Reporting Criteria

including a summary of our assurance approach

Annual Performance Report
2022/23

Contents

About this document

Reporting criteria

ISAE3000 assured metrics

The reporting criteria applies to all Performance Commitments ("PCs") independently assured under ISAE 3000.

It outlines the approach that Thames Water has adopted to prepare the subject matter information as reported in Tables 3A, 3B and 3E in 'Section 3 – Performance summary' of Thames Water's Annual Performance Report 2022/23 ("APR").

Metrics not assured under ISAE3000

Additionally, we have included within our reporting criteria details for all of our PCs (i.e. not just those assured under ISAE3000).

A list of these PCs can be found in table 2.

Reporting period

This subject matter information is correct at 31 March 2023 and applies to the 2022/23 reporting year.

This includes PCs with the following:

- Regulatory reporting year end of 31 March 2023
- Annual reporting year end of 31 December 2022.

A list of these PCs can be found in table 2.

Compliance with regulatory guidance

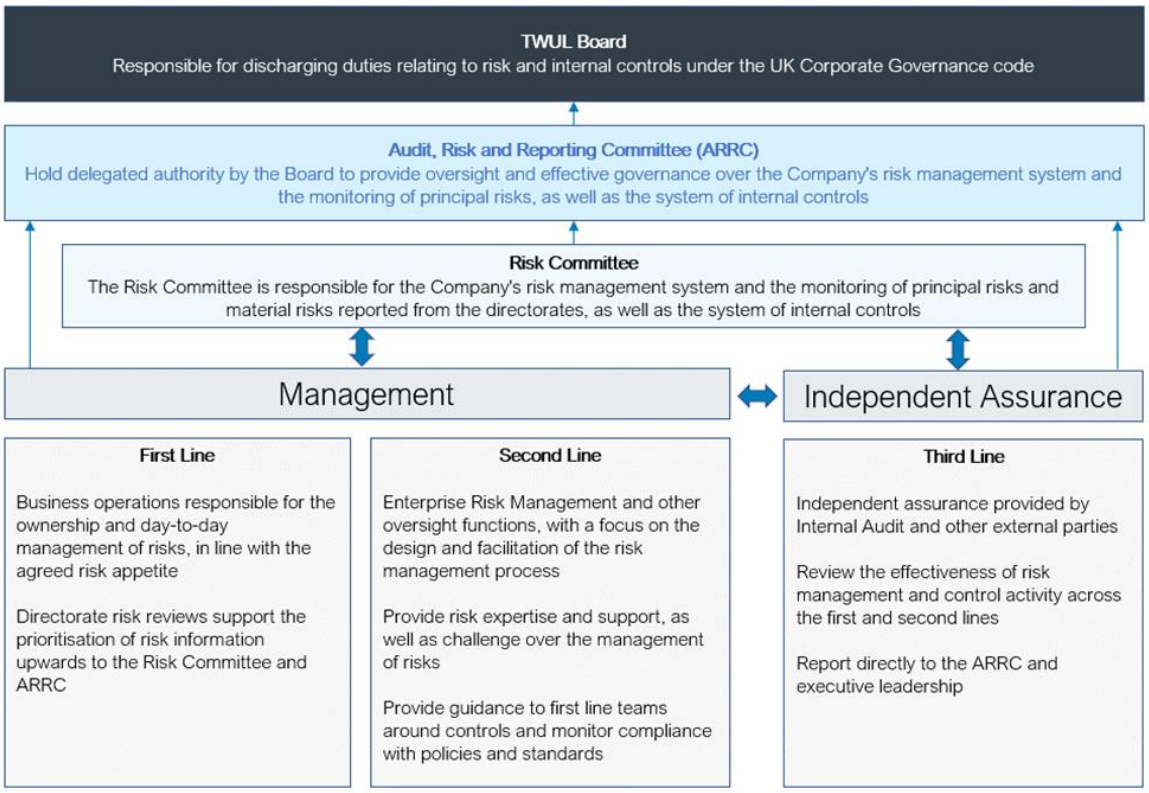
This document discloses Thames Water's interpretation of the PR19 Final Determination and any deviations from regulatory guidance documents.

Approach to assurance

Finally, this document provides a summary of our assurance approach for regulatory submissions. Full details can be found in the Risk and compliance section of our APR.

Our assurance approach

Our assurance approach is based on the three lines model shown below:



We employ relevant expertise so that we understand our statutory, regulatory and licence obligations and can translate them into policies and procedures for colleagues to apply. This expertise includes, but is not limited to, legal, financial, regulatory, health and safety, asset and process engineers and environmental professionals.

We also draw upon additional external expertise, where necessary, so that any new, or changes to our existing obligations are appropriately interpreted and applied. The executive, management and oversight teams monitor compliance with approved policies and procedures on an ongoing basis.

Our risk and compliance statement ("statement") in our APR contains explanations of the:

1. Processes and the assurances we have in place to achieve compliance with our obligations.
2. Processes and assurance we have in place to ensure accuracy and completeness of our data and information.
3. Exceptions to our compliance, data and information.

All our performance commitments disclosed in section 3 of our APR have been subject to assurance. We assessed our reporting risk on an individual PC basis and applied assurance as follows:

Table 1: Assurance by risk level

Risk level	Definition	Type of assurance
High:	Common PCs, and/or those with a financial reward/penalty	External independent limited assurance by PricewaterhouseCoopers LLP ('PwC') in accordance with the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information'.
Medium (high)	Full assurance is not considered to be commensurate with the risk of misreporting (e.g. Bespoke PCs and/or reputational only PC)	Independent third-party auditor engaged to execute agreed upon procedures in accordance with ISRS 4400 i.e. International Standard on Related Services 'Engagements to perform agreed-upon procedures (AUP).
Medium (low)	External independent assurance is not considered to be commensurate with the risk of misreporting (e.g. Bespoke PCs and/or reputational only PC)	Internally assured by our Audit and Assurance function using the same AUPs performed by an independent third party.
Low	Simple reporting requirements with minimal risk of misreporting (e.g. Bespoke PCs like WRMP)	Internally assured through our internal 'Information Integrity Declaration' ("IID") process which makes sure that there are three "pairs of eyes" over each line submitted.

Table 2: Performance commitments by assurance type

Ref	Name	Type [1]	ISAE 3000	Independent third party under AUP	Internally assured under AUP	Business assured
AR06	Priority services – customers in vulnerable circumstances	C, R	x			
BW01	Mains repairs	C, O/U	x			
BW02	Unplanned outages	C, U	x			
BW03	Water supply interruptions	C, O/U	x			
BW04	Leakage (% reduction)	C, O/U	x			
BW05	PCC (% reduction)	C, O/U, (A)	x			
BW06	Water quality compliance	C, U	x			
CS01	Treatment works compliance	C, U	x			
CS02	Sewer collapses	C, O/U	x			
CS03	Internal Sewer flooding	C, O/U	x			
DS01	Risk of sewer flooding in a storm	C,R	x			
DS02	Surface water management	B, O/U, (A)	x			
DW02	Security of Supply Index	B, U	x			
ES01	Pollution incidents	C, U	x			
AR05	Percentage of customers satisfied	B, R		x		
AWS01	D-Mex	C[2]		x		
BW08	Acceptability of water to consumers	B, U		x		
BW09	Number of water quality events	B, U		x		
BW10	Reducing risk of lead	B, O/U		x		
BW11	Responding to major trunk mains bursts	B, R		x		
CS04	Clearance of blockages	B, O/U		x		
CS05	Sewage pumping station availability	B, U		x		
DW01	Risk of severe restrictions in a drought	C,R		x		
DWS01	Power resilience	B, U, (A)		x		
ER02	Empty (void) household properties	B, O/U		x		

[1] C=Common PC B=Bespoke PC R=Reputational PC O=ODI Financial reward U=ODI financial penalty (A)= ODI penalty/reward calculated at the end of the AMP

[2] D-Mex measures the relative performance of Companies against each other.

Ref	Name	Type [1]	ISAE 3000	Independent third party under AUP	Internally assured under AUP	Business assured
ER03	Number of households on social tariff	B, R		x		
ES03	Sludge treatment before disposal	B, U		x		
EWS02	Smarter Water Catchment Initiatives	B, U		x		
EWS03	Renewable energy produced	B, O/U		x		
EWS08	Empty business properties	B, O/U		x		
AR01	C-MeX	C[3]			x	
BW07	Number of properties at risk of receiving low pressure	B, U			x	
DWS02	Securing our sites (2020-25 projects)	B, U, (A)			x	
DWS03	Securing our sites (legacy projects)	B, U, (A)			x	
ES02	Environmental measures delivered	B, U, (A)			x	
ET05	TTT Effective system operator	B, R			x	
ET06	TTT Maximising the value of land sales	B, R			x	
EW01	Abstraction incentive mechanism	B, O/U			x	
EWS01	Enhancing biodiversity	B, O/U, (A)			x	
EWS04	Natural capital accounting	B, R			x	
M01	Installing new smart meters in London	B, U, (A)			x	
M02	Replacing existing meters with smart meters in London	B, U, (A)			x	
AR07	BSI for fair, flexible inclusive services	B, R				x
AWS02	Proactive customer engagement	B, R				x
CC	Counters Creek	B, R				x
DWMP	DWMP	B,R				x
ER01	Unregistered Household properties	B, U				x
ET01	TTT Readiness of Beckton STW	B, U				x

[3] *C-Mex measures the relative performance of Companies against each other.*

Ref	Name	Type [1]	ISAE 3000	Independent third party under AUP	Internally assured under AUP	Business assured
ET02	TTT Effective stakeholder engagement	B, R				x
ET04	TTT Critical asset readiness	B, U				x
ET07	TTT Managing early hand back of land	B, O/U, A				x
NEP01	WINEP Delivery	B, R				x

Metrics independently assured by PwC under ISAE 3000

Priority services for customers in vulnerable circumstances

AR06

Unit of measure

The Priority Services Register ("PSR") is measured in three parts:

- Reach
- Actual contacts
- Attempted contacts.

As the number of applicable households on the company's PSR as a proportion of all households in the company's region, reported to one decimal place.

Period

This is a report year measure.

Boundaries

We exclude households that have been added to the company's PSR within the last two years, as these entries should be up to date, and we would not expect to attempt to contact households until after they have been on the PSR for over two years.

Reporting criteria

This PC is defined as the following in the reporting guidance[4]:

The reporting of PSR measures is done at a household level. Multiple occupiers within our PSR will only count each household once when reporting this data line and Thames Water will report individuals separately.

Definitions

PSR reach: percentage of households that the company supplies with water and/or wastewater services which are registered on the company's PSR.

This is calculated as follows:

(Number of households on the PSR at the end of the report year / total number of households served as the end of the report year) x 100.

PSR actual contacts: this is defined as the percentage of distinct households on the PSR that the company has actually contacted over a two-year period.

This is calculated as follows:

(Distinct households on the PSR where the company had actual contact over a two-year period as at the end of the report year / total number of households on the PSR over a two-year period as at the end of the report year) x 100.

Actual contact: refers to a circumstance where the company has made a proactive attempt to engage with a customer in a household on the PSR and has received a response which has allowed it to re-confirm personal information, and then update its PSR where necessary, to improve the accuracy of customer data that it holds.

It also includes instances where Thames Water has received confirmation from a third party that a customer in a household on the PSR has been contacted, and the refreshed information is used by the company to update its own records.

PSR attempted contacts: this is defined as the percentage of distinct households on the PSR that the company has attempted to contact over a two-year period.

This is calculated as follows:

[4] https://www.ofwat.gov.uk/publication/pr19-draft-determinations-reporting-guidance-common-performance-commitment-for-the-priority-service-register/

(Distinct households on the PSR which the company has attempted to contact over a two-year period as at the end of the report year / Total number of households on the PSR over a two-year period as at the end of the report year) x 100.

Attempted contact: defined as a 'proactive attempt' to engage with a customer in a household on the PSR, or a representative of the customer, (for example, their attorney or nominated third party contact) to establish whether they are still receiving the right support.

Attempted contact volumes include actual contact volumes. This also applies to customer updates made on a reactive basis, where the customer has made contact with the company.

If no actual contact is made, then two proactive contacts on Thames Water's behalf by email, letter, SMS or phone will count as an attempted contact.

Thames Water consider the changes in the following data fields in the billing system to count towards the actual contact target as this data supports the delivery of a tailored priority service:

- Address
- Phone number
- Email
- Priority Service Circumstance
- Priority Service Services
- Alternative contact details
- Date of confirmation, where no change confirmed to these details.

Thames Water provide the following information as part of their commentary to Ofwat:

PSR Reach: annual figures for individuals registered to receive support through PSR services for:

- Communication
- Support with mobility and access restrictions
- Support with supply interruption
- Support with security, and
- Support with other needs.

Where we have provided 'support with other needs' we will explain what types of needs have been included in this category.

PSR data-checking: number of households added and removed from the PSR if the data is not available on the number of individuals. Where possible, we report the corresponding figure for individuals alongside this.

Leakage

BW04

Unit of measure

This is a three-year average percentage reduction in megalitres per day (Ml/d) from the 2019/20 baseline, reported to one decimal place.

The total level of leakage is defined in the final reporting guidance for PR19[5].

We round our baseline and our rolling 3 year average, before calculating the percentage movement

Period

This is a report year measure.

Boundaries

Leakage includes any uncontrolled losses between Thames Water's treatment works and the customer's stop tap, including trunk mains, service reservoirs, flow monitoring zones and customer supply pipes. It does not include internal plumbing losses.

Compliance with Ofwat common guidance

We explain in Appendix 1 where we are not fully compliant with the converged methods for reporting common performance commitments.

Our non-compliance does not have a material impact on our reported performance.

Reporting criteria

Percentage reduction (for the report year) = ((2019/20 baseline – Three-year average Leakage (for the report year) / 2019/20 baseline)) x 100.

Three-year average leakage (for the report year) is calculated from annual average values for the reporting year and two preceding years and expressed in Ml/d.

The 2019/20 baseline is calculated as the mean of the annual average leakage for 2019/20, 2018/19 and 2017/18 and expressed in Ml/d.

Where this calculation results in a positive value, it corresponds to the outperformance of leakage in Ml/d. Where this calculation results in a negative value, it corresponds to the underperformance of leakage in Ml/d.

Definitions

Annual average leakage: sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage.

Distribution system leakage: calculated by establishing the baseline leakage through minimum nightlines.

Minimum nightlines: measured at the flow monitoring zone level as a minimum flow during the fixed hour period (3am to 4am). Any residual flow after legitimate night use is assumed to be leakage.

Legitimate night: an estimate of genuine use of water during the night-time. Components of night use include the night use of measured and unmeasured households, commercial measured, unmeasured and assessed non-household night use and operational night use such as that of sewage treatment works. It also includes allowances for wastage occurring at void properties and night use of occupied void properties.

Due to pressure variations during the day and the sensitivity of leakage to pressure, night-time leakage (nightlines - legitimate

[5] Leakage, published on 27 March 2018: https://www.ofwat.gov.uk/publication/reportingguidance-leakage/

night use) needs adjustment to arrive at a daily average leakage flow.

This adjustment deals with the effect of pressure variations and is known as the T-factor.

T-factor: average daily pressure divided by night pressure and multiplied by 24 hours. The T-factor is calculated on flow monitoring zone levels using the average pressure from all pressure loggers located within the zone.

Night pressure: calculated as average for the period of 3am to 4am.

Day pressure: average for the whole 24-hour period.

Water resources zone: largest area of a water company's supply system where all customers have the same supply risk.

Trunk mains: the length of mains from the start of the distribution system and the flow monitoring zones.

Trunk mains leakage: estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main.

Service reservoir losses: calculated based on reservoir drop tests. For reservoirs where drop tests are not available the capacity and reservoir type are used to estimate leakage.

Reservoir type: made up of three categories, brick, concrete and other.

Leakage for each reservoir: calculated by the capacity-leakage relationship for each reservoir type and then summed to give total reservoir leakage.

Leakage is reported as a post-maximum likelihood estimation (MLE) weighted average Ml/day over the year.

The MLE technique is used to distribute the volume of any unaccounted for water in the water balance calculation.

Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance.

Studies

We use the results of a number of historic studies as inputs into our methodology in relation to the reporting of leakage. Please note that due to the nature of these studies, they do not cover the full population that the study is representative of (i.e. for DWUS London this population is London) nor are they all updated annually. Where the results of studies are utilised, we are comfortable that these continue to be relevant to, and are representative of, the current reporting period and the relevant population. Examples of these studies are:

- DWUS (AR20 - London; AR23 Provinces)
- BMA Panel
- SPL (1996)

Please note, this above list is not exclusive.

Judgements & Assumptions

We apply a number of judgements and assumptions throughout our calculation of leakage. These include:

- Using Census 2011 population data rather than Census 2021 population data;
- The ethnicity assumption and judgements used within our occupancy data;
- Using certain company specific data consistently between each reporting period. e.g. using a consistent figure for:

- sales maximisation each year;
- illegal connections each year;
- wastage allowances each year;
- non Household (NHH) population each year;
- subsidiary population each year
- billed measured NHH MUR

- Selecting the appropriate factors to apply to our population, e.g. selecting whether to use low, medium or high factors for clandestine populations when applying EDGE's report, and;
- The seasonality assumptions and judgements used within our Household Night Use model.

Estimates

Where no actual data is available, we will use an estimate that is aligned with Ofwat guidance, where applicable. For example, we estimate data infilling for Nightlines/Nightflows, which we perform in .line with Ofwat guidance.

Per capita consumption ("PCC") BW05

Unit of measure

This is a three-year average percentage reduction in litres per day (l/d) from the 2019/20 baseline, reported to one decimal place.

We round our baseline and our rolling 3 year average, before calculating the percentage movement

Period

Our performance against the arget will be assessed at the end of the AMP.

Boundaries

The PCC calculation is contained in the final reporting guidance for PR19 – per capita consumption (PCC), published on 27 March 2018 [6].

Compliance with Ofwat common guidance

We explain in appendix 1 that we are not fully compliant with the converged methods for reporting common performance commitments.

Our non-compliance does not have a material impact on our reported performance.

Reporting criteria

This measure is a performance movement (PM) of the three-year average PCC values against the baseline PM (for the report year) = ((PCC baseline – Three-year average PCC (for the report year)/ PCC baseline)) x 100

Three-year average PCC (for the report year) is calculated from annual average

6 https://www.ofwat.gov.uk/publication/reporting-guidance-per-capita-consumption/

values for the reporting year and two preceding years and expressed in litres/person/day (l/p/d).

PCC baseline is calculated as the mean of the annual average PCC for 2019/20, 2018/19 and 2017/18 and expressed in litres/person/day (l/p/d).

Where this calculation results in a positive value, it corresponds to an outperformance of PCC in l/p/d. Where this calculation results in a negative value, it corresponds to an underperformance of PCC in l/p/d.

PCC is calculated using the following formula:

PCC = (Measured Household consumption + Unmeasured Household Consumption) / Total household population.

It is reported as the annual arithmetic mean per capita consumption expressed in litres per person per day (l/p/d).

The measure uses post MLE (maximum likelihood estimation) data for measured household consumption and unmeasured household consumption.

Definitions

Measured household consumption: volume of water used by each measured household within Thames Water's area, including meter under-registration but excluding supply pipe leakage. It is calculated from Thames Water's billing system, including actual reads and estimated reads.

Unmeasured household consumption: volume of water used by each unmeasured household excluding supply pipe leakage. It is calculated from average unmeasured per household consumption (PHC expressed in litres/household/day) multiplied by the number of unmeasured households.

Please refer to Studies, Judgements & Assumptions, and Estimates within BW04, as these are applicable to BW05.

Water supply interruptions
BW03

Unit of measure
Hours:minutes:seconds (HH:MM:SS) per property per year, reported to zero decimal places.

This measure relates to the average number of minutes lost per customer for the whole customer base for water supply interruptions that lasted three hours or more in the report year.

Period
This is a report year measure.

Boundaries
The performance measure only accounts for interruptions greater than or equal to 3 hours in duration. Any interruptions less than 3 hours are excluded from the measure.

Interruptions as a result of planned (e.g. planned maintenance) and unplanned interruptions (e.g. an asset failure) are included in the performance results.

Where an event spans the report year end, the event is classified in the period of the start date.

Compliance with Ofwat common guidance
We explain in appendix 1 that we are not fully compliant with the converged methods for reporting common performance commitments.

Our non-compliance does not have a material impact on our reported performance.

Reporting criteria
The metric is calculated as follows:

(Total number of properties with interrupted supply > or = to 3 hours x the full duration of the interruption in minutes) / Total number of properties supplied with water at 31 March 2023.

Definitions
Interruption: when a customer is without a continuous supply of water and the supply has been interrupted for greater than 3 hours.

Property: one which is connected to the company's water distribution system (all non-ground floor flats are treated as though they are on the ground floor for reporting purposes).

Duration of an interruption: the amount of time which passes between the start time and stop time of an event.

Start time: when water is lost from the first cold water tap at a property.

Stop time: when the company is satisfied that water has been fully restored to an acceptable pressure to the affected property or properties, and water is restored to the first cold water tap at a property.

Water quality compliance
BW06a

Unit of measure
Numerical compliance risk index (“CRI”) score, reported to two decimal places.

The definition for this performance commitment is set by the Drinking Water

Inspectorate ("DWI") in collaboration with the industry as per the guidance[7].

The list of scores associated with the parameters and assessment criteria are defined within the DWI guidance.

Period

This is a calendar year measure.

Boundaries

There are no specific exclusions. However, there are some special rules on calculation of the impact score defined within the DWI procedure.

Reporting criteria

A CRI score is calculated for every individual compliance failure within all water supply zones, authorised supply points, treatment works and service reservoirs.

The annual CRI for the company is the sum of the individual CRI scores for every compliance failure reported during that year.

The calculation for each individual compliance failure is as follows:

- Water supply zones: CRI = (Parameter Score * Assessment Score x Population affected) / Total company population served
- Supply Points and treatment works: CRI = (Parameter Score x Assessment Score * volume supplied (m3/day)) / Total daily volume supplied by the company (m3/day)
- Service reservoirs: CRI = (Parameter Score * Assessment Score x reservoir capacity (m3)) / Total service reservoir capacity of the company (m3)

Definitions

Water supply zone: the largest area of a water company's supply system where all customers have the same supply risk.

Supply point: an individual point of service on the customer premises (i.e. a customer tap).

Treatment works: a site or plant whereby processes, and technologies used to remove contaminants from water are carried out.

Service reservoir: a place or structure where water from a water treatment works (WTW) is stored for delivery to other service reservoirs for distribution to the consumers of a water supply district.

Parameter score: based on different criteria reflective of the nature of the parameter as follows:

1. Health risk
2. Health risk indicator
3. Aesthetic
4. Regulatory impact
5. Non health risk indicator.

Assessment score: based on an assessment by the DWI of how well the wellbeing and interests of consumers were protected by best practice in management of compliance failures.

0. Incorrect data//outside operational limits
1. Satisfactory investigation did not identify cause/trivial/unlikely to reoccur
2. Suggestions made
3. Recommendations made
4. Covered by legal instrument/ enforcement considered
5. Enforce.

[7] https://www.ofwat.gov.uk/publication/dwi-compliance-risk-index-cri-definition/

Mains repairs

BW01

Unit of measure

Number of repairs per 1,000km of mains, reported to one decimal place.

Period

This is a report year measure.

Boundaries

The performance commitment excludes communication and supply pipes.

Reporting criteria

Mains repairs is defined in the reporting guidance for PR19 – Mains Repairs per 1,000km, published on 27 March 2018[8].

The measure is reported as the number of mains repairs per thousand kilometres of the entire water main network.

Definitions

Mains repairs: this includes all physical repair work to mains from which water is lost.

Mains length: length of all pipes conveying treated water around the distribution point, but not including communication pipes or supply pipes.

Mains repairs are reported separately for proactive and reactive repairs.

Pro-active repairs: completed by the company because of the company's active leakage control (ALC) or its own leak detection activity.

Reactive repairs: completed because of a customer contact (made using any communication channel) informing the company of a leak.

8 https://www.ofwat.gov.uk/publication/reporting-guidance-mains-repairs-per-1,000km/

Unplanned outage
BW02

Unit of measure
Percentage of peak week production capacity, reported to two decimal places

Period
This is a report year measure.

Boundaries
The performance measure only accounts for outages relating to unplanned causes such as asset failure. Outages relating to planned causes, such as when assets are taken out of supply or made unavailable for supply to enable planned maintenance or capital works to be completed are excluded from the measure.

Additional exclusions from the measure are:

- Excluded sites which are not in service as per the annual production plan, sites used only in the case of an emergency or sites only required to be in service during a dry year
- Outages of 24 hours or less in duration[9]
- Outages where we have proactively restricted abstraction or production from a given WTW because of variable raw water quality
- Outages caused by raw water quality outside of the normal operating band for a given works
- Outages caused or prolonged by extreme weather events.

Reporting criteria
This measure is defined as the annualised unavailable flow, based on the peak week production capacity ("PWPC").

The PWPC dataset has been calculated by directly taking actual daily output figures for each water treatment works from the water into supply dataset for the last 5 years, identifying the period of 7 consecutive days with the highest consistent output.

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. PWPC and outages (planned and unplanned) are defined as per the guidance[10]:

This measure is reported as the temporary loss of PWPC in the reporting year, weighted by the duration of the loss (in days).

Outages arising from planned works are recorded separately to outages arising from unplanned causes, such as asset failure. 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 water resource zone weighted outage is summed (Ml/d) and normalised based on overall PWPC to be reported as a percentage.

We report our current company level PWPC (Ml/d), the unplanned outage (Ml/d) and planned outage (Ml/d) in our commentary.

We report our current company level PWPC(Ml/d), the unplanned outage (Ml/d) and planned outage (Ml/d) in our Annual Performance Report.

[9] We classify an outage as 24 hours or less where time stamps are not available for Thames Valley WTWs

[10] https://www.ofwat.gov.uk/wp-content/uploads/2018/03/20190327-6.-Unplanned-outage-final-reporting-guidance.pdf

We also provide a summary of data quality and compliance in accordance with the reporting requirements.

Internal sewer flooding
CS03

Unit of measure
Number of incidents per 10,000 sewer connections reported to two decimal places.

Only incidents supported by multiple levels of evidence are included in this metric.

Period
This is a report year measure.

Boundaries
Exclusions to the measure include the following:

- Coastal flooding
- Ground water which has not originated from a public sewer
- Flooding from water mains etc
- Incidents caused by highway drains
- Incidents caused by private assets (including drains). The Water UK "Guide to Transfer of Private Sewers Regulations 2011", published on 30 September 2011, shall be applied to assess if the flooding incident should be attributed to the undertaker or a private asset such as a drain.

Reporting criteria
The internal sewer flooding measure is defined in the reporting guidance for PR19 – Sewer Flooding, published on 28 April 2018[11].

The measure is calculated as the number of internal sewer flooding incidents normalised per 10,000 sewer connections including sewer flooding due to severe weather events [12].

We present our performance commitments in absolute numbers to make it easier for customers and stakeholders to understand. The definitive service levels are those expressed as the values normalised per 10,000 sewer connections.

The list below gives examples of what parts of buildings we include in the internal flooding category:

- The main parts of the building
- Conservatories
- Basements and cellars (even if unoccupied)
- Areas below suspended floors
- Lift shafts
- Stairwell/lobby area of flats (to be counted as one flooded property)
- Any shared car parking areas beneath the main building where access to the parking area is from within the building (to be counted as one flooded property)
- Studios and workshops, which are an integral part of the main building
- Porches
- Garages which are an integral part of the house with an adjoining door to the occupied building.

[11] https://www.ofwat.gov.uk/publication/reporting-guidance-sewer-flooding/

[12] Defined as a 1 in 20 year event storm.

Independently assured under ISAE3000

Pollution Incidents

ES01

Unit of measure

Number of pollution incidents per 10,000 km of the wastewater network reported to two decimal places.

Period

This is a calendar year measure.

Boundaries

Category 4 incidents (where no environmental impact was caused) are excluded from the measure. The definitions of these are also set out in the Environment Agency ("EA") guidance linked below.

Reporting criteria

This measure relates to the total number of pollution incidents (categories 1 to 3) per 10,000km of sewer length for which Thames Water is responsible in a calendar year.

The measure specifically records the category 1 to 3 pollution incidents to the water environment from failures on foul sewers, combined sewer overflows, sewage pumping stations, rising mains, storm tanks, sewage treatment works, other water industry premises and polluted surface water outfalls.

This measure is reported as both the absolute number of pollution incidents and a normalised value of pollution incidents per 10,000km of sewer.

The number reported is taken from the annual provisional EPA letter issued by the EA.

Definitions

Category 1, 2 and 3 pollution incidents are defined as:

Category 1: – major, serious, persistent and/or extensive impact or effect on the environment, people and/or property.

Category 2: – significant impact or effect on the environment, people and/or property.

Category 3: – minor or minimal impact or effect on the environment, people and/or property.

The total sewer length for Thames Water is defined in the guidance for PR19[13]: The total sewer length figure used is provided by the EA each year.

The determination of the category of an incident is made by the EA[14].

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

[14] 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

Sewer Collapses
CS02

Unit of measure
Number of collapses per 1,000km of sewer network, reported to two decimal places.

Period
This is a report year measure.

Boundaries
Exclusions are as defined in the guidance[15] published on 4 April 2019.

Reporting criteria
Number of sewer collapses per thousand kilometres of all sewers that have not been identified proactively by Thames Water and causing an impact on service to customers or the environment.

As stated in the Ofwat guidance, a collapse will only be included for this performance commitment where both the following actions have occurred:

- There has been a failure to a sewer which is confirmed as the root cause of the resulting customer contact for impact on service or escape (flooding or pollution), leading to the detection of a collapse
- This has then resulted in the need to replace or repair the pipe to reinstate normal service.

The measure includes rising mains, pipe bridges, failures on the infrastructure network, including inputs into the inlet of treatment works and terminal pumping station rising mains

It also includes all public sewer and lateral collapses recorded by Thames Water, inclusive of those incidents that have been reported as flooding or pollution failures, if the primary cause of the flooding or pollution was a sewer collapse.

Per the guidance, collapses should be reported in the year that the collapse was reported, rather than the date that the repair work has been completed.

Currently the data is provided based on the 'activity raised date' within the system.

This should be populated when work is requested after an incident is reported, however there is a delay between a potential collapse being reported, the activity being requested and then also following this, the verification of whether this is actually a collapse (rather than a blockage or other incident type).

Therefore, filtering only based on the 'activity raised date' is likely to mean that collapses from the prior period will be included, and collapses at the end of the reporting period will be excluded in this reporting period and shown within the next year.

15 https://www.ofwat.gov.uk/publication/reporting-guidance-sewer-collapses-per-1,000km/

Treatment work compliance

CS01

Unit of measure

Percentage compliance, reported to two decimal places.

Period

This is a calendar year measure.

Boundaries

None

Reporting criteria

This measure is the percentage of treatment works with discharges, compliant with numeric environmental permits in each year.

The discharge permit compliance metric is reported as the number of failing sites (as a percentage of the total number of discharges), and not the number of failing discharges.

It is a measure of the capability of our wastewater and water treatment works to treat and dispose of wastewater, in line with the discharge permit conditions. It is calculated as follows:

(B - A) / B x 100

Where:

A = No. of sites (STWs and WTWs) with numeric limits confirmed as failing relevant conditions in the calendar year; and

B = No. of discharges on the EA register during the calendar year (in force).

A non-compliant discharge is defined as a level of concentration of a parameter in a wastewater/water quality sample taken at a treatment works that falls out of the acceptable level, as defined in the individual treatment works permit.

A sample is defined as a wastewater/water quality sample in line with the EA guidance, as set out in the links below. The samples are tested for the concentration of a range of parameters, as set out within the individual permits for each treatment works. The samples are taken at the designated sampling point at each sewage treatment works and are carried out under a UKAS accredited process.

The measure is governed by guidance[16] and regulations issued by the EA.

The number reported is taken from the annual Provisional EPA letter issued by the EA.

16 https://www.gov.uk/government/publications/water-companies-operator-self-monitoring-osm-environmental-permits/water-companies-operator-self-monitoring-osm-environmental-permits; https://www.gov.uk/government/publications/waste-water-treatment-works-treatment-monitoring-and-compliance-limits/waste-water-treatment-works-treatment-monitoring-and-compliance-limits; and https://www.ofwat.gov.uk/wp-content/uploads/2017/12/WatCoPerfEPAmethodology_v3-Nov-2017-Final.pdf

Surface water management
DS02

Unit of measure
Number of hectares to two decimal places

Period
This is a report year measure.

Boundaries
Any schemes on site delivery before 31 March 2023.

Reporting criteria
The hectares of surface area disconnected from the combined sewer system or from which the flow of surface water is attenuated by a sustainable drainage system from 1 April 2020.

Thames Water measures the total 'effective contributing area', that is, the area that generates surface water which communicates with our assets, which is then through appropriate surface water management diverted and passes through either a sustainable drainage system or new surface water system that does not communicate with combined sewers.

Additional assurance requirements
The ISAE 3000 independent limited assurance report received from third-party, PwC, covers this metric.

Risk of sewer flooding in a storm
DS01

Unit of measure
Percentage of population at risk, reported to two decimal places.

Period
This is a report year measure.

Boundaries
Exclusions are as defined in the guidance

Reporting criteria
Risk of sewer flooding in a storm is defined within the guidance titled guidance – Risk of sewer flooding in a storm, published on 4 April 2019[17]:

This measure will record the percentage of the region's population at risk from internal hydraulic flooding from a 1 in 50-year storm, based on modelled predictions (using 2017/18 data).

Security of supply index (SoSI)
DW02

Unit of measure
The Security of Supply Index ("SoSI") score to zero decimal places.

Period
This is a report year measure.

17 https://www.ofwat.gov.uk/publication/reporting-guidance-risk-of-sewer-flooding-in-a-storm/

Boundaries

None

Reporting criteria

SoSI is a score reflecting Thames Water's ability to meet our planned levels of service for average demand in a dry year at the end of the report year.

The dry year is defined as a year with the demand observed under the joint conditions of a 1 in 5 summer, and a 1 in 5 winter levels of water usage and leakage.

The SoSI score can range from negative scores to 100. A score of less than 100 demonstrates that Thames Water would have to impose demand restrictions on our customers more frequently than set out in our levels of service.

The level of service is set with the following frequencies of occurrence and types of water use restrictions:

- Level 1 (1 year in 5 on average) – intensive media campaign
- Level 2 (1 year in 10 on average) – sprinkle / unattended hosepipe ban, temporary use ban (formerly hosepipe ban) and enhanced media campaign
- Level 3 (1 year in 20 on average) –, drought direction 2011 (formerly non-essential use bans) requiring granting of an ordinary drought order
- Level 4 (never) – if extreme measures (such as standpipes and rota cuts) were necessary, their implementation would require the granting of an emergency drought order.

SoSI is scored for the whole of Thames Water based on a weighted sum of the six individual water resource zones ("WRZs").

A water resources zone is defined as the largest area of our supply system where all customers have the same supply risk.

Methodology to derive the index score:

Calculate the water available for use ("WAFU").

WAFU is defined as WRZ deployable output, less reductions including climate change (based on UKCP09 predictions), sustainability reductions, network constraints and reductions made for outage allowance.

Deployable output is defined as a measure of Thames Water's capability to put water into the supply network in drought conditions. This capability is limited by several factors such as abstraction licences, treatment network constraints and water resource shortages. Estimation of deployable input is performed through water resources management models used to understand how the current water supply system would work effectively in past droughts.

Sustainability reductions are reductions in abstraction licence volume agreed with the EA for environmentally sustainable purposes.

Outage is defined as a temporary loss of deployable output that is retrievable. The outage allowance number for a given sub-zone is the worst of the monthly '95th percentile' actual outages numbers for that sub-zone.

Calculate the dry year available headroom per WRZ

Dry year available headroom is defined as WAFU adjusted for bulk imports/exports to and from other companies less adjusted dry year distribution input.

Bulk water exports and imports include treated and untreated exports and imports but excludes non-potable supplies.

Dry year distribution input ("DI") is defined as the average DI recorded during the year adjusted by a dry year uplift. Weather dependent models of usage and leakage are used to generate a range of demand

scenarios at the WRZ level, using a number of years of weather and demand data.

Calculate the target headroom

Target headroom is defined as 'the minimum buffer that Thames Water is required to maintain between supply and demand in order to account for current and future uncertainties in supply and demand'.

The target headroom model is used to calculate the threshold minimum acceptable headroom, catering for uncertainties in the overall supply demand balance and agreed levels of service, which would trigger the need for water management options to increase water available for use or decrease demand.

Thames Water uses the Monte Carlo statistical technique to examine uncertainties used in the target headroom calculation and the possible range of values that specific elements of supply and demand forecast could take.

Calculate the surplus / deficit expressed as a percentage per WRZ

Surplus / deficit is defined as a difference between the dry year available headroom and target available headroom.

The surplus or deficit expressed as a percentage per WRZ is calculated by dividing the surplus or deficit value in megalitres per day (Ml/d) by the sum of adjusted dry year distribution input and target headroom.

Calculate the percentage of population with headroom deficit by dividing the population per zone with the deficit by the total company population. Where the zone is not in deficit, zero should be entered in 'percentage of total population with headroom deficit'.

Zonal population is the total average resident population in a water resource zone.

Calculate the zonal index per WRZ

Zonal index is defined as a percentage deficit (step 4) squared multiplied by the percentage of population affected (step 5) and multiplied by 100.

Calculate the final company-wide SoSI as 1 minus the sum of zonal scores and then multiplied by 100.

The components of the SoS calculation are annual averages and peak week values in Ml/d. As SoSI is a measure of the company's ability to supply water in a dry year, the Ml/d volumes are then adjusted for any weather effect to give the right return periods (the dry year Ml/d volume of water available). The score reported is the lower of the two scores produced by annual averages and peak week values in Ml/d.

Metrics subjected to agreed upon procedures by an independent third party auditor

Acceptability of water to consumers
BW08

Unit of measure
Number of consumer contacts per 1,000 population, reported to two decimal places.

Period
This is a calendar year measure.

Boundaries
The following list of water quality customer contacts are excluded from this measure:

- Consumer contacts related to water supplied by another water company
- Contacts from school children and college students seeking information to help them with an educational assignment
- Contacts from representatives of consumers such as a local councillor or an MP, usually relate to a water quality incident or to a consumer's complaint and inclusion of these would duplicate information already recorded
- Contacts found to relate to a private supply of water, and not the company's public water supply
- Consumer contacts received in the course of managing a notified water quality event.

The consumer contact classification guidance is defined by the DWI guidance[18].

Reporting criteria
This measure relates to the number of times the company is contacted by consumers due to the taste and odour of drinking water, or due to drinking water not being clear, or consumer reporting illness due to drinking water, reported per 1,000 population.

The calculation of the measure is as follows:

((the number of contacts for appearance, taste/odour and illness) * 1,000) / the resident population as supplied to the DWI.

Definitions
The company reports consumer contacts separately for appearance, and taste and odour for the Discover Water website[19].

Discoloured water: brown/black/orange, discoloured water – blue/green, particles, white-air, white-chalk and animalcules

Taste/Odour: chlorine, earthy/musty, petrol/diesel and other taste/odour

Illness: gastroenteritis, oral, skin and medical opinion.

Water quality events
BW09

Unit of measure
Number of events (category 3, 4 and 5) to zero decimal places.

Period
This is a calendar year measure.

Boundaries
The measure excludes:

- Category 3, 4 and 5 events that do not require the company to issue "restriction of use" advice, and those

[18] https://www.ofwat.gov.uk/publication/dwi-letter-customer-contacts-about-water-quality-appearance/

[19] https://discoverwater.co.uk/

that do not prompt customers to directly contact the company by telephone, letter, email or website in response to a problem.

- Category 1 and 2 events

Reporting criteria

This performance commitment is a measure of the number of category 3, 4 and 5 water quality events that have impacted customers.

Impacted customers are defined by events where:

- The company issues restriction of use advice (or the DWI considers the company should have taken such action)
- Where one or more customers directly contacts the company by telephone, letter, email or website in response to a problem
- Each event is independently assessed by the DWI which assigns it a category score.

Definitions

'Category 1. not significant' – least potential negative impact on public confidence in the water supply.

'Category 2. minor' – some potential for negative impact on public confidence in the water supply, but not requiring a significant level of investigation.

'Category 3. significant' – potential for negative impact on public confidence in the water supply requiring a detailed investigation and assessment of the event by a warranted inspector.

'Category 4. serious' – significant potential for negative impact on public confidence in the water supply, requiring a detailed investigation and assessment of the event by a warranted inspector, possibly with additional internal and external support (to be determined on initial assessment of the circumstances of the event).

'Category 5. major' - significant potential for negative impact on public confidence in the water supply requiring a detailed investigation, and assessment of the event by a warranted inspector with additional internal and external support at all seniority levels (to be determined on initial assessment of the circumstances of the event).

Reducing risk of lead

BW10

Unit of measure

The cumulative number of lead communication pipes replaced annually, reported to zero decimal places.

Period

This is a report year measure.

Boundaries

Only lead pipes replaced within the four mentioned categories are counted within the target. Lead pipes replaced by other synergistic work such as leakage are not counted under this programme.

The performance commitment also excludes lead communication pipes replaced as part of other rehabilitation programmes that are not in the 'hotspot' areas.

Reporting criteria

This performance commitment is defined as the cumulative number of lead communication pipes replaced in the 2020-25 period.

This performance commitment includes replacements that will result from:

1. Customer requests for communication pipe replacements (reactive activities)
2. Failed samples (reactive activities)
3. Targeted replacements in 'hot-spots' (proactive activities)
4. Social homes and establishments with vulnerable customers including those at primary schools, nurseries and similar establishments (proactive activities).

Definitions

Replacements at customers' request: all lead communication pipes replacements where the customer has requested replacement under regulation 30(4)(b) of the Water Supply (Water Quality) regulations[20],and where the customer intends to replace or has replaced their supply pipe.

Replacements on failed samples: all lead communication pipes replacements where water quality sampling test results have shown the lead content to be higher than the acceptable threshold (10µg).

Replacements in targeted areas or 'hotspots': replacements of communication pipes to properties falling within water supply zones which Thames Water has identified (in accordance with methodology confirmed by DWI), as high risk of having lead pipework, and which have been listed and issued to the lead pipe replacement (LPR) team. This includes communication pipes, replaced as part of water mains rehabilitation programmes, which serve properties within hotspot areas.

Replacements at social homes and establishments with vulnerable customers: replacements of lead communication pipes to primary schools and nurseries or other similar establishments across the supply area.

Since the covid pandemic, only replacements undertaken at schools and nurseries are reported under this category, as no work has been done at any "similar establishments"

Power resilience
DWS01

Unit of measure
Number of sites to zero decimal places

Period
This measure covers the AMP period. (1 April 2020 to 31 March 2025).

Boundaries
None

Reporting criteria
The cumulative number of key power dependent sites that are made resilient to power disturbances or interruptions over three hours from the distribution network operators from 1 April 2020 to 31 March 2025.

There were 47 power dependent sites identified during PR19 and this measure reports progress against these 47 sites.

These are listed in our PR19 final determination.

20 https://www.legislation.gov.uk/wsi/2018/647/contents/made

The key power dependent sites in this performance commitment only include:

- Water and sewage treatment works
- Water booster stations and sewerage pumping stations with greater than 500kW installed power
- Water booster stations without standby generation and with greater than 200 directly fed properties.

The process followed is:

Section A – Cohort Compliance

Step 1: Thames Water use gateways as an internal governance control to evaluate needs and projects and obtain go/no-go decisions. Asset management is responsible for gateway 0, and the purpose is to either approve and promote a need to the definition phase, reject or defer for further investigation. Key information from the gateway meeting (site name, date presented, approval status) will be captured in output A. An excel spreadsheet will be used as part of the validation for this methodology. This table will track sites approved through the AMP at Gateway 0 that impact the PC.

Section B – Solution Validation

Step 2: for each site at gateway 1, written commentary is to be provided by the head of electrical and ICA engineering that confirms that the technical solution recommended, once implemented renders the site resilient. This can be a written and saved email to be included within the gateway 1 documentation pack.

Section C – Project Completion

At the end of a project, a benefits fulfilled form (BenF) or equivalent document (i.e. takeover certificate) is signed by the asset management programme managers to demonstrate the benefits have been delivered for the project.

Additional assurance requirements

At the next price review the company, will publish assurance by an appropriately qualified external third party confirms that:

- each site completed will continue to operate if there are power disturbances or interruptions over three hours from the distribution network;
- any sites forecast to be completed have clear deliverable plans to be completed before 31 March 2025, and that the plans will deliver resilience to operate if there are power disturbances or interruptions over three hours from the distribution network.

Due to a wider business reprioritisation this programme has been halted so we have not delivered anything against this commitment this year.

Additional assurance is therefore not required.

Empty household properties ('void properties')

ER02

Unit of measure

Percentage of household properties classed as void, to two decimal places.

Period

This is a report year measure.

Boundaries

This measure excludes non-household properties. Properties that are not billed as it is uneconomical to do so are not counted.

Uneconomical is defined as the incremental cost of sending a bill and the normal incremental cost of processing a payment, made promptly in response to the bill is likely to be greater than the bill itself.

Reporting criteria

This measure is the number of household properties classified as void as a percentage of the total number of household properties served by Thames Water.

Void properties are defined as properties within our 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. Where details of a property have been received, but the property is yet to be created for billing purposes, an assumption is made that they are all occupied metered properties.

The proportion of void properties is measured as an average over the year.

We use the same method to calculate the average each year:

1. Adding together the total number of voids at the start of the reporting period and the total number of voids at the end of the reporting period and dividing this by two
2. Adding together the total number of (active and void) properties at the start and end of the reporting period and dividing by two
3. Dividing the average voids for the year by the average properties for the year 4 and multiplying the resultant figure by 100.

Empty business properties

EWS08

Unit of measure

Number of properties to zero decimal places

Period

This is a report year measure.

Boundaries

Properties should only be counted if it is billed as a result of the notification. Only properties meeting the following criteria will be reported under this performance commitment:

- Property status had been changed to occupied by Thames Water using the vacancy change application (VCA) process
- Property status had been changed to occupied by retailers, following an intervention by Thames Water.

The VCA process is described in the Market Arrangements Code ("MAC") and the

Wholesale Retail Code ("WRC"), that govern the non-household retail market.

Reporting criteria

This measure is the number of non-household properties recorded as void in the Central Market Operating System ("CMOS"), which the company identifies as occupied and which are subsequently billed. The information on location and evidence of occupancy, is then passed on to the retailer in order so that they challenge occupancy status and bring the property into billing.

The following properties are included by Thames Water in the EWS08 empty business properties performance commitment:

- Properties that were in vacant status in CMOS for 6 months on 1 April in the reporting year and are retrospectively changed to occupied for a period of 6 months or longer, even if this period has not yet been fully billed to the retailer.
- Properties that were vacant for 6 months and are retrospectively changed to occupied for less than 6 months and will be monitored until they reach the 6month requirement, at which point they would be included in the performance result. This applies even if the 6 months period has not yet been fully billed to the retailer.

Other information

Thames Water considers that the record of the wholesaler billing the retailer is sufficient to meet the requirement of "subsequently billed". Thames Water notes Ofwat's ruling on this, which stated, "we confirm that Thames Water's record of billing the retailer can be used to satisfy the 'subsequently billed' requirement", and Thames Water's interpretation is that this does not require them to wait until after final settlement (16 months) in order to include the premises into the EWS08 performance result.

If work around identification of the occupied property took place in the previous reporting year, it can still be claimed in the following year as soon the property meets the ODI eligibility criteria.

Commentary will be provided to Ofwat to outline the number of properties included for the PC that were initially identified as a potential lead in the previous year to ensure transparency of reporting. With regards to the end of the reporting period, any claims for the final year (March 2025) will only include those that meet the eligibility criteria within the reporting period.

Additional assurance requirements

The company will provide external third-party assurance that:

- All properties were void for at least six months before notification
- Are billed for at least six months after notification.

We engaged an independent third party auditor to execute agreed upon procedures for this metric under "ISRS 4400 (Revised), Agreed-Upon Procedures Engagements" and where necessary the results of those procedures have been reflected in our reporting.

Clearance of blockages
CS04

Unit of measure
Number of sewer blockages to zero decimal places.

Period
This is a report year measure.

Boundaries
The following are excluded from the blockages reporting figure:

1. Duplicate records where more than one sewer blockage clearance has been recorded for the same clearance activity in the same sewer (located within 250 metres) and within the same hour
2. Hydraulic overloads incidents
3. Activities where no clearance was required, or blockage detected.
4. Jobs identified as proactive silt or blockage removal
5. Sewer blockages occurring in privately owned sewers
6. 50% adjustment on disputes over ownership of sewers where the outcome is not available.

Reporting criteria
This measure is the total number of sewer blockages on the Thames Water sewer network (including sewers transferred in 2011) in a reporting year.

Definitions
Blockage: an obstruction in a sewer which causes a reportable problem (not caused by hydraulic overload), such as flooding or discharge to a watercourse, unusable sanitation, surcharged sewers, or odour.

Other information
The reported figure is the number of sewer blockages cleared in the year because the blockages are not confirmed to be reportable blockage (i.e. could be a duplicate/privately-owned) until it has been cleared and reviewed.

Thames Water considers that this process is sufficient to meet the definition of the 'total number of sewer blockages on the company's sewer network in a reporting year'.

Sewage pumping station availability
CS05

Unit of measure
Percentage to one decimal place

Period
This is a report year measure

Boundaries
The measure excludes:

- Terminal sewage pumping stations, i.e. pumping stations located within the boundary of sewage treatment works
- Pumping stations where asset availability is not reported through the supervisory control and data acquisition ("SCADA") tool (typically because they are recently adopted S105a pumping stations)
- Local package sewage pumping stations that are designed to protect individual properties from flooding following heavy rainfall.

Reporting criteria
This measure is the average asset availability of pumps in network catchment sewage pumping stations across the Thames Water region in the reporting year.

The performance commitment includes all sewerage pumping stations that are reported dynamically through our SCADA tool. This equates to approximately 2,800

pumping stations with 6,000 pumps in total and 95% of its larger sewage pumps. This number includes all installed pumps in the SCADA connected facilities including those that are rarely used.

Definitions

Sewage pumping station: a site used to move wastewater to higher elevations to allow transport by gravity flow.

Weekly data sets are collated for monthly reporting from SCADA.

The weekly data is then averaged over 52 weekly points in the reporting year to give the average weekly asset availability of pumps within the waste network catchment sewage pumping stations. This is expressed as a percentage value.

Availability is calculated as:

Availability (%) = ((total pumps – total unavailable pumps) / total pumps)) x 100

Where:

'Total pumps' = total number of installed pumps matching method definition

'Total unavailable pumps' = pumps unavailable through maintenance (or status suppressed) + pumps where SCADA status is unavailable or failed or inhibited

Other information

Extreme events, such as severe flooding, can prevent access to our sites for extended periods of time for health and safety reasons.

Where Thames Water are unable to access and repair a pump due to reasonable exceptional circumstances, Thames Water will record and report these incidents and make a suitable adjustment to the reported availability to reflect the extenuating circumstances outside normal operating conditions.

Sludge treated before disposal

ES03

Unit of measure

Percentage to one decimal place

Period

This is a report year measure.

Boundaries

Sludge exported out of the Thames Water region is excluded if we treat it before disposal.

This is estimated using the best available data whereby location of farms is used to determine the number of farms we export to, that are based outside our region.

Reporting criteria

The percentage of sludge sent to treatment prior to disposal calculated using tonnes of dry solids (tDS) data. Sewage sludge is a product of the wastewater treatment process.

As per the PR19 final determination, the performance commitment is defined as the percentage of wastewater sludge treated before disposal, where treatment includes chemical, biological and thermal processes.

This includes all sludge collected from wastewater network plus and any third-party sludge (such as sludge traded in from other water companies) that has been either transported by road, pipeline or indigenous collocated sludge, and treated at one of the Thames Water sludge treatment centres ("STCs").

Independent third party

Smarter water catchment initiatives EWS02

Unit of measure
Number of catchments to zero decimal places.

Period
This is a report year measure.

Boundaries
None.

Reporting criteria
Number of catchments that have an agreed catchment plan (which extends for at least 10 years), created in collaboration with the company's partners for each catchment as evidenced by formal support by relevant stakeholders and delivery of the actions set out in the catchment plan for the relevant reporting year. In the context of this PC, the term 'partner' used in the AMP7 final determination refers to the external 'steering group members', and additional benefits refers to where the project delivers wider benefits over and above those for which the project was primarily designed such as those listed in each catchment plan.

Delivery of the company's smarter water catchments initiative to undertake whole-river catchment interventions designed to address multiple environmental issues simultaneously. Initiatives will be delivered in partnership with at least one other organisation within the company's operational area.

We have identified three river catchments (Crane, Evenlode and Chess), where we consider there are multiple environmental challenges or issues that have relevance to our activities, and in which we have already established working relationships with local stakeholders and catchment partnerships.

Other information
The list of River Crane steering group members: https://www.thameswater.co.uk/media-library/home/about-us/responsibility/smarter-water-catchments/updates/river-crane-update.pdf.

The list of River Chess steering group members: https://www.thameswater.co.uk/media-library/home/about-us/responsibility/smarter-water-catchments/updates/river-chess-update.pdf.

The list of River Evenlode steering group members: https://www.thameswater.co.uk/media-library/home/about-us/responsibility/smarter-water-catchments/updates/river-evenlode-update.pdf

We have a terms of reference for each steering group, which are shared with all parties, and for any subsequently joining stakeholders. Participation in a steering group implies that these terms are accepted.

We will also evidence documentation from each stakeholder to show ongoing positive engagement through their sign off of milestones and change requests.

Additional assurance requirements
This PC states the need for us to publish an external third-party report.

We engaged an independent third-party auditor to execute agreed upon procedures for this metric under "ISRS 4400 (Revised), Agreed-Upon Procedures Engagements" and where necessary the results of those procedures have been reflected in our reporting.

Renewable energy produced

EWS03

Unit of measure

Gigawatt hours (GWh) to zero decimal places.

Period

This is a report year measure.

Boundaries

None.

Reporting criteria

The measure is the GWh of renewable energy produced from the company's operational business.

The aim of the measure is for the company to increase the amount of renewable energy (electricity, heat and gas) produced from its operational business. Renewable energy comes from sources such as biofuel, biomass/biogas, geothermal, hydropower, solar energy, tidal power, heat and wind power.

The company will measure the gross and net output of each of its renewable generators using smart metering which meets the Elexon Code of Practice 4 ("CoP4") industry standard. The methodology for reporting all renewable energy generation is defined by the industry standard UK Water Industry Research Ltd ("UKWIR") Carbon Accounting Workbook published on 8 May 2019.

Additional assurance requirements

This metric is calculated using the Carbon Accounting Workbook, which is independently assured before submission.

We engaged an independent third-party auditor to execute agreed upon procedures for this metric under "ISRS 4400 (Revised), Agreed-Upon Procedures Engagements" and where necessary the results of those procedures have been reflected in our reporting.

D-MeX

AWS01

Unit of measure

Score out of 100 to two decimal places.

Period

This is a report year measure.

Boundaries

In line with Ofwat guidance [21], the following can be excluded from the qualitative submission for D-Mex:

a) Ofwat DNCs'

b) Transactions where there is an ongoing dispute with the customer of such severity that approaching the customer to take part in a survey may not be appropriate.

Reporting criteria

D-MeX is a measure of developer services 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

[21] https://www.ofwat.gov.uk/wp-content/uploads/2020/03/D-MeX-guidance-for-2020-25.pdf

customers who transacted with the company throughout the reporting year to a customer satisfaction survey

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. The surveys are performed on a representative sample and the result 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, are set out in the link below.

Each metric has a target cycle time which is set by Water UK. These are measured from the receipt of the application or the relevant date where all payments and information have been received.

Compliance is calculated using the total completed within target divided by the total completed in period. These metrics apply to both waste and clean water journeys provided by the developer services and WMS departments. 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.

Other information

There was a change in the metrics reported in October 2020 [22].

The Water UK metrics are designed to measure compliance against levels of service ("LoS") to customers.

The company will report the process the company has taken to assure itself that its performance against the selected Water UK metrics in D-MeX are an accurate reflection of its underlying performance in the reporting year, and any findings that indicate this is not the case.

[22] https://www.ofwat.gov.uk/wp-content/uploads/2020/07/Changing-the-Water-UK-metrics-in-D-MeX-our-decisions.pdf

Risk of severe restrictions in a drought

DW01

Unit of measure

Percentage of population at risk reported to one decimal place.

Period

This is a report year measure.

Boundaries

Thames Water's reporting for DW01 calculates the percentage of the population 'at risk' of facing emergency restrictions. should a 1:200-year drought occur, in each year of the reporting period, and on average over a 25-year period as set out in the Ofwat guidance.

Thames Water's reporting for the forward planning period is based on the WRMP19 final plan forecast and not the WRMP19 baseline forecast.

Reporting criteria

This metric is the percentage of the customer population at risk of experiencing severe restrictions in a 1-in-200 year drought.

The performance commitment drought risk is defined in the reporting guidance, drought resilience metric, published on 13 March 2018[23]

Thames Water does not apply the average over a 25-year period in either baseline, performance commitment level or in-year performance reporting, as required by the guidance, and calculates the percentage of the population 'at risk' of facing emergency restrictions, were a 1:200-year drought to occur, for the report year instead.

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 theoretical deployable output, minus an allowance for climate change, minus outage allowance (available supply), minus exports, plus imports (which should be included though not specifically mentioned in the Ofwat guidance but is consistent with the supply demand balance), is less than the dry year demand plus base year target headroom (demand plus uncertainty).

The process to calculate the metric follows Ofwat's specific guidance and is as follows:

1. Take the water available for use ("WAFU"), where WAFU is equivalent to deployable output, minus the impact of climate change on deployable output, minus outage allowance, minus exports, plus imports, from the reporting year SOSI calculation spreadsheet which is used to calculate the SoSI number reported against the performance commitment DW02 – SoSI (see DW02 reporting criteria for the definitions).
2. From water resource management plan ("WRMP") table 10 (the latest versions for each Water Resource Zone ("WRZ") can be found on the Thames Water website), find the difference in water resource zone deployable output ("DO") from worst historic to 1:200 drought severity.

[23] https://www.ofwat.gov.uk/publication/drought-resilience-metric-risk-of-severe-restrictions-in-a-drought/

3. Using the difference in DO from step 2 change the reported WAFU (step 1) to get a WAFU that reflects the 1:200 drought.
4. Screen for water resource zones where a deficit is shown by step 3.
5. Read off the percentage population at risk of deficit from the spreadsheet for each WRZ.

For this performance commitment, the position for AMP7, based on Thames Water's current WRMP, is that London will be in a 1:200 deficit, and all the other WRZs will not be.

Given that this is the case, Thames Water's performance in relation to the target will be dependent on London's population as a proportion of our whole company population. Thames Water's current assumption is that population growth will be in line with our WRMP 2019 forecast.

The certainty grade has been assigned based on an assessment taken from the Atkins confidence grading assessment guidance. It is made up of two parts:

1. The methodological rigour or sophistication of the drought definition process.
2. Risk score – which is how close each company may come to implementing restrictions.

For the first element, Thames Water has selected an overall company level grading of C because all WRZs apart from London have a classification of C. London has been assigned category A because a sophisticated and comprehensive stochastic based analysis has been undertaken for this WRZ. Although London is the largest WRZ comprising approximately 70% of the company population, we have chosen to assign an overall classification of C as this is what is applied to the majority of our WRZs.

For the risk score, we have applied the methodology set out in Ofwat guidance [24].

Percentage of satisfied vulnerable customers

AR05

Unit of measure

Percentage to zero decimal places.

Period

This is a report year measure.

Boundaries

None.

Reporting criteria

This is a measure of how satisfied vulnerable customers on the company's PSR are with the services they receive.

The performance is measured for the reporting using the existing rant and rave survey, which captures customer satisfaction ratings ("CSAT"). Responses are extracted from those customers on the priority services register (PSR).

There are 5 responses as follows:

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Unsatisfied
- Very unsatisfied.

[24] https://www.ofwat.gov.uk/publication/drought-resilience-metric-risk-of-severe-restrictions-in-a-drought/

Independent third party

The scoring ranges from 0-10, with satisfied/very satisfied represented by scores of 6, 7, 8 (satisfied) and 9 and 10 (very satisfied).

For the purposes of the measure, only those who respond that they are “very satisfied” or “satisfied” will be counted toward the total.

The survey should be planned and carried out following social research best practice. For example, any sections of a relevant code such as that published by the market research society. The sample size should be selected to give a reasonable statistical significance for the purpose of the performance commitment.

Responding to major trunk mains bursts

BW11

Unit of measure

Average lost time per customer in hours:minutes:seconds

Period

This is a report year measure.

Boundaries

The performance measure only accounts for interruptions greater than or equal to 3 hours in duration.

Any interruptions less than 3 hours are excluded from the measure.

Reporting criteria

This measure relates to the average number of minutes lost per customer, for the whole customer base for water supply interruptions that lasted three hours or more, in the report year where the cause is identified as failure of a trunk main (≥ 18"). The metric can be calculated as follows:

The average number of minutes are as defined in BW03, water supply interruptions but are only included for those interruptions where the cause is identified as failure of a trunk main (≥ 18").

For reporting purposes, non-ground floor flats are treated as though they are on the ground floor.

Households on the Thames Water social tariff

ER03

Independent third party

Unit of measure

Number of households to zero decimal places.

Period

This is a report year measure.

Boundaries

None.

Reporting criteria

The measure is the number of households on the company's new enhanced tiered social tariff at the end of the report year, billed directly and indirectly.

This includes all discount bands within the new social tariff (including the bandings for 25%, 50% or 75% reductions) and customers who have not yet been transferred to the new scheme but receive reduced tariffs from pre-existing legacy schemes such as Watersure+.

The number reported comprises of:

- The volume of customers receiving report assistance through WaterHelp who are directly billed, or indirectly billed via a local authority or housing association (LAHA), for wastewater and water, or water only service.
- The volume of customers receiving financial assistance through WaterHelp who are indirectly billed by WOC and WASC companies on our behalf.

Metrics internally assured by our Internal audit and assurance (AA) team

Internally assured by AA

SEMD - Securing our sites (2020-25 projects)
DWS02

Unit of measure
Percentage to one decimal place.

Period
This is a report year measure.

Boundaries
Legacy projects that are outstanding from the 2020-25 period, which are covered by PR19TMS_DWS03 ('SEMD - Securing our sites (legacy projects)') are excluded.

Reporting criteria
This performance commitment incentivises the company to secure its assets and sites from hazards such as terrorism and malicious threats.

This measure relates to the percentage of an agreed number of specified sites brought into compliance with Security and Emergency Measures Direction ("SEMD") requirements and assessed against a set of criteria agreed with Defra from 1 April 2020.

This performance commitment only applies to a list of 28 borehole sites agreed between the company and Defra.

This is the same measure that Defra request the water industry use when reporting to them. Full compliance is assessed against criteria established by Defra[25].

Percentage compliance of specified sites with SEMD requirements assessed against a set of criteria, as agreed with Defra.

These sites will be assessed as compliant or not compliant. The schemes are considered complete and compliant when all project milestones have been completed, exit criteria has been met and the benefits have been realised, as set out in the defined project scope at initiation.

Additional assurance requirements
We obtain external assurance as part of our annual SEMD submission.

Since 1 April 2021, there has been a change in regulation in that SEMD certification has been replaced by RAG Assessments.

SEMD - Securing our sites (legacy projects)
DWS03

Unit of measure
Percentage to one decimal place

Period
This is a report year measure.

Boundaries
New projects which were not due in the 2015-20 period are excluded.

Reporting criteria
This performance commitment incentivises the company to secure its assets and sites from hazards such as terrorism and malicious threats. The percentage of an agreed number of specified projects brought into compliance with SEMD

[25] https://consult.defra.gov.uk/water-and-flood-risk-management/directions-new-water-supply-sewerage-regime/

requirements and assessed against a set of criteria agreed with Defra.

The performance commitment only includes the 264 legacy projects, from the 591 agreed at PR14, which remain outstanding in the 2020-25 period.

Full compliance is assessed against criteria established by Defra.

The schemes are considered complete when all project milestones have been completed, exit criteria has been met and the benefits have been realised, as set out in the defined project scope at initiation. Percentage compliance of specified projects with SEMD requirements assessed against a set of criteria, as agreed with Defra. These sites will be assessed as compliant or not compliant.

Additional assurance requirements

We obtain external assurance as part of our annual SEMD submission.

Since 1 April 2021 there has been a change in regulation, in that SEMD certification has been replaced by RAG Assessments

Properties at risk of receiving low pressure

BW07

Unit of measure

Number of properties to zero decimal places.

Period

This is a report year measure.

Boundaries

A weather event may be exceptional in its intensity or in its duration or a combination of both. However long the event, the effects on our PCs can last for much longer. A weather event can include drought, heavy rainfall, freezing conditions, heat waves and strong winds. In reporting, Thames Water considers a weather event deemed to have a return period greater than 1 in 10 years to be a mitigating factor, provided that it is beyond the normal design standards.

Additional boundaries (which we have adopted) are set out in Ofwat's guidance in the following link: https://www.ofwat.gov.uk/publication/properties-at-risk-of-receiving-low-pressure/

Reporting criteria

This measure is the number of properties receiving, or at risk of receiving, pressure below the low-pressure reference level, at the end of the reporting year.

This measure is calculated as the total number of properties receiving pressure below standard, minus the number of those properties that are covered by the predetermined allowable exclusion categories as detailed in the reporting guidance.

Before a property is removed from the low pressure register, there is a verification period which varies depending on method of addition to the register. At the end of the verification period, and assuming that the solution has proven to be sustainable, the property is removed from the register with the date of removal logged as being the date that the solution was implemented.

This aligns the register time with the low pressure being experienced by the customers.

Definitions

Low pressure reference level is defined in the reporting guidance published 11 December, 2017[26]:

Abstraction incentive mechanism (AIM)

EW01

Unit of measure

Megalitres to one decimal place

Period

This is a report year measure.

Boundaries

For the 2022/23 reporting year, the cumulative AIM score, and cumulative normalised AIM score are in scope, as AIM was triggered at Axford and Pangbourne.

Reporting criteria

The abstraction incentive mechanism ("AIM") reduces abstraction of water at environmentally sensitive sites when flow or levels are below an agreed point otherwise known as a trigger. The measure is expressed in megalitres and based on the report year. Thames Water are notified when AIM is triggered on or off by the EA via an email, which is actioned by Thames Water's operations team. As such, the start and end date of AIM being in operation will be the following day from Thames Water receiving notification from the EA.

Detailed guidance and the methodology used to prepare the AIM measures can be found on the Ofwat website[27].

The following abstraction sites are in scope of this measure:

- River Lee new gauge pumping stations (London WRZ)
- Pangbourne (Kennet Valley WRZ)
- Axford pumping stations (SWOZ WRZ)
- Pan Mill pumping station (SWA WRZ)
- North Orpington pumping stations (London WRZ).

Installing new smart meters in London

M01

Unit of measure

Number of smart meters to zero decimal places

Period

This is a report year measure.

Boundaries

This measure only applies to residential customers' meters and excludes business customers' meters.

A smart meter can only be counted once in the five-year period for a property. For example, if a smart meter fails within the five years and is replaced, it cannot be recounted towards this PC.

This measure excludes the installation of new smart meters for new connections and excludes the replacement of existing basic meters with smart meters.

Reporting criteria

This measure relates to the cumulative number of new smart meters installed in the London WRZ from 1 April 2020. We define new smart meters in this PC as new meter

[26] https://www.ofwat.gov.uk/publication/properties-at-risk-of-receiving-low-pressure/

[27] https://www.ofwat.gov.uk/wp-content/uploads/2016/02/gud_pro20160226aim.pdf

installations that use advanced metering infrastructure ("AMI") technology that enables them to be read remotely through an integrated system of smart meters, communications networks, and data management systems.

This system will comply with the company's obligations under competition law and have the capability to:

- Record consumption data and comply with the appropriate regulations governing cold water meters
- Allow ready access to this data by customers (directly or via contractors/agents) and the company at near real time, with data updated daily at a minimum, and made available at a minimum granularity of 1-hour intervals, or such greater frequency and/or granularity as reasonably requested by the customer or its contractors/agents
- Enable the capability for automated leak alarms to be communicated to the customer and company
- Transfer consumption data to the company remotely without requiring access to the meter or property
- Communicate with the internet
- Existing meters are defined as meters that were installed in the Thames Water network prior to 1 April 2020 without smart meter capability.

The performance commitment measures the total number of smart meters installed in the reporting year for the following categories of meters defined by the company:

- Meter installed at a property that previously paid unmetered charges. This includes residential customers that have opted for a meter or where the company has selectively installed a meter)
- Small bulk meters, that provide additional benefit to meters already installed – i.e., not replacements of bulk meters.

The total performance commitment levels relate to the installation of smart meters on existing connections only

Replacing existing meters with smart meters in London

M02

Unit of measure

Number of smart meters to zero decimal places.

Period

This is a report year measure.

Boundaries

This measure only applies to residential customers' meters and excludes business customers' meters.

A smart meter can only be counted once in the five-year period for a property. For example, if a smart meter fails within the five years and is replaced, it cannot be recounted towards this measure.

Reporting criteria

This measure relates to the cumulative number of existing installed meters replaced with smart meters per reporting year in the London WRZ from 1 April 2020.

Definitions

Replacement smart meters: replacement meter installations that use AMI technology that enables them to be read remotely through an integrated system of smart meters, communications networks, and data management systems.

Existing meters: meters that were installed in the Thames Water network prior to 1 April 2020 without smart meter capability.

This system will comply with the company's obligations under competition law and have the capability to:

- Record consumption data and comply with the appropriate regulations governing cold water meters
- Allow ready access to this data by customers (directly or via contractors/agents) and the company at near real time, with data updated daily at a minimum, and made available at a minimum granularity of 1-hour intervals, or such greater frequency and/or granularity as reasonably requested by the customer or its contractors/agents
- Enable the capability for automated leak alarms to be communicated to the customer and company
- Transfer consumption data to the company remotely without requiring access to the meter or property
- Communicate with the internet.

[28] https://www.ofwat.gov.uk/publication/pr19-winepprogramme-annual-update-for-2019/

Environmental measures delivered

ES02

Unit of measure

Number of WINEP schemes [28]completed each year to zero decimal places.

Period

This is a report year measure.

Boundaries

This performance commitment excludes schemes that were uncertain on 11 June 2019 "amber schemes".

The WINEP also lists the Thames Tideway Tunnel as an environmental measure, for delivery in the 2020-25 period. However, achieving that output is not part of this PC as it forms part of the Thames Tideway Tunnel price control.

The measure also excludes three non-WINEP schemes under section 101A of the Water Industry Act 1991.

Reporting criteria

The measure is the cumulative number of 'green' WINEP schemes completed since 1 April 2020. This metric measures compliance with the requirements of the WINEP and is limited to the schemes with 'green' status as at 11 June 2019.

The company's agreed measures can be divided into the following eight main categories:

1. Wastewater treatment works upgrades – investment to enhance wastewater treatment to improve or protect the quality of the receiving waterbody

2. Monitoring and investigation schemes – investment to understand better how the company's operational activities may impact on the environment and how these could be improved to reduce this impact.
3. Conservation schemes – investment to meet specific conservation measures to reduce the company's impact on protected sites or biodiversity.
4. Investigations into emerging risks – investment to understand emerging risks facing the water industry such as microplastics and antimicrobial resistance or to understand if abstractions are having a negative impact on ecology.
5. Catchment management activities – investment to manage pesticides, nitrates and herbicides in surface and groundwaters through catchment activities.
6. Alleviating low flows – investment to investigate or undertake work to alleviate the impacts that the company's abstractions have on low flows.
7. Reducing environmental impact of river structures – investment to improve fish passage in waterbodies through work on the company's assets where they have been proven to be a blocker.
8. Addressing invasive non-native species (INNS) – investment to investigate and implement measures reduce the risk of INNS associated with the company's activities.

For the purposes of this performance commitment, only the total number of "green" measures delivered will matter, rather than the specifics of which exact ones. Any site where the regulatory obligation has been signed off by the company as being complete, and submitted to the EA for approval, should be considered as being delivered.

To determine if a line has been met, the following types of evidence can be used:

- If the EA have agreed that the measure is met in the formal WINEP tracking document with a completion date listed in the "actual completion date" column
- Part B of the relevant BENF form for the line in question has been signed
- Written confirmation (by email or letter) from the EA or Natural England that the measure's requirements have been sufficiently met
- Other evidence that the regulatory requirement is being met (for example – sampling data showing new permit conditions are being met)
- Internal verification that the measure has been delivered.

Additional assurance requirements

The company secures confirmation from the EA that performance has been correctly reported. The view of the EA will be definitive.

Other information

This year, we have included four measures submitted to, but not yet approved by, the EA (although we are satisfied that they meet the approval criteria).

C-MeX
AR01

Internally assured by AA

Unit of measure
Score out of 100 to two decimal places.

Period
This is a report year measure.

Boundaries
The following exclusions are applied to the data submitted to Ofwat's agent:

- Outbound contacts
- Deceased customers
- Non-customer contacts
- Non-household or private network customers
- Developer services
- Ex-directory
- Wrong numbers - contacts from customers who have contacted Thames Water when they should have contacted another organisation
- Contractor 0.5% rule - customer contacts from external service providers who take less than 0.5% of total calls for a business unit
- Feedback requests - customer contacts that are returned on or alongside company requests for feedback or surveys
- For social media postings, customer comments exclusively about another customer's posting should not be included
- Enquiries from CCW on behalf of a customer
- Ofwat Do not contact (DNC).

Reporting criteria
This measure is the customer measure of experience (C-MeX) and 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.

The surveys are completed by Accent.

Definitions
CE: customer satisfaction survey of a randomly selected sample by Ofwat's agent of a company's overall residential customer base. They will ask how satisfied they are with their company.

CSAT: 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.

C-MeX score: calculated as 50% x CS-CSAT + 50% x CE-CSAT

Information
On a monthly basis, Thames Water is notified via email by 10.00hrs on the Monday morning of the week following the designated period.

All inbound customer contacts for the previous week are provided to Accent, via the online portal, by 17.00hrs on Tuesday of the same week. This includes all contact methods on digital and non-digital channels (including where digital contacts made where an email address is not present, and non-digital contacts made where a telephone number is not present).

Customers who opted as DNC for Thames Water are submitted to Ofwat agent in line with C-MeX guidance but are excluded from the survey.

Contacts received by third parties and contractors working on behalf of Thames

Water are also included (if volume is above 0.5% of total volume received by Thames) in line with Ofwat guidance.

The company will provide a statement in the APR that confirms whether the company offered at least five communication channels for receiving customer contacts and complaints and at least three online channels throughout the reporting year.

Enhancing biodiversity
EWS01

Unit of measure
Biodiversity units to zero decimal places.

Period
This is a report year measure.

Boundaries
None.

Reporting criteria
This measure is the cumulative net gain in biodiversity units at the company's 253 sites of biodiversity interest (SBIs) plus any net change from additional land where specific biodiversity offsetting measures have been implemented from 1 April 2020.

Definitions
Biodiversity units are as defined by the Defra offsetting metric.

Calculation of biodiversity units is done through application of the Defra biodiversity offsetting tool.

Net gain is measured by comparing the total biodiversity units at Thames Water's 253 SBIs at the end of 2019/20 to the total biodiversity units at the 253 SBIs plus any net change from additional land where specific biodiversity offsetting measures have been implemented at the end of 2024/25.

The latest version of the biodiversity offsetting tool available will be applied for each year of assessment, with the original baseline position rescored using the same tool for consistency and direct comparison wherever the scoring system has changed.

Additional assurance requirements
The company will publish assurance by an appropriately qualified external third party.

This was not completed this year. While we continue to support nature recovery, the budget related to the delivery of this performance commitment has been removed as we prioritise other deliverables.

Establish an effective system operator for the London Tideway Tunnels
ET05

Unit of measure
Percentage completion to zero decimal places.

Period
This is a report year measure.

Boundaries
None.

Reporting criteria
This measure is the percentage completion of the development of the organisational design and of the systems and capability required to deliver the London Tideway Tunnels operating techniques ("LTTOT"). This performance commitment includes the development of the management system and associated operational team for the LTTOT.

The following key enablers will need to have been delivered or substantially progressed to secure the achievement of this performance commitment:

System set-up and procedures:

- Development of written documents required for Tideway's system commissioning plan
- Development of the management system for O&M of the London Tideway Tunnels system
- Plan for engagement with the EA on the operating techniques and securing any further required environmental permits for CSOs
- Asset management plans including criticality analysis.

Organisational readiness:

- Establishment of the system operator team for the London Tideway Tunnels
- Organisational design confirmed, and recruitment progressed to support training prior to system. commissioning commencement. The benchmark for this organisational capability and capacity shall be defined by a management system that can be externally assessed as progressing towards certification under a suitable international standard for an appropriate management system (such as ISO14001 or similar).

Other information

The source of information for this PC is the TWUL Thames Tideway Tunnel level 1 programme.

An update of the one LTT integrated management system implementation programme is provided monthly by the integrated management system development manager.

The plan is consolidated within the overall programme and when complete, is approved by the system operator project manager. Other sources are provided by the progressive assurance workstreams.

A baseline is established for the activities within the system operator plan. Each individual activity is then progressed monthly and the percentage of completion ("POC") of the plan being reported against the established baseline to achieve the target dates specified with the PC.

The forecast system commissioning commencement date ("SCDD") is provided quarterly by tideway. Agreed change to the SCCD triggers a revised target for completion of the activities associated with this PC. Progress is assessed against each item with POC determined against key milestones. Overall completion percentage is calculated using a table which denotes eight actions with an even weighting to get to 100%.

Internally assured by AA

Maximising the value of Tideway project land sales

ET06

Unit of measure

£m to one decimal place.

Period

This is a report year measure.

Boundaries

The measure excludes any sites not included in the 12 plots scheduled to be sold in the 2020-25 period.

Reporting criteria

The measure is the total net profit or loss made on the actual sale of any of the 12 plots related to the Thames Tideway Tunnel project that are scheduled to be sold in the 2020-25 period.

This is the difference between the baseline value and sale value (or net proceeds) of each plot subject to adjustments.

The net profit or loss per plot is defined as:

Net profit or loss = net proceeds - baseline value

The net proceeds are the proceeds from the sale of the relevant plot after adjusting for the costs, receipts and savings reasonably attributable to or connected with the relevant disposal. which shall include associated costs related to the project land, such as compensation and mitigation costs, to the extent that such costs, receipts and savings were not previously allowed for when a relevant determination was made.

The baseline value is defined as:

Baseline value = (P x A)

P = the percentage of land that is sold. This is the £m value of the land that is sold divided by the £m value of the land that is sold plus the £m value of the land that is not sold.

A = the acquisition price paid by the company when acquiring the plot (in £m).

The company will report its performance as the sum of the net profit or loss of all plots sold in that year. No adjustment is made for inflation within this performance commitment.

The surplus land acquired to date and scheduled for disposal in the 2020-25 period is as follows:

- Camelford House, Albert Embankment
- Chambers Wharf, Bermondsey
- Whiffin Wharf, Carnwath Riverside
- Carnwath Industrial Estate, Carnwath Riverside
- Cringle Wharf, Kirtling Street
- 80 Kirtling Street, Battersea
- 2a Battersea Park Road, Battersea
- 88 Kirtling Street (ex V&A Stores)
- 8 Brooks Court, Battersea
- 1 Brooks Court, Battersea
- Oyster Pier, Mooring berths 1, 2 & 3
- Oyster Pier, Mooring berths 5 & 6.

Additional assurance requirements

Independent external assurance will be provided by the company to Ofwat for each plot sold in the relevant reporting year to confirm the percentage of land sold is a fair reflection of the split between the land sold and the land retained relative to the acquisition price paid by the company.

In addition, Ofwat may require independent external assurance in respect of any plot, to confirm that Thames Water took appropriate steps to maximise customer value.

Natural Capital Accounting
EWS04

Internally assured by AA

Unit of measure
Percentage to one decimal place.

Period
This is a report year measure.

Boundaries
None.

Reporting criteria
This measure is the percentage of the company's landholdings, as a percentage of total appointed business landholdings, where natural capital stocks are assessed and reported publicly at 31 March each year.

The company measures and reports the amount of natural capital it has at its sites. Natural capital may include stocks of species, ecological communities, soils, freshwaters, land and minerals.

The scope of this natural capital assessment covers all Thames Water land holdings which comprises many small to medium-sized sites across large parts of Greater London, Luton, Thames Valley, Surrey, Gloucestershire, Wiltshire and Kent. Thames Water owns a variety of sites including reservoirs, water treatment works, recreational sites and nature reserves covering an area of just over 6,500 hectares.

The natural capital concept chosen for this assessment essentially describes the natural environment in the surroundings as a valuable resource or range of assets all people and businesses depend upon. Natural capital is the sum of Thames Water's ecosystems, species, freshwater, land, soils, minerals, air and seas.

These natural capital assets provide people with valuable goods and services, called ecosystem services, which include food, clean air and water, wildlife, energy, wood, recreation and protection from hazards.

The results of the assessment were presented in a report from WSP to Thames Water, which shows the list of all site names assessed, their respective areas (ha) and the aggregated scores for each of the ecosystem services identified.

Additional assurance requirements
Although not required per the FD, WSP (third party) was appointed to perform a natural capital assessment for 100% of Thames Water's land holdings.

Metrics internally assured by the business

Proactive customer engagement

AWS02

Unit of measure

Number of contacts to zero decimal places.

Period

This is a report year measure.

Boundaries

The net promoter score ("NPS") measure per the final determination is no longer in use. This is due to the introduction of the C-MeX measure being used to measure customer satisfaction and engagement.

Reporting criteria

This measure is the total number of proactive customer contacts in the reporting.

The measure is calculated as the total of the following types of customer contacts:

- Households who receive a smarter home visit
- Business premises receiving a smarter business visit
- Households which actively participate in the green redeem scheme
- Schools receiving a water audit
- Customers receiving a customer visit because of abnormal water usage patterns
- Lead communication pipes replaced, including contact with the customer on the potential health impacts of lead customer owned pipes and plumbing
- Wastewater behaviour campaign', generated off a range of proactive demand reduction activities, including smarter home and business visits, smart meter data and digital customer engagement / campaigns.

Virtual smarter home and education visits are included in this measure.

Additional assurance requirements

The company will report each of the sub-measures separately for transparency and will at least once during the five-year period publish a report to assess the benefits resulting from the performance commitment, as far as possible based on primary evidence.

This will include the relative success of different activity types and approaches. The company should also consider other ways to share learning with other companies and wider stakeholders.

Unregistered household properties

ER01:

Unit of measure

Process completed' or 'Process not completed'.

Period

This is a report year measure.

Boundaries

This measure excludes any boundary properties/water only companies (WOC's) where Thames Water are responsible for waste only. This measure also excludes any charge points that do not relate to a physical property e.g. kiosks and hereditaments and troughs.

Reporting criteria

This performance commitment assesses if the company has completed all processes to find unregistered household properties.

Unregistered household properties (also known as 'gap sites') are properties where water and/or wastewater services are being consumed, but the property is not in the Thames Water systems and is therefore not billed.

This performance commitment is to ensure that Thames Water has robust and consistent processes in place to minimise the number of unregistered properties within our region. We use third party datasets to cross reference with our billing system on a quarterly basis to identify mismatches in the properties registered.

The process includes:

- A defined team responsible for downloading external data and using it to cross reference against internal records. This team analyses the data to identify any sites that appear within the third party provided data, but not on our systems (and therefore appear to be unregistered). The team then monitors progress as the sites are either confirmed as being put into charge or confirmed as not existing
- Confirmed unregistered sites will be passed on to the relevant teams to input into the system and take further steps to bring into charge, as appropriate
- We use a minimum of three data sources in each quarter. These sources are not defined, but are likely to include examples such as Experian, Royal Mail postcode address file (PAF), Land Registry etc. These will be reviewed further for suitability and quality as the company starts testing the process. No sources were used in 2021/22.

The final reported measure is noted as either, 'Process completed' or 'Process not completed'.

Additional assurance requirements

Performance of this measure will be assured by an external third party.

Readiness to receive tunnel flow at Beckton STW

ET01

Unit of measure

Number of full months after the SCCD, with the first month running from the day after the SCCD. Zero decimal places.

The unit of measurement for this performance commitment shall be the beneficial use delivery of the scheme.

Period

This is a report year measure.

Boundaries

In the event of tunnel construction being delayed, it would not be in customers' interests to deliver the inlet modifications ahead of these being required.

In these circumstances, the company would not qualify for underperformance payments. Instead, if delays in construction result in a change in the SCCD, the revised SCCD will be the relevant date for calculating underperformance payments.

Reporting criteria

This measure is the delivery of the capital works associated with the inlet works under solution reference S29184 in the PR19 capital programme, which is part of the upgrade to the Beckton sewage treatment works (STW). Every full month of delay beyond the SCCD will result in underperformance payments.

The scheme has been designed in outline during the 2015- 20 period and is due for detailed design after the company's PR19

final determination. The exact scope to be delivered, therefore, is still evolving as detailed design has not yet been completed so the achievement of the performance commitment is based upon the completion of the scheme, as will be confirmed and agreed through detailed design and construction. The indicative outline design scope is shown below.

The scope of this capital project includes a number of elements at Beckton STW. The current indicative scope (from outline design) includes:

- 2 new grit lanes and associated grit removal equipment, along with 2 new 50 mm 1D trash screens installed upstream
- 8 new 15 - 20 mm 1D bar screens installed downstream of the trash screens and upstream of the grit channels (6 existing and 2 new channels)
- New duty/standby trash and screenings transfer belt or screw conveyors, screenings compactors and skip compactors for the 50 mm 1D trash screens
- New duty/standby screenings transfer screw conveyors, screenings compactors and skip compactors for the 15 – 20 mm bar screens
- New grit removal, handling and washing plant along with associated equipment
- New standby generation
- Clear accumulated grit and debris from intermediate northern outfall sewer (NOS) barrels
- Modify existing control philosophy to allow all available plant to operate to minimise the hydraulic impact on the NOS, minimise deposition of solids and potentially reduce peak solids loading during first flush scenarios.

Definitions

Delivery (BenF): the date of the benefits fulfilled form, which forms part of the project completion document suite within our standard workflow process.

Critical asset readiness for the London Tideway Tunnels (LTT)

ET04

Unit of measure

Number of full months after the SCCD, with the first month running from the day after the SCCD.

Number of full months to zero decimal places.

Period

This is a report year measure.

Boundaries

None.

Reporting criteria

This measure is the number of full months in the reporting year, that readiness is reported as 'insufficient readiness', after the SCCD.

Definitions

Readiness: assessed by Thames Water in conjunction with Tideway and is overseen by an independent technical assessor. This performance commitment incentivises Thames Water to ensure enabling works are completed and critical assets are sufficiently ready in advance of the SCCD. Every full month of delay beyond the SCCD will result in underperformance payments.

Sufficient readiness: means that we will:

- Complete and deliver against an integrated operating plan, setting out how we will operate the London Tideway Tunnel assets in a timely, coordinated and integrated manner, and in compliance with relevant environmental permits, consents and the London Tideway Tunnel operating techniques
- Demonstrate to stakeholders that critical assets are ready to operate in compliance with the London Tideway Tunnels operating techniques and support timely system commissioning. This will be achieved through advanced preparation of critical assets reporting aligned with the Tideway project master Programme, the System commissioning plan and readiness for the system commissioning commencement.

This involves the following critical assets (some of which are in the Thames Water wider wastewater network):

- Operational resilience of Beckton sewage treatment works ("STW") to treat sustained peak flow for extended periods. For the avoidance of doubt, this excludes the inlet works dealt with in performance commitment ET01
- Reliable operation of Beckton STW Tideway sewage pumping station (SPS); reliable and accessible flow data from Abbey Mills SPS to Beckton STW
- Reliable and accessible level and flow data from Greenwich SPS to Crossness STW
- Reliable flow control at Abbey Mills SPS
- Reliable flow control at Greenwich SPS
- Certified Commissioning Ready Tideway Tunnel to Beckton STW flow transfer system
- Certified commissioning ready Tideway storm bypass tunnel
- Certified commissioning ready Tideway combined sewer overflow ("CSO") overflow shaft
- Reliable operation of key SPSs with an interface to TTT that are considered critical to the adequate functioning of the London sewerage system
- Tideway monthly reporting to the interface committee - For SCCD target date for the PC
- TWUL level 1 programme PAWS 5c – for integrated operating plan completion
- TWUL Level 1 programme – for construction completion forecasts
- LTT requirement document – for critical asset definition of integrated operating requirements
- Critical asset grid – for forecast critical asset sufficient readiness dates and critical
- Asset notice status
- Tideway certification process – for compliance of asset with interface agreement obligations for critical asset readiness.

The process is split into 4 distinct stages and obligations are contained within the interface agreement, liaison agreement, joint approach agreement to handover and acceptance and PR19 final determinations Thames Water PC appendix.

These stages are:

1. Integrated operating plan
2. Critical asset status assessment
3. Critical asset reporting
4. Certification.

Additional assurance requirements

Readiness will be reported in line with the joint approach to handover and acceptance as agreed between the company and Tideway in April 2019, and in line with the interface agreement.

This will be supported by external audit.

Managing early handback of Tideway project land

ET07

Unit of measure

Number of months to zero decimal places.

Period

This is a report year measure.

Boundaries

It includes 87 hand back areas instead of 90, as listed in the joint approach agreed between Thames Water and Tideway, because three areas relating to Dormay Street are not intended to be handed back.

Reporting criteria

The measure is the number of months early that Thames Water receives land back from Tideway once necessary works related to the Thames Tideway Tunnel have been completed. This performance commitment is aligned to the joint approach to handover and system acceptance (the 'joint approach') agreed between Thames Water and Tideway in April 2019, which divides 21 sites into 90 hand back areas.

The list of relevant hand back areas as an annex to the PR19 final determinations: Thames Water outcomes performance commitment appendix.

It has been agreed that the target date for hand back of each of the hand back areas will be three full months after that area has been certified, as being ready for hand back. The actual target date will, in all cases, be three full months after certification, whenever certification occurs. It is assumed that there is no partial handover with full handover needing to be signed off. The handover certificate is provided only when this is fully complete.

Out performance payments will apply based on the number of full months before the

target date that the land is received by Thames Water. We will have one full month after the target date before underperformance payments apply.

Underperformance payments will therefore apply based on the number of full months after one full month after the target date that the land is received by Thames Water.

This performance commitment is measured by the net total number of full months before the target date for each hand back area that we accept the land. This means that we report the total number of months before the target date for each hand back area that we receive the land, less the total number of months after one month, after the target date for each hand back area that we receive the land. On this basis, PC levels can be negative.

Effective stakeholder engagement

ET02

Unit of measure

The score to one decimal place.

(The score attained is a simple average of scores from interviewees).

Period

This is a report year measure.

Boundaries

None.

Reporting criteria

This measure relates to the effectiveness of engagement activities with key stakeholders in the Thames Tideway Tunnel ("TTT") project at 31 March 2023.

This measure is the average score of responses to the survey question "overall as a senior member of your organisation and key stakeholder in the TTT project, how well would you say Thames Water has 'engaged with your organisation so far? The main objective of this engagement is to gain regular and impartial understanding and monitoring of key stakeholders' views on the company's performance and interaction on the TTT project."

The surveys are carried out by an appropriately qualified external third-party stakeholder research company.

Thames Water aim to get 2 participants per stakeholder to take the survey but will accept a minimum of one participant from each stakeholder.

The stakeholders are:

- Bazalgette Tunnel Limited (Tideway)
- EA
- Department for Environment, Food and Rural Affairs (DEFRA)
- Independent Technical Assessor (ITA)
- Consumer Council for Water (CCW).

The average score of responses to the survey is determined based on the following scale:

6 – extremely well

5 – very well

4 – quite well

3 – quite poorly

2 – very poorly

1 – extremely poorly.

BSI standard for fair, flexible and inclusive services

AR07

Unit of measure

Text (achieved or not achieved or maintained or not maintained).

Period

This is a report year measure

Boundaries

None

Reporting criteria

This measure assesses the quality of the company's priority services register scheme via the British Standard for Inclusive Service Provision certification BS 18477.

To meet this PC, performance commitment, the company must achieve the BS 18477 standard by 2020-21 and maintain it for the rest of the period 2021-25.

If this certification from BSI is not in place on 31 March of the reporting year, the PC has not been met.

The PC 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 the 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. During the period, the BS 18477 certification was available, therefore the alternative scenarios do not apply.

Delivery of water industry national environment programme requirements

NEP01

Unit of measure

Text stating either "met" or "not met".

Period

This is a report year measure.

Boundaries

No specific exclusions

Reporting criteria

This measure tracks the completion of required schemes in each year, as per the latest WINEP programme published by Defra.

If any scheme is not delivered by the time specified in the WINEP tracker titled "completion date (DD/MM/YY)", the company will report "not met". All WINEP schemes will be included including those reported under other performance commitments.

The performance commitment measures against the latest WINEP tracker in the reporting period) in which performance is being reported.

Therefore, performance for the reporting period is based on the latest WINEP programme and the schemes which have been delivered by this date.

The company secures confirmation from the EA that performance has been correctly reported. The view of the EA will be definitive. The company reports all requirements that it has not met in its

Annual Performance Report (APR) and set out any interactions this performance measure has with any of its other performance commitments.

Additional assurance requirement

See ES02.

Drainage and wastewater management plans

DWMP

Unit of measure

The cumulative percentage of catchments in which the company implements levels water company DWMP, reported to zero decimal places.

defined in "Framework for the production of Drainage and Wastewater Management plans" [29].

The percentage will be calculated as a simple average of the catchments that are completed according to the guidelines and published divided by the total number of catchments and expressed as a percentage.

Other information

Level 1 planning aims to provide a strategic, long-term plan for drainage and wastewater resilience and associated investment over the plan period.

Level 1 planning ties the Level 2 and Level 3 plans together resulting in:

- The baseline planning objectives,

Period

This is a report year measure.

Boundaries

None

Reporting criteria

A Drainage and Wastewater Management Plan ("DWMP") is a long-term, adaptive plan of wastewater service, developed to provide a resilient service to our customers that protects and enhances the environment. This measure relates to cumulative percentage of catchments in which Thames Water operates, the company implements the Level 1 water company DWMP in accordance with the guideline:

A framework for the production of the DWMP, published September 2018 and updated May 2019

- An assessment of risks and vulnerability of the drainage and wastewater systems
- The actions proposed to mitigate those risks
- The investments necessary to deliver the outcomes identified.

Partnership working and collaborative planning involving the relevant stakeholders is one of the key elements of developing DWMPs.

[29] https://www.water.org.uk/policy-topics/managing-sewage-and-drainage/drainage-and-wastewater-management-plans/

Internally assured by business

Understanding risk of flooding and resilience within the Counters Creek catchment

CC:

Unit of measure

Text stating either “met” or “not met”.

Period

This is a report year measure.

Boundaries

None.

Reporting criteria

Performance on this measure will be “met” or “not met” and will be measured at the end of the 2023–2024 reporting year. All other years we will report n/a.

There are two elements to this measure:

1. By no later than the end of July 2023, the company must deliver a fully assured report, for the Counters Creek catchment (the report), which sets out its understanding of the risk in the catchment and outlines its long-term strategy for alleviating flooding in the area
2. The company must report annually, via its APR, on how it is managing its network to ensure long-term resilience and reduce flood risk for customers, and how it is progressively developing its understanding of flood risk in the catchment.

If the company is not able to deliver these two elements, the performance commitment will be marked as, “Fail”.

The Report must detail how the company will manage long term flood alleviation in the catchment. It must outline the current risks as well as the long-term strategy for the area. It must demonstrate how the company has developed a sufficient level of understanding of the risk of flooding and level of resilience within the Counters Creek catchment to provide confidence in its proposals.

It is expected that the company will undertake a holistic approach, giving due consideration to the full spectrum of risks, maintenance activities and potential solutions available to deliver long term customer value.

Additional assurance requirements

The published report, due by the end of July 2023, will be assured by an appropriately qualified third party.

Appendix 1: Compliance with Ofwat common guidance on performance reporting

Internally assured by business

This section explains where we are not fully compliant with converged methods for reporting [30]common performance commitments.

Summary 2022/23

Elements	Leakage	PCC	Supply interrupt.
Red	3	0	0
Amber	7	3	2
Green	66	21	12
Total	76	24	14

2021/22

Elements	Leakage	PCC	Supply interrupt.
Red	4	1	0
Amber	7	2	2
Green	65	21	12
Total	76	24	14

RAG criteria

Compliance for elements of each component to be assessed separately are based on the following rules:

Red	Not compliant with the guidance and having a material impact on the annual average leakage.
Amber	Not compliant with the guidance and having no material impact.
Green	Fully compliant with the guidance.

Compliance for overall components are based on the following rules:

Red	There are one or more red elements in the component, or the combined effect of amber elements is considered to produce a material impact.
Amber	Half or more of the elements in the component are amber and the combined effect of the amber elements is considered not to produce a material impact.
Green	More than half of the elements in the component are green.

Using the RAG assessment found above for overall components, there is currently only one component in leakage classed as red:

5 – Household night use

[30] *Ofwat and UKWIR reporting guidelines*

Compliance with Ofwat guidance – leakage

On the following pages, we explain the reasons for our non-compliance on elements, the actions we are taking to become compliant and our current view on when we expect to be compliant with the with the reporting definitions. We have assessed all other elements not included as green.

Expectation on when it will become compliant: AR24

Element	Reason for Noncompliance	Actions we are taking to become compliant
5a – The time period for Household night use (HHNU) is the same time period as used for night flow and Non-Household night use (NHHNU).	HHNU still uses the period 3:30-4:30am, except for bulk metered areas (BMAs) which use the new 3:00-4:00 fixed hour. Our night flow monitoring (NFM) period is 3:00am-4:00am.	Flats in large blocks are assessed using BMAs and these use the 3:00-4:00am fixed hour. We continue to maintain the panel which current captures night use for nearly 5000 flats.
5d – Evidence that survey is representative (based on demography, property type or other factors) of the company as a whole.	We continue to use night use derived from the TestDWUS study which was completed in 2006-2009. Due to the need to investigate continuous flows found on study properties to confirm if they were customer side leakage or wastage, the panel could not be continuously monitored as, by investigating and fixing the continuous flows, it became no longer representative of the wider company properties. The TestDWUS allowances are now considered old and therefore may not represent.	We continue to use smart meter data for internal reporting of night use for other property types. However, we are still completing work to allow us to best differential the continuous flows found on the smart meters between customer side leakage and wastage. We have also started capturing smart meter data for properties outside our London supply area. We are developing a panel of flats which are metered to allow us to derive night use for this property type. We are also developing tools to allow us to process the data from meters we have installed on small blocks of flats (typically houses converted in flats). All this data is helping us to build up a better understanding of night use across our supply area. We have targets to fully set up the panels and complete the analysis of the data so that will can introduce new allowances in AR24. We also plan to restate previous years to ensure consistency in performance reporting.
5e – Sample size is sufficient to capture continuous and intermittent night use with reasonable confidence	TestDWUS sample was of the order of 5000 properties in total. However, our sample size, especially for metered properties, is now considered on the low side for night use which is more important now we have more metered properties.	
5f – Continual monitoring and maintenance of individual household monitors (IHMs) and small area monitors (SAMs)	We derive night use for unmeasured larger blocks of flats from our SAMs panel. This is continuously monitor. However, allowances for other household property types have not been updated since the TestDWUS study in 2006-2009.	
12c – Inclusion of any leakage allowance is included where a rebate has been applied to a customer's bill	Total leakage is updated each year and a fixed proportion is then subtracted from meter consumption for supply pipe leakage of externally metered properties. SPL rebates are financial in our HH billing system, and	We have developed reporting of rebate volumes in our billing system. However, we have identified inconsistencies in how this is recorded, i.e. not all leakage rebates are recorded as such. We are

Element	Reason for Noncompliance	Actions we are taking to become compliant
	their associated consumption is not presently consistently available to use.	continuing to assure this data and the associated processes prior to inclusion within the water balance.
12d – Meter under-registration is applied consistent with own estimates. Evidence of MUR available especially for MUR above 3%.	We are currently using NHH MUR as derived for AR22. This is because we don't have meter error curves for the latest type of turbine meter we are now installing. Without new error curves reflecting the new meter specification, we believe we will be overestimating MUR and therefore underestimate leakage.	We are developing a program of work to take an appropriate sample of new meters out of the ground and get them testing to derive meter error curves for meter types that are not appropriately represented in our current datasets. Once these meter tests are completed, they can be added to our current NHH MUR model to allow us to update the MUR.
13a – Monitors follow principles set out in the UKWIR Report 'Best Practice for unmeasured per- capita consumption monitors 1999' and the more recent report 'Future Estimation of Unmeasured Household Consumption', UKWIR 2017	We have maintained our IHM in Thames Valley and we continuously monitor consumption in large blocks of flats through SAMs. However, we have not maintained our IHM in London due to the roll out of our Progressive Metering Programme which meters all properties that can be metered. We are presently using results from our IHM results from AR20 and using the smart metered properties to estimate change in consumption between 2019/20 and 2022/23. This allows variable use to be updated, but not wastage.	The work we are doing to address "Household Night Use", as detailed above, will also support the update of our approach to Unmeasured consumption. As we further roll out our progressive metering programme, so our reliance on SAMs and mini-BMAs grows, as these will make up the majority of the unmeasured properties in the future. To support this, meters have been installed on the shared supplies to buildings (e.g. where a terrace house has in the past been converted to flats), to determine the consumption.
13f – There is continual monitoring and maintenance of IHMs and SAM monitors	Unmeasured and Assessed is 3.21% of total NonHH water use. The assessment of water use is taken from CMOS as defined by the Retailer each year. The additional allowance (included in legally taken unbilled) to reflect the difference between that reported and actual usage from these properties was last refreshed for AR17.	This has a small impact on our reported leakage and therefore other work is being given higher priority.
14a – All sewage treatment sites, and other sites and assets supplied downstream of the DI meters using greater than 10m3/d (0.01 Ml/d) are metered.	Some of the smallest usage sites are unmetered or have meters unread.	We have been installing and replacing meters on STWs and improving our processes for reading meters. This coming year we are further improving the reporting of STWs on our corporate systems. We will then revisit the need to meter any outstanding unmetered sites which remain.

Element	Reason for Noncompliance	Actions we are taking to become compliant
16b – Mainly measured with some estimated adjustments have a range from 2.5% to 5%	The confidence interval for measured non-household water delivered remains at 8%.	We are working with the non-household retailers to reduce the magnitude of the estimation in the settlement files along with more accurate use of the vacant flag. To support this, we are fast tracking the upgrade of meters to make them smart. We have provided Retailers with meter reads and evidence of occupation, e.g. we find that approximately 50% of void properties are occupied. However, work is still ongoing with the Retailers to enable accurate billing and consumption.

Compliance with Ofwat guidance – PCC

Expectation on when it will become compliant: AR24

Element	Reason for Noncompliance	Actions we are taking to become compliant
1c – Household population updated annually	Due to the uncertainty in the early data released from 2021 Census we have not updated our population estimates this year. Instead, we have left them unchanged from AR22. We have therefore moved from Green to Amber this year.	This year the first phase of the new Census 2021 results has been released. We have undertaken a review of the currently available data and have consulted with industry experts and ONS, who produce the data. The 2021 Census was undertaken during a Covid lock down. ONS report potential miscalculation of the population, particularly in London, and warn to use Census results with caution. Other datasets indicate the 2021 Census does not reflect present population in London. Based on this we have taken the decision not to update to the new Census datasets. We will continue to review additional 2021 Census data as it is released, along with ONS mid-year estimates. We will also continue to engage with population experts to determine the most reliable data to use for AR24.
3c – Average SPL deductions for externally metered households using company own data updated annually.	Total leakage is updated each year and a fixed proportion is then subtracted from meter consumption for supply pipe leakage of externally metered properties. SPL rebates are financial in our HH billing system, and	We have developed reporting of rebate volumes in our billing system. However, we have identified inconsistencies in how this is recorded, i.e. not all leakage rebates are recorded as such. We are continuing to assure this data and the

Element	Reason for Noncompliance	Actions we are taking to become compliant
	their associated consumption is not presently consistently available to use.	associated processes prior to inclusion within the water balance.
4a – Monitors follow principles set out in the UKWIR Report 'Best Practice for unmeasured per- capita consumption monitors 1999' and the more recent report 'Future Estimation of Unmeasured Household Consumption', UKWIR 2017	We have maintained our IHM in Thames Valley and we continuously monitor consumption in large blocks of flats through SAMs. However, we have not maintained our IHM in London due to the roll out of our Progressive Metering Programme which meters all properties that can be metered. We are presently using results from our IHM results from AR20 and using the smart metered properties to estimate change in consumption between 2019/20 and 2022/23. This allows variable use to be updated, but not wastage. We have therefore moved from Red to Amber.	The work we are doing to address "Household Night Use", as detailed above, will also support the update of our approach to Unmeasured consumption. As we further roll out our progressive metering programme, so our reliance on SAMs and mini-BMAs grows, as these will make up the majority of the unmeasured properties in the future. To support this, meters have been installed on the shared supplies to buildings (e.g. where a terrace house has in the past been converted to flats), to determine the consumption.
4f – There is continual monitoring and maintenance of IHMs and SAM monitors	This has changed from Amber to Green status.	We have introduced two dedicated resources to oversee the maintenance of IHM and SAMs.

Compliance with Ofwat guidance – supply interruptions

Expectation on when it will become compliant: n/a

Element	Reason for Noncompliance	Actions we are taking to become compliant
2c – Treatment of blocks of flats 3c – Treatment of blocks of flats	We treat all properties within multi-story buildings as if they were on the ground floor. As noted in the horizontal audit report by KPMG & Jacobs it was apparent that many companies report in this way, and it has no material impact on the measure	We are not proposing any changes to the way we approach this element.

It's everyone's water