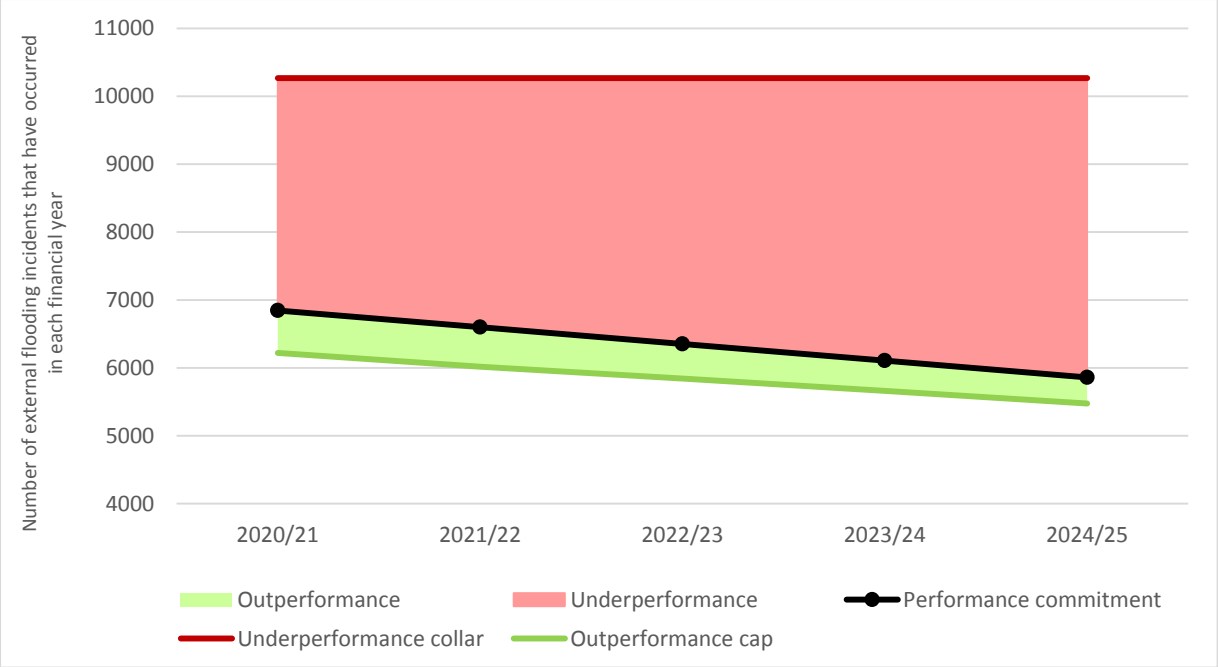


Figure 32

Deadbands, caps and collars

An underperformance collar and outperformance cap have been applied to this measure which is outlined in the table below.

Unit - No. of internal flooding incidents	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Under performance collar	10,268	10,268	10,268	10,268	10,268
Out performance cap	6,221	6,017	5,843	5,662	5,576

Outcome Delivery Incentive

This measure is subject to both underperformance and outperformance financial incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

The underperformance incentive rate is £0.00644m and the outperformance incentive rate is £0.00537m.

Worked examples

There are three possible scenarios for the application of the incentive rate associated with this measure.

Example 1 – Outperformance

For example:

In the year 2020/21, the target level is 6,845 incidents.

If performance in that year was 6,839 this would be an outperformance of 6 incidents (6,845 - 6,839).

This would lead to an outperformance payment of £0.032m (6 x £0.00537).

Example 2 – Underperformance

In any given year, if the number of incidents is above the performance commitment, this would result in an underperformance payment of £0.00644 per incident. This will then be reconciled on an in-period basis.

For example:

In the year 2022/23, the target level is 6,352 incidents.

If performance in that year was 6,500 this would be an underperformance of 148 incidents (6,500 – 6,352).

This would lead to an underperformance payment of -£0.953 (148 x £0.00644).

Should the number of incidents be exactly the same as the performance commitment, this would result in no underperformance or outperformance payment.

Long-term ambition

In the long term we aim to achieve and maintain an upper quartile position for external flooding.

Through our 10 year strategy that is targeting a step change for internal flooding we will also see improvements to all our wastewater network processes and innovations that will see improvements for external incidents too. We have set a target for AMP7 that challenges us to reach upper quartile in year one and maintain this. This includes an uplift for our FEA process which continues through the long-term targets.

If innovations developed through Dynamic Network Management (DNM), such as enhancement monitoring, 'Stop the Block' campaigns and improved hot-spotting yield greater than expected benefits we hope to outperform the long-term targets. However, there are uncertainties in these new approaches, and if they turn out to be less successful than we had hoped we may need more physical interventions over a longer period of time and at higher cost.

In the long-term, we aim to prevent all flooding incidents. To achieve this will require significant innovation and investment, which we plan to manage effectively across the following Business Plan Periods to ensure it is affordable to customers. It will also require an influence of customer behaviours, leading to a cultural change in the long term to reduce the risk in an incremental way over a number of Business Plan Periods. The reduction in flooding incidents is dependent on the delivery of this investment.

This long-term ambition will also have to consider and accommodate external factors beyond the company's control, such as climate change, population growth and changes to the industry & customer behaviour as a result of the COVID-19 pandemic. We also need to appreciate the influence of asset deterioration over the longer term and ensure that we adopt the correct delivery strategies maintain service levels and operational resilience. As our understanding of the influence of these factors evolves, our ambition may need to adapt, but we will always strive to achieve the best service outputs for customers and ensure the environment is protected and enhanced.

Raising customer awareness to reduce the risk of flooding (G04-WWN)

Purpose of this measure

This performance commitment measures the percentage improvement in customer awareness of what not to flush down the toilet and what should not be poured down the drain in order to improve sewer performance and customer experience.

Benefits of this measure

Increasing customer understanding of what should and shouldn't be disposed of down drains and toilets will lead to improved customer experience and performance of the wastewater network.

Measure Description

This measure assesses delivery of a change in customer awareness aimed at changing behaviour on items that should not be flushed down the toilet and not poured down the drain. The baseline awareness will be set using Brand Tracker which is a comprehensive, qualitative online survey. The questions have been co-designed and the survey will be conducted by a 3rd party customer research company. From the baseline we will seek to improve awareness which we believe will lead to a behavioural change subsequently reducing the number of blockages and improving overall performance of the wastewater network.

We will work with partner organisations to explore, develop and implement co-creation and co-delivery opportunities. Performance through the period 2020 to 2025 will be tracked by engaging with an independent customer research organisation to repeat the survey annually to track changes in awareness.

Measure Definition

This performance commitment is allocated to the wastewater network plus price control and is subject to outperformance payments and underperformance penalties.

Changing behaviours is notoriously challenging, as people can see change as a loss to them and we have a natural aversion to losses. Furthermore, we all demonstrate a comfort in the status quo and making changes can require significant and sustained effort to overcome this inertia. Because of these challenges we believe this is an exceptionally stretching measure.

In the Business Plan period 2015-2020 we engaged with customers on a number of occasions to raise awareness of the impact of items being flushed. As well as broad campaigns we have specific follow up leafletting processes following each blockage incident. We carry out a Christmas time campaign to raise awareness of the impact of fats oils and grease being washed down the drain. We will also continue to utilise, as appropriate, the expertise of the WaterTalk customer panel to assess best methods of communication with customers.

For the Business Plan period 2020-2025 we are looking to deploy a region wide campaign to seek to make a step change in flushing culture.

We have investigated a range of options to measure awareness, behaviour and cultural change. We have also engaged with behavioural economists and customer research organisations to see how this measure could be calculated. Measurements can become complex and also highly variable in

practise. As a result we have selected a relatively simple calculation metric of % of the population aware each year beyond the baseline set in 2018.

There is research which indicates that being aware of what not to flush does link to conforming behaviour. Therefore the measure is valid in linking to the outcome of improved sewer performance for customers.

We have engaged an independent researcher, who run Brand Tracker, to design and set a questionnaire aimed at understanding customer knowledge of what to put down the toilet/sinks and the underlying customer behaviour. The survey will include open ended questions to gain greater understanding of the behaviours observed. Each time we run the survey we will collect some basic demographical data i.e. age, gender and customer segmentation.

The Brand Tracker is a quantitative online survey that is conducted three times a year with around 1,000 residential customers from our region. The survey covers customer awareness and perception of the UU brand and its activities over the previous three to four months. Customers are a representative mix of age, gender, region, metered / unmetered customers and urban / suburban customers. This volume allows a statistically significant movement in measures to be recorded. The Brand Tracker has been conducted at regular intervals since 2014.

The results from the three surveys conducted each year will be averaged for the purposes of this performance commitment.

Baseline and awareness measurement methodology

- We will calculate our customer awareness baseline utilising a representative survey of 1,000 customers or more – which is currently deployed via our Brand Tracker survey.
- We will calculate awareness change to one decimal place using a yearly average based on three surveys taken periodically throughout the year.
- Results will be based on an even average across two questions (outlined in the diagram below), one question will refer to general customer awareness of what not to flush or pour, and the second shall refer to specific customer awareness of United Utilities messaging around this topic.
- The question related to general awareness of what not to flush and what not to pour shall be sub-divided equally – as demonstrated in the diagram below.
- To establish the baseline, in accordance with how the methodology shall be conducted through the AMP, one year's worth of data (results from three surveys) has been used for the question related to customer awareness of United Utilities communications.

Baseline Calculation Worked example

The calculations for the measure are as follows:

1. The results of the three questions (below) come from the brand tracker survey. In each year there are three waves. In the case of the baseline, these are Waves 36, 37 and 28.

Q1a	Have you seen or heard any information about what you should not flush
Q1b	Have you seen or heard any information about what you should not put down drains
Q2	Q.Do you recall seeing the following advertising:

2. Each question is averaged over three waves as required by the Final Determination (FD)

	26	27	28	Average
Q1a Actual	41	40	33	38.0
Q1b Actual	30	29	23	27.3
Q2 Actual	18	18	17	17.7

3. Q1a and Q1b (what not to flush and what not to pour) are added together and divided by 2. This creates a single result for question 1.
4.

	26	27	28	Average	Added
Q1a Actual	41	40	33	38.0	32.7
Q1b Actual	30	29	23	27.3	
Q2 Actual	18	18	17	17.7	17.7

5. Q1 (from point 2 above) and Q2 (awareness of our campaign) are added together and divided by 2.
6.

	26	27	28	Average	Added	Result
Q1a Actual	41	40	33	38.0	32.7	25.2
Q1b Actual	30	29	23	27.3		
Q2 Actual	18	18	17	17.7	17.7	

The result is rounded to 1DP.

Measurement units

Measured annually as the percentage of customers (as surveyed) above or below the 2018/19 baseline that are aware of the campaign to reduce flooding and reported to one decimal place.

Mitigation/exceptions

None – any variations that occur through the process of customer research will be accepted by us as being within the allowed margins of error.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – subject to underperformance payments and outperformance incentives.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

We have completed a baseline survey in 2018 to identify that the baseline level of customer awareness on what not to flush and what not to pour is 25.2%. We will conduct the Brand Tracker survey three times per annum using a sample of at least 1,000 customers - selected from within our region. The three results will be averaged for the year and reported for this performance

commitment. The survey covers a representative mix of age, gender, region, metered / unmetered customers and urban/suburban customers. This will allow statistically significant measures to be recorded and will also allow data to be trended throughout the year so that we can continually monitor our performance as well as measure any changes against the 2018 baseline response levels. Increases in responses will confirm the success of our communications which will run throughout AMP7 and will look to increase customer awareness of the actions that customers can take to reduce their impact on the performance of the wastewater network.

Our communications will be reviewed and revised continuously and we will continue to use the support of our WaterTalk customer panel as advisors where necessary to help shape our communication strategies. Our target is to increase awareness beyond the baseline in increments of 2% each year. This would achieve a cumulative increase in awareness from our baseline of 10% across the AMP7 period.

Unit	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Increase in awareness from baseline (cumulative)	2.0%	4.0%	6.0%	8.0%	10.0%

Deadbands, caps and collars

None.

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial payment incentives, which will be reconciled annually on an in-period basis.

Worked examples

As in the baseline and worked example above, the results of the three waves in each year are follow the same method as the baseline.

Waves	29	30	31	Average	Added	Result
Q1a Actual	47	43	49	46.3	41.8	29.3
Q1b Actual	36	34	42	37.3		
Q2 Actual	11	15	24	16.7	16.7	

To calculate the under or over performance payments, the result of step 3 is compared to the performance commitment. The difference is then multiplied by the incentive rate.

Performance Commitment (PC)	27.2
Example Result	29.3

Difference (Result - PC)	2.1

Incentive Rate (IR) (£m)	0.086

ODI Value (£m) (Diff * IR)	0.1806

Long-term ambition

We are seeking to embark on a cultural change for the way that people dispose of material down the drain. We hope to see a shift in in behaviour amongst the population of the North West that is sustainable and can be passed down the generations.

We intend to review our targets at the end of each business plan period and will reset our baseline to reflect the latest awareness levels. As this is a new measure for AMP7 we are unsure how successful the measure will be and if there will be customer support for this to continue into future AMPs. Our ambition is to maintain the stretching 2% increase in awareness (continuing from our AMP7 performance commitment) per year, reaching 30% additional awareness from our baseline by 2034/35. Given our baseline of 25.2% this would see overall awareness at 35.2%.

Hydraulic internal flood risk resilience (G05-WWN)

Purpose of this measure

This is a bespoke performance commitment designed to incentivise the provision of permanent solutions to reduce the risk of internal flooding at properties that have experienced flooding more than once.

Benefits of this measure

This measure will reduce the risk of customers that have repeated experience of internal flooding being flooded again.

Measure description

The aim of this measure is to reduce the flood risk to customers from internal hydraulic flooding and particularly those that are impacted by repeat incidents. It will measure modelled flooding incident reduction at known flooding properties following the provision of permanent solutions that will improve the resilience of the drainage system serving the customers of the North West.

Measure definition

This measure relates to hydraulic (flooding due to the overloading of sewers) internal flooding only, it does not include flooding due to other causes such as blockages and collapses.

In setting the measure we are assessing those properties most at risk of hydraulic flooding. Therefore we have assessed the risk of properties repeat flooding in the event of storms with less than a 1 in 20 return period.

This measure is records modelled internal hydraulic flood risk throughout the period 2020 and 2025 at known repeat flooding properties. 'Baseline' flood are defined as the annualised modelled risk as at 2018/19. Risk levels will only be updated where the modelled risk changes solely due to a permanent intervention being carried out in the period.

The list of properties and associated modelled flood risk (represented as an annualised incident forecast) includes all properties to have flooded at least twice over the six year period 2012/13 to 2017/18. This list, along with the associated modelled flood frequency risk levels, was set in 2018/19 and inform the 'baseline' regional risk level.

Rather than using the 'repeat flooding' definition that was used for the business plan period 2015 to 2020 (which counts second time incidents to have occurred in a 10 year period) we have used a list of properties which have flooded over the six year period 2012/13 to 2017/18 as the repeat flooding list. Many of the properties that flooded prior to this period have since received permanent solutions or mitigation measures. Using the updated definition will therefore avoid counting already resolved issues and provide focus at the properties and customers that continue to experience hydraulic flooding issues.

We also have an external hydraulic flood risk resilience measure. Where properties and areas are affected by a combination of repeat internal and external flooding incidents they will be captured on both 'baseline' regional risk level lists.

Where the modelled frequency is greater than the reported frequency, the reported frequency for the six year period 2012/13 to 2017/18 will be used instead of modelled risk. This will ensure that

the benefit claimed once a solution is developed is not higher than has been previously experienced by the affected customers.

With the intention of providing or freeing up additional hydraulic capacity, 'permanent' interventions include: -

- sewer upsizing
- online or offline storage
- flow transfer
- surface water removal including green infrastructure solutions
- physical disconnection from a surcharging sewer

Interventions previously regarded as 'mitigation' measures will continue to be provided wherever feasible, but will not be counted in the risk reduction applied to this measure.

The detail of the definition will ensure that the reduction in risk claimed is less than or equal to the modelled risk reduction achieved, making the proposed target even more stretching. Additionally a minimum of a 50% reduction in modelled flood risk frequency will be provided to properties which makes the proposed performance target more difficult to achieve. Whilst these aspects add a level of complexity to the measure definition, we feel that the following rules are necessary in order to maximise resilience and provide the greatest possible benefit to customers:

- Baseline risk will be capped at the reported risk over the six year period 2012/13 to 2017/18. The risk reduction achieved will only reflect permanent interventions.
- Solutions will be designed for a 2040 design horizon, including climate change, proposed development and creep. We will claim the difference between the remaining 2040 risk following an intervention, and the baseline risk levels. With subsequently larger "future-proofed" solutions being constructed, this will mean that the risk reduction achieved in the period 2020-2025 will be greater than that claimed against our measure.
- Modelled risk will only relate to properties that have reported repeat flooding over the six year period 2012/13 to 2017/18, meaning that the modelled risk reduction achieved will be greater than that claimed against our measure (i.e. for properties at risk but which have not yet flooded or repeat flooded in this period). This reduction in risk will be reflected in our resilience measure, which is included as a reputational measure for business plan period 2020 to 2025.
- Where properties are not already on the list and are impacted by a repeat flood during the remainder of AMP6 and AMP7, they will be added to the measure using a consistent method with those currently included.

Baseline

We have set a baseline which is capped at the recorded level of risk over the six year period up to 2017/18. Should future modelling be completed which increases the modelled risk to a level in excess of that observed in historic incidents, the modelled risk will be capped at the historic baseline level.

Each new financial year any new repeat arisals will be assessed and added to the baseline list.

Previous projects and AMP6 projects still to be completed

The modelling used in this measure includes some properties where projects have already been completed but they were impacted by repeat flooding during the period. We are not reporting any outperformance relating to properties that have had previously completed schemes unless an

intervention is deployed that creates additional sewer capacity beyond that provided by the original project therefore providing an additional modelled flood risk benefit.

Projects that are in progress but not are yet complete are also included in the modelled data. We will not report any outperformance relating to these locations where work is already underway. Only projects which are complete after July 2019 will be used to reduce the risk of flooding against the baseline.

Modelled Risk

The measure is based on modelled risk. Our risk assessment is based on two stages. In the first instance, design rainfall has been simulated across the region for rainfall events from 1 in 1, up to 1 in 50 and across the full range of durations. The lowest return period to show a flood risk is used to understand the flooding frequency. For example, if a property is shown as flooding in a 1 in 10 event but not in a 1 in 5, 1 in 10 is taken as the flood frequency. In terms of annualised risk, flooding on a 1 in 1 event would equal 1 annualised incident while flooding on a 1 in 10 event would be equivalent to 0.1 annualised incidents.

For properties with the greatest predicted volumes in the 1 in 1 year design event, we have used historic rainfall series (reflecting actual rainfall to have been recorded in each area) to simulate flooding over that period, resulting in a corresponding modelled prediction of flooding.

Depending on the level of modelled detail in the vicinity of each property, thresholds in terms of flooding volume (e.g. for overland flooding mechanisms) and top water levels (e.g. for cellar flooding) have been set and adopted consistently to assign modelled risk across the full list of properties.

Modelled representation of the sewerage system and associated verification of models have been carried out in line with the CIWEM UDG (2017) Code of Practice for the Hydraulic Modelling of Urban Drainage Systems[13] and, for the representation of antecedent conditions, the CIWEM UDG (2016) Rainfall Guide. The methods detailed in sections 3.3 and 3.4 (antecedent conditions for design rainfall) and 4.3.5 (antecedent conditions for time series rainfall) have been applied in all cases. Model maintenance is updated, run and managed using this guidance (and will be until it is superseded). As part of the development of this measure, we have undertaken localised checks of quality to ensure that the model is of an appropriate standard at the property being considered. This largely comprises ensuring that the model prediction is in line with our historic view.

Internal and external flooding

The model risk will be determined based on 1D modelling (for example, a manhole flooding with $10m^3$ if it is in the highway would be considered enough to enter the property boundary). As this would not have the detail required to differentiate between internal and external flooding, the recorded historic flooding is used to allocate the model risk to either this measure or the equivalent external measure (G06-WWN). This approach allows us to focus our resources on the highest risk properties from a larger overall list rather than using more resource intensive 2D modelling for all properties when there are some that may not have cost beneficial solutions. This applies to all arisals up to FY20. Following the 2020 model runs for DWMP and Risk of flooding in a storm however, we are using the 2D outputs in determining the level of flood risk from FY20 onwards.

[13] https://www.ciwem.org/groups/udg/

Modelled risk application

Key principles:

- Where there is only recorded historic internal flooding, the property is allocated to this measure.
- Where there is recorded historic external flooding, the property is allocated to the external measure (G06-WWN).
- Where there are separate recorded instances of historic internal and external flooding, the property will be included in this measure and the external measure.
- The recorded historic flooding is based on our current flooding reporting methodology and industry best practice. This only includes the worst effect so if there is both internal and external flooding during the same incident, it will be recorded as an internal flooding incident.
- The above classification means that the benefit from the scheme is limited to the worst case customer impact and there is no ability to claim multiple benefits on the same project.
- Where the modelled risk exceeds the historic risk, then the modelled risk will be capped at the historic risk.

Application example 1:

Flooding originates from a manhole and enters the property through overland flow.

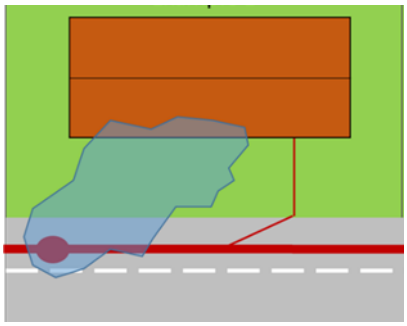


Figure 33

- This is a property that has flooded internally six times in six years (6/6). This equates to a historic risk of one annualised incident.
- As the historic data is used to allocate the flooding (and this is based on worst effect) this is recorded as internal flooding only.
- The modelled risk at the property is flooding twice per year. As the historic incidents are internal, the model risk is allocated to the internal measure.
- As the historic flooding is one incident per year and the modelled incidents are two per year, the model risk is capped at one incident per year.
- **This would mean our intervention would reduce the risk at this property by an additional one incident per year.**

Application example 2:

Flooding enters the property through the cellar with no associated external flooding.

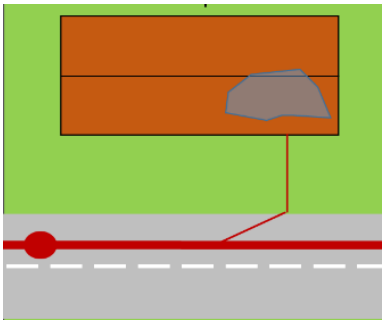


Figure 34

- This is a property that has flooded internally six times in six years (6/6). This equates to a historic risk of one annualised incident.
- As the historic incidents are internal, the model risk is allocated to the internal measure.
- The modelled risk at the property is flooding on a 1 in 2 event, equivalent to 0.5 incidents per year.
- As the historic flooding is one incident per year and the modelled incidents are 0.5 per year, the risk level for the property is the model risk at 0.5 incidents per year.

- As the model risk does not exceed the historic cap, the model risk does not have to be
- **This would mean our intervention would reduce the risk at this property by an additional 0.5 incidents per year.**

Application example 3:

Flooding originates from a manhole and enters the property through overland flow for each of the three internal incidents.

There are also three recorded external flooding incidents. The same flooding pathway occurs but it does not enter the property. Because there are separate external historic flooding events, the impact is also included on the external measure

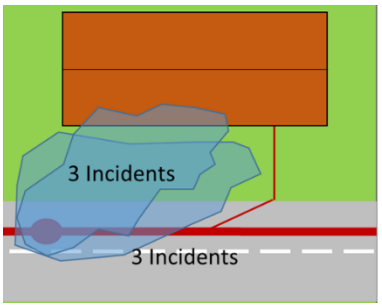


Figure 35

- This is a property that has flooded internally three times in six years and externally three times in six years. This equates to a historic risk of 0.5 internal annualised incidents (as on average the flooding has occurred every two years) and 0.5 external annualised incidents.
- The modelled risk at the property is flooding once per year. As the historic incidents are internal and external, the model risk is allocated to the internal measure and external measure. The historic internal flooding is 0.5 incidents per year and the external flooding is 0.5 incidents per year.
- As the model risk exceeds the separate internal and external values, both are limited to the historic values of 0.5. This means that the total combined risk for both is one per year, effectively splitting the model risk (which does not distinguish between internal and external flooding) between the two measures.
- **This would mean our intervention would reduce the risk at this property by an additional 0.5 incidents per year on the internal measure and 0.5 incidents per year on the external measure.**

Measurement units

Measured as the number of modelled flooding incidents as predicted by the hydraulic model. Reported annually to two decimal places.

Flood risk will be defined as the total number of modelled flooding incidents predicted each year. This relates to properties which have, historically, repeat flooded internally due to hydraulic overloading of the sewer over the six year period 2012/13 to 2017/18. The modelled risk will be as calculated in 2018/19.

Throughout the business plan period 2020 to 2025, risk values will be updated for each listed property where a permanent intervention is carried out.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

	AMP7				
Unit	2020/21	2021/22	2022/23	2023/24	2024/25
Annual number of modelled incidents at high risk properties	60.04	59.04	58.04	57.04	56.04

Our performance commitment is to reduce the overall modelled risk by five incidents at properties that have experenced repeat flooding from FY13. This will significantly improve the risk level at twelve individual properties. This measure is modelled risk, measured in annualised incidents and will be reported to two decimal places. For example, if we reduce the risk level at a property with an annualised risk of 1 incident down to 0.1 annualised incidents, this would mean that the property would now be predicted to flood once in ten years compared to once per year before the solution.

The graph below highlights the performance commitment that we have signed up to deliver in AMP7. In order to achieve this level of performance we will need to deliver a sustained step change in performance.

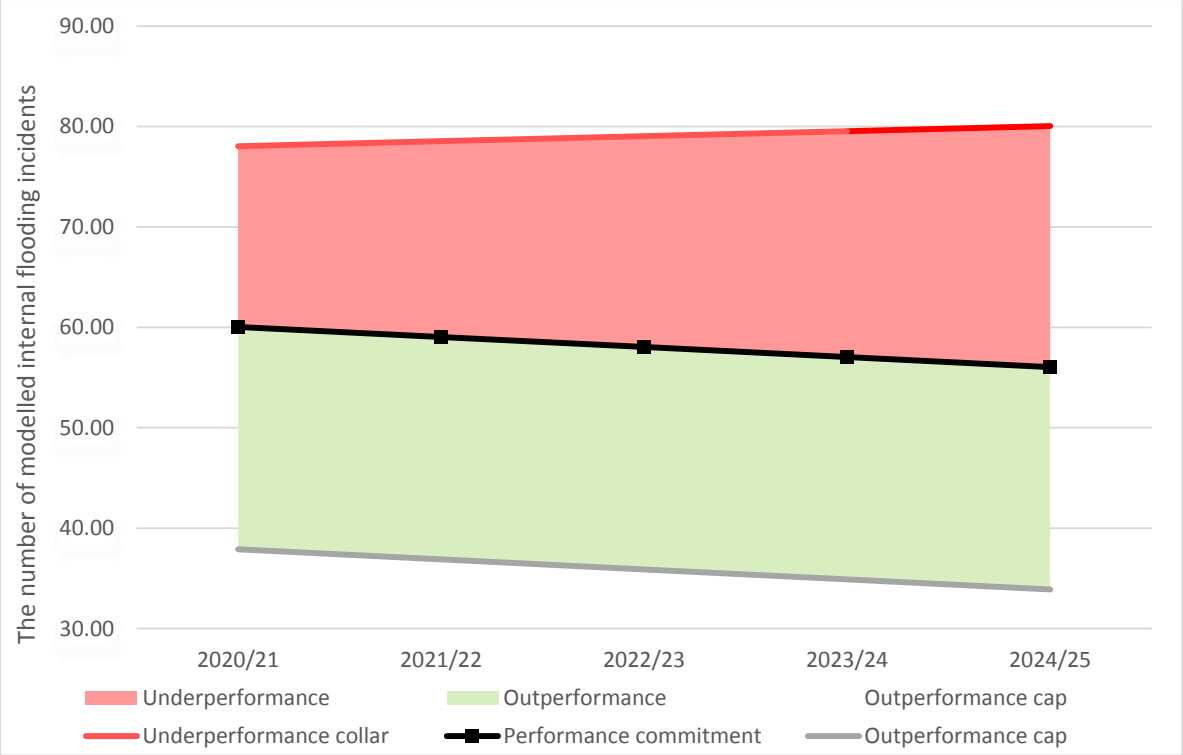


Figure 36

Deadbands, caps and collars

An underperformance collar and outperformance cap have been applied to this measure which is outlined in the table below.

Unit - No. of internal flooding incidents	AMP7				
	2020/21	2021/22	2022/23	2023/24	2024/25
Underperformance collar	78.04	78.54	79.04	79.54	80.04
Outperformance cap	37.90	36.90	35.90	34.90	33.90

Outcome Delivery Incentive

This measure is subject to both underperformance and outperformance payment incentives, which will be reconciled annually on an in-period basis.

Outperformance/underperformance incentive rate

The incentive rate for outperformance and underperformance is £0.415m.

Worked examples

The baseline level of risk was set in FY19 at 61.04 modelled incidents. From the baseline level of risk, the measure can change by:

- Additions – Risk associated with new properties being added due to repeat hydraulic flooding that meets the criteria described above.
- Removals – Risk reduced on properties through the provision of permanent solutions.

Additions

In this example, there have been new properties added since the baseline with a total level of risk of 5.79 modelled incidents

Removals

In this example, there have been permanent solutions that reduced the risk at properties by 24.98 modelled incidents

Total Risk

The original baseline level of risk following FY19 was 61.04. With the additional risk, this goes up to 66.83. With the projects delivered, the risk reduces from that point to 41.84.

This new level of risk is compared to the performance commitment for that year, this example is year one of AMP7 and the difference is multiplied by the incentive rate. This example assumes the remaining risk level does not reach a cap or collar.

Performance Commitment (FY21) – Remaining risk = Difference

60.04 – 41.84 = 18.2

Difference x Incentive Rate = Outperformance financial value in that Year

18.2 x £0.415m = £7.55m

Long-term ambition

We recognise that flooding a customer is one of the worst things we can do, so our long-term ambition is to prevent all internal flooding incidents within our control i.e. due to operational causes. This would be accomplished through the development of permanent solutions, better risk management through our dynamic network management approach and mitigation of risk wherever possible. It should be noted that there will still be instances of severe weather that are beyond the design standard of the network that would cause flooding. This is a very stretching aim considering the scale of the issue and investment required, particularly with catchment changes, such as climate change or urban creep, taken in to account. Investing in permanent solutions is expensive compared to cleaning and we continue to work with the supply chain to seek greater efficiencies. That said, to manage the impact of achieving this long-term ambition we plan to do this at an affordable rate for customers and therefore propose to phase the improvements across the next few investment periods. Exploring the increased use of surface water removal schemes and green solutions is key to our long term ambition.

In AMP8 we anticipate a requirement to focus on significant increases in network capacity in order to reduce pollution, improve water quality and to continue to address sewer flooding. We therefore intend to explore opportunities to expand the scope of our methodology in line with the “risk of flooding in a storm” measure (G01-WWN).

Hydraulic external flood risk resilience (G06-WWN)

Purpose of this measure

This is a bespoke performance commitment designed to incentivise the provision of permanent solutions to reduce the risk of external flooding at properties that have experienced flooding more than once.

Benefits of this measure

This measure will reduce the risk of flooding of customers that have repeated experience of external flooding being flooded again.

Measure description

The aim of this measure is to reduce the flood risk to customers from external hydraulic flooding and particularly those that are impacted by repeat incidents. It will measure modelled flooding incident reduction at known flooding properties following the repeat of permanent solutions that will improve the resilience of the drainage system serving the customers of the North West.

Measure definition

This measure relates to hydraulic (flooding due to the overloading of sewers) external flooding only, it does not include flooding due to other causes such as blockages and collapses.

In setting the measure we are assessing those areas most at risk of hydraulic flooding. Therefore we have assessed the risk of areas flooding in the event of storms with less than a 1 in 20 return period.

The measure records modelled external hydraulic flood risk throughout the period between 2020 and 2025 at known repeat flooding properties. 'Baseline' flood risk will be defined as the annualised modelled risk as of 2018/19. Risk levels will only be updated where the modelled risk changes solely due to a permanent intervention being carried out in the period.

The list of areas and associated modelled flood risk (represented as an annualised incident forecast) includes all areas to have flooded at least twice over the six year period 2012/13 to 2017/18. This list, along with the associated modelled flood frequency risk levels, was set in 2018/19 and inform the 'baseline' regional risk level.

Rather than using the 'repeat flooding' definition that was used for the business plan period 2015 to 2020 (which counts second time incidents to have occurred in a 10 year period) we have used a list of areas which have flooded over the six year period 2012/13 to 2017/18 as the repeat flooding list. Many of the areas that flooded prior to this period have since received permanent solutions or mitigation measures. Using the updated definition will therefore avoid counting already resolved issues and provide focus at the areas and customers that continue to experience hydraulic flooding issues.

We also have an internal hydraulic flood risk resilience measure. Where properties and areas are affected by a combination of repeat internal and external flooding incidents they will be captured on both 'baseline' regional risk level lists.

Where modelled frequency is greater than the reported frequency, the reported frequency for the six year period 2012/13 to 2017/18 will be used instead of modelled risk. This will ensure that the benefit claimed once a solution is developed is not higher than has been previously experienced by affected customers.

With the intention of providing or freeing up additional hydraulic capacity, 'permanent' interventions include: -

- sewer upsizing
- online or offline storage
- flow transfer
- surface water removal including green infrastructure solutions
- physical disconnection from a surcharging sewer

Interventions previously regarded as 'mitigation' measures will continue to be provided wherever feasible, but will not be counted in the risk reduction applied to this measure.

The detail of the definition will ensure that the reduction in risk claimed is less than or equal to the modelled risk reduction achieved, making the proposed target even more stretching. Additionally a minimum of a 50% reduction in modelled flood risk frequency will be provided to areas which places a further stretch on the proposed performance target. Whilst these aspects add a level of complexity to the measure definition, we feel that the following rules are necessary in order to maximise resilience and provide the greatest possible benefit to customers: -

- Baseline risk is be capped at the reported risk over the six year period 2012/13 to 2017/18. The risk reduction achieved will only reflect permanent interventions (i.e. mitigation would not be included).
- Solutions are designed for a 2040 design horizon, including climate change, proposed development and creep. We are claiming the difference between the remaining 2040 risk following an intervention, and the baseline risk levels. With subsequently larger "future proofed" solutions being constructed, this will mean that the risk reduction achieved in the period 2020-2025 will be greater than that claimed against our measure.
- Modelled risk will only relate to areas that have reported repeat flooding over the six year period 2012/13 to 2017/18, meaning that the modelled risk reduction achieved will be greater than that claimed against our measure (i.e. for areas at risk but which have not yet flooded or repeat flooded in this period). This reduction in risk will be reflected in our resilience measure, which is included as a reputational measure for business plan period 2020 to 2025.
- Where areas are not already on the list repeat flood for the rest of AMP6 and AMP7, they will be added to the measure using a consistent method with those currently included.

Baseline

We have set a baseline which is capped at the recorded level of risk over the six year period up to 2017/18. Should future modelling be completed which increases the modelled risk to a level in excess of that observed in historic incidents, the modelled risk will be capped at the historic baseline level.

Each new financial year any new repeat arisals will be assessed and added to the baseline list.

Previous projects and AMP6 projects still to be completed

The modelling used in this measure includes some areas with projects that that have already been completed but they were impacted by repeat flooding during the period. We will not report any outperformance related to areas that have had previously completed schemes unless an intervention is deployed that creates additional sewer capacity beyond that provided by the original scheme and therefore provides an additional modelled flood risk benefit.

Projects that are in progress but not are yet complete are also included in the modelled data. We will not report any outperformance relating to these locations where work is already underway. Only projects which are complete after July 2019 will be used to reduce the risk of flooding against the baseline.

Modelled Risk

The measure is based on modelled risk. Our risk assessment is based on two stages. In the first instance, design rainfall has been simulated across the region for rainfall events from 1 in 1, up to 1 in 50 and across the full range of durations. The lowest return period to show a flood risk is used to understand the flooding frequency. For example, if an area is shown as flooding in a 1 in 10 event but not in a 1 in 5, 1 in 10 is taken as the flood frequency. In terms of annualised risk, flooding on a 1 in 1 event would equal 1 annualised incident while flooding on a 1 in 10 event would be equivalent to 0.1 annualised incidents.

Where this has shown a greater than one year frequency of flooding, we have used historic rainfall series (reflecting actual rainfall to have been recorded in each area) to simulate flooding over that period, resulting in a modelled prediction of flooding over that period.

Depending on the level of modelled detail in the vicinity of each area, thresholds in terms of flooding volume (e.g. for overland flooding mechanisms) and top water levels (e.g. for cellar flooding) have been set and adopted consistently to assign modelled risk across the full list of areas.

Modelled representation of the sewerage system and associated verification of models have been carried out in line with the CIWEM UDG (2017) Code of Practice for the Hydraulic Modelling of Urban Drainage Systems[14] and, for the representation of antecedent conditions, the CIWEM UDG (2016) Rainfall Guide. The methods detailed in sections 3.3 and 3.4 (antecedent conditions for design rainfall) and 4.3.5 (antecedent conditions for time series rainfall) have been applied in all cases. Future maintenance of models will also be updated, run and managed using this guidance until it is superseded. As part of the development of this measure, we have undertaken localised checks of quality to ensure that the model is of an appropriate standard at the property or area being considered. This largely comprises ensuring that the model prediction is in line with our historic view.

Internal and external flooding

The model risk will be determined based on 1D modelling (for example, a manhole flooding with $10m^3$ if it is in the highway would be considered enough to enter the property boundary). As this would not have the detail required to differentiate between internal and external flooding, the recorded historic flooding is used to allocate the model risk to either this measure or the equivalent internal measure (G05-WWN). This approach allows us to focus our resources on the highest risk properties from a larger overall list rather than using more resource intensive 2D modelling for all properties when there are some that may not have cost beneficial solutions. This applies to all arisals up to FY20. Following the 2020 model runs for DWMP and Risk of flooding in a storm however, we are using the 2D outputs in determining the level of flood risk from FY20 onwards.

Modelled risk application

Key principles:

- Where there is only recorded historic external flooding, the property is allocated to this measure.

[14] https://www.ciwem.org/groups/udg/

- Where there is recorded historic internal flooding, the property is allocated to the internal measure (G05-WWN).
- Where there are separate recorded instances of historic internal and external flooding, the property will be included in this measure and the external measure.
- The recorded historic flooding is based on our current flooding reporting methodology and industry best practice. This only includes the worst effect so if there is both internal and external flooding during the same incident, it will be recorded as an internal flooding incident.
- The above classification means that the benefit from the scheme is limited to the worst case customer impact and there is no ability to claim multiple benefits on the same project.
- Where the modelled risk exceeds the historic risk, then the modelled risk will be capped at the historic risk.

Application example 1:

Flooding originates from a manhole and enters the property through overland flow.

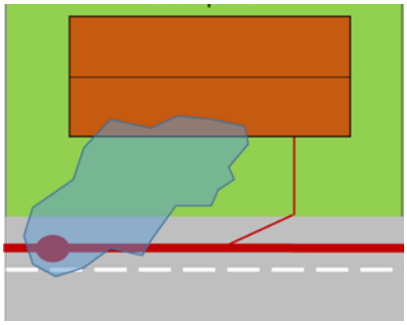


Figure 37

- This is a property that has flooded internally six times in six years (6/6). This equates to a historic risk of one annualised incident.
- As the historic data is used to allocate the flooding (and this is based on worst effect) this is recorded as internal flooding only.
- The modelled risk at the property is flooding twice per year. As the historic incidents are internal, the model risk is allocated to the internal measure.
- As the historic flooding is one incident per year and the modelled incidents are two per year, the model risk is capped at one incident per year.
- **This would mean our intervention would reduce the risk at this property by an additional one incident per year.**

Application example 2:

The flooding originates from the manhole and enters the curtilage of the property, but not the property itself, through overland flow.

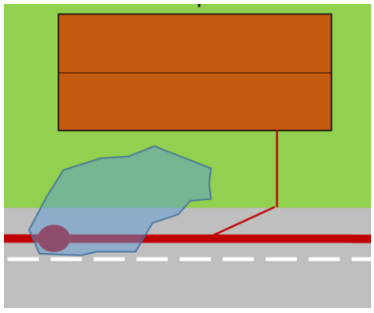


Figure 38

- This is a property that has flooded externally six times in six years. This equates to a historic risk of one annualised incident (6/6).
- As the historic data is used to allocate the flooding (and this is based on worst effect) this is recorded as external flooding only.
- The modelled risk at the property is flooding once per year. As the historic incidents are external, the model risk is allocated to the external measure.
- As the model risk does not exceed the historic cap, the model risk does not have to be limited.
- **This would mean our intervention would reduce the risk at this property by an additional one incident per year**

Application example 3:

Flooding originates from a manhole and enters the property through overland flow for each of the three internal incidents.

There are also three recorded external flooding incidents. The same flooding pathway occurs but it does not enter the property. Because there are separate external historic flooding events, the impact is also included on the external measure

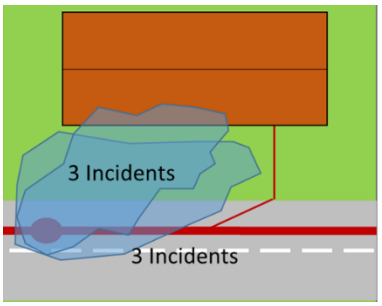


Figure 39

- This is a property that has flooded internally three times in six years and externally three times in six years. This equates to a historic risk of 0.5 internal annualised incidents (as on average the flooding has occurred every two years) and 0.5 external annualised incidents.
- The modelled risk at the property is flooding once per year. As the historic incidents are internal and external, the model risk is allocated to the internal measure and external measure. The historic internal flooding is 0.5 incidents per year and the external flooding is 0.5 incidents per year.
- As the model risk exceeds the separate internal and external values, both are limited to the historic values of 0.5. This means that the total combined risk for both is one per year, effectively splitting the model risk (which does not distinguish between internal and external flooding) between the two measures.
- **This would mean our intervention would reduce the risk at this property by an additional 0.5 incidents per year on the internal measure and 0.5 incidents per year on the external measure.**

Measurement units

Measured as the reduction of modelled incidents as predicted by the hydraulic model. Reported annually to two decimal places.

Flood risk will be defined as the total number of modelled flooding incidents predicted each year. This relates to properties which have, historically, repeat flooded externally due to hydraulic overloading of the sewer over the six year period 2012/13 to 2017/18. The modelled risk will be as calculated in 2018/19.

Throughout the business plan period 2020 to 2025, risk values will be updated for each listed property, changing only where a permanent intervention is carried out.

Mitigation/exceptions/assumptions

None.

Common performance commitment

This is a bespoke measure.

Incentive type

Financial – outperformance and underperformance payments.

Price control allocation

Water resources	Water network+	Wastewater network+	Bioresources	Residential retail	Business retail	Direct procurement
0%	0%	100%	0%	0%	0%	0%

Performance commitment for AMP7

	AMP7				
Unit	2020/21	2021/22	2022/23	2023/24	2024/25
Annual number of modelled incidents at high risk properties	254.53	232.33	210.13	187.93	165.73

Our performance commitment is to reduce the overall modelled risk by 111 incidents at areas that have experenced repeat flooding from FY13. This will significantly improve the risk level at 25 individual properties. This measure is modelled risk, measured in annualised incidents and will be reported to two decimal places. For example, if we reduce the risk level at a area with an annualised risk of one incident down to 0.1 annualised incidents, this would mean that the property or area would now be predicted to flood once in ten years compared to once per year before the solution.

The graph below highlights the performance commitment that we have signed up to deliver in AMP7. In order to achieve this level of performance we will need to deliver a sustained step change in performance.

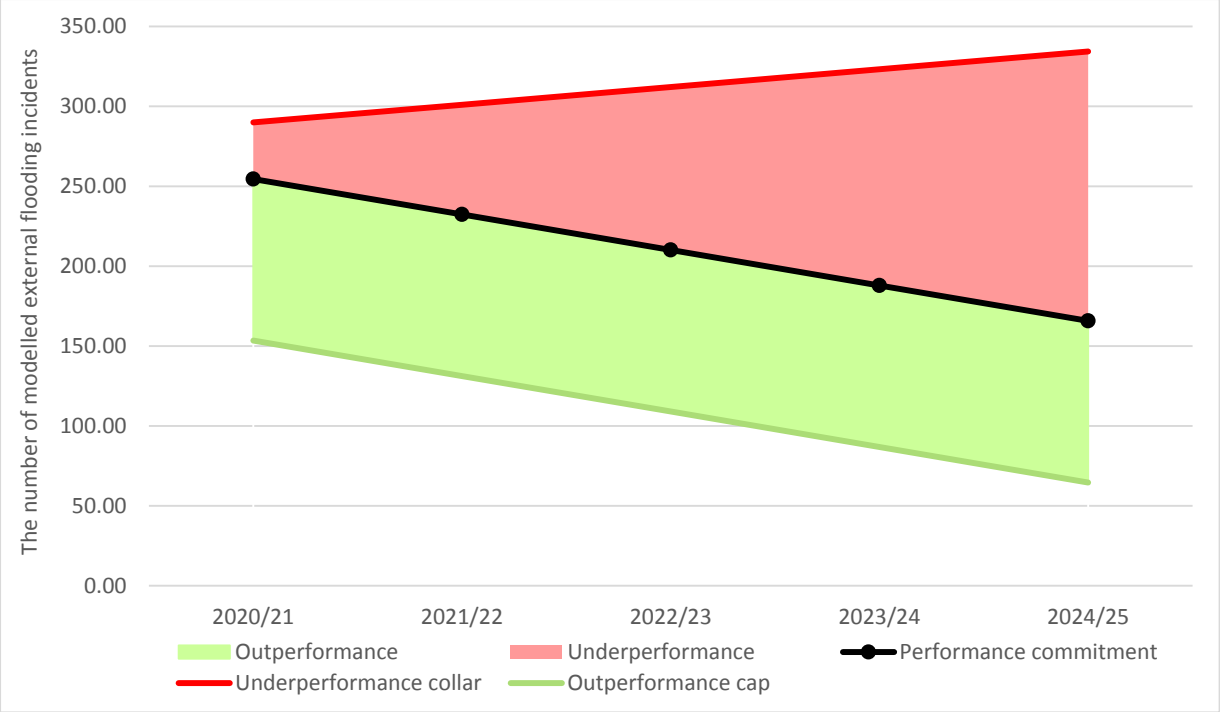


Figure 40

Deadbands, caps and collars

		AMP7				
	Unit	2020/21	2021/22	2022/23	2023/24	2024/25
Underperformance collar	Annual number of modelled incidents at high risk properties	289.78	301.88	312.98	323.23	334.33
Outperformance cap	Annual number of modelled incidents at high risk properties	154.43	131.23	109.03	86.83	64.63

Outcome Delivery Incentive

This measure is subject to both outperformance and underperformance financial incentives, which will be reconciled annually on an in-period basis.

This measure will be subject to a cap and collar.

Outperformance / underperformance incentive rate

The incentive rate for outperformance and underperformance for this commitment is £42,000 per incident.

Worked examples

The baseline level of risk was set in FY19 at 276.06 modelled incidents. From the baseline level of risk, the measure can change by:

- Additions – Risk associated with new properties being added due to repeat hydraulic flooding that meets the criteria described above.
- Removals – Risk reduced on properties through the provision of permanent solutions.

Additions

In this example, there have been new properties added since the baseline with a total level of risk of 15.40 modelled incidents.

Removals

In this example, there have been permanent solutions that reduced the risk at properties by 111.62 modelled incidents.

Total Risk

The original baseline level of risk following FY19 was 276.06. With the additional risk, this goes up to 291.46. With the projects delivered, the risk reduces from that point to 179.84.

This new level of risk is compared to the performance commitment for that year, this example is year one of AMP7 and the difference is multiplied by the incentive rate. This example assumes the remaining risk level does not reach a cap or collar.

Performance Commitment (FY21) – Remaining risk = Difference

254.53 – 179.84 = 74.69

Difference x Incentive Rate = Outperformance financial value in that Year

74.69 x £0.042m = £3.14m

Long-term ambition

We recognise that flooding a customer is one of the worst things we can do, so our long-term ambition is to prevent all flooding incidents within our control i.e. due to operational causes. This would be accomplished through the development of permanent solutions, better risk management through our dynamic network management approach and mitigation of risk wherever possible. It should be noted that there will still be instances of severe weather that are beyond the design standard of the network that would cause flooding. This is a very stretching aim considering the scale of the issue and investment required, particularly with catchment changes, such as climate change or urban creep, taken in to account. Investing in permanent solutions is expensive compared to cleaning and we continue to work with the supply chain to seek greater efficiencies. That said, to manage the impact of achieving this long-term ambition we plan to do this at an affordable rate for customers and therefore propose to phase the improvements across the next few investment periods. Exploring the increased use of surface water removal schemes and green solutions is key to our long term ambition.

In AMP8 we anticipate a requirement to focus on significant increases in network capacity in order to reduce pollution, improve water quality and to continue to address sewer flooding. We therefore intend to explore opportunities to expand the scope of our methodology in line with the “risk of flooding in a storm” measure (G01-WWN).

United Utilities Water Limited
Haweswater House
Lingley Mere Business Park
Lingley Green Avenue
Great Sankey
Warrington
WA5 3LP

unitedutilities.com

United Utilities

Water for the North West