



Annual Performance Report 2023-24

Non-financial line commentary



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Section 2: Household affordability support and debt

Table 2N – Household affordability support and debt

2N.1-3 Number of residential customers on social tariffs

Reduced bill tariffs – Low Income Fixed Tariff

Our low-income fixed tariff (LIFT) is available to customers who are earning less than £18,725 a year or who are currently claiming certain benefits such as Universal Credit or Job Seeker's Allowance.

For 2024-25 the clean water bill is fixed at £119.50

If a customer is eligible for LIFT and receives a council tax reduction or support, then they will be entitled to a higher rate discount and the clean water bill is fixed at £79.70.

Data sharing agreements

We have had a data sharing agreement with Department of Work and Pensions (DWP) since January 2023 and most recently we have submitted over 30,000 records to DWP to identify households eligible for our reduced bill tariff. We also use this partnership to proactively renew households in receipt of the reduced bill tariff. We also have local data sharing arrangements where we collaborate with partners to place households on reduced bill tariffs without further applications needed.

2N.24-26 WaterSure tariffs

Bill Cap Scheme – WaterSure tariff

The WaterSure scheme works by capping the customers charges so additional water usage is not chargeable.

Eligible customers will be charged on a metered basis, in receipt of a qualifying benefit and either have three or more children under the age of 19 living in the property who are in full-time education or approved training, or one or more people living in the property that have a medical condition which involves the use of significant amounts of water.

In certain circumstances, on a discretionary basis, we will also support those metered households where someone lives with a medical condition that requires extra water use but does not meet the qualifying benefit criteria to receive the WaterSure tariff.

WaterSure numbers are reported in 2N.24 – 2N.26.

Wastewater charges

We have worked with the wastewater service providers in our area to streamline the process for reduced bill tariffs and to avoid the need for customers to fill out further application forms.

Where we have the correct information, we will automatically apply any wastewater discount that the customer is entitled to.

It was identified at audit that we had previously been including customers on WaterSure for sewerage within our numbers. This caused some customers to be doubled counted within our figures. Although these numbers have not previously been included in the APR, they were reported in line SUP15.1 of the PR24 business plan tables and also provided to CCWater.

Corrected numbers for years 2020-2023 are given below:

		Water only customers					
		Units	DPs	2020-21	2021-22	2022-23	2023-24
SUP15.1	Number of customers on social tariffs	000s	3	1.573	2.800	2.781	2.823

2N.27 Other bill reduction schemes

Cost of Living Payment – Water assistance scheme

Our aim was to support 30,000 households with a one-off payment of £50 credited to their water account. We supported just over 29,000 households. We used segmentation data to identify households that may be feeling the strain financially. We also work with a network of charity referral partners to identify other households in need including all Citizens Advice Bureau offices in our supply area.

We are continuing with this support during 2024-25 and have increased the level of support to 60,000 households. Over 22,000 households have already received this support during 2024-25 as part of our proactive work to support households receiving annual bills.

The scheme is funded by customer cross subsidy within the limits of their willingness to pay.

'WaterSave' (Rising block) tariff trial

In October 2023, we launched our rising block tariff WaterSave to a group of around 1,500 customers in Stevenage. The two-year trial will help us to understand if the new charging system is fairer, more affordable and if it has an effect on how much water customers use. At the start of the trial, we expected that at least two out of three households would have lower bills on the WaterSave Tariff, if usage remained unchanged.

In January 2024, we took the first quarter meter readings for customers in the trial and, using this early data, we calculated how customer bills are predicted to change on WaterSave versus the standard tariff. The data showed that 83% of customers are

predicted to pay less on the WaterSave Tariff, even if only by a small amount. The second quarter reading were taken in June 2024. We will continue to analyse the results of the trial by comparison between a trial and a control group. If the trial shows evidence of affordability improvement and demand reduction, we will consider extending the new tariff to more customers. At the end of the trial, we will share our findings with the industry to maximise learning.

2N.28-29 Debt metrics

We have included in column 1 customers served and/or billed by us only for water. In column 3 we have included customers which we bill for both water and wastewater services. Although Affinity Water does not provide the wastewater services for these customers, we do manage the debt in respect of the combined bill for both services.

Debt respite schemes

We partner with the charity 'Surviving Economic Abuse' to pilot the acceptance of an Economic Abuse Evidence Form, so that survivors do not have to repeat their story with multiple creditors. We will work with the debt advisor on the most appropriate solution for the customer. We have been part of a working group with CCW (the Consumer Council for Water) to provide a voluntary code of conduct that CCW will be asking all companies to sign up to.

We also offer a 'crisis fund' to provide immediate support to households facing a crisis (e.g. accidents, terminal illness, abuse, serious illness). As part of the application process, we will check to ensure that the household is receiving the most appropriate tariffs and signpost to other support.

We will be enhancing our debt respite schemes and our 'payment matching' scheme will be launched in the first quarter of 2024-25.

2N.36-37 Temporary payment suspension

We are unable to provide the total amount of arrears deferred with a payment break or breathing space arrangement. Our reporting currently only captures the number of customers using these types of arrangements. We plan to add monetary value of deferred arrears to our reporting and should be able to provide this information for 2024-25.

2N.38-40 Household debt collection through third party agents where water company remains creditor

We have reported both debts collection by external agents active and final accounts, for volumes and monetary values. The data represents the total volume

and value of customer accounts placed to external agents during the year 2023-24. The data includes non-unique customer accounts, for example where an account has been placed with external agents more than once in the year. We believe that the intention of this data is to record unique customer accounts placed with external agents, there is however some double counting in the numbers we have reported.

A sample check of 100 customer accounts where we know they have been to at least one external agency in 2023-24 has identified that 35% have in fact been to two or more external agencies in 2023-24. Therefore, the volumes and monetary value report could include the same account twice, and our estimation shows that of the 121,178 accounts reported, 33,102 could have been included twice.

For our reporting in 2025, we plan to make changes to our system reporting to provide this data at unique account level.

We are unable to provide data relating to the volume of customers registered on our Priority Services Register (PSR) who are being collected by external agents. This is due to the data not being captured historically. However, a sample check of 100 customers who are currently managed by external agents confirms that 16% are registered on the PSR. 16% of our customers managed by external agents would equal 14,092 customers. It is our intension to record this data point ready for reporting in 2025.

For 2024-25, we intend to use a third-party agency, specialising in vulnerable customers for the recovery of any outstanding balance. Customers registered on PSR, with one of the following needs codes, have been classified as needing extra care:

- Developmental condition
- Dementia/cognitive impairment
- Mental Health
- Hearing impairment
- Speech impairment

2N.44-49 Unpaid household bills referred to courts

We do not issue claims for debts in the high court and therefore have reported zeros in lines 2N.47-49. We do request the high court to issue a writ of control for some judgements issued and obtained in the County Court. However, no claims are issued or obtained in the high court and, therefore, no judgements are enforced.

2N.50-61 GSS and other compensation payments to household customers

The figures entered in lines 2N.53 to 62 are a reasonable reflection of the GSS and similar compensation payments made to residential customers in the year. Insurance claim payments are not included.

GSS numbers and values have not been required in the annual reporting since 2011-12. Our systems for recording such payments have remained in place over the intervening period, but we can see that staff understanding and the correct use of relevant codes within the billing system is not as robust as it was previously. We will be improving understanding, training, and processes in this area. There are errors whereby ex-gratia payments have been coded as GSS and vice-versa. However, the errors are both ways and it is likely that they largely net-off.

GSS payments are processed through a business rules engine (BRE) that ensures the correct payment value to the customer and the correct recording of the event type e.g. missed appointment, supply interruption, etc.

The values in the table for GSS payments are inclusive of where we have voluntarily enhanced the amount payable for certain measures; for example, we pay £30 for an unplanned interruption exceeding 12 hours' duration, rather than the prescribed £20.

The other (non GSS) payment numbers and values (line 2N.61a) are for what we term 'ex-gratia'. These include good-will payments, reimbursement of a customer's costs for something that may have been our responsibility, and compensation for events that are similar to a GSS failure but do not meet the specific criteria of GSS. We are able only to give a total number and value for all such payments as there is no coding within our billing system to give sub-categories.

Section 3: Performance Summary

As part of our PR19 final determination for AMP7 we have 28 stretching performance commitments to help ensure we deliver customer outcomes.

Each of these commitments has financial rewards, penalties, or reputational incentives. Table 3A shows our financial performance commitments and table 3E shows our reputational commitments.

We have met 24 of our 28 performance commitments, of which 12 are financial and 12 are reputational (this excludes C-MeX and D-MeX).

Table 3A shows we have received in-period rewards totalling £1.993m during 2023/24.

We have received in-period penalties totalling £-6.109m for our performance on CRI and Properties at risk of receiving low pressure.

This resulted in a net in-period penalty of £-4.116m which will be reflected in customer charges in 2025/26.

We have deferred our leakage reward for 2023-24 due to the amber rating of our closure error of >2%, <3%.

For more details on our operational performance in the year, please see detailed commentary in Sections 3-11 below, which also addresses the commentary required by Regulatory Accounting Guidance (RAG).

As discussed within the accompanying Audit Report, we confirm that all performance commitments, both financial and reputational, have been reviewed by our (non-financial) external assurer AtkinsRéalis.

All technical/non-financial lines within the APR have undergone audit by our external assurers, AtkinsRéalis. Appendix A of their 2023-24 Annual Performance Assurance Report provides a detailed scope of the tables/lines reviewed as part of the annual assurance process, this includes the financial PCs (on a PC-by-PC basis).

Internally our performance commitments undergo significant scrutiny throughout the year. Each commitment is reviewed by its respective programme board and reported to Directors and Board monthly. We also undertake mid-year audits in preparation for the annual performance report audits.

Our ICG (independent challenge group) meet regularly. As the 'voice' of water users, they challenge and support us as we develop plans and progress through the year. Performance is reviewed and queried to aid in direction of travel with our customers best interests in mind. The ICG also play a pivotal role in the sign-off of our Environmental Innovation Project performance commitment.

Our APR is published on our website for customers and other interested parties to review. A customer friendly digital summary of 'our year in review' is also located on our website with a pdf version also available for download. Data files are also available in an open data format for machine learning tools.

Table 3A - Outcome performance – Water common performance commitments

3A.1 Compliance Risk Index (CRI)

Our performance commitment (PC) for compliance risk index (CRI) was not met in 2023, with our score being 8.05 against a target of 0. The number of results that did not meet the relevant standard in 2023 was 50, which was broadly similar to 2022 when there were 46. However, in 2023 there were two exceedances from Iver WTW, which is our highest output treatment works. One exceedance was for coliforms which DWI issued a number of recommendations for; the other was for turbidity for which DWI considered enforcement action. Consequently, the CRI score for these two exceedances was 7.06, making up around 88% of our total CRI score.

Our investigations identified that both exceedances were associated with aluminium coagulant carry over post the filtration stage. In the short term we carried out cleaning and maintenance throughout the treatment works. In the medium term we are investigating the performance of the different treatment streams and in the long term we are adding new rapid gravity filters to the treatment process. We are confident this work will prevent further similar exceedances.

Our internal 'CRI Programme Board' has continued to focus on issues that influence CRI e.g. reservoir inspections, sample lines, site hygiene, staff awareness and drive forward improvements in these areas. We believe this work has been central to maintaining our 'core' CRI score and we will continue to identify areas that can have an effect and seek to deliver improvements in performance.

Our CRI performance in AMP7 has been 1.305 in 2020, 0.871 in 2021, 1.086 in 2022 and 8.05 in 2023.

3A.2 Water supply interruptions

In the 2023-24 reporting year, our performance on interruptions to supply showed significant improvement, with an actual interruption time of just 2 minutes and 49 seconds, well below our target of 5 minutes and 23 seconds for the year. This is a significant improvement when compared to the previous year's performance of 12 minutes and 53 seconds against a target of 5 minutes and 45 seconds. In 2023-24 while we did see benign weather with no prolonged hot summer or a cold winter, the trend over the last four years highlights the improvements we have made in enhancing our operational efficiency and reducing supply interruptions.

Metric	2020-21	2021-22	2022-23	2023-24
I2S actual	00:05:49	00:03:43	00:12:53	00:02:46
Target	00:06:30	00:06:08	00:05:45	00:05:23

A key development this year has been the centralisation of all verification reports within our Operational Control Centre. This strategic change ensures a consistent and rapid approach to information management related to supply interruptions. By integrating these reports into our control room operations, we have not only enhanced our capability to respond swiftly to any incidents, but also improved the accuracy and reliability of our reporting mechanisms. This adjustment is crucial in our continuous efforts to refine service delivery and customer satisfaction, making our performance metrics transparent and verifiable using consistent methodology.

We are committed to ensuring that our assets run efficiently to prevent interruptions from occurring and to optimising our mains network. These ongoing improvements in our operational practices and asset management contribute significantly to our ability to maintain high service standards and minimise disruption to our customers.

We are reporting 'green' against all components in the reporting guidance 'compliance checklist'.

We confirm we report supply interruptions that are equal or greater than three hours, and that cattle troughs are excluded from the connected property number.

We continue to forecast 2024-25 performance in line with the figures submitted in the business plan. While we significantly outperformed the target in 2023-24, interruptions are heavily influenced by unexpected weather events which can have a material effect on performance.

Correction to 3F.7 column 18 'Number of properties supply interrupted' in APR-23

A number for total hours of interruption was inadvertently entered in this cell in our APR-23. The figure for 'number of properties supply interrupted' should have been 46,490 (not the 336,667 entered). Correcting for this, however, does not alter the reported 2022-23 performance against the PC of 00:12:53 given in 3F.7 column 19 and in 3A.2.

3A.3 Leakage

In year performance

Regulatory Year	20-21	21-22	22-23	23-24	24-25
Performance commitment - % reduction from 3-year baseline value (3 year average value)	2.7	11.1	14.0	17.0	20.0
Actual performance - % reduction from 3-year baseline value (3 year average value)	1.9	10.8	15.8	18.3	

We have achieved an 18.3% reduction in the 3 year rolling average leakage value from the 2019-20 baseline value. Our performance commitment required us to achieve a 17% reduction from baseline in the 3-year rolling average in year 4.

This is only a 0.2% change from our early submission. As explained at the point of the early submission, there were still several year-end processes to complete, which on completion have resulted in this minor performance change.

We maintain our focus on driving leakage down and have kept in place our elevated levels of Active Leakage Control and completed the expansion of pressure management for this AMP, however, our actual year-on-year performance has deteriorated. Our in year average value was 153.5 MI/d against 150.7 MI/d in year 3. The 3-year average reduction from 15.7% to 18.3% is therefore due to the replacement of the higher year 1 AMP7 value (167.9 MI/d) with the lower year 4 value.

Although there has been lower-than-average winter weather related breakout (limited to a period of freeze thaw in January 2024), at the start of the year we were still recovering from harsher than average winter weather from the previous winter. This was not fully recovered until May 2023, by which point we had seen a dry spring, which was then followed by record hot temperatures in June. This caused a rapid and above average change in soil moisture deficit. The associated ground movement, largely in our extensive clay soil areas appears to have caused widespread breakout of low volume leaks. We saw several hundred DMAs move by small volumes no more than 3m³/hr. We saw some additional burst mains but not a significant increase. This implies leakage breakout on small bore pipes such as communication pipes and supply pipes. This has been confirmed by the recovery of this breakout through repairs in these small-bore pipes but very few main repairs. Due to the widespread nature of the breakout, it was slow to recover. We have had to survey a wider area, and detection of lower volume leaks is less efficient than larger leaks. We recovered the breakout by the start of the winter and saw minor effects in January from a brief freeze thaw. This means that we were able to continue to reduce leakage across the winter period and as a result we entered year 5 on our target profile to deliver the 20% reduction.

Year 5 Forecast.

We have entered year 5 on our target profile and with our existing resources and subject to an average year weather related breakout, we feel confident in delivery of our performance commitment.

Therefore, we forecast at this stage that we will achieve the 20% performance commitment reduction.

Convergence compliance

In line with our convergence compliance action plan, we have made improvements in our compliance. The table below shows a summary of our position and change from last year. Our improvements have not affected the baselines for PCs, so no restatement is required this year.

Main component	2022-23	2023-24	Change
Red	0	0	0
Amber	6	4	-2
Green	10	12	+2

Sub-component	2022-23	2023/24	Change
Red	1	0	-1
Amber	16	8	-8
Green	59	68	+9

Through our action plan this year we have: -

- Conducted the required BABE update for leakage on trunk mains and service reservoirs.
- We have updated our Household MUR with meter testing. Confirmed that leakage allowances provided to customers are not being double counted with supply pipe leakage, this makes us fully compliant now with the measured consumption main component.
- We have improved our Unmeasured Household Individual Household Monitor, which is now fully compliant with UKWIR 1999 best practice guide for unmeasured monitors.
- Our availability of continuous flows is now significantly above the 90% target.

We remain amber on the following components and have programmes in place to resolve these: -

- **Coverage.** We have been installing new District Metered Areas (DMAs) for the past 3 years to achieve the 95% coverage target. All construction has been completed by the end of year 4 therefore we anticipate that we will report green on this component at APR25.
- **Non-household night use.** Our coefficients to convert daily Average Billed Volumes to night use values has not been updated since 2018-19. Rather than take a two-week logging period at a property to set night use coefficients (traditional approach and allowable within the guidance document) we are installing a permanent non-household night use model that will obtain data every night of the year. This will allow us to better understand seasonal non-household night use and produce more accurate weekly leakage calculations to align with the weekly calculations of leakage required in the guidance. We have selected a stratified sample of around 1500 non-household properties to install permanent logging devices on their revenue meters. At the end of year 4 we have installed approximately 400 loggers, and we have a delivery plan to install the remainder by the end of the summer in 2024. This will then allow us to build the night use models to update the coefficients by reporting of APR25.
- **Distribution Input.** We are continuing to review our operational sites to ensure that any recirculation back into a treatment works after the DI meter is known and accounted for. We are also in the process of improving our DI meter flow checks to meet the EA guidance. Our programme anticipates both actions will be completed for APR25 reporting.

The table below shows the compliance at both main component and subcomponent level. Showing where changes have occurred, the reasons for the changes and for components not yet green, the reasons why.

Component checklist for leakage and PCC

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
A		Leakage	MI/d (1dp)	150.7	153.5	N/A		
1. Coverage				Amber	Amber	N	N/A	The average coverage for APR24 was 91.3% against the guidance target of 95%. However, this has been increasing across the year as new DMAs have been built. As of the 1st April we have added an additional 40000 properties which will form part of our 24/25 coverage.
1a		95% of all properties have continuous night flow monitoring through the year	R/A/G	Amber	Amber	N	N/A	See 1.0
2. Availability				Green	Green	N	N/A	N/A
2a		At least 90% of all properties within continuous night flow monitoring networks available for reporting night flow data through the year	R/A/G	Green	Green	N	N/A	N/A
3. Properties				Green	Green	N	N/A	N/A
3a		All properties mapped to defined zones or DMAs using geo-location or similar methods	R/A/G	Green	Green	N	N/A	N/A
3b		Consistency of property numbers contained within DMAs or zones with company billing system. Valid differences explained	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
3c		Properties that are defined as void excluded from night use allowances unless evidence for use or losses from illegal occupation is available	R/A/G	Green	Green	N	N/A	N/A
3d		Leakage allowance applied for properties not within DMAs or monitored zones consistent with other leakage estimates	R/A/G	Green	Green	N	N/A	N/A
3e		Property data updated at least annually	R/A/G	Green	Green	N	N/A	N/A
4. Night flow period and analysis				Green	Green	N	N/A	N/A
4a		Night flow data frequency at least every 15 minutes	R/A/G	Green	Green	N	N/A	N/A
4b		Leakage derived from a fixed period during the night of at least a one hour period and up to two hours	R/A/G	Green	Green	N	N/A	N/A
4c		If the fixed period is varied during the year for some or all DMAs or zones to address significant changes to night use patterns such as during Ramadan evidence for this is provided	R/A/G	Green	Green	N	N/A	N/A
4d		Leakage allowance applied for properties not within DMAs or monitored zones consistent with other leakage estimates	R/A/G	Green	Green	N	N/A	N/A
4e		Data infilling for a single DMA or zone does not use more than six months of historic data before moving to area average	R/A/G	Green	Green	N	N/A	N/A
4f		Data infilling where historic data is not available uses the area average in which the DMA is located	R/A/G	Green	Green	N	N/A	N/A
4g		When a DMA is restored to operability, the subsequent leakage data is used to retrospectively update the data infilling interpolating between pre- and post- data over at least one month	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
4h		Where NHH properties are continuously monitored, the actual values of flow over the night flow period are used in place of estimates within the night flow analysis	R/A/G	Green	Green	N	N/A	N/A
4i		Weekly leakage estimates are used for annual reporting with no exclusions for summer months	R/A/G	Green	Green	N	N/A	N/A
4j		Negative leakage values are used in compiling values of annual average leakage	R/A/G	Green	Green	N	N/A	N/A
4k		The reasons for any prolonged periods of negative leakage are investigated and explained	R/A/G	Green	Green	N	N/A	N/A
5. Household night use				Green	Green	N	N/A	N/A
5a		The time period for HHNU is the same time period as used for night flow and NHHNU	R/A/G	Green	Green	N	N/A	N/A
5b		Own data or shared data with proximate companies is used for HHNU	R/A/G	Green	Green	N	N/A	N/A
5c		Plumbing losses are included and based on own data	R/A/G	Green	Green	N	N/A	N/A
5d		Evidence that survey is representative (based on demography, property type or other factors) of the company as a whole	R/A/G	Green	Green	N	N/A	N/A
5e		Sample size is sufficient to capture continuous and intermittent night use with reasonable confidence	R/A/G	Green	Green	N	N/A	N/A
5f		Continual monitoring and maintenance of IHMs (individual household monitors) and SAMs (small area monitors)	R/A/G	Green	Green	N	N/A	N/A
5g		HHNU is derived daily with regular, adjustment of values on a weekly or monthly frequency to reflect actual seasonal use. This may be done retrospectively	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
6. Non-household night use				Amber	Amber	N	N/A	The model that derives the coefficients has not been updated since 2018. The representativeness of the current set of non-household sample properties was assessed and found to be unrepresentative of some of the cohorts and ABV distribution.
6a		The time period for NHHNU is the same time period as used for night flow and HHNU	R/A/G	Green	Green	N	N/A	N/A
6b		Own data or shared data with proximate companies is used for NHHNU	R/A/G	Green	Green	N	N/A	N/A
6c		1999 UKWIR methodology with the appropriate time window as used for the night flow and the published outcome of further methodology development is applied	R/A/G	Green	Green	N	N/A	N/A
6d		Stratification of non-households to a number of groups and consumption bands is representative of the varying characteristics of commercial and industrial properties	R/A/G	Amber	Amber	N	N/A	See 6.0
6e		Sample size is sufficient to capture night use by stratification with reasonable confidence	R/A/G	Amber	Amber	N	N/A	See 6.0
6f		Reliable and representative average billed volume (ABV) model based on data logging of the representative sample sufficient to capture demand variations with further seasonal logging where relevant. Continuously logged properties not part of the sample.	R/A/G	Amber	Amber	N	N/A	See 6.0

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
6g		ABV model linked to billing system or replacement database of billed volumes. Average billed volumes updated at least annually	R/A/G	Amber	Green	N	We are using the average billed volumes to calculate the NHH night use, this isn't a change in the methodology rather we believe we wrongly assessed the 22/23 position as Amber.	N/A
6h		Continuous monitoring of selected non-households is carried out where average demand of an individual non-household has a material impact on the ability for a DMA or zone to provide valid and consistent data within operability limits	R/A/G	Green	Green	N	N/A	N/A
7. Hour to day conversion				Green	Green	N	N/A	N/A
7a		The hour-to-day factor is derived separately for each DMA or zone using pressure logging within each DMA or zone. The factors are updated at least annually or where there are any significant changes to pressure regimes	R/A/G	Green	Green	N	N/A	N/A
7b		As an alternative, hydraulic models reflecting latest network configuration and pressure changes, are used if they disaggregate in sufficient detail at sub-zone level	R/A/G	Green	Green	N	N/A	N/A
7c		Evidence based N1 value used. Expected range is 1.0 to 1.20	R/A/G	Green	Green	N	N/A	N/A
8. Annual distribution leakage				Green	Green	N	N/A	N/A
8a		Average weekly data is derived from valid daily values of leakage using data points which are representative of the week. Backfilling using the methods described in Section 5.4	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
		– night flow analysis - is done when valid data is not available for three or more data points						
8b		The annual value of leakage expressed as MI/d is be derived from an average of the 52 week data	R/A/G	Green	Green	N	N/A	N/A
9. Trunk main losses (only applicable if DMA level leakage assessment used)				Green	Green	N	N/A	N/A
9a		Company-specific data is used to assess the value of trunk main leakage	R/A/G	Green	Green	N	N/A	N/A
9b		Proactive leakage monitoring approach applied where trunk main losses form a significant element of total leakage or the MLE water balance gap is greater than +/-2%	R/A/G	Green	Green	N	N/A	N/A
9c		If trunk main losses greater than 5% of total leakage estimates reviewed annually	R/A/G	Amber	Green	N	We have updated our BABE assessment and that has been fed into the bottom up leakage calculation	N/A
10. Service reservoir losses (only applicable if DMA level leakage assessment used)				Green	Green	N	N/A	N/A
10a		Company-specific data is used to assess the value of service reservoir losses;	R/A/G	Green	Green	N	N/A	N/A
10b		Reservoirs with known high leakage, structural deficiencies or at risk of water quality failures are investigated on an individual basis	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
10c		Drop tests (12 hour duration depending on size) carried out every five or ten years. All valves checked for tight close; and losses through overflows investigated. Appropriate monitoring arrangements in place to control and minimise overflow events.	R/A/G	Green	Green	N	N/A	N/A
11. Distribution input				Amber	Amber	N	N/A	We have not completed our evaluation as to whether all treatment works use downstream of DI meters is being deducted. We do not yet have a DI meter checking programme in line with the EA Abstraction good metering guide.
11a		Distribution input to the system is metered with at least daily readings at all defined locations	R/A/G	Green	Green	N	N/A	N/A
11b		Meters are appropriate size for the flow to be measured and located at appropriate inputs to the network confirmed by record plans. Any treatment works take-off downstream of a meter are excluded from the DI calculations	R/A/G	Amber	Amber	N	N/A	See 11.0
11c		Data validity checks are carried out at least monthly	R/A/G	Amber	Green	Y	Data checks now carried out monthly.	N/A
11d		Missing data is infilled using both pre- and post- data for the location over at least one month, extrapolated from pump hours or use of upstream or downstream meters	R/A/G	Green	Green	N	N/A	N/A
11e		The data transfer systems from meter output to central database are checked and validated on a risk-based frequency from one up to two years	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
11f		Flow checks are carried out on DI meters consistent with the principles of the document 'EA Abstraction Good Metering Guide' and in particular the frequency of flow checking defined in table 6.2 of the EA guide	R/A/G	Amber	Amber	N	N/A	We do not have a DI meter checking programme yet in line with the EA Abstraction good metering guide.
12. Measured consumption				Amber	Green	N	N/A	N/A
12a		Metered data is derived from own billing system or from CMOS for non-households	R/A/G	Green	Green	N	N/A	N/A
12b		Estimate of supply pipe losses is included for internally metered properties consistent with own current assumption of supply pipe losses	R/A/G	Green	Green	N	N/A	N/A
12c		Inclusion of any leakage allowance is included where a rebate has been applied to a customer's bill.	R/A/G	Amber	Green	Y	We have reviewed and identified that leakage allowances are applied as a financial adjustment to the customer bills rather than an adjustment to the consumption. As no double counting is taking place of SPL allowances no adjustments are needed to the methodology	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
12d		Meter under-registration (MUR) is applied consistent with own estimates. Evidence of MUR available especially for MUR above 3%.	R/A/G	Amber	Green	N	The MUR assessment has been updated	N/A
12e		Meter replacement consistent with own replacement programme	R/A/G	Green	Green	N	N/A	N/A
13. Unmeasured consumption				Amber	Green	N	For AR23 we confirmed that Watcom was an appropriate model for unmeasured consumption. Throughout the year we have increased the number of properties in the monitor and improved availability to bring it in line with best practice.	N/A
13a	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	R/A/G	Amber	Green	N	See 13.0	N/A
13b	4b	Consumption is derived from own individual household monitor or small area surveys	R/A/G	Green	Green	N	N/A	N/A
13c	4c	Evidence that survey is representative (based on demography, property type or other factors) of the	R/A/G	Amber	Green	N	We have improved representation within Watcom	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
		company as a whole; valid data available from at least 80% of monitors as an annual average measure					and 84.78% of the monitor has provided valid data for the reporting year	
13d	4d	For companies using SAMs – SAM (small area monitor) comprises a representative sample of customer' characteristics. The sample size is sufficient to provide a statistically representative sample after allowing for outages. Where the proportion of metered properties in an area exceeds 50% of total properties then further data validity tests are applied or companies using IHMs – IHM (individual household monitor) comprises representative sample of customer characteristics. The sample is at least 1000 properties.	R/A/G	Amber	Green	N	The sample is stratified using ACORN to match the company stratification and includes 1235 properties.	N/A
13e	4e	Uncertainty allocated to unmeasured household consumption is estimated and justified	R/A/G	Green	Green	N	N/A	N/A
13f	4f	There is continual monitoring and maintenance of IHMs and SAM monitors	R/A/G	Amber	Green	Y	The Watcom IHM has been passed over to the Water balance team. We have fully reviewed properties in the monitor and are responsible for continually maintenance.	N/A
13g	4g	Meters are selected to provide sufficient granularity to detect low continuous flows indicative of plumbing losses or leakage short duration flow variations. The value of meter	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
		under registration is less than the company's average meter stock						
13h	4h	Estimate of plumbing losses is based on own data	R/A/G	Green	Green	N	N/A	N/A
13i	4i	Where unmeasured non-household reported volume is less than 2% of total non-household demand, data from a per property consumption study is refreshed every five years	R/A/G	Green	Green	N	N/A	N/A
13j	4j	Where unmeasured non-household reported volumes are greater than 2% of non-household demand, data from a property study is refreshed every two years	R/A/G	Green	Green	N	N/A	N/A
14. Company own water use				Green	Green	N	N/A	N/A
14a		All sewage treatment sites and other sites and assets supplied downstream of the DI meters using greater than 10 m3/d (0.01 MI/d) are metered	R/A/G	Amber	Amber	N	N/A	See 11b
14b		An estimate of total company own use is included in the water balance, based on a clear methodology and actual data	R/A/G	Green	Green	N	N/A	N/A
14c		Estimate of distribution operational use is evidence based and not greater than 0.6% of distribution input	R/A/G	Green	Green	N	N/A	N/A
15. Other water use				Green	Green	N	N/A	N/A
15a		Other use components are based on own data	R/A/G	Green	Green	N	N/A	N/A
15b		Estimate of water delivered unbilled (legally and illegally) is evidence based and not greater than 1.8% of distribution input	R/A/G	Green	Green	N	N/A	N/A
15c		Estimates are updated when there is a material increase or decrease to volumes	R/A/G	Green	Green	N	N/A	N/A

Leakage Line	PCC Line	Description	Unit	2022-23	2023-24	Change from previous year (Y/N)	Reason for Change (If applicable)	Reasons for non-green component
16. Water balance and MLE				Amber	Amber	N	N/A	
16a		Fully measured components have a range from 2% to 4%	R/A/G	Green	Green	N	N/A	N/A
16b		Mainly measured with some estimated adjustments have a range from 2.5% to 5%	R/A/G	Green	Green	N	N/A	N/A
16c		Estimated using detailed and reliable methods have a range from 8% to 12%	R/A/G	Green	Green	N	N/A	N/A
16d		Broad estimates not fully detailed or reliable have a range from 20% to 50%	R/A/G	Green	Green	N	N/A	N/A
16e		Water balance discrepancy: <2% = Green >2% and <3% = Amber >3% = Red	R/A/G	Red	Amber	N	This is a calculated output. Imbalance this year is 2.54%	

Materiality Assessment summary		Leakage									
Component	Adjustment	Impact on Post MLE Leakage (ML/d)	Adjusted Leakage reporting year 23-24 (ML/d)	Reported Leakage for year 21-22 (ML/d)	Reported Leakage for year 22-23 (ML/d)	Adjusted 3 year rolling average leakage (ML/d)	Baseline Leakage (ML/d)	Adjusted Leakage performance level (%)	Performance Commitment (%)	Performance commitment achieved	Materiality to Leakage Pass/Fail
Leakage DMA Coverage. Leakage for areas outside of continuous monitoring is accounted for in the bottom-up leakage calculation. Therefore, the only change would be the differential between estimated values and actual when new DMAs are introduced.	Add 5% of OSCM Leakage (0.67 ML/d) to Pre- MLE Leakage upstream of DMA	0.6	154.1	154.3	150.7	153.0	187.1	18.2	17.0	Yes	No
	Minus 5% of OSCM leakage (0.67 ML/d) to Pre-MLE Leakage upstream of DMA	-0.6	152.9	154.3	150.7	152.6	187.1	18.4	17.0	Yes	No
Non-Household Night Use. Non-household night use is derived from an existing model and is applied to the current ABVs. Any difference would be due to stratification changes and behavioural changes of the non-households.	Plus 5% of total NHH Night Use (0.82 ML/d) to Pre-MLE Distribution Leakage	0.7	154.2	154.3	150.7	153.0	187.1	18.2	17.0	Yes	No
	Minus 5% of total NHH Night Use (0.82 ML/d) to Pre-MLE Distribution Leakage	-0.7	152.8	154.3	150.7	152.6	187.1	18.4	17.0	Yes	No
Distribution Input Currently our investigations estimate 1.4 ML/d that is being recirculated back into treatment works post DI meters but not metered.	Minus 1.41 ML/d from Pre-MLE Distribution Input	-0.2	153.3	154.3	150.7	152.7	187.1	18.4	17.0	Yes	No
1.99% Closure on Balance Value required to meet convergence compliance	Add 5.15 ML/d on Pre-MLE Distribution Leakage to close balance to under 1.99%	4.4	157.9	154.3	150.7	154.3	187.1	17.5	17.0	Yes	No
Combined Assessment	Positives	1.5	152.0	154.3	150.7	152.3	187.1	18.6	17.0	Yes	No
	Negatives	-5.10	158.6	154.3	150.7	154.5	187.1	17.4	17.0	Yes	No

3A.4 Per capita consumption

PCC is a measure of customer consumption in the home. Since Covid, working and behavioural patterns have significantly changed, particularly for commuter belt companies where more customers remain in the supply area at home, more often. This means customers are now using more water in the home than was the case previously before the pandemic.

We ended 2023-24 with a 12-month 'spot' PCC of 154.0 l/p/d and a 3-year average of 156.3 l/p/d. This is an increase of 1.5% from the 2019-20 baseline against a reduction target of 10.0%. Therefore, we have not achieved the performance commitment target for the year.

Compliance against the component reporting checklist can be viewed in 3A.3 alongside leakage.

Performance in the year, water saving campaigns and initiatives

PCC reduced by 3.0 l/p/d from 2022-23 and has continued to reduce from the Covid peak. We have not however returned to pre-pandemic levels of water use.

As a water company, we are committed to delivering programmes to help drive reductions in water consumption. During 2023-24 we continued to deliver a variety of campaigns and looked for innovative ways to engage with our customers.

Demand and water saving messaging can become lost alongside wider media coverage of the industry. We therefore continue to adapt, review and to look for novel ways to spread the importance of the need to save water.

Continuation of Water Saving behaviour change programme (Save our Streams)

The third year of our SOS behavioural change campaign remains vital in encouraging customers to understand how much they are using across key household activities, and the simple daily changes and interventions they can take to reduce household water consumption and conserve water. Customers are also able to claim water saving devices for their home by completing the My Water Footprint tool. <https://mywaterfootprint.affinitywater.co.uk>

In 2023-24, we introduced two new strands to the SOS programme: Water smart education programme and home leaks campaign.

Water smart education programme

We launched our new Water Smart education programme into schools throughout the region to foster an understanding among children, their families, and the wider community about the crucial need for water conservation. The programme was jointly developed with the social impact agency 'We Are Futures' and offers simple yet impactful ways to make a positive change. The programme includes water-saving curriculum-based materials to help pupils explore and understand the importance of

saving water and inspire them to make everyday changes that will leave more water in the local environment.

In the first five months, since the programme launched, we've had a great uptake across the region with more than 121 schools registered and downloading the lesson plans.

As well as Water Smart being part of the curriculum, we also had more than 400 entries to a design competition, which invited children from participating schools to design a poster around the topic of water-saving.

The campaign has received extremely positive reception from teachers, parents, news media and the students themselves.

Home leaks campaign

Social media posts and emails continue to encourage customers to find out how much water they use. Utilising a variety of platforms, we continue to work with influencers to help promote awareness of water saving tips. Influencers have a great following and engagement across social platforms, so are able to reach more people by spreading the word. People are often more engaged by listening to celebrities and people they can relate to.

Alongside a variety of influencers, a new customer facing home leaks campaign featuring the high-profile ambassador Sarah Beeny was launched in the year. This campaign helps customers to understand how much water is lost through leaks in their homes and provided advice and inspiration on how to find and fix leaks to minimise loss and damage.

Chelsea flower show

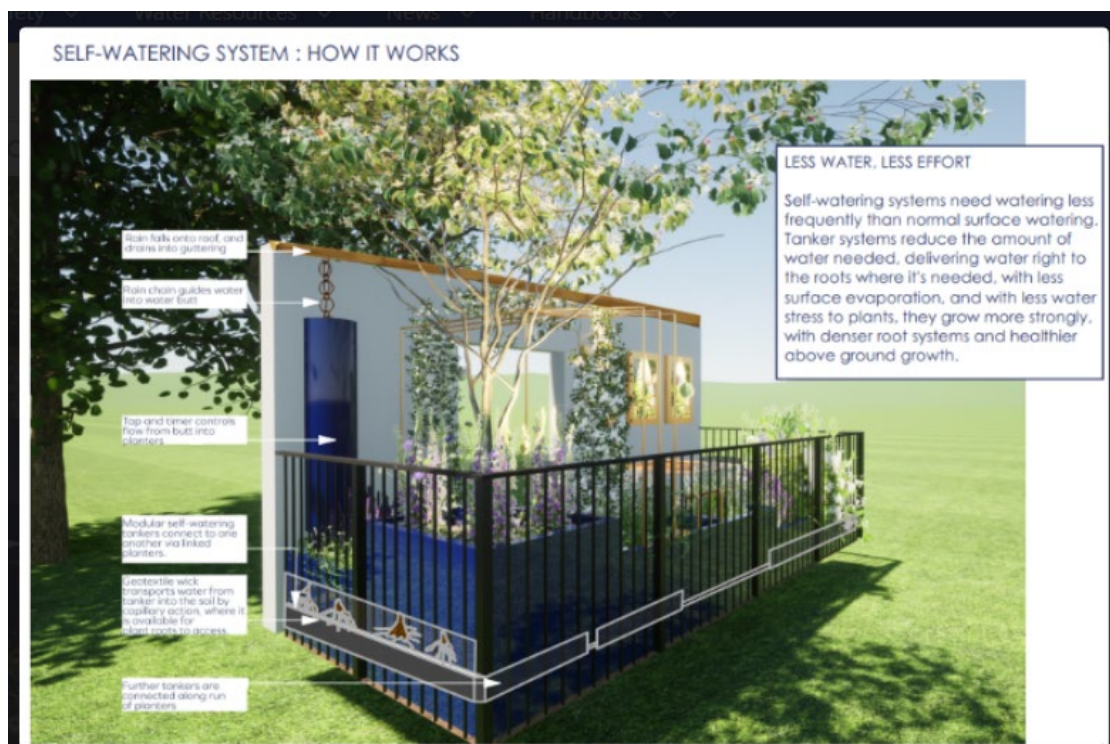
The Chelsea Flower Show is one of the highest-profile and influential platforms for the gardening community and was the ideal event to share our SOS water-saving messages with our customers and wider communities.

Partnering with a local garden designer Sam Procter from Chiltern Garden Design to create 'The Water Saving Garden'. Sam was inspired by the chalk streams in the region and wanted to create The Water Saving Garden to serve as a reminder of the urgent need to conserve and reuse water to protect the local environment.

A contemporary courtyard garden, the design featured a self-contained unit focussing on sustainability and water saving.

Winning a bronze award in the Container Gardens category, the garden was also featured on BB1s coverage of the flower show

The garden has been designed so that following Chelsea, the garden is given as a prize to local community space/group who are active in improving our community.



Home Visits (Previously Home Water Efficiency Checks)

We continue to offer both in person and virtual home water efficiency checks, offering both water use behavioural tips and internal devices to help reduce water use. We also offer the use of a plumber to fix a leak free of charge to the customer, if our technician identifies an internal leak that meets certain requirements.

For more information on the demand saving gained by these visits please see 6F.4

Flow regulation.

We have installed 11,393 flow regulators at boundary stop taps to regulate and manage consumption.

These regulators can be installed in boundary or internal stop taps to reduce flow to the property whilst allowing sufficient water to avoid adverse customer experience.

We have focused on installing these devices to high consumption household to aid savings. These have been offered to customers voluntary, not a compulsory, basis.

For more information on the demand saving gained by these visits please see 6F.4

Customer side leakage

Alongside our behavioural usage campaigns, we have in particular focussed on raising awareness of customer side leakage, how to identify it and what customers can do to resolve it, empowering the customer to take responsibility.

Smart metering

As part of the accelerated funding, 20,000 AMI meters have been brought forward into AMP7. The latter end of 2023-24, the contractual agreement with our metering partners have been progressing ready for installs to commence in 2024-25.

The Water Community (customer focus group)

Established in September 2020 we continue to host our 'water community' focus group. The community is an online panel of 500 customers. The aim of this community is to allow us to make informed decisions driven by customer insight, of how best to engage and motivate customers on the quantity of water consumed.

We use this forum to better understand how best to encourage customers and foster engagement with our messaging. The online community allows us to better understand our customers and align with their needs.

WaterSave (Rising block) tariff trial

Our 2-year, 'WaterSave' rising block tariff has twin aims of making the charging system for water more affordability and fairer, and understanding its effect on demand and if it has any influence on how much water customers use.

In June 2024 we took the second quarter readings of our trial and control group. If the trial shows evidence of affordability improvement and demand reduction, we will consider extending the new tariff to more customers. At the end of the trial, we will share our learnings and findings with the industry.

One year transition to metering (was 2 years)

Following agreement from CCWater, we have worked to reduce the transition journey for compulsory metered customers to metered billing from two years to one. Moving customers to metering encourages awareness of how much water they use and improves our overall metering penetration. This helps to improve leakage and understanding of overall consumption.

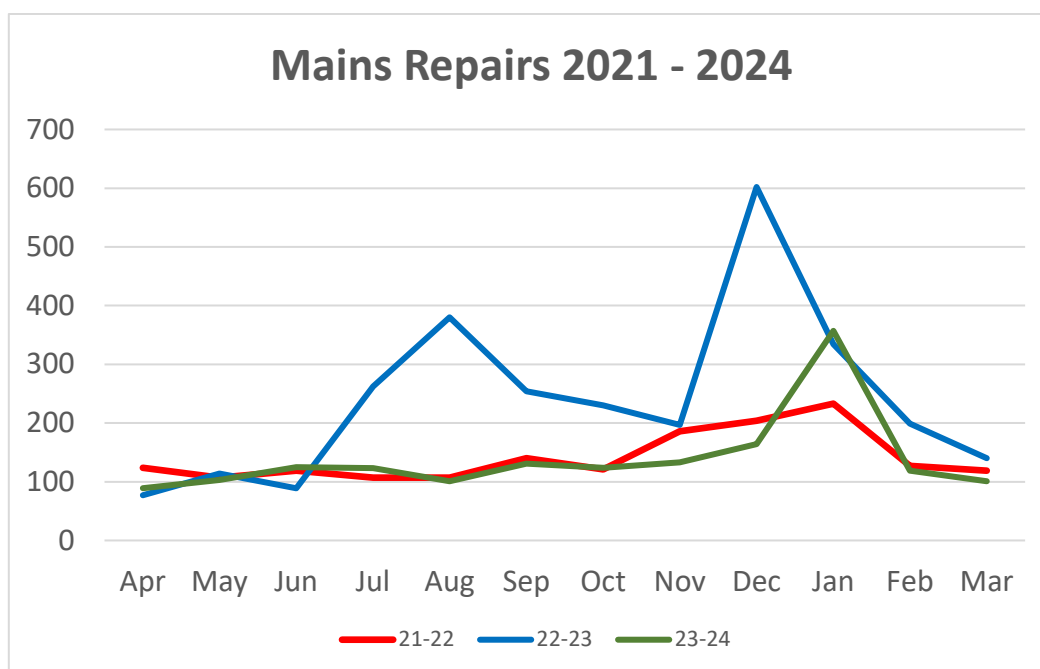
3A.5 Mains repairs

We have achieved the performance commitment level for 2023-24, with 98.3 mains repairs per 1,000km of potable mains, well below the target for the year of 144.4.

The significant outperformance against the target is attributable to the relatively benign weather conditions experienced through 2023-24, notwithstanding a brief cold snap in mid-Jan that did cause a small outbreak of mains bursts. This is in marked contrast to 2022-23, which saw both a hot dry summer and winter major freeze-thaw event.

Experience has demonstrated that performance is influenced significantly by adverse weather, particularly long hot dry spells through the summer and freeze/thaw events in winter. In this respect, the summer of 2023 was significantly less impactful than the

summer of 2022 for example, and the winter of 2023-24 caused only a minor outbreak versus previous years in which a prolonged period of below-freezing temperatures caused significant outbreaks.



As our performance against this PC is heavily reliant on the prevailing weather conditions, it is difficult to forecast for 2024-25. However, assuming average weather conditions we expect to achieve the target in year 5.

With regards to performance in the year ahead, one risk we do perceive is in relation to the current very wet ground conditions. We believe that there is a risk associated with these ground conditions should we enter a dry spell as we approach the summer. As the ground dries, we could see an outbreak of mains bursts. Again, accurately forecasting this with any level of confidence is difficult, though it is something we have identified as a risk and are therefore attempting to mitigate against impact.

To deliver best performance against this measure, now and into the future, we have in place a Programme Board which meets monthly to discuss performance and review progress of several projects. The projects include a six-month proof-of-concept valve actuation trial (to commence in the first quarter of 2024-25), targeted mains burst analysis centred around pressure management, a refresh of our valve operations training (with a focus on reducing bursts on recharge). We have also set up a monthly Network Performance Review group to ensure that insight from root cause failure analysis is suitably prioritised and relevant actions captured and delivered.

The intention of these schemes is to improve our baseline level of performance as much as possible to build headroom to allow for seasonal events that occur.

We can confirm that we are 'green' against all the elements of the checklist contained in the Ofwat reporting guidance for mains repairs.

3A.6 Unplanned outage

Metric	2020-21	2021-22	2022-23	2023-24
Unplanned outage	1.65	1.19	2.09	1.42
Target	2.34	2.34	2.34	2.34

Our target for Unplanned Outage is set at 2.34% throughout AMP7. As of 31 March 2024, we have achieved a performance rate of 1.42%, making a reduction from 2.09% in the previous year (2022-23).

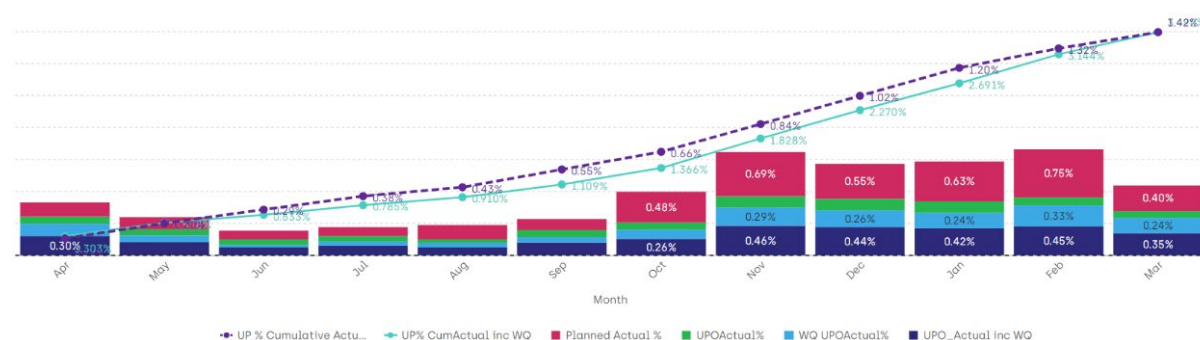
After conducting a comprehensive analysis of historical performance data and DI, we are forecasting an Unplanned Outage percentage will achieve the target in 2024-25. The reduction in the company level PWPC was 17.57MLD.

Despite facing unprecedented hot and dry conditions the previous year, the most recent autumn, winter and spring have been much wetter than usual. This has allowed groundwater levels to recover and above average in all of our supply regions. Levels in our supply regions are much higher than they were at this time last year. This improvement has seen a slight decrease in customer demand compared to last year.

All our performance data comes from a single source, with standard time stamping and flow recording as Ml/d or m3/hr and we are on target to deliver as planned in year 5.

While this metric is designed to allow an assessment of Asset Health, it lacks explicit guidelines for evaluation. Therefore, we have established internal benchmarks focusing on asset availability, from an operational delivery perspective. This feeds into Delivery Operational Risk Assessments (DORA), which compares forecasted demand against production capability, as an average and at peak.

Unplanned Outage informs decisions regarding capital investment and capital maintenance, as well as site management strategies. The accurate modelling of supply and demand remains a critical priority to ensure exceptional service quality for our customers while minimising disruptions to the communities we serve.



Diag 1 AWL UO Tracker inc. Water Quality Events and Planned Outages

We have applied a continuous improvement approach to our Unplanned Outage activities and in this current AMP have delivered improvements in how we capture and report the measure, but also how we use the insight to drive operational improvements.

Shadow reporting of water quality events in preparation for AMP8 has emphasised our need for extra focus in this area. Consequently, we have formulated an action plan for 2024-25 which has 6 pillars of focus:

1. **Optimisation:** Manage assets to ensure that they are used to their full potential whilst minimising operational risk.
2. **Asset Return:** Develop a strategy to help decision-making to minimise the effects of out of service assets. Establish processes to prompt quick restoration, mitigating operational disruptions.
3. **Data:** Enhance the use of data collected to better inform decision making and pro-active measures.
4. **Critical Spares Provision:** Ensuring the availability of critical spares parts to minimise site downtime and quickly address any operational disruptions.
5. **Capital Improvements:** Working with the Asset team to identify sites where capital solutions would benefit and improve processes.
6. **Planned Maintenance Strategy:** Develop a comprehensive strategy for planned maintenance activities to uphold and improve site resilience.

Compliance against the component checklist

We continue to report green against all components within the checklist.

Information notice 24/01 states the majority of companies could not demonstrate compliance against the checklist and in particular, capacity testing. We have therefore addressed this in more detail.

We consider our performance to be compliant with the guidelines, which state that PWPC evidence can be "of actual output or of capacity tests undertaken on a rolling programme each five years."

Due to the nature of the makeup of our distribution system and the type and location of our production sites, we face considerable challenge undertaking PWPC performance testing.

Many of our sites go directly into supply to customers or form part of a complex distribution system that has not been designed to allow for performance testing of this nature. While we appreciate that the testing period does not need to extend to 7 days, (*"a risk-based approach for each works and the duration of testing does not need to extend to seven days"*), we would need to change all infra and non-infra asset configurations for a replication of peak pumping, even for a shorter duration. This has a number of risks associated with it, including, but not limited to:

- Loss of supplies to customers (supply: demand balance)
- Poor pressure

- Reversal of flows
- Increased velocities
- Change in source water supplied to customers.
- Increased opex for Bulk Water purchase

We have historically used periods of high demand as a surrogate for testing because of these risks. Providing real-world data on how our sites perform under stress, which could potentially be more informative than traditional capacity tests, still allows us to identify underperformance, future performance risk (deterioration) & therefore any investment and maintenance requirements.

We have a number of sites coming back into service during 2024-25 and we plan to conduct capacity tests and assessments as part of this process, but again we must view the requirements through an appropriate risk lens.

We can evidence that we have risk assessed each treatment works for testing and the risk was deemed unacceptable as it fell into one of the categories listed above or caused an imbalance in our Dynamic Operations Risk Assessment (DORA)

Factors to be considered include, but are not limited to, the following:

- Is there a requirement for planned work in the zone, including statutory inspections.
- Is there sufficient license headroom available to conduct a test, such that it would not cause a supply: demand balance shortfall later in the year
- Is there sufficient customer demand for the water and, if not, are there sufficient storage assets available to take the extra water; and
- Are there any network constraints.
- Are there any water quality implications.
- Would supplies need to be moved from other zones or would we need to increase the volume of water we import in bulk

We have noted the reference to weather dependency, in the methodology this would appear to relate to WAFU Outage. It also appears to consider weather dependency to be a short cycle (annual), but in the Southeast of England we are subject to regular long-term cycles of drought risk which can cause low groundwater levels across years. We have a large proportion of chalk aquifer boreholes that are regularly affected by long-term weather trends and therefore undertaking PWPC testing at these locations becomes meaningless as it would not be a measure of asset health, but rather a measure of Deployable Output or WAFU, which are both WRMP resource measures.

3A.7 Environmental innovation - delivery of community projects

We have a programme of works to deliver eight environmental innovation projects in AMP7 to improve our customers' knowledge, water use and water efficiency. The goal of the programme is to bring together sector experts, charities, community and environmental groups, and other stakeholders to trial a range of innovative multi-party projects, linked to different environmental themes and water use behaviours.

The eight Environmental Innovation Projects are worth 14 project units that can be delivered in the 2020-25 period. Projects vary in size and cost, with 7 projects each worth one unit and the remaining Lea catchment project worth 7 units.

In 2023-24 (Y4) we delivered one project unit associated with Lea catchment project.

We took the decision to discontinue two projects ('Faith groups- Grey water recycling' in Pinn and 'Education and smart water meters at schools' in Dour). This decision was based on evidence gathered to date, company position and progress already achieved in these areas.

Project Name	No of Project Units	Internal delivery target
Lee catchment project	7	4 units completed (Y3) 1 unit completed (Y4) 2 unit (Y5)
Affordable housing (Colne)	1	Completed (Y2)
Targeted campaign (Wey)	1	Completed (Y2)
Targeted campaign (Brett)	1	Completed (Y3)
Education methods (Misbourne)	1	Completed (Y2)
New Developments (Stort)	1	Completed (Y2)
Faith groups – Grey Water Recycling (Pinn)	1	Discontinued(Y4)
Education smart meters in schools (Dour)	1	Discontinued (Y4)

Projects benefits

The projects have delivered innovative new ways to engage with customers, stakeholders, and partners, and deliver information and/or water efficiency knowledge and interventions. All the projects are designed to investigate, research and pilot approaches that can inform and develop a new delivery model to help meet environmental obligations collaboratively with key stakeholders and customers.

Lea Catchment Project 1 project unit

Further progress has been made in delivering the revised scope of the Holistic Lea EIP project agreed at the Independent Challenge Group in May 2022.

On top of the four units delivered in 2022-23 we have completed the Work Package 1 – chalk stream health assessment study in 2023-24.

WP1. Chalk stream health assessment

Aim

Undertake a baseline assessment of the health of a chalk stream.

Approach

- Herts and Middlesex Wildlife Trust (HMWT) chalk river 'BioBank' methodology for assessing chalk stream health/condition
- Project to assess whether the Chalk stream health metrics developed by Arup (River Chess) can be applied in practice in the Beane tributary of the River Lea

Outcomes

- Evaluation of delivered approach to inform a future delivery model incorporating a methodology for assessing and prioritising investment in chalk stream restoration/protection/resilience with key stakeholders.
- A comprehensive understanding of the river health of the River Mimram and a 6 km stretch of the Ash.
- An understanding of the different types of methodologies available to assess chalk river health, their advantages and disadvantages, and their differences and synergies. This will inform future river condition assessments and ultimately, river restoration strategies.
- The biobank pilot demonstrated that creation of a biobank is only achievable once projects with red line boundaries (the site boundary of the scheme) have been clearly defined, designed and approved (which was not within the scope of the pilot).
- The biobank pilot showed the level of resource required to assess condition for an entire river and a key finding was that targeting of areas more likely to become part of river improvement projects may be a better use of resources.
- Both projects showed how the Company can partner with other organisations to deliver catchment projects.
- The biobank project collected extensive ecological data which will be held by the local records centre and available for public use.
- The biobank project highlighted the challenges of engaging with landowners to secure permission for surveys, which should be factored into future planning

The Lea chalk stream health assessment work package has delivered significant benefits to customers and local communities in terms of:

- An understanding of the state of two important chalk streams.
- Informing future catchment strategies by providing an understanding of resource requirements for data collection and condition assessment, and successful partnership working approaches.
- Providing an understanding of requirements for development of a biobank, which has the potential to accelerate environmental investment within catchments.

Faith groups – Grey Water Recycling (Pinn)- project discontinued

The project started in April 2022 and had a scope of involving 23 individual faith groups across the Hindu, Jewish, and Muslim communities. The objective was to develop engagement to facilitate behavioural change and, where appropriate, fit water saving devices in religious premises. It was envisaged that these actions would lead to a reduction in water usage in the premises as part of an overall commitment to reducing water demand and per capita consumption in our Pinn community.

By March 2023, despite numerous attempts using all-available communication channels, the project proved unsuccessful. Cenergist, our chosen partner in the project, were able to establish contact with only 5 out of the 23 groups. This is despite Cenergist being experts in this type of work and having tailored their approach according to known aspects of the different cultures and, where possible, using staff with second languages. However, this had little effect on our ability to engage. The reasons for this lack of successful engagement may lie in language, cultural or social barriers.

In addition, the sites where water use reductions could have been made through fitting water saving devices would all have payback periods for the customer of greater than five years, (cost of installation measured against water reduction bill saving). As such the recommendation from Cenergist was not to proceed with the installations.

No environmental improvements have proved possible through this project and hence no tangible benefit for the customers was realised.

This said, in early 2023 Affinity Water learned that South Staffordshire Water were submitting a bid entitled 'Water Efficiency in Faith and Diverse Communities' under the Innovation Fund Catalyst Competition. We took the opportunity to partner in this project which was successful in achieving Ofwat funding and started in June 2023.

The project team includes water companies, religious groups (Muslim, Sikh and Hindu) and academic institutions. The objective is to establish a deeper understanding of how water is used and valued in different faiths and cultures as well as providing insight into customer usage profiles. This will enable the development of a more inclusive and comprehensive water efficiency framework for diverse faith communities than currently offered. Moreover, it will introduce new water saving interventions and campaigns recognising faith and cultural practices which could, in some cases benefit the environment and similar communities across the UK and abroad.

The project could open new channels of engagement and communication, building trust and support for hard-to-reach vulnerable customers.

Due to be completed by January 2025, the project has already completed detailed academic research led by Cambridge University to identify current attitudes and behaviours towards water usage. Current activity is focussed upon two trials, one exploring reduced water usage involving the "Wudu" religious observance and the

second around cooking practices. Upon completion of the trials, learnings will be extracted which can be shared with similar communities throughout the UK and abroad.

Education smart meters in schools (Dour) – project discontinued

The aim of this project was to install smart meters in 10 schools and train the staff / students how to use them to monitor their water usage. This was designed to engage students on water conservation / behaviour change as part of a whole school water saving initiative.

Since the development of the original project brief and the timing in AMP, a number of changes in the company position were identified that affected the project delivery and the likelihood of success. Against that backdrop a decision was made not to progress the smart meters in school's project.

There were a number of factors taken into consideration:

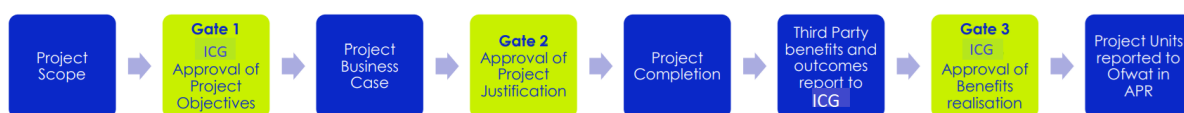
We have secured accelerated AMP8 funding for our Smart metering pathfinder trial that will install 20,000 smart meters from July 2024. It will include non-households in the trial area.

Our new Water Smart programme has been developed since and launched at the beginning of 2024. It is being delivered across our supply area which includes Dour community schools and aims to foster an understanding among children, their families, and the wider community about the crucial need for water conservation, offering simple, effective ways to make a positive change. The programme, which is part of our ongoing Save our Streams programme, was jointly developed with social impact agency 'We Are Futures'. It includes water-saving curriculum-based materials to help pupils explore and understand the importance of saving water and inspire them to make everyday changes, that will leave more in the local environment.

Role of Independent Challenge Group (ICG)

The role of the ICG is to provide assurance on progress and completion of project delivery.

The below assurance process is followed involving ICG group in AMP7. In 2023-24 the ICG gave final Gate 3 assurance on 20 May in the ICG meeting which was supported by the verification report of benefits realised.



Detail on our innovation projects can be viewed at <https://www.affinitywater.co.uk/corporate/about/innovation> together with the verification and benefits report by our external assurer.

3A.8 Reducing the total number of void properties by identifying false voids

Our void property rate in 2023-24 was 2.03%, outperforming our commitment target of 2.16% for the year. We classify a property as void if it is within our supply area and connected to the water network but does not receive a charge as it is unoccupied.

To identify false voids and achieve this result, we have continued to proactively send letters to empty properties providing information on how to register, with follow up letters to suspected occupied 'empty' properties.

We use credit agency data where we do not receive responses to our letters after four weeks. For unmetered customers and customers where meter readings show consumption over 5m³ (potential evidence of occupation), we use a third-party credit agency to ascertain if there is any credit activity at the property. Where there is credit activity, we obtain occupier details to bring the customer onto charges. Where third party credit checks do not provide occupier details or the confidence score of occupation is low, our site investigators make physical visits to the property to establish occupancy and gather customer details.

We continue to split work between our site investigators and office-based teams, allowing more time for office staff to cleanse and analyse occupation data which has led to an increase of property visits undertaken.

The current void metric unfortunately only takes account of the number of properties which have been removed from the void list as false. This does not reflect the significant work we undertake confirming properties as true voids.

We anticipate we will achieve this target again in year 5, in line with the figures reported in the PR24 business plan submission.

3A.9 River restoration

We have completed 30 cumulative project units as of 31/03/2024 against our 2023-24 target of 28 units. Seven project units were signed off by the Environment Agency through the year. Three project units were on the River Misbourne, two units on the river Beane and one unit on the River Ver and river Mimram. Copies of completed sign off forms are available if required.

Our river restoration commitment is delivered in close working partnership with the Environment Agency (EA) who assist our activities and ultimately confirm delivery of our performance. The unit of measure is an EA project unit. Projects are considered small (1 unit) or large (2 units). The definition of a small project is activity, often river side, rather than to the river itself, for example tree works to improve light penetration on the river, tree pollarding or installation of fences to prevent riverbank poaching.

Large projects involve morphological works and typically require hydrological modelling. Proposed changes may be in channel activity such as creation of berms

or adding woody debris to banks to increase river sinuosity. It may also include the removal of older structures such as weirs that drive increased siltation of the rivers and prevent fish passage, or installation of fish bypass channels.

Through agreement with the EA, projects can accrue more than two units at an individual site where many different project aspects are being undertaken simultaneously. It should be noted that we operate across four different EA regional office areas. The rivers where units can be accrued from river restoration are all in our Herts and North London (HNL) EA regional office areas.

In AMP6 we worked on six rivers (Ver, Gade, Misbourne, Mimram, Lea and Beane) to undertake river restoration. As we moved into AMP7, these six rivers were nominated 'green' rivers, where due to the existing relationships developed through the previous AMP, there was more certainty in being able to deliver projects. The project units required through AMP7 are only accrued from green rivers.

As part of the WINEP for AMP7, there was a requirement to start work on 8 new rivers that had previously not had any works undertaken by us. It was recognised that due to the increased unknowns of the new rivers and lack of existing relationships in the catchments that there was more risk in terms of delivery on these rivers. As such the 8 rivers are classed as 'amber'. This means that there is a requirement to deliver river restoration activity upon them in line with our WINEP commitments (which was made legally binding retrospectively in 2021), but that a project unit approach does not apply to them. We have amber rivers in each of the four EA regional office areas.

The requirement is to achieve 36 project units by the end of AMP7 across the 6 green rivers. The requirement is not specifically 6 project units from each of the 6 green rivers, but a 36-unit total spread across the 6 green rivers. This allows some flexibility to over deliver elsewhere if there is a risk of under delivery on a particular river or where the greatest benefit is available. Equally we recognise a desire to see river restoration improvement spread across the green rivers and are planning some level of delivery in each green catchment over the AMP. Full details are regularly updated and shared with the Environment Agency at EA 'Executive' meetings which are held quarterly.

Affinity Water do not own the rivers, and we have no rights or enforcement powers to deliver river restoration projects. The riverbed and bank side are owned by the landowner(s) and there can be different landowners on each side of the river. River restoration activity can only go ahead with the express agreement of the landowner(s). As such river restoration delivery is highly focussed on a soft skills approach of negotiating and influencing to secure the necessary access permissions

Project completion is signed off by the Environment Agency. We give formal notification to EA, stating what activity was completed and the number of units claimed. The EA conduct a river walk on completed projects to inspect the work. Where they are satisfied that the project has been delivered to the agreed scope, then a senior officer will sign off to confirm the award of completed project units.

Performance to date

We have a strong track-record of meeting or exceeding the river restoration performance commitment and are putting the right activities in place to continue this level of performance through the AMP and ensure the learnings inform the development and delivery of our PR24 WINEP programme.

PR24 WINEP programme	Year 1	Year 2	Year 3	Year 4	Year 5
	2020-21	2021-22	2022-23	2023-24	2024-25
PC cumulative unit total	7	14	21	28	36
AW cumulative performance	7	20	23	30	
AW forecast performance					36+

We have continued to build on the headroom achieved in year 3 through year 4, with 30 cumulative project units in year 4 against a target of 28. These have been signed off by the Environment Agency.

The units have come from the following projects:

- River Misbourne – Barn Meadows – 2 project units (these are in addition to the 1 unit on the same project in year 3).
- River Beane – Whitehall pumping station – 2 project units
- River Ver – Friars Wash pumping station – 1 project unit
- River Misbourne – Chalfont St. Giles pumping station – 1 project unit
- River Mimram – Codicote pumping station - 1 project unit

Throughout the year, there have been significant challenges following the Environment Agency bringing in a requirement for impoundment licences to be issued for the removal of impoundments, which will require approximately nine-months duration to reach a decision. In addition, the FRAP (flood risk activity permits) process that should have an eight-week duration has routinely become longer, with an average return between 12 and 16 weeks currently. This can be extended substantially further if the FRAP needs to go to the 'Evidence and Risk' team for further investigation at the EA. The EA are proposing through 2024-25 to change the FRAP process by all FRAP's going to their 'National Permitting Service' for initial processing before they are determined at local level. The change is intended to make the process smoother, but it is expected to initially delay the process further until established. This may further affect planned delivery of projects, although we are actively trying to incorporate more time into project planning to mitigate this where we can.

In recognition of the risks posed by project delays we have introduced and initiated new projects that can be delivered in shorter timescales as part of the mix of in-train projects for the AMP. We therefore plan as a minimum, sufficient performance to

meet the committed cumulative target. The total number of units initiated or brought forward is greater than the required commitment to recognise and mitigate project abandonment risks or reductions in scope.

3A.10 Abstraction reduction

The Abstraction Reduction PC target is zero for the first four years of AMP7 (2020-2024). The target of zero was met in 2023-24. The target for 2024-25 is 27.33 MI/d. The WINEP measure completion date for all AMP7 Affinity Water abstraction reductions is 31 March 2025. Therefore, there have been no changes in reported performance compared to the annual targets. Due to the fixed targets of zero from 2020-2024 and a target of 27.33 MI/d in 2024-2025, no trend in performance over time has been or will be observed.

Progress towards 2024-25 target

Our AMP7 sustainability reductions programme remains on track for implementation of the agreed abstraction reductions by 31 March 2025. Our 2024-25 capital delivery programme includes the commissioning of the Sundon conditioning plant and other new assets. A new booster station is also due for construction in autumn 2024 subject to securing land access. The current programme states that commissioning of the Sundon treatment plant will be completed by September 2024. Regular progress updates on the sustainability reductions programme are provided during monthly programme board meetings.

3A.11 Number of sources operating under the Abstraction Incentive Mechanism

The table below provides the reported annual global AIM performance scores since AIM came into effect in April 2016.

Year	AIM score (MI - million litres)	Score description
2016-17	-1,622.21	AIM active in 7 catchments; GWLs: average to dry year
2017-18	-3,046.95	AIM active in all catchments; GWLs: dry year
2018-19	-2,383.84	AIM active in 5 catchments (10 sources). GWLs: dry year
2019/-20	-2,057.70	AIM active in 10 catchments (16 sources). GWLs: dry year
2020-21	-304.31	AIM active in 2 catchments (3 sources). GWLs: above average; increasing trend from summer 2020
2021-22	-429.63	AIM active in 1 catchment (2 sources). GWLs: above average; declining trend
2022-23	-1,277.03	AIM active in 5 catchments (8 sources). GWLs: below average/average year

2023-24	-266.54	AIM active in 1 catchment (2 sources). GWLs: above average; increasing trend from October 2023
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The target for each report year is 0 MI. The score for 2023-24 was -266.54 MI. A negative AIM score signifies an improved performance compared to historic droughts, as average abstraction was lower than the baseline at the global scale when AIM was active. This shows we met and outperformed the AIM baseline figures at a global scale for each report year (2016 - 2024). This is mainly linked to low groundwater levels which provide many opportunities to score, together with long-term outages at some sources (e.g. Oughton Head and Runleywood Chalk). The requirements from Ofwat changed from 2020-21 such that we are no longer required to report the AIM performance per source. Therefore, only global AIM performance figures are given in the table above. No changes have been made in the reporting methods or assumptions since AIM was introduced in 2016.

The global performance is based on the sum of scores for all sources that are included within AIM. We put forward 23 sources in 2016 to be included in AIM, based on the environmental sensitivity of the sources identified in previous studies. From 2016 to date, eight sources have been subject to Sustainability Reductions (SRs), with the deployable output (DO) at four of these sites being reduced to zero MI/d. These four sources were omitted from the AIM assessment at the time of the SR, in addition to one other source, which was removed following discussions with the Environment Agency (EA). Therefore, 18 sources remain to be assessed under AIM as of 2023-24.

Each AIM site has a trigger, which is typically set at the downstream gauging station in catchments where the AIM sites are located. The only exception to this is our Denge source which is assessed under AIM based on a local groundwater level trigger.

The number of active AIM triggers varies with background groundwater levels, meaning that the scores between years are not directly comparable. Therefore, year-on-year variances are expected, and we do not observe an improving/declining trend over time. The table provides a short description of the annual scores, including the number of sources active during the respective report year, and a brief comment on the background groundwater level situation. A higher negative score was accumulated during 'dry' years (e.g. 2017-18 or 2019-20) where background groundwater levels were below the long-term average, and the AIM triggers were active in most catchments. Background groundwater levels were higher on average during 2023-24 than 2022-23. Therefore, there were fewer opportunities to accrue a negative score under AIM (-266.54 MI vs -1,277.03 MI). In addition, proactive outage management which aims to minimise outages in the summer months helped us to maintain a consistent abstraction pattern below the AIM baseline at the AIM sites which were active in 2023-24.

Managing AIM performance

The EA email weekly to notify us if an AIM trigger(s) has been activated. We then confirm with the Operations team that the abstraction at the respective source(s) is below the AIM trigger. We also have an early warning trigger in place for each source, which typically provides us with one month's notice of an AIM trigger being activated; this is communicated with our operational teams to aid in planning.

For 2023-24 and up to the present, we have calculated and tracked AIM performance monthly. We undertake the assessment and provide QA of the data, so we can screen-out erroneous data that may affect the calculation (both our data and that provided by the EA). Overall, the river flow and abstraction data are classed as highly reliable and accurate. The river flow data from the EA must be validated within a certain period as specified by the data validation category. A grading is provided for each flow value by the EA and any suspect data will be flagged. The daily abstraction is routinely checked, and the instantaneous flow data is available on our telemetry system for additional checks if required. The abstraction flow meters should be accurate within $\pm 5\%$ as these are the parameters required to pass the flow meter calibration.

There are no interdependencies between this metric and other lines or tables in the APR tables.

Environmental benefits of undertaking AIM

We recognise that we operate in a water-stressed area where chalk stream catchments are of significant ecological importance. To reduce our effect on the local environment, we have implemented a number of permanent sustainability reductions aiming to leave more water in the environment. Whilst we consider this to be a permanent measure, we believe there is benefit in going above and beyond for the chalk stream environment and adapt the way we operate during low flow conditions. AIM allows us to reduce our environmental impact during times when the environment would be under stress. AIM contributes to leaving more water in the environment at the onset of a low flow period and reduces groundwater level recovery time in the aquifer. When AIM is active in the summer months, it is more likely to discourage peak use of sources which would otherwise have been maximised based on peak demand.

3A.12 Properties at risk of receiving low pressure

During 2023-24 5,760 properties were added and 7,537 removed from the 'properties at risk' register. This gives a net reduction of 1,777 properties, equivalent to 11.244 per 10,000 connections. Our reported figure this year is 138.594 properties per 10,000 connections.

As has been detailed to Ofwat previously, it is not possible for us to meet this performance commitment due to the nature of the reporting guidance and the high level of coverage of 'critical point' data loggers across our network.

However, we recognise that water pressure is important to customers, and we are proposing to maintain the 'average time of low pressure' bespoke performance commitment (see 3E.6) through the 2025-30 AMP8 period.

3A.13 Number of occupied properties not billed (Gap sites)

A property is considered a gap site if it is occupied but not billed. Reducing the number of gap sites results in fairer charging and lower bills for customers who already pay their water bills. In 2023-24 we successfully placed 71 gap sites into charge, outperforming our target of 50 sites each year.

We address gap sites primarily through site visits to establish the existence and occupation status of unbilled properties and outperformed our target by continuing to improve ways of working between our site investigators and office-based team. We also continue to prioritise activity towards properties likely to have the largest revenue yield, to maximise customer benefits from the resources we devote to gap site activity.

We anticipate we will achieve this target again in year 5, in line with the figures reported in the business plan.

Audit and Assurance

Below is an extract from our performance commitment summary of audit conducted by our external assurer on Gap sites

As required in the FD, our external assurer has confirmed that in line with the reporting and assurance requirements, we have rigorous processes that are correctly implemented to identify and bill newly built properties.

Assurance summary for APR Commentary for 3A.13 Number of occupied properties not billed (Gap sites)

Table and Line Ref.	Subject	Assurance Summary		
		Methodology	Data	Findings
3A.8	Voids	Green	Green	The Company's methodology for reporting is robust, checks and controls are built into the processes and no issues were identified with the reporting.
3A.13	Gap Sites	Green	Green	The Company's methodology for reporting is robust, checks and controls are built into the processes and no issues were identified with its reporting.

Methodology and documentation of method

The Company walked us through each process end-to-end, explaining any slight differences in approach, for example, voids, 'measured' and 'unmeasured' (measured: from when the last bill / unmeasured: date became empty). The Company demonstrated its compliance with the PR19AFW definition and parameters. We made one observation on the Company's Process Manual, as it did not capture the Company's definition of 'uneconomical to bill', though the Company clearly demonstrated its application in audit.

Following last year's audit, the Company has introduced a 'Returned Mail' process for voids, which it will retain for next year, following the successful results in the reporting period 2023/24.

We consider the Company's methodology to be robust with only minor non-material recommendations raised during audit.

Data and reporting

The Company demonstrated the reported numbers for its metric and we did not identify any material issues in the accounts and reports we sampled.

3A.14 Unplanned interruptions to supply over 12 hours

Unplanned interruptions >12 hours measure is our second supply interruption performance commitment. The improvements seen in our average minutes metric have also been reflected in unplanned interruptions >12 hours. 2023-24 is the first year in this AMP that we have achieved the target

Interruptions greater than 12 hours have typically been the result of bursts on large trunk mains and freeze-thaw events. Where supplies are restored to wider areas, other areas with a 'single point failure' and/or little or no re-zone options may continue to be affected. Such areas continue to be at risk during future incidents, and we intend to mitigate these through our resilience 'single points of failure' enhancement programme in PR24.

As noted within our average-minutes metric, 2023-24 has also benefited from favourable weather and therefore relatively low numbers of property interruptions have been seen.

Outside of large incidents, the number of individual properties affected by avoidable interruptions such as stop taps left shut off or meter failures has also reduced.

Incidents	2020-21	2021-22	2022-23	2023-24
Larger incidents/ interruptions	488	444	Summer high temperatures 188, Winter freeze-thaw 5,596, Other 213	71
Other incidents and one-off properties (e.g., supply left turned off after changing a meter, faulty meter)	50	40	53	13

3A.15 Customer contacts per 1000 population for Water Quality (taste, odour & appearance)

Our performance commitment (PC) for customer contacts per 1000 population for water quality (taste, odour & appearance) was met in 2023 with the contact rate being 0.58 against a target of 0.67. This was made up of 1,427 (0.37) contacts regarding appearance and 795 (0.21) contacts regarding taste and/or odour. This continues our good performance for this measure from 2022.

During 2023-24 we continued our mains flushing projects in several higher risk DMAs across our supply area, to remove mains corrosion deposits and aluminium deposits that had accumulated in the mains network. This work has helped to keep low customer contacts relating to discoloration.

We believe we will keep the number of contacts regarding water quality low during the last year of AMP7 because of the work mentioned above and continuing current operational practices.

Table 3C - Customer measure of experience (C-MeX)

Our 2023-24 annual C-MeX score (table line 3C.3) improved our position relative to other companies by two places to 12th position. Although our score declined by -1.9% compared to 2022-23, that decline was significantly less than the industry average decline of -3.1%.

We aspire to be one of the leading water companies for service and our focus is on resolving all customers issues, quickly, efficiently and to a high standard. We believe following significant investment in training, improving processes and knowledge, we are beginning to see these improvements manifest themselves into customer satisfaction reported via our C-MeX Service survey results.

Our 2023-24 'service survey' score (table line 3C.1) saw our ranking improve three places to 12th, and whilst the score did decline by -0.7%, the decline was significantly less than the industry average of -3.7%.

Our analysis shows us that the higher levels of occupancy turnover, transience and regional identity affect the relative satisfaction scores. In addition, as C-MeX is a comparative measure, our 'league-table' position is also dependent upon the performance improvements that other companies make.

However, we recognise our 'experience survey' results continue to be challenging, dropping one place to 13th and declining by -3.0%, greater than the industry average of -2.5%. As such we are investing in new technology and tools to help us personalise our communication and ensure we deepen the relationship we hold with all our customers.

We have several new initiatives to support our improvement plan:

- We are commencing roll out of our new Smart Metering Programme which gives our customers the information they need to manage their consumption and bills.
- We are focusing on our resolutions rates, as customers are telling us that we need to deal with and resolve their tasks and queries faster.
- Our digital enhancements and web improvement, including the introduction of mobile app for customers where customers can view and be notified of actions and updates will deliver new easy to use and accessible applications through alternate channels.

We confirm in table line 3C.8 that we offer at least five communication channels for receiving customer contacts and complaints and three online channels to our customers.

3C.5 Total household complaints

We are reporting 10,285 complaints for 2023-24. This represents an increase on 2022-23. The capture of contacts identified as complaints and our error reporting analysis did not provide appropriate assurance that the figures could be relied upon. Additional sampling analysis was undertaken and has shown (with deeper testing) that reported complaints could be much higher. We have therefore provided a proportional uplift to our reported complaint figures based on these additional testing results and application of error rates into our reporting. This has resulted in an additional 5,101 being included in our figures.

We have already initiated a full end to end review to ensure improvements made to all parts of the complaints process. This will include:

- Policy reviews
- End to end process redesigns

- Colleague training
- Our mechanisms for recording complaints
- Design of appropriate assurance testing.

The changes will be applied across all customer contact points. We are seeking to improve the application and consistency of our complaints processes and reporting, alongside increasing the quality of the independent adjudication of any contacts received to ensure complaints are being correctly reported.

Table 3D - Developer services measure of experience (D-MeX) table

Our D-MeX performance for 2023-24 has shown an improvement from 2022-23.

During quarters 1 and 2 of 2023-24 we faced challenges that affected both quantitative and qualitative performance. The main metric affected was W4.1 (\$45 Service Pipe Connections), which makes up a large percentage of qualitative volumes and surveys.

Having identified the issues affecting our W4.1 performance, we introduced improvements to our customer journey and jeopardy management controls. We also moved away from the relationship we had with our construction partner at this time. We saw the results of these improvements in quarter 3 performance – where our D-MeX score went from 85.77 in quarter 2 to 89.27 in quarter 3.

Our quarter 4 qualitative performance showed a decline due to completing working with third party constraints in January. We then saw monthly improvements in scores for February and March, indicating we are moving in the right direction for customers.

Quantitative performance for quarter 4 also highlighted an improvement in performance.

Table 3E - Outcome performance - Non financial performance commitments

3E.1 Severe Restrictions in a Drought

The performance commitment 'Risk of severe restrictions in a drought' is defined as the percentage of the customer population at risk of experiencing severe restrictions (for example, standpipes or rota cuts as part of Emergency Drought Orders - EDO) in a 1-in-200-year drought, on average, over 25 years. 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).

In our final PR19 submission to Ofwat, performance commitment levels were set for the 2020-2025 period. In their calculation the annual forecast, rather than the 25-year average, was used to calculate the expected future performance and associated targets. Future schemes that were selected in the Water Resources Management Plan 2019 (WRMP19) to manage supply and demand between 2020 and 2045 (25-year period) were also included with their expected benefits reported in future years. This inclusion resulted in the target falling to 0% by the start of AMP7 with the net movement of schemes and demand changes forecast in the WRMP keeping the target at 0% for each year of the AMP period.

Following scrutiny from our external auditors, this interpretation of the reporting guidance was challenged, and reporting conducted against the 'revised' methodology, taking on board the above revisions. This has resulted in the reported figure diverting from the way performance commitment levels were originally set at PR19. Therefore, it should be noted that the reported figures are not directly comparable with the commitment levels set.

In addition, the following data sources have changed since the performance commitment levels were originally set:

Element	Previous data source	Current data source
Outage	WRMP19 - Water Resources Planning Tables	Latest WRMP24 Outage Forecast
Target headroom	WRMP19 - Water Resources Planning Tables	Revised values from WRP Tables
Distribution input	EA Table (reporting year)	Water Resources Planning Tables – WRMP19 or EA Table (reporting year)
Transfers	WRMP19 - Water Resources Planning Tables	EA Table (based on capacities)

The use of the WRMP24 outage allowance has slightly worsened the supply demand balance in certain zones while improving it in others, resulting in a negligible net effect when considering the performance for the company area as a whole. The change to the 25-year average is mainly due to the exclusion of the expected benefits from future supply-side and demand-side schemes.

The demand-side schemes are designed to align with the company outturn data reported in Table 6F. However, this is a whole company number, produced from a top-down methodology. To apportion demand-side benefits for WRZ3, the total company demand saving was divided by the % of total company population in WRZ3.

Given these changes, a new set of commitment levels have been calculated to assess what the equivalent targets would be, had we set them using the equivalent approach and data at PR19:

Target levels	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
FD PC levels set in PR19	%	0.0	0.0	0.0	0.0	0.0
Revised PC Levels	%	63.9	60.6	51.9	36.6	26.0

2023-24 performance at 68.1% fails the PC target due to higher demand than forecast and leakage position, when compared with revised baseline of 36.6%. If these high levels of demand are sustained in AMP7, the number of customers at risk will be higher than the performance commitment levels set in the Business Plan.

To mitigate this, several options are being 'fast tracked' to improve performance:

- the acceleration of a trading scheme,
- the acceleration of the second stage of Supply 2040 combined with a potential reduction of our bulk export to South East Water.
- non-household demand management activities.

For comparison, the two sets of performance figures calculated using the different methodologies are noted below:

Methodology	2020-21	2021-22	2022-23	2023-24
Final Determination (as per target setting)	44.0%	34.2%	41.5%	49.3%
Revised methodology	67.7%	61.5%	67.7%	68.1%

It is worth noting that 49.3% represents the 2023-24 annual performance. If the 25-year average were considered, the reported figure would be around 22.79%, which is much closer to the PR19 target of 0%.

It is important to stress here that the above figure does not represent the percentage of customers who are at risk of severe restrictions in a 1:200-year drought event in the current reporting year (2023-24). Rather, this metric takes a long-term approach and shows the proportion of customers at risk over a 25-year period. In addition, the methodology adopted is very conservative as planned future schemes selected in the WRMP do not contribute to the 25-year average supply-demand balance with their expected schemes. This has the effect of overestimating the percentage of customers who are and will be in a real risk of experiencing severe restrictions. Our overall security of supply remains robust, and we maintain that the security of supply that we provide to our customers is in line with our WRMP19 planned levels.

The performance commitment targets have not formally changed in line with the change protocol. We wrote to Ofwat in October 2022 to understand the change process. It was concluded that the change protocol would not be amended but the following advice was provided:

- Companies should report PCs in line with the definitions and guidance. However, if your PCLs are based on final plan data then the performance data you report should follow the same methodology
- Where this is the case, you should clearly explain this in your commentary
- You may choose to show the difference e.g., using final plan, the 2021/22 data is XX but, using baseline, it is YY.

We have therefore reported the numbers in 3E.1 and 3I.2 based on the revised methodology.

3E.2-4 Priority Services Register (and other assistance available)

Supporting customers who need a little extra help (both temporarily and long term) is a key business objective. Each year we look to promote the services we offer and provide the additional help available when needed.

PSR Reach

Our Priority Services Register has grown this year by over 35,000 households. Alongside promotion through our website, social media and bills, a significant proportion are achieved by our front-line colleagues identifying triggers during calls that could indicate a customer is experiencing vulnerability and will offer the PSR to householders.

We have data sharing agreements in place with both electricity Distribution Network Operators (DNO's) in our area (UK Power Networks (UKPN) and Scottish and Southern Electricity Networks (SSEN). These support our PSR reach and contribute to our attempted and actual contacts targets. Updates received from the DNO's count as an actual contact for the purposes of our reporting.

From the data provided by UKPN during 2023-24, 1,445 new PSR records have been created and 1,109 PSR records have been updated. We are however noting a high level of exceptions in the data being received from UKPN and currently these are reviewed and processed manually where possible.

We achieved the 2024-25 target of 7.2% reach by August 2022 and ended 2023-24 at 10.7%.

We do not report the number of individuals on our PSR as we monitor households.

During 2023-24 45,013 households were added to the register and 9,765 were removed.

We also track the number of households registered under the following categories and have exceeded the predicted breakdown in most categories:

Categories	Achieved 2023-24	PR19 Business Plan forecasts
Communication	28,649	27,544
Mobility and Access	86,200	24,176
Other	11,441	7,120
Security	53,878	60,029
Supply	106,041	28,481

PSR attempted contacts and actual contacts

We continue to reach customers through our scheduled contacting plan which is a continuous process of identifying customers as they approach the renewal date.

Scheduled contact attempts have been made by email and SMS throughout the year.

We anticipate for the remainder of the AMP7 period that we will continue to meet the targets for both attempted and actual contacts, due to the scheduled contact activity.

It is anticipated that water companies will soon be receiving PSR data from the DNO's shared with them by energy suppliers and this will significantly increase the level of new registrations, updates, and exceptions.

Other assistance provided

We offer our services to all customers in a variety of accessibility formats and provide other assistance and help where we can

Community Partnerships

We have continued to support local projects either financially, with collateral such as water saving devices or information leaflets or with volunteer days.

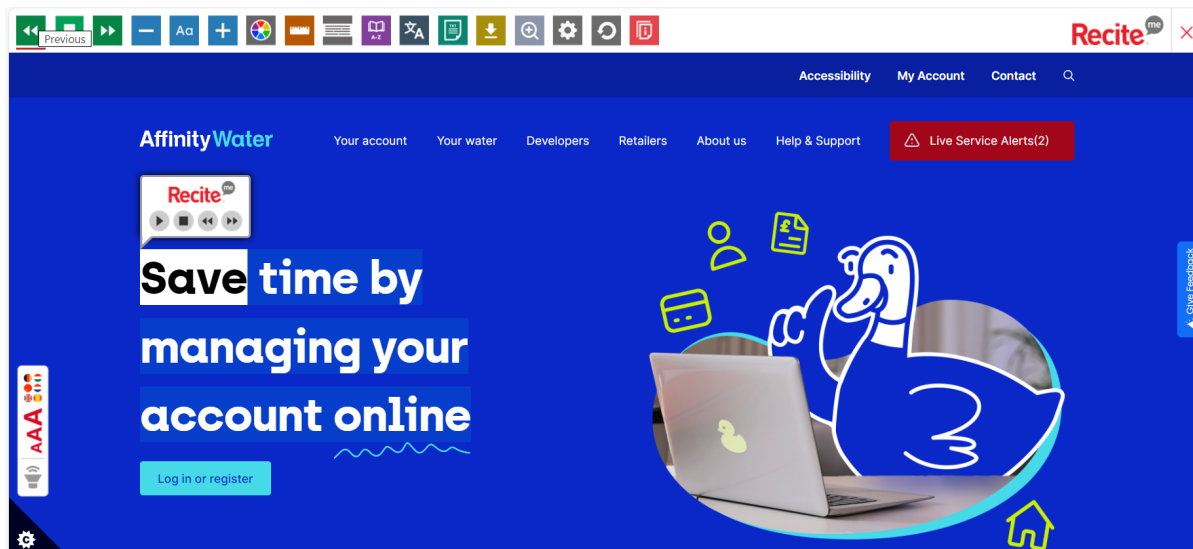
We also work with a local foodbank and hold regular 'surgeries' to ensure households are receiving appropriate support either through reduced bill tariffs, cost-of-living support or through the Priority Services Register.

We continue to attend other local events focused on cost-of-living pressures and use this as an opportunity to promote water saving devices and messages as well as reduced bill tariffs and Priority Services Register.

Accessibility

Making our website accessible for all is important to us, and our website has been designed with accessibility in mind. During 2023-24 our website was redesigned and provides improved accessibility. The website accessibility features are signposted upfront to enable immediate navigation. As far as is possible, we try to ensure that it

operates across multiple platforms and browsers and is accessible to everyone who wants to use it.



Its controls allow adaption to suit varying customer needs. A variety of settings can be chosen and saved for future visits. With standard, high contrast, blue and cream screen options available. Three text sizes are optional and wherever possible, links are written to make sense out of context. Content images use descriptive ALT attributes and decorative images include short ALT attributes. MyAccount app also includes a dark mode option.

Information is available in large print, braille, or audio on request via our call agents or through our priority services register page on the website.

Our site provides signposts to compatible accessibility software and services such as free text-only web browsers and British sign language video interpreters.

Information is also provided regarding independent advice organisations such as charities and services which may be able to assist our vulnerable and disabled customers.

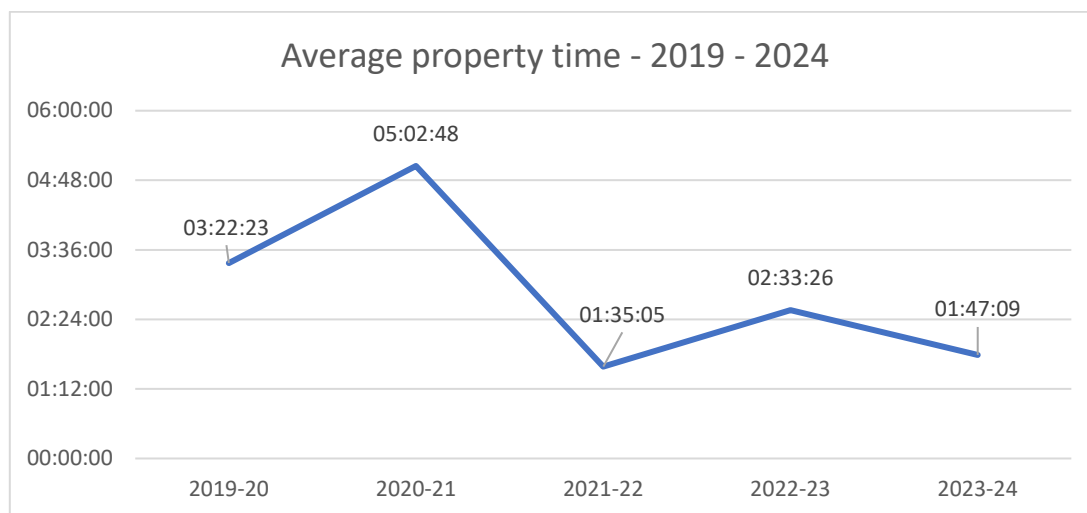
Licence condition G

In February 2024 the customer-focused licence condition (condition G) was introduced. Its aim is to improve the care given to customers particularly those who need extra help, by setting out the core principles of customer care, it is however for companies to determine how they comply with these principles and they may take differing approaches to do so. Since its implementation we have undertaken internal review of our policies, procedures and services to ensure compliance. Following internal evaluation we have sort external review to understand where gaps or improvements can be made. Once available improvements will be implemented over 2024-25.

3E.6 Average time properties experience low pressure

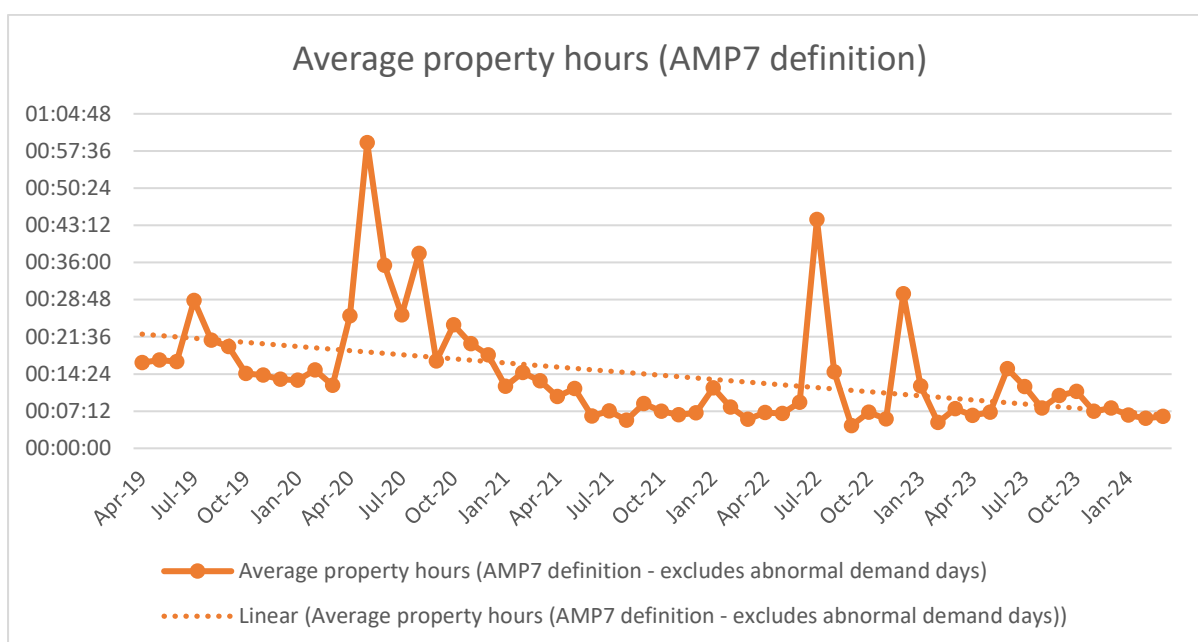
Our 2023-24 full-year performance is 01:47:09 against a Performance target of 09:00:00.

Below shows where this level of performance sits in comparison to previous years.



2023-24 was a relatively benign year in terms of the weather and environmental conditions experienced, and this is reflected in the reported performance level. Performance in previous years is also closely aligned to the weather patterns experienced in that given year. The effect of the Covid lockdowns (in combination with hot, dry weather) can also be seen clearly in 2020-21. Analysis of monthly data also bears this out, where the effects of high temperatures in summer and freeze/thaw events in winter can be seen clearly.

However, allowing for adverse weather conditions, our data shows that the trend in background level of low pressure (in the form of average time) is improving, as shown in the graph below.



We remain focussed on improving performance in this area and have a number of initiatives in place now to achieve this. These are primarily delivered via a monthly Low Pressure Programme Board, but also through separate targeted activities to resolve or improve pressure issues. We have also identified capital schemes for future delivery that will remove time by resolving local pressure issues.

The forecast for 2024-25 is 02:00:00. This reflects 'average weather' conditions and considers the continuing improvements in underlying performance we anticipate making throughout the year.

Performance in previous years highlights just how much this Performance Commitment can be affected by adverse weather conditions, which accounts for the variable year-on-year performance differences. So, while we are confident that our forecast is robust, it is reliant on there being average weather conditions through 2024-25.

Looking forward to AMP8, we have identified several workstreams to deliver the operational and systems improvements we believe are necessary to achieve and accurately report against the targets that we have proposed in our Business Plan submission. Again, these will be delivered via the monthly Programme Board, already established and sponsored by a member of the Customer Operations SLT.

3E.7-8, 11-12 Customers in vulnerable circumstances

We are committed to delivering an exceptional experience to all our customers, ensuring our services are available and inclusive to all. We offer a range of services, both for financial support (such as those receiving our Low Income Fixed Tariff) and for those registered on our Priority Service Register designed for those customers that may require extra help with communication, access, physical or other needs.

We ask our customers to tell us about their experiences with us and to score us from 0 (very dissatisfied) to 10 (very satisfied). We also ask our customers to tell us how easy we are to do business with, again scoring us using the same scale where 0 is not easy and 10 very easy.

The survey results provide the responses to the following questions:

- How satisfied are you with the service you receive from us?
- How easy are we to do business with?

Responses received

We survey customers through a variety of contact channels following an interaction with us. We aim to reach as many customers as we can to ensure the survey results provide a realistic reflection of all types of vulnerability experienced and a robust sample size for reporting.

Contact Channels

The PR19 final determination guidance sets out that surveys should be conducted through SMS, web, email, and end of call surveys.

'End of call' surveys are conducted through SMS or email sent at the end of the call. We believe it inappropriate for surveys to be conducted person-to-person during the telephone call as this may be open to bias, with customers uneasy to provide open and honest feedback and is also not in line with market research code of conduct best practice.

Proactive Survey

In addition, we also proactively contact customers via SMS who have not had contact with us for over 12 months, but who are on the PSR register or flagged as financially vulnerable.

As specified within the PR19 guidance, the commitment requires that the survey is conducted following an interaction. The proactive surveys results are therefore reported separately on our website alongside the survey results. As with our value for money metric, while all survey responses prove useful to understanding customer views, media cover and overall perceptions of water companies appear to heavily influence customer scores where an interaction has not actually taken place in the year.

Wording of questions

In line with our branding and tone of voice, the words 'we' and 'us' are used in place of 'Affinity Water' in the survey questions.

Customers surveyed

We can confirm that only contacts relating to billing and financial queries have been included in the 'receiving financial help' surveys. Further we can confirm that interactions relating to operational and metering queries have been excluded as

specified in the 'specific' exclusions within the guidance. We assume 'metering' to include meter reading queries.

For customers receiving non-financial help, surveys have been conducted solely with customers on the PSR register who we have interacted with us. This survey covers all activity types. We regard all contact with a PSR customer as a 'PSR interaction', vulnerability is not restricted to a narrow contact definition or only when PSR is directly referenced. PSR and vulnerability is broad reaching. It is essential we understand how we treat these customers in all services they receive, and how we can make their journey as smooth as possible.

In line with the requirements of the FD, the results have updated for 2023-24 and published on our website:

<https://www.affinitywater.co.uk/docs/performance/2024/Additional-Services.pdf>

3E.9 BSI Accreditation

In January 2024 we achieved certification to the new ISO standard 22458 – Requirements and guidelines for the design and delivery of inclusive service. The new standard supersedes BSI 18477 – Inclusive service provision.

The BSI Kitemark has been tailored specifically to demonstrate best practice for Water Provision. This includes alignment with Ofwat requirements including the Paying fair guidelines.

This international standard specifies requirements and guidelines for organisations on how to design and deliver fair, flexible and inclusive services that will increase positive outcomes for consumers in vulnerable situations and minimise the risk of consumer harm. It covers organisation culture and strategy, inclusive design and responding to consumer vulnerability.

We have held verification of certification to the BSI standard 18477 since Feb 2019 and transitioned to ISO 22458 in Jan 2024. Although most of the requirements are the same from the previous standard there are some new and enhanced clauses.

There will be an ongoing assessment each year and BSI will continually assess to confirm ongoing compliance with the scheme.

We can display on our website the BSI Kitemark which is a highly recognised mark which consumers trust.

3E.10 IT Resilience

The IT resilience metric monitors priority 1 & 2 incidents to ensure services are restored in a timely manner ensuring unplanned interruptions to services are kept to a minimum and therefore disruption to our customers.

The impact score for IT systems has improved year-on-year for the past 4 years. This continued reduction is due to the success of IT resilience initiatives that have been implemented, including:

Migration to the 'cloud' - All company servers continue to reside in the cloud, a highly available, highly scalable, and resilient environment which has reduced the number of outages due to server failures.

We continue to

- Adopt "Cloud 1st Ethos" with any new technologies, we leverage SaaS (software as a service) offerings where possible.
- Progress our IT Resilience Programme - looks to continually improve upon our strong foundational platform, by enabling regular hardware refreshes, regular patch management and application product upgrades to ensure we maintain vendor support.
- Focus on risk mitigation, identifying potential vulnerabilities and the measures to mitigate them, though implementing security controls and backup systems to establish continuity plans to address threats effectively.
- Focus heavily on security controls and measure to ensure we invest in tooling that proactively advises of potential cyber vulnerabilities allowing us to take swift remediation when necessary.
- Standard mandatory training across the organisation to improve technology awareness i.e., security best practises.

We continue to make improvements to our ServiceNow system (IT service management system) and the way we work. Where issues are identified, experts are assigned to each action, to track from root cause to resolution. We look to group recurring incidents, enabling identification of potential trends in cause(s) and impacts on lost time. This enables comprehensive post incident reviews which ultimately feed into future improvements.

The reported impact score is a total score derived from the availability/ outages of all our key systems though out the year. A summary of availability for these systems for 2023-24 is shown below:

	Yearly (Apr23-Mar24)		
	Total Downtime (Minutes)	Total available uptime Since April 2023 (Minutes)	% Uptime for Period
Totals	1,980	8,430,660	99.97%

Reporting and assurance

As required in the FD, we confirm that as part of our external assurance process IT resilience was audited by our external assurers, their statement is below: (taken from SAF)

A summary overview of the above can also be viewed in our APR Assurance report.

Summary

Table and Line Ref.	Subject	Assurance Summary		
		Methodology	Data	Findings
3E.10	IT resilience	Green	Green	The Company's methodology for reporting is robust, checks and controls are built into the processes and no issues were identified with the reporting with significant progress observed.

Methodology

The Company's methodology for reporting, resolving and mitigation is robust and in-line with the guidance set out in its Final Determination. The Company demonstrated that the systems it has in place captures all the required information to manage an IT incident, including their post incident review process. The Company has brought further changes to its ServiceNow system, for example, grouping recurring incidents to allow the Company to look at potential trends in cause(s) and the total impact on time lost. The Company continues to produce Post Incident Review Documents, capturing actions, ownership and completion/sign off.

Data and reporting

We were able to confirm that the Company is meeting its committed performance level. We conducted audits on Priority 1 and 2 incidents and found the data to be accurate and complete. The process is mainly automated through the ServiceNow system. The Company had 24 Priority 1 and 2 scoring incidents in the reporting year, and of all the instances, four instances in this reporting year accounted for half of performance level of 813.78.

When performing data check, we did not find any issues. The Company was able to demonstrate that its data and data controls were robust.

3E.13 Value for Money Survey

Our value for money survey seeks to understand householders' overall satisfaction with the 'value for money' of our service.

As part of our Customer Perception Survey, customers are asked to rate the value for money of the services they receive from us. Customers score from 0 to 10, where 0 is 'very poor value for money' and 10 is 'excellent value for money'. The surveys are conducted each quarter by an external market research company.

We are pleased to have achieved the VFM commitment level in 2023-24, with a score of 7.79. It is the first year in the current AMP period in which the target has been met. Throughout the period this has been a particularly difficult target to achieve, given the backdrop of customers facing rising costs of living and other post pandemic financial pressures. Customers have cited increasing household bills and being unable to compare price across sectors as reasons for lower scores.

We are committed to improving our customers perceptions of us and it is good to see the score, and therefore customers view of us, is improving.

While all survey responses prove useful to understanding customer views, the perception of value for money is reported against those customers that say they are confident they know their bill size. It is of note that where customers do not have an understanding of how much they pay for water service, their score of 'value for money' was lower than those who do. Media cover and perceptions of the overall cost of utilities appears to heavily influence this viewpoint rather than a knowledge of the actual cost of the water service.

In 2023-24 we moved survey provider to gain greater insights into our customers perceptions, from which we can develop plans to enhance performance. The VFM metric and question itself, however, remained unchanged.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Full year
Know their bill size (VFM survey)	7.82	7.62	7.63	7.63	7.79
Do not know their bill value	6.10	5.93	7.39	6.33	6.56

3E.14 WINEP delivery (Water Industry National Environment Programme)

We have not had any schemes or investigations under our WINEP due for completion in the 2023-24 reporting period.

Schemes completed to date are reported under line 5A.30

Forecast for the remainder of AMP7

We are currently on track for year 5 (2024-25) to deliver the requirements of the WINEP reputational PC. The table below shows the WINEP schemes and investigations from our WINEP_2020_Affinity tracker managed by the Environment Agency (EA) with supporting commentary related to each WINEP Action ID.

The table below shows the remaining schemes and investigations due for completion under our WINEP programme for AMP7.

Scheme/ Investigation ID	Waterbody name / Scheme name	Agreed completion date	On track?
7AF100032	River Ivel sustainability change (Baldock Road, Bowring and Fuller), river augmentation and river restoration	22/12/2024	Yes
7AF100033	Cam Rhee Granta sustainability change (Wenden, Newport, Debden Road and Uttlesford Bridge) licence capping	22/12/2024	Yes
7AF100034	Cam Rhee Granta sustainability change (Wenden, Newport, Debden Road, Springwell and Uttlesford Bridge) River restoration and change to flow trigger condition	22/12/2024	Yes

7AF100043	Cam and Ely Ouse Chalk	22/12/2024	Yes
7AF100054	Mid Chilterns Chalk investigation and options appraisal	31/03/2025	Yes
7AF100061	River Ver (Holywell and Mud Lane) sustainability change	22/12/2024	Yes
7AF100062	River Ver river restoration project	31/03/2025	Yes
7AF100067	River Mimram (Digswell) sustainability change	22/12/2024	Yes
7AF100068	River Lee (from Luton to Luton Hoo Lakes) sustainability change (Runley Wood)	22/12/2024	Yes
7AF100069	River Lee (from Luton to Luton Hoo Lakes) sustainability change (Periwinkle Lane)	22/12/2024	Yes
7AF100070	River Rib investigation and options appraisal	31/03/2025	Yes
7AF100072	River Ash investigation and options appraisal	31/03/2025	Yes
7AF100073	Lee Navigation (Hertford to Fieldes Weir) investigation and options appraisal	31/03/2025	Yes
7AF100075	Stort and Bourne Brook investigation and options appraisal	31/03/2025	Yes
7AF100078	Stort (at Clavering) investigation and options appraisal	31/03/2025	Yes
7AF10008	River Brett sustainability change and adaptive management (river restoration)	22/12/2024	Yes
7AF100092	Upper Lee Chalk investigation and options appraisal	31/03/2025	Yes
7AF100116	Alma Road (Chesham) Sustainability change	31/03/2025	Yes (EA requested a Section 20 Agreement to address flood risk concerns. Sign off being progressed.)
7AF100118	Amersham Sustainability change	31/03/2025	Yes
7AF100119	Chartridge Sustainability change	31/03/2025	Yes
7AF100126	River restoration - Gade	31/03/2025	Yes
7AF100127	River restoration - Misbourne	31/03/2025	Yes
7AF100128	River restoration – Upper Lee	31/03/2025	Yes
7AF100129	River restoration - Beane	31/03/2025	Yes
7AF100130	River restoration - Mimram	31/03/2025	Yes
7AF100131	River restoration – Upper Colne	31/03/2025	Yes
7AF100132	River restoration - Bulbourne	31/03/2025	Yes
7AF100133	River restoration – Chess	31/03/2025	Yes
7AF110002	River restoration – Lower Colne u/s Maple Lodge STW	31/03/2025	Yes
7AF200001	INNS on company land	31/03/2025	Yes
7AF200002	INNS partnership project (INNSOut)	31/03/2025	Yes

7AF200009	Slip End nitrate catchment management	22/12/2024	Yes
7AF200010	Offley Bottom nitrate catchment management	22/12/2024	Yes
7AF200011	Oughton Head nitrate catchment management	22/12/2024	Yes
7AF200013	River Colne (Essex) at risk pesticides catchment management	22/12/2024	Yes
7AF200014	Ardleigh Reservoir at risk pesticides catchment management	22/12/2024	Yes
7AF200015	North Mymms at risk pesticides catchment management	22/12/2024	Yes
7AF200016	Clay Lane group at risk pesticides catchment management	22/12/2024	Yes
7AF200017	Essendon at risk pesticides catchment management	22/12/2024	Yes
7AF200018	Kings Walden nitrate catchment management	22/12/2024	Yes
7AF200019	Chipping nitrate catchment management	22/12/2024	Yes
7AF200025	River Thames DrWPA at risk pesticides catchment management	22/12/2024	Yes
7AF200026	Lower River Wey DrWPA at risk pesticides catchment management	22/12/2024	Yes
7AF200038	Broome nitrate catchment management	22/12/2024	Yes
7AF200039	Kingsdown nitrate catchment management	22/12/2024	Yes
7AF300002	Upper Colne – Clay Lane group options appraisal	31/03/2025	Yes

Table 3F - Underlying calculations for common performance commitments - water and retail

3F.8 We have calculated unplanned outage on the basis of 366 days; 2023-24 being a leap year.

Table 3H - Summary information on outcome delivery incentive payments

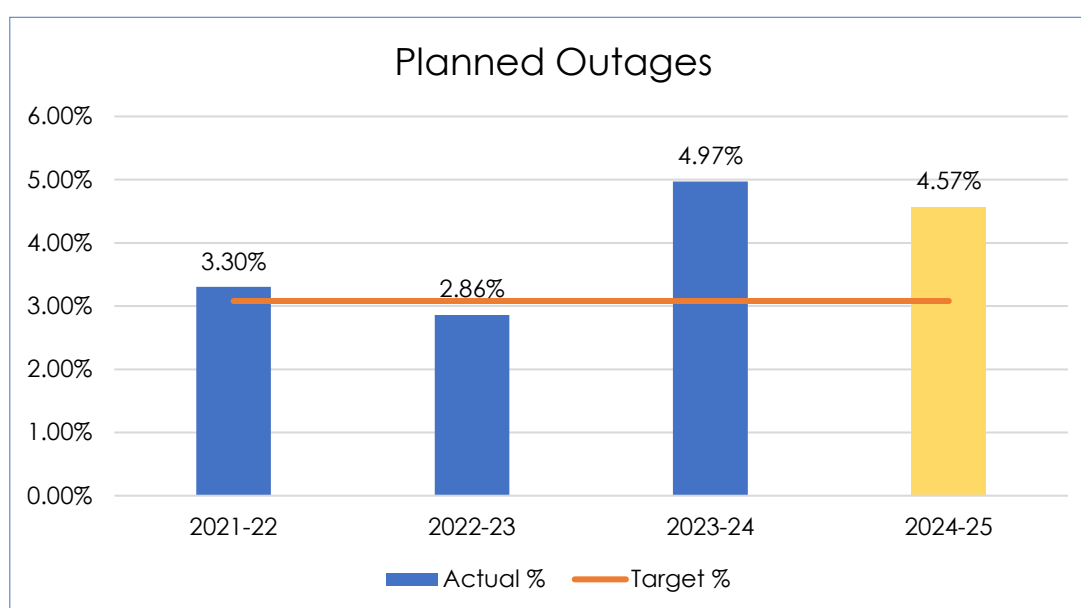
Water Network Plus

We have adjusted the leakage reward to reflect 0 for 2023-24. On this basis of requesting to defer the leakage reward this year. We anticipate we will achieve full compliance in 2024-25 (Year 5).

Table 3I - Supplementary outcomes information

3I.1 Planned outage and reduction in PWPC

We have an internal target for Planned Outage to be less than 3% of PWPC, driving improvements in planning, management, and record-keeping of scheduled site outages. As of 31 March 2024, our planned outage was 4.57%, which is a reduction from 4.97% in the previous year (2022-23). This decrease is attributed to major works at our Iver Water Treatment Works, resulting in the curtailment of other activities and a reduction of PWPC by 56.48 MLD.



We have calculated planned outage on the basis of 366 days, 2023-24 being a leap year.

3I.2 Risk of severe restrictions in drought

Please refer to commentary given under 3E.1.

For columns 4 to 9 of line 3I.2, we have made the following assumptions:

- Col's. 4-8 (from "deployable output" to "total population supplied") are reported as in-year figures rather than averages.
- Col. 9 Customers at risk is reported as the 25-year average, consistent with the percentage of customers at risk reported in Table 3E.
- Elements 4 to 8 (from "deployable output" to "total population supplied") are reported as in-year figures rather than averages

Section 4: (Additional regulatory information – service level)

Table 4A - Bulk supply information for the 12 months ended 31 March 2024

4A.1 to 4A.26 Bulk supply exports

The total number of bulk exports is 41. This is an increase of 16 from 2022-23, all of which are new exports to NAVs.

In lines 4A.5-16 (exports to NAVs) we have indicated the number of individual metered connections to our network i.e. the number of individual bulk exports.

NAV sites have been grouped as there is not sufficient lines within the Excel data table to report sites individually.

Bulk Export grouping	NAV Sites
NAV-1-Independent Water Networks Ltd (Connections: 1)	NAV-1-Kings Langley
NAV-1-ICOSA Water Services Ltd (Connections: 1)	NAV-1-Wilton Park
NAV-1-Leep Utilities (Connections: 1)	NAV-1-Spencers Park, Hemel Hempstead
NAV-3-Independent Water Networks Ltd (Connections: 6)	NAV-3-Barnfield Avenue. NAV-3-Bidwell. NAV-3-Bidwell Bedford Road. NAV-3-Bidwell Parcel B. NAV-3-East of Stevenage, Gresley Way (North). NAV-3-Heath Lane, Codicote.
NAV-4-Independent Water Networks Ltd (Connections: 4)	NAV-4-Block D Beaufort Park, Colindale. NAV-4-Nestles Avenue. NAV-4-Nestles Avenue 1. NAV-4-Woodside Park, North Finchley
NAV-4-Leep Utilities (Connections: 1)	NAV-4-Clayton Road, Hayes, Middx
NAV-5-Independent Water Networks Ltd (Connections: 5)	NAV-5-Hadham Road. NAV-5-Henham Road. NAV-5-Silver Leys. NAV-5-Station Road Felstead. NAV-5-West Road.
NAV-5-ICOSA Water Services Ltd (Connections: 1)	NAV-5-West Of London Road
NAV-6-Independent Water Networks Ltd (Connections: 2)	NAV-6-Canalside, Sheerwater, NAV-6-Manor Farm, Surrey.
NAV-7-Independent Water Networks Ltd (Connections: 5)	NAV-7-Archers Court. NAV-7-Archers Court 2. NAV-7-Folkstone Seafront. NAV-7-Martello Lakes. NAV-7-Whitfield 2, Dover.
NAV-7-Leep Utilities (Connections: 1)	NAV-7-Rhodes Park, Kent
NAV-8-Independent Water Networks Ltd (Connections: 9)	NAV-8-Brook Park West. NAV-8-Lady Nelson Gardens, Frinton. NAV-8-Long Road, Mistley. NAV-8-Low Road, Dovercourt. NAV-8-Low Road, Dovercourt (2). NAV-8-Sladburys Lane, Holland on Sea. NAV-8-Oakwood Park. NAV-8-Turpins Ride, Walton On Naze. NAV-8-Weeley Road, Colchester.

4A.27 to 4A.52 Bulk supply imports

Cockfosters bulk import from Thames Water is a new import in 2023-24.

Table 4Q - Developer services - New connections, properties and mains

4Q.1-12 New connections and properties

The decrease from 2022-23 in new connections and properties reflects a downturn in the housing construction industry. We understand the factors causing this include:

- Change in market dynamics due to economic uncertainty.
- Shortages in the skilled labour market.
- Cost inflation in construction materials and labour.
- Supply chain disruptions.

4Q.13 Length of new mains - Requisitions,

Requisition mains continue to be laid mostly on smaller sites, where there is less incentive for developers to use self-lay providers. Many smaller sites have continued to be developed and consequently the reduction in requisition mains length when compared to 2022-23 is relatively small (13.5km against 15.0km).

4Q.14 Length of new mains - SLP's,

There is a more substantial reduction in the length of main laid by Self Lay Providers compared to 2022-23 (15.9km against 30.5km). Larger development sites, which are more likely to use SLPs, have been hit disproportionately by current market conditions, with many larger schemes being held back.

Table 4R - Connected properties, customers, and population

4R.1-9 customer numbers average in the year

The overall number of business customers has fallen from 2022-23 as we are still identifying properties which are no longer classified as non-household due to redevelopment, change of use, or have been disconnected from the network as the supply is no longer required.

Both the billed measured and unmeasured non-household customers have decreased since 2022-23. This is likely to be because of ongoing economic issues that are affecting the country as many high street shops have closed over the past 12 months.

Over the last year we have seen an increase in retailers disconnecting customers temporarily for lack of payment, rising from 127 in April 2023 to 410 in March 2024. This is likely due to the increased costs for running businesses meaning that they are not able to pay their bills.

4R.18 Total number of new business properties connections

The total number of new business properties connections has decreased to 186 from 204 in 2022-23. A relatively large number of new connections are not being marked as occupied (127 for 2023-24). This remains a concern, although we ensure that we are billing the retailers for any recorded consumption on the meters.

4R.20 Residential properties unbilled at year end

We have identified 27,888 residential properties as being uneconomical to bill and have excluded these from void calculations. These are properties that are listed as billed measured properties that have an occupancy status of empty/no named customer listed as bill payer in the billing system and where meter reads show that the consumption is less than or equal to 5m³ (as detailed in APR-21 queries AFW-APR-CA-003 and 005). The annual average equivalent used in annual average voids calculations is 26,397. There are no 'other' unbilled properties recorded.

4R.23 - Business properties billed at year end

The number of billed properties at year end is 1,036 lower than the 2022-23 figure. This is a large decrease which we understand to be due to the difficult economic climate in which our business customers operate in.

4R.24 Business properties unbilled at year end

There are 411 business properties that we have temporarily disconnected from supply due to lack of payments to their relevant retailers and we have excluded these from the overall property connections list. This figure is almost double that in 2022-23 (206 properties). As with the reduction in billed properties this is likely due to the difficult economic climate meaning more business customers were unable to pay their bills and have been disconnected for lack of payment.

We report these as 'Unbilled – Other' as they most closely align with properties that are unbilled in the guidance.

4R.25 - Business void properties at year end

The total number of business void properties has increased from 2023-24 by 554.

4R.26 - Total connected business properties at year end

The total number of business properties has decreased from 2023-24 by 277.

4R.28 – Resident population

Resident population has increased from 3,950,010 to 3,960,288. The net increase of 10,278 people is lower than the 2022-23 increase due to deceleration in population growth seen in the data and rebasing of the population from the outputs of Census 2021.

As in previous years, we have purchased annual population data from CACI. The data set contains estimates for both household and non-household/ communal population. The data sources used for the assessment of household and non-household population are given below.

Data Source	Source
Population:	
2021 Local Authority Mid-Year Estimates	ONS
2020 LSOA Population Mid-Year Estimates	ONS
2020-2043 2018-based Local Authority Population Projections	ONS
2021-2071 2020-based Principal National Population projections	ONS
2011 Census OA split between communal and household population	ONS
Households:	
2020-2043 2018-based Local Authority Household Projections	ONS
2021 LSOA Census population and households	ONS

The methodology used is as follows:

1. We use the 2021 census postcode head-count datasets to make initial estimates in each postcode.

2. Postcode and PAF (Postcode Address File) change data are then applied to all postcodes and estimates are rolled forward.
3. ONS Mid-year estimates at Super Output Area level, apply PAF changes year-on-year.
4. Transfer postcode base estimates to most up-to-date geographies. Postcode populations are scaled to match the LA/UA projections. By comparison of PAF year-on-year, an estimate is made of the proportion of change in a postcode which is due to communal population, and the proportion due to change of population in households.
5. From postcode link to Water Resource Zone (WRZ) shapes which Affinity Water provided to CACI to derive the WRZ population figures.

As in previous years, we adjust to account for the hidden and transient populations within our water balance. This adjustment includes an estimate for:

6. Short term residents - Anyone living in England and Wales who was born outside the UK and who intended to stay for a period of between 3 and 12 months, for any reason.
7. Second address within the Affinity Water operating area - An address at which a person stays for more than 30 days per year that is not a person's place of usual residence.
8. Irregular migrants - The term 'irregular migrants' typically refers to the stock of migrants in a country who are not entitled to reside there, either because they have never had a legal residence permit or because they have overstayed their time-limited permit.

We also adjust for fringe supplies sitting outside the Affinity Water boundary but supplied by Affinity Water and for those properties sitting inside the Affinity Water boundary but supplied by neighboring water companies or by NAVs.

4R.30 - Household population

This figure is as 4R.28 but with communal and non-household population removed from the total count.

4R.31, 4R.32 – Household measured and unmeasured population

To split population between measured and unmeasured properties we take the following steps:

1. Property numbers are provided by the water balance team.
2. The AR23 occupancy rates are multiplied by the number of measured and unmeasured properties accordingly at a resource zone level.

-
3. This is then reconciled against the total household population generated and additional population redistributed. This means that the ratio of measured to unmeasured population numbers is maintained but the numbers are adjusted proportionally.

Section 5- (Additional regulatory information – water resources)

Table 5A - Water resources asset and volumes data for the 12 months ended 31st March 2024

Line 5A.1 – Water from impounding reservoirs

The volume has increased by 5.45ML/day (259%) from 2022-23 and reflects increased use of 'emergency' sources at Egham WTW due to the high turbidity levels experienced during the year in water from the River Thames.

Line 5A.2 – Water from pumped storage reservoirs

There has been a 17% reduction of pumped storage abstraction from Chertsey WTW due to a temporary operational restriction at the site.

As in previous years we have not included Ardleigh (6.93ML/d) within this line.

Line 5A.3 – 5A.4 Water from river abstractions and groundwater works

The proportions of water from river vs groundwater have not changed significantly from 2022-23.

Lines 5A.5 – 5A.8 water from other sources

We do not have any sources of types listed in lines 5A.5 – 5A.8.

5A.9 - Number of impounding reservoirs

As in previous years, we have classified Heron Lake and Queensmead Lake as impounding reservoirs. We consider this the closest category available for reporting these sources, although they may not strictly fall into that classification.

5A.10 - Number of pumped storage reservoirs

As in previous years, we classify our Chertsey works' river volume as pumped storage. The raw water reservoir receives water abstracted from the River Thames which is then pumped into the treatment works.

5A.11 - Number of river abstractions

This line remains unchanged from 2022-23 and there is no change from the PR24 2023-24 forecast.

5A.12 - Number of groundwater works, excluding managed aquifer recharge (MAR) water supply schemes

The number of groundwater works has decreased by two from 2022-23, due to the exclusion of Marlowes and Kingsdown. Marlowes has been out of service, with only a small volume used for flushing. Kingsdown has not run due to high nitrate levels. Marlowes and Kingsdown were not accounted for in PR24 2023-24 forecast due to operational issues which are difficult to predict.

5A.13 – 5A.16 – Number of other water supply schemes

We do not have any schemes of the types listed in lines 5A.13 – 5A.16.

5A.18 – 5A.19 Water reservoirs

Numbers are unchanged from 2022-23.

5A.20 - Total number of intake and source pumping stations

The number of intake and source pumping stations has decreased by two from 2022-23 due to the exclusion of Kingsdown and Marlowes (see 5A.12 above).

5A.21 Total installed power capacity of intake and source

The net reduction of 507kW from 2022-23 is due to the following changes:

Increases:

- Upsized pumps at Wheathampstead and Great Missenden and one pump at Holywell.

Decreases:

- Kingsdown and Marlowes sites out of service (see 5A.12 above).
- Chertsey wells 4A-E pumps, one pump at Bulstrode and one pump at Piccotts End out of service.
- A downsized pump at Debden Road.

- North Mymms pumps are now going into distribution, so a proportion of the kW is now allocated to the potable pumps.

Changes from PR24 2023-24 forecast include Kingsdown and Marlowes (5A.12) and Iwer standby pumps not yet fully commissioned (to be included from 2024-25 onwards).

5A.22 Total length of raw water abstraction mains and other conveyors

The 0.96km length reported in this line is the balancing main from Heron Lake to Queensmead.

5A.23 Average pumping head – raw water abstraction

Trend Analysis

Average pumping head for raw water abstraction has increased from the prior year, largely influenced by an increase in raw water pumping head in our Central region. Despite a lower volume of water abstracted in 2023-24, the percentage of this volume sourced from boreholes requiring higher lift increased. This aligns with our effort to optimise locally sourced water over more expensive transferred water.

In our Southeast region there was an 11% reduction in APH raw water extraction. This region is supplied through 100% groundwater sourced water and therefore easily affected by factors such as groundwater levels and demand. The region experienced rapid groundwater recharge during the year, reducing the required lift from boreholes as well as lower than average flow requirements.

APH – raw water abstraction	AWC	AWSE	AWE	Weighted Average
2022-23	16.48	27.04	23.34	17.23
2023-24	17.09	24.11	23.42	17.63

Methodology

The percentage of total lift at site/pump group level is derived from telemetry output and has been calculated using verified annual abstraction volumes (wherever in context with abstraction source pumps) from 2023-24.

This year we have changed our methodology of measuring estimated data by site to volumetric lifting flows. This provides a more accurate representation of our estimated data and shows that we have better coverage than we reported previously. Measuring by site we have a total coverage of 87%, which rises to 91.86% when reporting by volume. It also gives us better insight into what sites would benefit most from improving actual data coverage.

The percentage of measured data across the entire company for Raw Water Abstraction price control area was 71.86%, which is notably lower than the average across all price control areas (91.86%). This results largely from our estimated methodology for lver abstraction, without which we would have 94% actual data for Raw Water Abstraction.

Estimations were made on missing or insufficient data available. The estimation method for pressure data for the price control included using previous years' static head or accepting models from previous years, where there was no evidence of radical interventions at sites/pump sets. One exception was at Amersham, where up-to-date static data using local monitoring was used. Of the estimated calculation, 100% used engineering calculations to obtain a figure.

As is prior years, for our Brett (East) region we do not report pumped storage volumes from Ardleigh Reservoir. However, we do include the pumps associated with Ardleigh Reservoir and their head calculation is part of the APH model for 'treated water distribution'.

Significant changes from 2023-24 (m.Ml > 100, change >50% or <-50%):

Site Name	Flow Volume [MLD]	Total Lift [m]	Volumetric flow lifting [m.Ml]	% Change	Commentary
West Hyde	-0.44	88.8	1506.1	430%	New treatment onsite
Bowring (Abstraction)	0.59	48.7	280.6	112%	Increased well level
Redricks Lane	4.22	-15.7	133	14114%	Site was out of supply previous year
Primrose Pumping Station	1.44	7.4	165	405%	Site was out of supply for large portion of previous year
Digswell	4.23	2.6	352.9	79%	Due to high groundwater levels there has been no abstraction license restriction this year

5A.24 Energy consumption - water resources (MWh)

See Energy commentary under 6B.23

5A.25 – 5A.28 – Raw water abstraction imports and exports

We do not have any raw water abstraction imports or exports.

5A.29 Water resources capacity

We measure water resources capacity in terms of water resources yield, which captures the annual average volume of water available from the environment and constrained by water resources control assets (network and treatment constraints).

The deployable output (DO) values used to calculate the water resources capacity figure are from WRMP14 and WRMP19 values (based on a 1 in 200-year drought). Where network and treatment constraints have been identified, the average DO values have been uplifted using expert judgement to account for the sources' full capability under drought conditions. The cumulative climate change effect is then applied.

Water resources capacity, and the resulting potential DO uplifts, constitute a theoretical scenario only. We have an agreed programme of licence capping and sustainability reductions to leave more water in the local environment. Therefore, we need to take a cautious approach to any increases in abstraction due to the removal of network and treatment constraints in catchments that are deemed environmentally sensitive.

Year-on-year changes to the water resources capacity reflect the WRMP climate change figures, which are cumulative. The difference between the 2022-23 and 2023-24 figure is 1.2 MI/d, comprising 1.18 MI/d climate change effect, plus an adjustment of 0.02 MI/d to the 1:200 DO at Broome.

As stated in our APR-23, we do not include Grafham in our calculation as this volume is accounted for already as a treated water import.

5A.30 – Total number of completed investigations (WINEP/NEP), cumulative for AMP

As we had no schemes or investigations under WINEP due for completion in 2023-24, the cumulative number reported in this line is unchanged from that reported in APR-23.

The 26 investigations completed are detailed below.

Investigation ID	Waterbody name / Scheme name	Number of WINEP lines	Actual completion date
7AF10008	River Brett at confluence with Stour (WR)	1	31/03/2022
7AF200003	Raw Water Transfer – New Water Transfers being considered under WRMP (FBG)	1	27/03/2022
7AF200006	Investigation – NERC41 Species and Habitats (FBG)	1	30/03/2022
7AF200007	Investigation – Partnership projects (FBG)	1	30/03/2022
7AF200008	National Pollinator Strategy Investigation (FBG)	1	30/03/2022
7AF200012	Newport PS nitrate investigation (WQ)	1	31/03/2022
7AF200021	Roestock PS agricultural pesticide investigation (WQ)	1	31/03/2022
7AF200022	Stanstead PS nitrate investigation (WQ)	1	31/03/2022

7AF200024	North Mymms SgZ nitrate investigation (WQ)	1	31/03/2022
7AF300001	Whitehall nitrate investigation (WQ)	1	31/03/2022
7AF100001	Chelmer (u/s Gt. Easton) (WR)	2	30/01/2023
7AF100006	North Essex Chalk (WR)	4	30/01/2023
7AF100042	Upper Bedford Ouse Chalk (WR)	17	07/03/2023
7AF10009a and b	Stutton Brook (WR)	2	30/01/2023
7AF100136	Nailbourne and Little Stour (WR)	1	30/01/2023
7AF100137	Nailbourne and Little Stour (WR)	1	30/01/2023
7AF100142	Nailbourne and Little Stour (WR)	1	30/01/2023
7AF100145	Upper Dour (WR)	1	30/01/2023
7AF200030	Dour from Kearsney to Dover (WR)	1	30/01/2023
7AF200031	Dour from Kearsney to Dover (WR)	1	30/01/2023
7AF200032	Dour from Kearsney to Dover (WR)	1	30/01/2023
7AF200033	Dour from Kearsney to Dover (WR)	1	30/01/2023
7AF200034	Dour from Kearsney to Dover (WR)	1	30/01/2023
7AF200035	Dour from Kearsney to Dover (WR)	1	30/01/2023
7AF200036	North and South Streams at Northbourne (WR)	1	30/01/2023
7AF200037	North and South Streams at Northbourne (WR)	1	30/01/2023

Further information on WINEP investigations can be found under line 3E.14.

Section 6 - (Additional regulatory information – water network plus)

Table 6A - Raw water transport, raw water storage and water treatment data for the 12 months ended 31st March 2024

6A.1 - Total number of balancing reservoirs

This line is unchanged from our APR23 submission.

6A.2 - Total volumetric capacity of balancing reservoirs

This line is unchanged from our APR23 submission.

6A.3 - Total number of raw water transport stations

This line is unchanged from our APR23 submission. However, there is one change from the PR24 business plan 2023-24 forecast because we continue to convey Chalfont St Giles source water to Amersham for treatment, so this remains as a raw water transport station with the raw water transport pumps still in use. Our plan remains for Chalfont St Giles to revert to a treatment site, but this has been delayed due to surface-water flooding on site from the River Misbourne.

6A.4 - Total installed power capacity of raw water transport pumping stations

The decrease from 2022-23 in capacity apportioned to raw water transport is a consequence of an amendment to APH percentages for our East (Brett) region.

6A.5 Total length of raw water transport mains and other conveyors

The slight increase of 0.45km from APR-23 is because of better information, not a physical increase in the length of main in the ground.

6A.6 Average pumping head – Raw Water Transport

Trend Analysis

There was a marginal increase in APH for raw water transport that aligns with the increased figures for APH raw water abstraction in the year (see 5A.23).

APH – raw water transport	AWC	AWSE	AWE	Weighted Average
2022-23	19.86	0.39	57.44	20.28
2023-24	19.55	0.30	53.53	20.42

Methodology

The percentage of raw water transport loss at site/pumping group level (where water abstraction site and water treatment works were not located at the same site) was calculated from telemetry output, pipework information from Infoworks, GIS and hydraulic models.

The measured data for this price control area is 99.61% with only two sites using estimated data. Both of which have been calculated using engineering calculations in line with previous years.

6A.7 Energy consumption – raw water transport (MWh)

See Energy commentary under 6B.23

6A.12 Total length of raw and pre-treated (non-potable) water transport mains for supplying customers

The reduction of 1.97km from 2022-23 is due to blending mains from Temple End and Well Head WTWs to Windmill Hill Reservoir becoming fully potable following treatment upgrades at those works.

6A.15 - W2 works

The number of GW2 works has decreased by one with the addition of granular activated carbon treatment at Stonecross, making the works GW4.

6A.17 - W4 works

The total number of GW4 works remain unchanged from 2022-23, but see commentary for 6A.15 and 6A.18 for works adjustments.

6A.18 W5 works

The number of GW5 works has increased by one with the addition of ion exchange (chromium removal) at Wheathampstead (previously a GW4 works).

6A.20 – 6A.27 Water treatment works by size bands

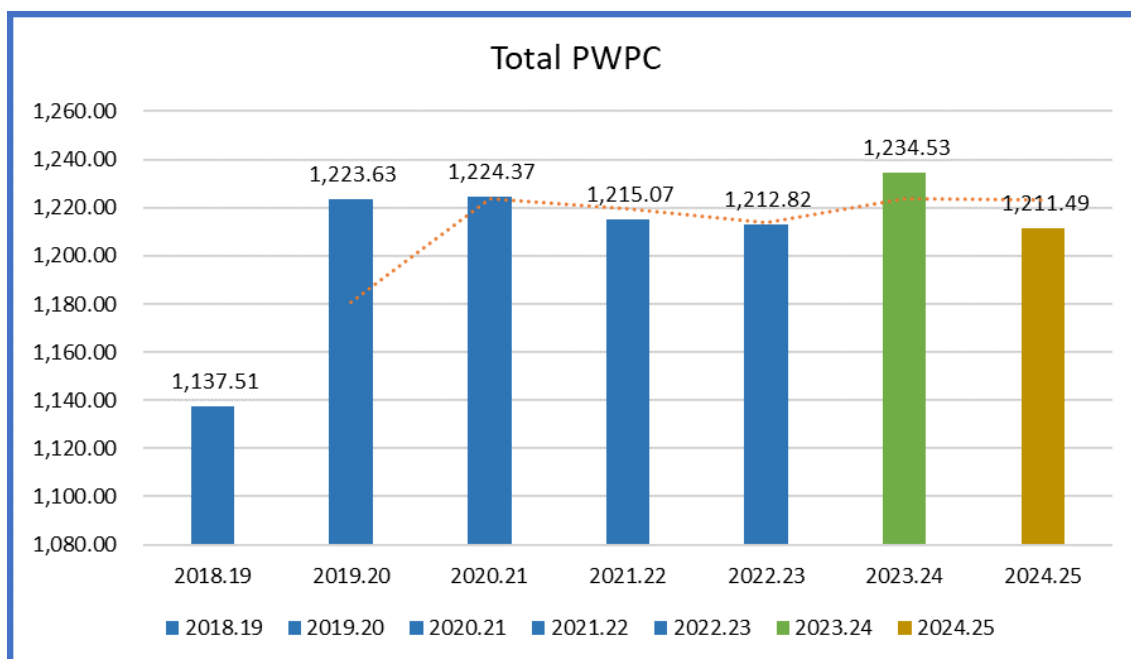
In line with the RAG4.11 revision to the reporting guidance, we have calculated the number of treatment works in each band against peak week production capacity (PWPC). We have not included bulk imports or bulk exports, with the exception of the export to South East Water as this is directly exported from Egham WTW.

6A.28 Peak week production capacity (PWPC)

We have evaluated PWPC through analysis of site performance data over a five-year period from 1 April 2019 to 31 March 2024. We have taken into consideration modifications to assets, processes, and license changes during this period.

Our analysis shows a downward trend in PWPC, which we attribute to several factors:

1. Long-term outages during this period that reduced our capacity.
2. Sustainability reductions that have a positive effect on the environment (especially chalk streams) and the contribution of operational changes to this trend.
3. Improvements in our capability to acquire and analyse data over time, allowing us to more accurately assess our PWPC.



Whilst telemetry data plays a key role in our evaluation process, we recognise its limitations, particularly its susceptibility to weather conditions. Many of our sites go directly into supply and we have historically used periods of high demand as a

surrogate for testing, providing real-world data on how our sites perform under stress, which are potentially more informative than traditional capacity tests. It also demonstrates adaptability and learning opportunities from challenging circumstances. We have a number of sites returning to service during 2024-25 and will conduct capacity tests and assessments as part of this process.

We are committed to addressing these challenges and implementing measures to enhance our capacity testing and ensure compliance with the guidelines.

Please see 3A.6 for more further information regarding PWPC and capacity testing.

6A.29 PWPC having enhancement expenditure for grey solution improvements to address raw water quality deterioration

The PWPC for the following treatment works are included:

Treatment works	MI/d
Iver	225.58
Egham	137.4
North Mymms	28.30
Holywell*	19.00
Drellingore	9.19
North Stortford*	6.73
Lye Oak	6.20
Kingsdown*	2.86
Broome*	2.39
Oughton Head**	0.00
Total	437.65

* Sites brought forward into the accelerated funding scheme

** Oughton Head has no PWPC as the treatment works is currently not in service. We are carrying out works to bring the site back into use.

6A.30 PWPC having enhancement expenditure for green solution improvements to address raw water quality deterioration

We do not have any sites to report under green solutions.

6A.32 Number of treatment works requiring remedial action because of raw water deterioration

We have 11 treatment works that require remedial action because of raw water deterioration. This is an increase on 2023, when there were seven. The increase is due to DWI issuing Notices as part of the PR24 process. The 11 works are:

Site	Reason	DWI Reference
Iver	Cryptosporidium	AFW-2020-00005
Egham	Cryptosporidium	AFW-2020-00006
Windmill Hill	Microbiological parameters	AFW-2021-00004
Broome	Nitrate	AFW-2023-00001
Kingsdown	Nitrate	AFW-2023-00002
Stansted	Nitrate	AFW-2023-00004
Holywell	PFAS	AFW-2023-00003
Bowring	PFAS	AFW-2023-00008
Wheathampstead	PFAS	AFW-2023-00009
Blackford	PFAS	AFW-2023-00010
Ardleigh	PFAS	AFW-2023-0001

We were released from the Undertakings for metaldehyde at Iver, Egham, Chertsey, Walton, Ardleigh (DWI Ref AFW-2019-00002) and North Mymms (DWI Ref AFW-2020-00003) during the year following the ban on the outside use of metaldehyde and the subsequent reduction in metaldehyde concentrations detected in the raw water sources for these treatment works.

We are currently in discussions with DWI regarding an Undertaking for 12 other treatment works that we regard as tier 2 in respect of PFAS. These will be included in this line for 2025 should the Undertaking come into force during the year.

6A.33 Zonal population receiving water treated with orthophosphate

The small increase in population receiving orthophosphate dosed water is due to the population increase across our supply area. The number of orthophosphate dosing plants has remained the same and these plants are supplying the same water supply zones as in 2023.

6A.34 Average pumping head – water treatment

Trend Analysis

There is a decrease in APH for treated water which reflects the reduced volume of treated water compared to 2022-23.

APH – water treatment	AWC	AWSE	AWE	Weighted Average
2022-23	11.66	9.93	0.00	11.16
2023-24	10.98	8.77	0.00	10.32

Methodology

The percentage allocation of treatment head loss at site/pumping group level has been calculated by static height differences or by deducting the 'Pressure available before treatment' from the 'Head available before distribution' values. This data has been verified as part of the review of the APH calculation.

Using as much verified total lift and flow data as possible for abstraction or raw water transport price control areas, data thus also helps to indirectly validate the treatment losses for each site/pump sets.

Of the estimated calculation, 100% used engineering calculations to obtain a figure.

The proportion of measured data for this calculated treatment head losses was around 85.8%, achieving the 80% threshold. Where the estimates were indirectly related to missing pressure data downstream at the process associated with raw water abstraction and transport price control areas. 86.1% of systems were calculated using actual data.

Significant changes from 2023-24 (m.MI > 100, change >50% or <-50%):

Site Name	Flow Volume [MLD]	Total Lift [m]	Volumetric flow lifting [m.MI]	% Change	Commentary
West Hyde	-0.44	88.8	1506.1	430%	New treatment onsite
Bowring (Abstraction)	0.59	48.7	280.6	112%	Increased well level
Redricks Lane	4.22	-15.7	133	14114%	Site was out of supply previous year
Primrose Pumping Station	1.44	7.4	165	405%	Site was out of supply for large portion of previous year
Digswell	4.23	2.6	352.9	79%	Due to high groundwater levels there has been no abstraction license restriction this year

6A.35 Energy consumption - water treatment (MWh)

See Energy commentary under 6B.23

6A.36 - 39 Water treatment imports and exports

We do not currently have any water treatment imports or exports

Table 6B - Treated water distribution - assets and operations for the 12 months ended 31st March 2024

6B.1 Total installed power capacity of potable water pumping stations

The net reduction of 122kW from 2022-23 is due to the following changes:

Increases:

- A new potable pumping station at Cockfosters.
- Replacement pumping station at Farthing Common.
- North Mymms source pumps are now going into distribution.
- Upsized pumps at Great Missenden and Wheathampstead.

Decreases:

- Kingsdown and Marlowes are both out of service.
- One pump at Bulstrode and one pump at Piccotts End out of service.
- A downsized pump at Debden Road.

There is a change from the PR24 2023-24 forecast in that Chalfont St Giles has not yet reverted to a treated water site (see 6A.3).

6B.2 - Total volumetric capacity of service reservoirs

The net increase of 35.9MI from 2022-23 is due to the following changes:

Increases:

- The addition of Sundon reservoir (36.5MI) following transfer of ownership from Anglian Water.
- North Mymms (0.5MI) is now included as a treated water suction tank, having previously functioned as a contact tank.
- Completion of a new two cell reservoir at Farthing Common (0.45MI).

Decreases:

- Decommissioning of the old single cell reservoir at Farthing Common (0.2MI).

- Decommissioning of Windmill Hill No.2 reservoir (1.3MI).

The addition of North Mymms treated water tank and decommissioning of Windmill Hill Reservoir 2 were not accounted for in PR24 2023-24 forecast. Windmill Hill reservoir 2 was an aging asset which had deteriorated; due to water quality and structural problems the decision was made to decommission it.

6B.3 - Total volumetric capacity of water towers

This line remains unchanged from the APR23 submission. No changes from PR24 2023-24 forecast

6B.4 Water delivered (non potable)

The total non-potable water delivered has increased by 0.04 MI/d from 2022-23. This volume is generated from only a small number of supplies (5 in total) and volumes will fluctuate from year to year.

6B.17 Number of potable water pumping stations delivering treated groundwater into the treated water distribution system

The number has decreased by one from the APR23 submission. Kingsdown and Marlowes are both out of service and North Mymms is now included.

6B.20 Number of potable water pumping stations that pump water imported from a 3rd party supply into the treated water distribution system

The number has increased by one from the APR23 submission with the addition of Cockfosters pumping station importing treated water from Thames Water. This change is in line with the PR24 2023-24 forecast.

6B.21 - Total number of service reservoirs

The number of service reservoirs has increased by one overall. Sundon and North Mymms are now included, and Windmill Hill Reservoir 2 has been decommissioned. The addition of North Mymms treated water tank and decommissioning of Windmill Hill Reservoir 2 were not included for in PR24 2023-24 forecast (see 6B.2 for further details).

6B.23 Energy consumption – treated water distribution (MWh)

2023-24 saw an overall 5% reduction in energy consumption compared to 2022-23, with a 10% reduction for water treatment and 5.6% reduction for distribution.

The reduction in energy consumption is the result of a 2% reduction in water production together with a 2% improvement in energy efficiency used to produce water. We have an ongoing efficiency programme looking at the replacement of inefficient pumps and optimising the supply strategy.

6B.24 Average pumping head – treated water distribution.

Trend Analysis

There has been a reduction since 2022-23 in treated water distribution APH, reflecting our optimisation strategy to use locally sourced groundwater in certain areas. This has reduced our dependency on transferring water from other areas via our strategic booster network.

APH – distribution	AWC	AWSE	AWE	Weighted Average
2022-23	84.69	77.22	29.20	82.34
2023-24	82.79	75.37	28.53	79.74

Methodology

We apply a percentage allocation where a pump set is associated with both 'treatment' and 'distribution', maintaining the split from previous years for most cases.

The proportion of measured data for the 'distribution' price control area was 99.6% (above the 80% threshold). The remainder has been taken from calculated or estimated data, typically small booster sites which have minimal influence on the overall calculation.

Of the estimated data:

- 44% used hydraulic models from previous years
- 31% used pump duty data from previous years
- 13% used engineering calculations
- 9% used last years data, due to a loss of monitoring
- 3% lost monitoring, however, did not have any contribution to the APH calculation, i.e. 0MI/d

Estimated data accounts for less than 1% of the distribution average pumping head.

We export water to South East Water from our Egham Water Treatment Works – this has been excluded from our APH calculations.

To minimize assumptions made in reporting average pumping head, we have linked 'head available before distribution' to specific telemetry measurement points where

recorded pressure could best represent the remaining head before distribution. Where this was not possible, we have used previous year estimations.

Significant changes from 2023-24 (m.MI > 100, change >50% or <-50%):

Site Name	Flow Volume [MLD]	Total Lift [m]	Volumetric flow lifting [m.MI]	% Change	Commentary
Weston Hills (Transfer)	2.15	7.7	111	84	Increased flow transfer strategy to reduce bulk import dependency
Bowring (Abstraction)	0.59	48.7	280.6	112%	Increased well level
Redricks Lane	4.22	-15.7	133	14114%	Site was out of supply previous year
Primrose Pumping Station	1.44	7.4	165	405%	Site was out of supply for large portion of previous year
Springwell (Heronsgate)	2.6	2.6	22.7	103%	Increased flow transfer strategy to reduce bulk import dependency
Redricks Lane (District)	4.31	1	239.6	1471%	Site was out of supply previous year
Digswell	4.23	2.6	352.9	79%	Due to high groundwater levels there has been no abstraction license restriction this year

Split Factor Allocation

We use a split factor allocation to understand the volumetric lifting flow (m.MI) for pumps that support multiple price control areas. This percentage allocation remains broadly the same year on year, however it is reviewed for sites that have had notable process changes. This year we made two adaptations:

- Amersham (boreholes) – these previously pumped directly to a reservoir onsite, however a new set of pumps (Amersham [HL]) re-lift to the reservoir. We changed the allocation so that these boreholes only support abstraction and treatment.
- Chalfont St Giles (district) – this site previously treated water before pumping to distribution. The treatment onsite is currently offline and the site is only being used for raw water abstraction. The previous district boosters now lift the water to another site for treatment (Amersham). This is a temporary measure that is likely to be changed in 2024.

6B.25 - Total number of treated water distribution imports

This line is the number of Imports from 4A, less the raw water import, plus Barham Road and Linton imports which are zero so were not shown in 4A.

6B.26 - Volume of treated water distribution imports

This has not materially changed since the APR23 submission.

6B.27 - Total number of treated water distribution exports

The increase in distribution exports is due to new bulk supplies to NAVs (see table 4A commentary).

6B.29 – Peak 7 day rolling average distribution input

Our peak 7 day rolling average in 2023-24 occurred during 10-16 June.

6B.31 Measured household consumption (excluding supply pipe leakage)

This has increased by 8.3 MI/d from 2022-23. This increase is due to customers switching from unmeasured to measured under our metering programme.

6B.32 Unmeasured household consumption (excluding supply pipe leakage)

This has reduced by 18.2 MI/d from 2022-23. This is due to generally lower demand in 2023-24 together with customers switching from unmeasured to measured under our metering programme.

6B.33 Measured non-household consumption (excluding supply pipe leakage)

This has decreased by 4.0 MI/d from 2022-23

6B.34 Unmeasured non-household consumption (excluding supply pipe leakage)

This has decreased by 0.8 MI/d from 2022-23

6B.35 Total annual leakage

See 3A.3 for leakage commentary

6B.36 Distribution system operational use

This has decreased marginally from 2022-23

6B.37 Water taken unbilled

This has increased by 0.4 MI/d from 2022-23

6B.38 Distribution input

This has decreased by 11.4 MI/d from 2022-23

6B.39 Distribution input (pre-MLE)

This has decreased by 14.9 MI/d from 2022-23

6B.58 Leakage upstream of DMA

This has decreased by 2.9 MI/d from 2022-23

6B.59 Distribution main losses

This has increased by 7.3 MI/d from 2022-23

6B.60 Customer supply pipe losses – measured households excluding void properties

This has increased by 1.2 MI/d from 2022-23 due to customers switching from unmeasured to measured

6B.61 Customer supply pipe losses – unmeasured households excluding void properties

This has decreased by 2.7 MI/d from 2022-23 due to customers switching from unmeasured to measured

6B.62 Customer supply pipe losses – measured non-households excluding void properties

This has decreased marginally from 2022-23

6B.63 Customer supply pipe losses – unmeasured non-households excluding void properties

This has decreased marginally from 2022-23

6B.64 Customer supply pipe losses – void measured households

This has increased marginally from 2022-23

6B.65 Customer supply pipe losses – void unmeasured households

This has decreased marginally from 2022-23

6B.66 Customer supply pipe losses – void measured non-households

This has increased marginally from 2022-23

6B.67 Customer supply pipe losses – void measured non-households

This has increased marginally from 2022-23

Table 6C - Water network+ - Mains, communication pipes and other data for the 12 months ended 31st March 2024

6C.1 Total length of potable mains as at 31 March

This is the length of potable mains as recorded on our GIS as at 31 March.

6C.2 Total length of potable mains relined

We did not carry out any mains relining in the year.

6C.3 Total length of potable mains renewed

The 10.8km reported in this line comprises 7.5km of distribution and trunk main renewals completed as part of below ground asset delivery works, and 3.3km of mains diversion (1.4km of which was for HS2).

6C.4 Total length of new potable mains

The 37.6km reported comprises:

Description	Length
Mains requisitions	13.5km
Self-lay provider (SLF) mains	15.9km
Others	8.2km
Total	37.6km

6C.18-20 Communication pipes – numbers by pipe material

The figures given in these lines are calculated from a base-line estimate produced in 2012-13 and adjusted each year to take account of new communication pipes and replacements.

6C.21 Number of lead communication pipes replaced for water quality

We did not carry out any work in 2023-24 associated with the AMP7 lead communication and supply pipe replacement project in north Clacton and surrounding area.

We continue to identify lead communication pipe replacements from our works management system (Maximo) and cases where the customer has replaced their lead supply pipe and has requested that we replace our lead communication pipe. A significant number of these customer contacts were initiated as 'flow/pressure' issues but then processed under Regulation 30(1), where if the customer replaces their lead supply pipe we are obliged to replace the communications pipe if it is lead. Consequently, we have included 337 of these communication pipe replacements in this line.

The last element to this line is lead communication pipes replaced after detecting elevated concentrations of lead in samples taken from properties. During 2023-24 we continued to replace lead communication pipes when sample results were above 5 ug/l, but for the purposes of this line we have only included those communication pipes replaced when sample results were above 10 ug/l, as required by the line

definition. We replaced 16 lead communication pipes following results above 10 ug/l. This gives a total of 353 lead communication pipes replaced for water quality reasons. In addition, we also replaced 47 lead communication pipes where a sample result was between 5 ug/l and 10 ug/l, in line with our strategy.

6C.22 Company Area

Company area remains unchanged at 4,515km². The RAG guidance confirms that no adjustment should be made for areas supplied by NAVs.

6C.23 Compliance Risk Index

See commentary under 3A.1.

6C.24 Event Risk Index (ERI)

Our ERI score for 2023 was 0. We had 11 events which were reported to DWI, all of which were small in nature so attracted very low ERI scores. This ERI score will be well below the national industry average, and we expect to maintain our ERI score at or around 0 in 2024.

6C.25 Properties below reference level at end of year

See commentary under 3A.12 Properties at risk of receiving low pressure (per 10,000 connections).

Prior years' numbers for properties 'on the register' are:

Year	Nr of properties 'on register'
2019-20	5,382
2020-21	30,311
2021-22	24,167
2022-23	23,680
2023-24	21,903

The significant increase in 2020-21 resulted from the abnormal demand for water seen in the lockdown summer of 2020.

Table 6D - Demand management – metering and leakage activities

6D.5 – 6D.14 Metering activity

We have not installed any AMI meters during 2023-24.

6D.7 New selective meters installed for existing customers

Of the meters reported under this line, 1,300 were on joint or common supplies. The total cost for the installations on joint and common supplies was £592,800. This information is provided as requested by Ofwat in Chris Pepper's email of 26/02/2024.

Restatement of APR-21 6D.6-7 and 9 for 2020-21

Following a recount and correction of historic metering numbers, we wish to restate our 2020-21 optant, selective and residential meters renewed figures. The restated figures are as below:

Line description	Units	DPs	Basic meter	Smart meter	RAG Ref
Metering activities - Explanatory variables					
New optant meters installed	000s	3		2.346	6D.6
New selective meters installed	000s	3		25.648	6D.7
Residential meters renewed	000s	3		11.492	6D.9

6D.10 Number of business meters renewed

There is a 61% increase from 2022-23 in the number of business meters renewed. From April-23 to January-24 we were offering an enhanced meter reading service to our largest retailer, whereby we had a resource dedicated to looking at their skipped-reads and reported meter faults, which led to a much higher number of meter exchanges than in prior years. By mutual agreement, this service was withdrawn from January-24.

We aim to install an AMR meter as the replacement in all cases, but due to installation difficulties this was not possible in 39 instances.

6D.12 - Replacement of AMR meter with AMI meters for residential customers

We have not installed any AMI meters in the year.

6D.13 - Replacement of basic meters with smart meters for business customers

The increase in numbers compared to 2022-23 is explained under 6D.10 above.

6D.14 - Replacement of AMR meter with AMI meters for business customers

We have not installed any AMI meters in the year.

6D.15 to 20 Metering – supply-demand balance benefit

We calculate the benefit of metering activity to the supply-demand balance by extracting residential customer and business consumption data from [Temetra](#) (a meter management system) and processing this information through predictive models using the methodology outlined in individual line numbers below.

6D.15 New residential meters installed for existing customers – supply-demand balance benefit

We derive a benefit figure for new residential meter installations using the average water savings of selective and optant customers who had a meter installed in the reporting year 2023-24.

The sample size of customers who have switched to a metered tariff between 2017 and March 2024 is 117,774. We extrapolate the savings observed for this cohort of customers for the number of new meter installations (44,860 total for selective and optants 2023-24).

We assess the benefit associated with new residential meter installation using our suite of PCC models. These models remove the effects on consumption of Covid-19 and seasonality, so benefits can be compared on a month-by-month basis in a fair and reliable way. We calculate savings for new meter installations by comparing the median consumption per property prior to the installation with the median consumption after.

6D.16 New business meters installed for existing customers – supply-demand balance benefit

We derive the benefit of new business meters installations on the supply – demand balance by counting the number of new business meters installed during the 2023-24 reporting year, as in line 6D.8. The total number of new business installations for the reporting period 2023-24 is 72.

The benefits from new business meter installations have been calculated by evaluating water savings across the full sample of installations made in 2022/23, supplemented with the inclusion of installations in the period Apr-20 to Mar-23 to increase the sample size. The savings for report year 2023-24 is produced by applying the savings observed in the sample to the number of new meter installations made in the report year.

We used the same methodology to calculate unmeasured use in line 6D.15 was, but with non-household consumption analysed. To calculate the consumption of newly metered businesses, the unmeasured use of these customers is compared to the metered use, whilst also using our suite of PCC models to account of variances for weather, seasonality and the effects of Covid-19.

Due to the small volume of new business meter installed in a year, it may mean that the benefits may change from positive to negative year on year.

6D.17 Replacement of basic meter with smart meters for residential customers – supply-demand balance benefit

The meter read data for these customers was extracted from Temetra, and the meter reads pre-renewal were compared to meter reads post-renewal. This figure was then adjusted for seasonality and weather changes, as well as being passed through the Covid-19 impact model, to account for changes in customer behaviour due to lockdowns or easing of restrictions.

The savings calculated under this line are all for the basic meters replaced with an AMR meter. We have not installed any 'smart' (i.e. AML) meters in 2023-24.

The figure for savings can change year-on-year, going from negative to positive. One reason for this is due to not getting the granular detail of why the meter was exchanged. It could be due to the meter not recording consumption, giving incorrect readings or other unknown considerations, that would lead to a different MI/d saving.

6D.18 Replacement of AMR meter with AML meter for residential customers– supply-demand balance benefit

We have not installed any AML meters in 2023-24.

6D.19 Replacement of basic meter with smart meters for business customers – supply-demand balance benefit

The process for this is the same as that for 6D.17 residential customers.

6D.20 Replacement of AMR meter with AMI meter for business customers – supply-demand balance benefit

We have not installed any AMI meters in 2023-24.

6D.22 Total leakage activity

We have amended our methodology for reporting total leakage activity costs to align with the PR24 BP table guidance for line CW19.1.

In Line CW19.1 we were requested to report all capex and opex expenditure related to the 'PALM' categories including indirect costs, mains renewal costs and the mend costs, which were not included in 2022-23 figures. This results in a figure of £51.096m for 2023-24, compared to £15.838m reported for 2022-23 in our APR-23. The reported value of £51.096m is in line with our PR24 forecast where we forecasted a total expenditure of £52.011.

As our in-year reported leakage volume has increased since 2022-23, we have assigned all costs to maintaining leakage.

6D.23 Leakage improvements delivering benefits in 2020-25

Our 2023-24 in-year average leakage figure is 153.5 MI/d, as reported in line 6B.35, against 150.7 MI/d in 2022-23. In line with the RAG guidance, we have therefore reported 'improvements' as a negative number.

6D.24 - Per capita consumption (measured)

This has decreased by 3.8 litres from 2022-23.

6D.25 - Per capita consumption (unmeasured)

This has increased by 2.8 litres from 2022-23.

Table 6F - WRMP annual reporting on delivery - non-leakage activities

6F.1 Internal interconnectors delivering benefits in 2020-2025

We have one scheme, AFF-CTR-WRZ4-4001: Egham to Iver (Midway North Booster), which falls into this category. This is for a new booster pump to enable an additional

17MI/d to be transferred from our Wey community (WRZ 6) to Pinn community (WRZ 4).

Capex: The reported capex for years 2020-2024 is based on actual spend. Future capex expenditure has been estimated based on the project cashflow forecast.

Opex: Expenditure has been based on an initial assessment report carried out by our supplier, Stantec and used to forecast future annual opex expenditure. The scheme is now expected to be delivered in March 2026. The opex included for 'After 2024-25' is based upon forecast for use in an average year.

Benefit: The scheme will enable us to transfer an additional 17MI/d at average and up to 30MI/d at peak. For the purposes of table 6F, the annual average capacity has been input.

Internal interconnector: The scheme to install a booster pump so that we can increase the volume that can be transferred through the existing trunk main. The kW pumping capacity to be installed is based on the assessment carried out by Stantec.

Variance from WRMP

Previously set to be delivered in 2023-24, the scheme delivery year is now 2025-26. The delay is due to land purchase constraints.

6F.2 Supply-side improvements delivering benefits in 2020-2025

AFF-RTR-WRZ7-0639: Deal Continuation After 2020 is the continuation of an existing bulk transfer agreement. The transfer agreement only entitles us to use it under emergency conditions and therefore is not forecasted within our opex budget to be operational. There is no new infrastructure required so there are no capex costs associated with the scheme. The benefits have been included for all years at 0.07MI/d as per the terms of the agreement.

6F.3 Supply-side improvements delivering benefits starting from 2026

Sundon conditioning plant (Sundon Reservoir) is the work required to upgrade the existing conditioning plant at Sundon, with the upgraded plant scheduled to become operational in 2024/25. The delivery of this project will remove water quality constraints that currently prevent the full utilisation of our bulk import from Anglian Water into WRZ 3 (Lee). This will enable us to increase our use of the Anglian Water Grafham bulk supply up to its full 91MI/d capacity (pre climate change), which is currently capped at 50MI/d.

Capex: The reported capex for years 2020-2024 is based on actual spend. Future capex expenditure has been estimated based on the current estimate as per the cost report for the project.

Opex: is based on an estimation produced by our Project Delivery Team. It is based on an average flow of 50MI/d and an average chemical dose. This includes the increase in opex due to the conditioning process. Plant is due to become operational in September 2024 before being fully commissioned in December 2024, therefore the expenditure for Opex in 2024/25 is calculated at ¾ of the annual expenditure.

Benefit: The design maximum flow for the conditioning plant will be 109MI/d, which is our maximum entitlement for the Grafham import via Sundon. The annual average entitlement is 91MI/d. Within the WRMP we capped current utilization to 50MI/d, therefore the benefit is 41MI/d to enable us to use the full annual average license.

Variance from WRMP

Previously set to be delivered in 2023-24, the scheme delivery year is now 2024-25. The delay is due to land purchase constraints.

6F.4 Demand side improvement delivering benefits in 2020-2025 (excl. leakage and metering).

As stated in our response to APR-23 query ref. AFW-APR-CA-009, the MI/d benefits accruing from this activity are not something that can be measured directly; rather the volumes stated are outputs from models, as described in the commentary below. The 'benefits' should be seen as benefits to the natural environment and as arresting growth in distribution input that will occur through growth in population; they do not translate to a tangible reduction in the year-on-year distribution input figure.

The benefits figures (demand saving) have been entered as positive numbers. Benefits relating to leakage reduction and metering have not been included in this line.

The benefits figure derived for these activities has been calculated using customer data, extracted from [Temetra](#), and has been run through predictive models, with the methodology outlined below.

Programme overview

Our Demand Management programme is split into the five following workstreams (pillars):

Pillar 1 – Water Efficiency & Water Saving Devices

Pillar 2 – Smarter Targeted Metering

Pillar 3 – Our Customers' Journey

Pillar 4 – Campaign in Partnership & Community Incentive/Campaigns

Pillar 5 – A National Voice

Demand saving benefits to date

Year	MI/d	MI/d cumulative
2020-21	0.56	0.56
2021-22	21.16	21.72
2022-23	25.63	47.35
2023-24	40.28	87.63

Demand saving benefits 2023-24

All the benefits associated with the projects below were determined through our suite of PCC models. These models remove the effects on consumption of Covid-19 and seasonality, so benefits can be compared on a month-by-month basis in a fair and reliable way.

Pillar	Project	Benefit (MI/d)
Pillar 1	Home Visits	2.11
Pillar 2	Flow regulators	1.14
Pillar 3	Trigger Based Comms	N/A
Pillar 4	Behaviour Change	37.03
Pillar 5	A National Voice	N/A
Total		40.28

Home Visits (Previously Home Water Efficiency Checks)

We completed 21,500 home visits in 2023-24, with technicians installing devices and offering water saving tips and advice to the customer. Visits are completed across all Water Resource Zones and all customer types. This project is carried out in partnership with a delivery provider, Groundworks.

Savings are calculated for customers receiving a Home Visit by comparing the property's actual consumption with their predicted expected consumption if they were not to receive a visit, any positive difference or reduction in consumption is then attributed to the home visit. The average litre saving per property per day is found for each property, then summed and converted to obtain the mega litres per day figure (MI/d).

The associated saving for Home Visits in 2023-24 is 2.11 MI/d.

Flow Regulators

We installed 11,393 flow regulators in 2023-24. These are devices installed at the boundary stop tap to regulate and help manage consumption. During the year we focused on delivering these devices to high consumption households to see what savings could be made. This project is carried out in partnership with a delivery provider, Cenergist.

The savings were calculated by obtaining meter reads either side of the installation, as well as a read on the date of installation, to see the reduction. After excluding properties that did not have readings, date ranges that were not suitable and any outliers, the data produced an average saving of 100.17 litres per property.

Extrapolated to the installation figure gives an associated saving for Flow Regulators in 2023-24 of 1.14 Ml/d.

Behaviour Change - Save Our Streams (SOS) - Campaign in Partnership & Community Incentive/Campaigns

The continuation of our SOS behaviour change campaign was vital to encouraging customers to take an action to help reduce their household water consumption. This was done by reaching out to customers through many types of media such as social media, on demand and communications.

We calculate savings for the SOS campaign by comparing at property level, the median consumption prior to the campaign and the median consumption after the campaign, producing water savings for customers both in average litres per property per day and mega litres per day, looking at two key aspects for the campaign.

- Behaviour changes through registrations: We estimate consumption savings from registrations of customers who signed up to the campaign - educated and motivated actions to reduce water use.
- Behaviour changes from campaign awareness: We estimate consumption savings for customers who have not signed up to the SOS campaign, their behaviour has been influenced at scale through advertising/PR/social and e-CRM campaigns.

The benefits modelling calculates the savings for the following cohort of customers:

- M1 - Customers who have signed up to the campaign during 2022-23.
- M2 - Customers who have signed up in previous years if they have had a subsisting reduction in consumption in 2022-23.
- M3 - All other customers impacted by the campaign e.g., via media channels (behavioural element) but have not signed up.

Further consideration when calculating savings for customer cohort M3 involves identifying these customers in the data by excluding known customers who have signed up to the campaign and customers who may be on other demand management campaigns. Survey data was used to understand the reach of the campaign amongst customers who have not signed up but have seen something

about the SOS campaign and are taking action to save water as a result of interacting with the campaign through advertising and media.

The associated MI/d saving for this project in 2023-24 is 37.03 MI/d.

2024-25 benefits

The year 5 (2024-25) Demand Management programme and its associated projects underwent a benefit evaluation in March 2024 to finalise our internal savings target.

The forecasted Year 5 target savings are 25.11 MI/d, which added to the Year 4 roll over savings would total 112.74 MI/d.

Section 10 – (Additional regulatory information - accelerated programme additional impacts reporting, performance reporting and scheme delivery)

Table 10F - Accelerated infrastructure delivery projects data capture additional items

10F.1 Total length of new potable mains

We report 2.1km of main which relates to mains laid in scheme 18, component 3 of the Stortford project, to provide a blending solution to mitigate nitrate standards risks from Stansted WTW.

10F.7-20 Metering activities

We have not installed any meters under the accelerated funding scheme in 2023-24.

Table 10G - Additional reporting to account for impacts of transition expenditure

We have no impacts to account for in 2023-24 for transition expenditure.

Table 10H - Accelerated schemes data capture reconciliation model input for the 12 months ended 31 March 2024

10H.89 PR19 delivery AMR meters – unmeasured properties

We have calculated this line as the sum of 6D.6, 6D.7 and 6D.8 ('AMR meter' column).

10H.90 PR19 delivery basic to AMR meter upgrades

We have calculated this line as the sum of 6D.9 and 6D.10 ('AMR meter' column).

10H.91 and 10H.92 Acceleration new AMI smart meters installed and Acceleration AMI for basic replacements

We did not install any AMI meters in 2023-24.

10H.93 Baseline basic meters

The figure reported is a calculation from '2019-20 start position' as noted in *Accelerated infrastructure delivery project, Appendix 2: price control deliverables (Ofwat, June 2023)*, minus the sum of 6D.9 and 6D.10 (residential and business meters renewed with AMR meters) for each year to 2023-24.

	Start position 2019-20	2020-21	2021-22	2022-23	2023-24
APR reported AMR meters - Basic to AMR meter upgrades (6D.9 + 6D.10)	-	11,178	12,520	13,343	15,465
Baseline basic meters (10H.93)	640,504	629,326	616,806	603,463	587,998

10H.94 Baseline AMR meters

The figure reported is a calculation from '2019/20 start position' noted in *Appendix 2: price control deliverables* plus the sum of 6D.6 - 10 New optant, new selective. new business and residential meters installed for existing customers (with AMR meters) each year to date.

Reporting for APR	Start position 2019-20	2020-21	2021-22	2022-23	2023-24
APR reported AMR meters - Basic to AMR meter upgrades (6D.9&10)		11,178	12,520	13,343	15,465
APR reported AMR meters - unmeasured properties (6D.6,7,8)		28,312	54,928	50,472	44,931
Baseline AMR meters (10H.94)	302,539	342,029	409,477	473,292	533,688

10H.95 and 10H.96 Leakage and PCC savings

We are reporting zero savings as no AMI meters were installed in the report year.

Section 11 - (Additional regulatory information - Operational greenhouse gas emissions reporting)

11A - Greenhouse gas emissions reporting for the 12 months ended 31 March 2024

Table 11A presents our greenhouse gas (GHG) emissions calculated using v18 (v3.01) of the Carbon Accounting Workbook (CAW). The CAW uses a range of emission factors collectively agreed by water companies and the latest emission factors published by government for 2023.

We reduced scope 1 emissions by 13% compared to 2022-23, by reducing our use of generators that power to our operations. Our direct fuel uses include diesel for onsite generators and plant alongside branded fuel replacements for gas oil used for heating, which are assessed as 'white diesel' based on advice from suppliers.

We calculate our market-based scope 2 emissions using supplier specific emissions factors. In October 2023, we chose to move away from purchase of REGO (Renewable Energy Guarantees of Origin) backed electricity. Significant increases in the cost for 'green tariffs' in the UK means this does not offer our customers good value for money. Therefore our market-based emissions therefore reflect six months of REGO backed energy and six months using the supplier's residual tariff. We are therefore reporting higher scope 2 market-based emissions than in 2022-23. Our location-based emissions also exceed those in 2022-23, due to increases in the UK grid average emissions factor rather than an increase in our electricity consumption.

Following the recommendations from the 'chemical UK water industry: Chemicals and greenhouse gas emissions Task and Finish Group note' we have updated emissions factors used to calculate chemical emissions. The values are therefore not directly comparable to previously reported APR data.

Lines 11A.33 to 36 present information around the various greenhouse gas (GHG) types for scope 3 emissions. For purchased electricity and chemicals, GHG information is available only as a CO₂e figure and therefore cannot be split into the different GHG types. The numbers presented in 11A.33 to 36 are those scope 3 emissions where information is available to split emissions into GHG types.

In 2023-24 we received our first ISO14064-1 verification. This covered our 2022-23 'operational' emissions, the same emissions as in Table 11A for 2022-23. Next year we will seek verification for a wider scope of emissions and expect to undergo assessment in October 2024 in line with our company audit timetable.

The energy intensity of our operations improved in 2023-24, averaging 617kWh per MI of water into supply compared to 629kWh per MI of water into supply in 2022-23.

During 2023-24, we implemented 14 energy efficiency schemes largely through our successful pump replacement programme. These projects are expected to save

around 1.2GWh per year. We expect replacing and refurbishing our borehole pumps at Stoke-by-Nayland to contribute the greatest single saving (245 MWh/year).

Through the year we have continued efficiency work on our buildings and offices, with initiatives to reduce energy use for heating and lighting through process and behavioural change. We continue to focus on changing our culture, for example by promoting our Zapp app which empowers colleagues to contribute energy saving ideas.

We also took delivery of our first five electric fleet vehicles and installed charging infrastructure at several sites. This begins our ambitious EV transition programme with the aim of transition all eligible vehicles by 2030.

Capital Projects

In line with Ofwat's reporting requirements we have calculated the cradle-to-build emissions for our capital programme. This builds on the reporting undertaken last year.

For 2023-24 we estimate that emissions associated with delivery of our capital programme were 13,301 tCO₂e. Although this is an increase on our 2022-23 estimate of 8,465 tCO₂e and our 2021-22 estimate 4,350 tCO₂e, the scope of projects included within this year's reporting is significantly greater than in those prior years. In 2023-24, we estimated the emissions associated with 227 projects up from 47 projects in 2022-23 and 11 projects in 2021-22.

For 2023-24 we have modelled the emissions associated with 93% of our capital spend on construction activities including below ground assets (infra), above ground assets (non-infra), metering and minor reactive works.

Method Used

To estimate our capital project emissions, we use a bespoke tool incorporating over 400 carbon models and which uses data from a range of sources including the Inventory of Carbon and Energy (ICE), CESSM workbook, Defra emission factors and product manufacturers. We calculate carbon emissions based on a cradle-to-built asset basis which allows us to understand the emissions arising from raw material extraction, manufacturing, transport to site and construction activities. Although the tool includes over 400 different process, asset and unit rate models, some assets we construct or install are not included in the tool. This means we have not been able to estimate emissions for 7% of our capex portfolio. The exclusions due to assessment tool limitations relate to our river restoration, land, leakage, and operational technology programmes.

We apply two approaches for each project assessment, scheme-based and programme-intensity based. By focusing on capturing activity data wherever available and extrapolating to increase coverage we have achieved scheme assessment on 69% of our capital spend on construction activity and programme intensity assessment on a further 24% bringing the total assessed to 93% (See figure 1 below) .

Confidence Assessment

Scheme assessment is based on information specific to the project. Potential sources of errors are limited to errors in the carbon models and from human errors from the users completing the carbon estimation tool. Programme intensity assessment assumes that the nature of the project is similar within each programme, this brings in some uncertainty. This approach was limited to 24% of our Capex portfolio spend on construction activities. 7% of the spend has been excluded from either assessment as either approach would yield inaccurate estimations.

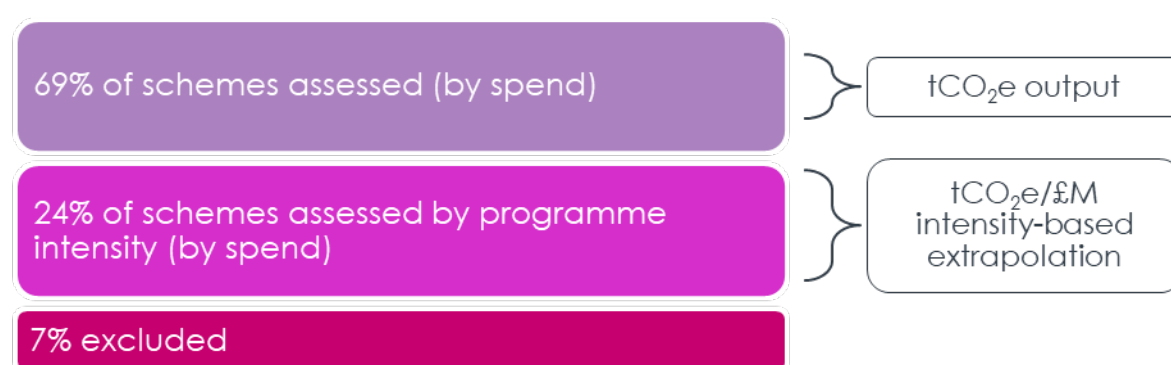


Figure 1- Distribution of approaches to assess the capital projects in the Capex portfolio.

Based on the Traffic light system criteria we consider that for 2023-24 we meet the requirement for 'Green' status with responses on each of the criteria as follows:

Provision of embedded emissions data as it relates to capital projects (cradle-to-build). We anticipate good practice in this area being for companies to provide cradle-to-gate as well as cradle-to-build based data.

We have provided embedded emissions data as it related to capital projects on a cradle-to-build basis as this most closely aligns to the PAS2080 standard. We may consider cradle-to-gate in the future if the cost to develop these models offers good value for money.

Clear evidence of external verification and certification by an appropriately qualified party as it relates to the use of standards and frameworks, and quality of data.

We employed the external verification body NQA to validate our 2022-23 operational emissions to ISO 14064. For 2023-24 we look to extend the scope of verification. This verification will take place in October 2024 to continue our external auditing cycle.

Engagement with one or more recognised standard, framework, or approach for managing and reporting on embedded emissions.

We use ISO14064-1 as the standard to which we report our emissions (see above point). For embedded emissions we are continuing to embed PAS 2080 across our asset management life cycle processes.

[Provision of insights into embedded emissions as they relate to construction and maintenance activities.](#)

Through development and update of our scope 3 inventory we understand which activities and suppliers are likely to form our carbon 'hotspots'. For 2023-24 we have used this analysis to inform where we target our supplier engagement.

[Complete and detailed SWOT analysis referring to embedded emissions.](#)

Our combined operational and embedded emissions SWOT is included further below.

[Provision of embedded emissions data as it relates to purchased goods and services \(in addition to chemicals\).](#)

We have provided emissions associated with purchased goods and services which is part of our full scope 3 inventory. Purchased good services emissions are predominantly assessed using spend based data.

[Evidence of both internal and external stakeholder engagement and education on its GHG emissions management and reporting approach.](#)

During 2023-24 a range of engagement activities were undertaken with both internal and external stakeholders regarding climate change and carbon:

- For the first time, a portion of our company wide bonus for 2023-24 was attributed to carbon performance, specifically scope 1 emissions reduction. Our company wide 'all leaders' briefings were used to communicate the target and the actions colleagues could take to contribute.
- Our Carbon Programme Board meets monthly to review carbon performance. The membership is made up of heads of departments and delivery leads who have the most influence over carbon performance. The programme board is chaired by our Director of Asset Strategy and Capital Delivery.
- We share climate change and carbon updates and information on a series of internal webpages with periodic news articles shared with the whole company or relevant directorates.
- We have continued with a working group to implement PAS 2080, the outcomes of this group are communicated through various channels including updated process documents, new guidance, lunch and learn events and ad hoc training.
- We have more recently engaged our key supply chain partners involved in construction activities around supplier specific carbon reporting, the use of our carbon estimation tool and highlighting carbon related requirements for AMP8. This engagement is expected to increase over year 5 and into AMP8.

Purchased Goods and Services

2023-24 is the second year where we have calculated emissions from purchased goods and services as part of our full scope 3 inventory. We calculated emissions from purchased goods and services predominantly using purchase ledger data in combination with commodity specific emissions factors from the Comprehensive Environmental Data Archive (CEDA). The exception to this is emissions from purchase of chemicals and imported water where we assessed the volumes of chemicals purchased and water imported and applied appropriate emission factors. The Ecolnvent database was used to calculate chemical emissions. These factors are different from those in the CAW and therefore reported emissions are different to those reported in APR Table 11A.

As would be expected, we have a high proportion of category 1 (purchased goods and services) arising from expenditure associated with maintaining our asset base. For 2023-24 we have increased the proportion of emissions calculated using primary activity data for this category. Chemical emissions and imported water are now calculated using primary activity data rather than spend data.

Traffic Light System

In accordance with the RAG guidance note 11.6 our external auditors have commented their view of the level of confidence in our self-assessment.

"Affinity Water has adhered to Ofwat's reporting standards for the traffic light system concerning embedded GHG emissions. The company has submitted a robust self-assessment, demonstrated in the comprehensive commentary, indicating its qualification for the "Green" category. After reviewing the details, including the data and methodology in the company's responses, we can confirm that they comply with the reporting requirements for the "Green" categorisation."

Strengths, Weakness, Opportunities and Threats (SWOT)

Strength	Opportunities
<ul style="list-style-type: none"> 2022/23 operational emissions were verified to ISO 14064-1 standard by NQA GHG accounting of Scope 1 and 2 operational emissions is well understood and incorporated into business reporting. In 2023/24 we trialled the use of HVO in standby generators, trials are ongoing before confirming acceptance for roll out across Affinity assets. The data we use to estimate scope 1 and 2 emissions is primary, measured activity data offering the best source of information. Our Carbon Programme Board meets regularly to review our progress and oversee the delivery of our Net Zero Strategy. Our senior managers and Board members are leading the business to reduce emissions. We use the UKWIR (UK Water Industry Research Limited) Carbon Accounting Methodology through the Carbon Accounting Workbook (CAW) for operational emissions. This is an industry standard approach which is updated annually and is reflective of carbon reporting and emissions guidance from government and other relevant bodies. We have continued to estimate our full Scope 3 inventory, improving the accuracy of reporting compared to 2022/23 For 2023/34 We have engaged our supply chain directly to more accurately estimate our scope 3 emissions In 2022/23 we began using our first carbon estimation tool for assets, enabling us to estimate, benchmark and reduce the emissions associated with our capital projects. 	<ul style="list-style-type: none"> Nature based solutions have the potential to offer multiple benefits, with carbon reduction or sequestration as co-benefit (but there is no standard approach to calculating their carbon footprint: see 'Weaknesses'). We are developing carbon literacy within the business to support carbon reduction across all our operations. Our solar programme continues, with two new sites constructed in 2023/24. Energy efficiency projects delivered during 2023/24 help us to reduce the energy intensity of our operations. In 2023/24 we took delivery of our first five Electric Vehicles and installed chargers at several Affinity Water sites. Our asset-based carbon estimation tool and applying a financial value to carbon in decision making provides an opportunity to reduce whole life carbon impacts our capital delivery programme and provides a tool to monitor emissions reduction. Greater supplier engagement is unlocking opportunities to reduce whole life carbon. Moving to a multi capitals approach can help ensure a holistic approach is taken to asset management. Reporting aligned to the GHG Protocol rather than 'operational' and 'embedded' could help streamline reporting and enable better comparison across sectors and countries.

<ul style="list-style-type: none"> A working group, continue to embed the principles of PAS 2080 across our Asset planning and Capital Delivery directorate. 	
Weaknesses	Threats
<ul style="list-style-type: none"> Some areas of operational emissions continue to remain less well understood both globally and specifically within the UK Water sector. This includes the emissions associated with water treatments (process emissions) and the emissions associated with production of chemicals which are purchased. There is no standard approach to calculating the carbon footprint of nature based solutions or environmental work such as river restoration. There is currently limited guidance on how to account robustly for inseting activities which have a role to play in managing residual emissions. We have been unable to source emission factors for a small amount (~1% by weight) of the chemicals we purchase and have therefore been unable to report the emissions associated with these. Much of our scope 3 inventory (around 70%) is estimated using spend based approach, although this is sufficient to identify hotspots: future inventories should continue to include improvements to data collection. Reporting capital project emissions requires the use of intensity metrics as not all projects can be estimated to our carbon estimation tool. 	<ul style="list-style-type: none"> Increasing energy costs and the cost of renewable energy is currently making reduction in scope 2 emissions more challenging. Changes in regulatory requirements for AMP 8 onwards such as sustainability reductions are having a significant upward pressure on our operational emissions (e.g. as a result from having to move water a greater distance and increase levels of treatment). In 2022/23 we saw how the impact of climate change through the summer heatwave could significantly impact the amount of energy our business requires to meet water demand. As maturity in accounting and reporting of emissions increases it is likely to mean some emissions are currently under or over-estimated. Changes will require careful explanation and management as knowledge improves over time. Management of scope 3 emissions is much more complex than for scope 1 and 2 emissions. Collaboration with and maturity within our value chain is required to secure data and reduce emissions. Regulatory drivers have the potential to increase future GHG emissions. Effectively and consistently valuing of carbon across water companies and regulators is required to support decision making. Limited understanding of strategic whole life carbon consequences of decisions in the short-term may result in locking in of carbon consequences in future years.

Open Data

Our APR24 data tables have been published in excel format on our Affinity Water website <https://www.affinitywater.co.uk/corporate/investors/library>

The tables are also available in an open data (machine readable) CSV format at <https://www.streamwaterdata.co.uk/>

Our rationale for our open data approach was submitted along-side the APR and is replicated below for completeness.

Rationale on open data approach and publishing of the APR

Water is a precious resource, and ensuring its sustainable management for future generations is a critical challenge. Open Data presents a powerful solution, unlocking innovation and collaboration that will be essential for a thriving sustainable water future.

Our Open Data vision is to lead the way for a transparent and sustainable water future by unlocking the power of open data for innovation, collaboration, and trust. Our aim is to provide data to empower our people, customers and partners to build a co-operative water future enabling us all to protect our environment and resources.

To this end, we are pleased to have joined the Stream Open Data Innovation programme, helping deliver the Open Data agenda within the UK water sector. As a proud Stream member, we have worked to standardise the APR submission as an open dataset, conforming to an industry standard for ease of consumption by respective data consumers.

Characteristics

Our dataset covers the reporting period 22/23 Year 3 AMP7 and 23/24 Year 4 AMP7, Sections 1-11 of the Annual Performance Reporting (APR) data tables, under the guidance of The Water Services Regulation Authority.

- APR24 (2023-24) – RAG4.12: [RAG-4.12—Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf \(ofwat.gov.uk\)](#)
- APR23 (2022-23) – RAG4.11: [RAG-4.11—Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf \(ofwat.gov.uk\)](#)

The datasets have been created following the completion of the Ofwat data tables standard template, utilising a common tool developed under the Stream programme. All formatting has been removed, and the data has been transposed into tables and provided in CSV format to ensure a machine-readable format. This format was selected to facilitate open data accessibility and enhance computational usability.

Metadata for the file has been provided according to the INSPIRE standard, as defined by the Stream Open Data portal. The INSPIRE standard offers a comprehensive, interoperable, and discoverable format that ensures transparency and accountability of published data.

In the interest of public access, we have decided to release this data under the Creative Commons (CC BY 4.0) license. This allows consumers to:

- **Share** — copy and redistribute the material in any medium or format for any purpose, even commercially.
- **Adapt** — remix, transform, and build upon the material for any purpose, even commercially.

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- **Attribution** — consumers must give appropriate credit, provide a link to the license, and indicate if changes were made. Consumers may do so in any reasonable manner, but not in any way that suggests the licensor endorses the consumer or its use.
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Overall, using CC BY 4.0 promotes the principles of open data, enhancing accessibility, usability, and collaboration.