SRN18 Performance Commitments Methodologies

Technical Annex

2nd October 2023

Version 1.0

from Southern Water

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Glossary

Term	Description
AMP	Asset Management Period
APR	Annual Performance Reports
BaU	Business as Usual
BDU	Biodiversity Units
BIT	Behaviour Change
CAW	Carbon Accounting Workbook
CCW	Consumer Council for Water
CO2e	Carbon dioxide equivalent
CRI	Compliance Risk Index
CSO	Combined Sewer Overflow
DWF	Dry Weather Flow
DWMP	Drainage and Wastewater Management Plan
EA	Environment Agency
EU	European Union
FOG	Fats, oils and grease
HH	Households
k	Thousands
kg	Kilograms
km	Kilometre
l/h/d	litters per household per day
LTDS	Long term delivery strategies
Ml/d	megalitres per day
N	Nitrogen
NE	Natural England
NHH	Non-Households
ODI	Outcome Delivery Incentive
Opex	Operational Expense
P	Phosphorus
P50	50th percentile
PC	Performance Commitment
PCC	Per Capita Consumption
PCL	Performance Commitment Levels
PE	Population Increase

Term	Description
PR19	Price Review 2019
PR24	Price Review 2024
PSR	Priority Services Register
SEW	South East Water
SRO	Strategic Water Resource Options
STW	Sewage Treatment Works
SuDS	Sustainable drainage systems
UKCSI	UK Customer Satisfaction Index
UQ	Upper Quartile
WINEP	Water Industry National Environment Programme
WRMP	Water Resources Management Plan
WRSE	Water Resource South East
WSR	Water Service Reservoirs
WSW	Water Supply Works

1. Introduction

1.1. Objective

This technical annex explains how we derived:

- Our performance commitment (PC) targets for Asset Management Period 8 (AMP8), AMP9 and for the Long Term;
- The performance benefits from base and from enhancement expenditure; and
- Our view of Outcome Delivery Incentive (ODI) rates and why we diverted from Ofwat's proposed incentive rates (where applicable).

It provides supporting information for the following data tables and chapters of the business plan:

Supporting Info	Information Location
Data tables	OUT1: Overall outcome performance
	OUT2: Outcome performance from base expenditure
	OUT3: Outcome performance from enhancement expenditure
	OUT7: Outcome performance - ODIs (financial)
	OUT8: Price Review 2019 (PR19) outcome performance summary
	CW15/16
	CWW15/16
	LS1: Forecast outcomes
	LS2: Forecast outcomes from base expenditure
Chapters	SRN04: Costs and outcomes approach
	SRN05: Wholesale water (Costs and Outcomes)
	SRN06: Wholesale wastewater (Costs and Outcomes)
	SRN03: Customer acceptability
	SRN02: Long-term delivery strategy
Enhancement cases	SRN39: WINEP - Enhancing Waste Treatment
	SRN40: WINEP - Storm Overflows
	SRN41: WINEP - Monitoring
	SRN42: WINEP - Wider Environmental Enhancement
	SRN44: Growth at Wastewater Treatment Works
	SRN25: Supply Resilience Enhancement Programme
	SRN37: Water Resources - Demand
	SRN38: Smart Metering

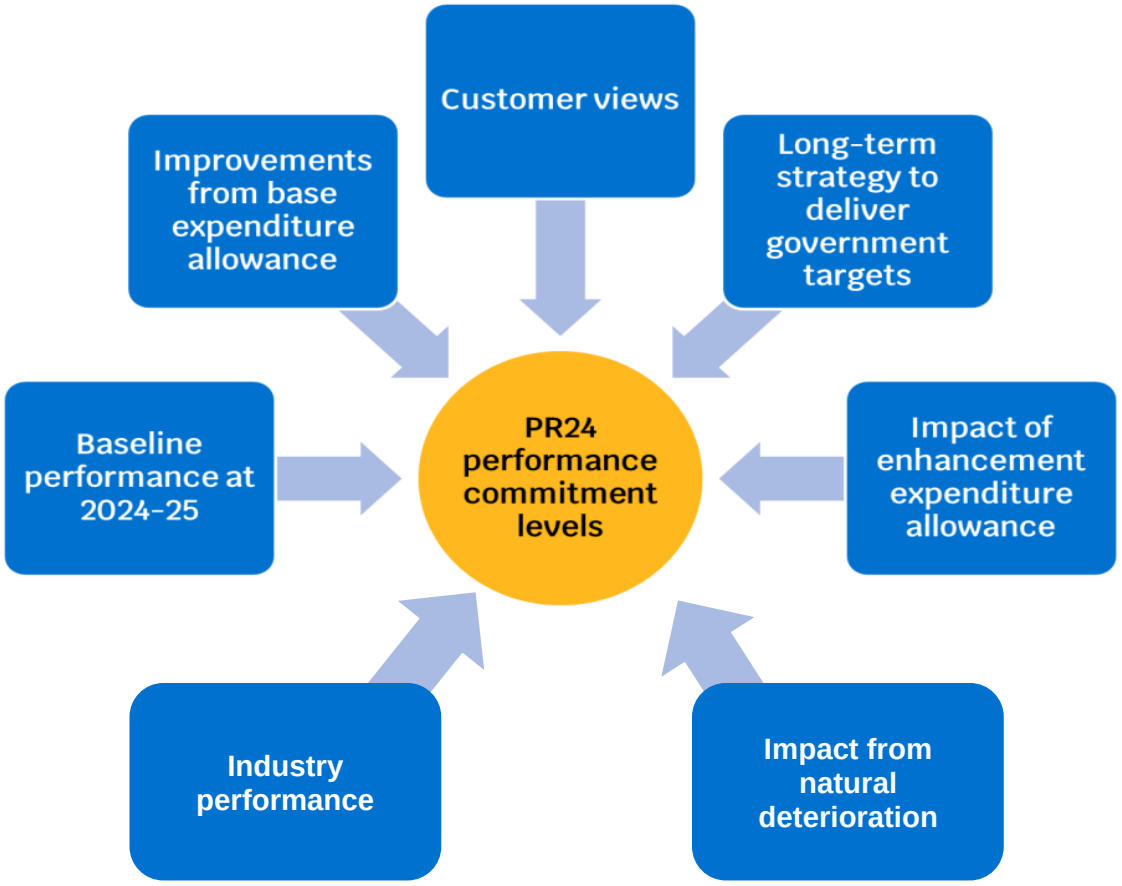
1.2. Approach

The figure below outlines our approach to forecast our performance. It shows that for each performance commitment we have:

- Considered customers views and priorities taking into account our own customer research, Ofwat's research and research conducted by third parties.
- Considered our baseline performance ambition for 2024/25.
- Quantified improvements from base and from enhancement expenditure in our plan.
- Took into account the impact of natural deterioration.
- Considered our performance position in 2022-23 realistic trajectory to reach our ambition in 2029/30.
- Considered our long term strategy to deliver government targets (where applicable) or our own long term targets.
- Considered industry historic performance and upper quartile performance now and in the future.

The performance commitments related with retail services (C-MeX and B-MeX) and developer services (D-MeX) are covered in our SRN07: Customer – Households and Non-Households (Costs and Outcomes) chapter and are out of the scope of this document.

Figure 1: Factors considered in setting out our performance targets



2. Water Supply Interruptions

This performance commitment incentivises companies to reduce the number and duration of water supply interruptions. which, in turn, improves the reliability of supply and reduces the detriment to customers of having no water supply. It is measured in hours, minutes, seconds (hh:mm:ss) per property.

2.1. Customer views

Ensuring a reliable and continuous supply of clean water is top priority for our customers. Customers recognise that our most important and fundamental service is the provision of clean and safe drinking water. Following our poor performance on water supply interruptions in 2022/23, our customers put greater emphasis on improving performance. For those impacted by a loss of supply for a significant period, the impact is disruptive and can be sever, especially for vulnerable audiences and businesses that cannot open.

Figure 2: Our customer views on water supply

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern	■																	
Ofwat		■																
Others	■																	

What our customers have told us:

"I support it as reducing the impact of loss of water is definitely important to us - we sometimes have 30+ people on site and suddenly not being able to flush toilets or have drinking water would quickly become a problem. Per above I would hope they could exceed these targets, and frame it around mitigating climate impacts." Business customer

"We obviously need to improve, being over the average isn't ok, especially when this should be what their day to day job is!?" Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

2.2. Our performance forecast

We have taken customers views in consideration and have forecasted reducing average water supply interruptions to 04 minutes and 30 seconds by 2029/30, down from a predicted 00:14:48 in 2025/26. We aim at reducing this further to 3 minutes and 12 seconds in 2034/35 and 00:02:00 by 2049/50. We explain our rationale to reach these targets below.

Table 1: Our proposed targets for water supply interruptions

Unit: hh:mm:ss

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
00:14:48	00:12:14	00:09:40	00:07:24	00:04:30	00:03:12	00:02:00

2.3. Build-up of our 2029/30 performance

The table below shows the build-up of our water supply interruptions forecast for 2029/30.

Table 2: Water supply interruptions target build up

Unit: hh:mm:ss	Performance
PR19 performance target for 2024/25	00:05:00
Current forecast performance for 2024/25	00:07:23
Benefits from enhancement	00:04:00
Benefits from base expenditure	00:00:45
Natural rate of deterioration	00:01:52
Performance 2029/30	00:04:30
Performance in 2029/30 from base expenditure (i.e. without enhancement)	00:08:30

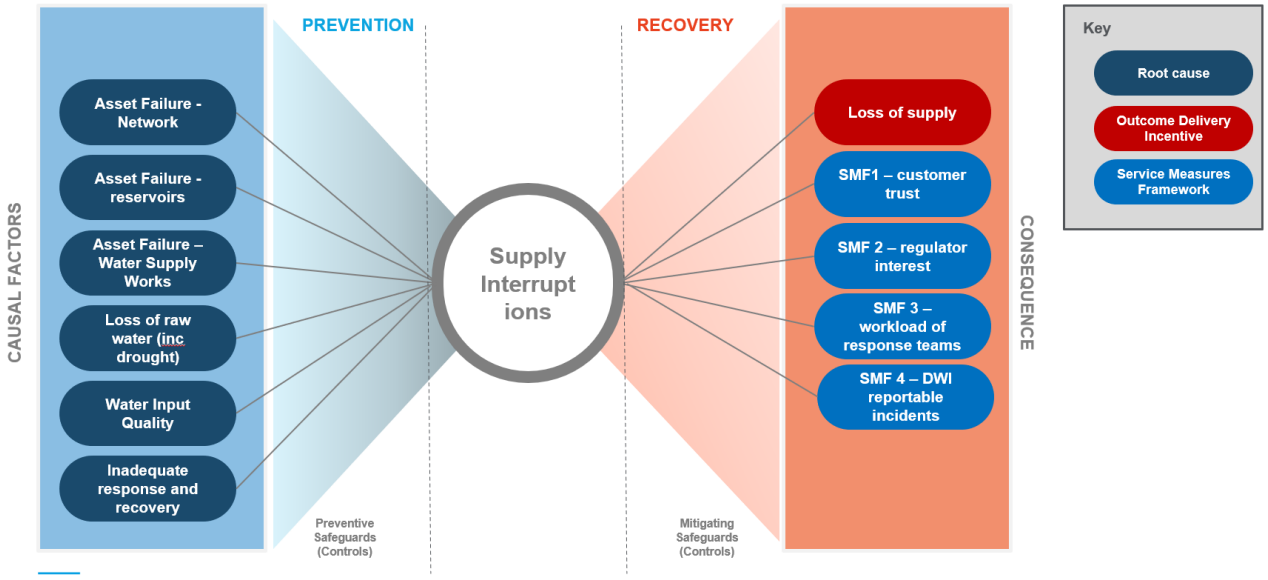
$Performance_{29/30} = Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

2.3.1. Benefits from base

We have used our water supply risk 'bow-tie' framework below to link interventions funded through base expenditure root causes ('causal factors'), risks to performance and performance benefits from interventions.

Figure 3: Risk 'bow tie' framework for water supply interruptions



Informed by this framework, our asset management experts have identified risk-reduction interventions in our base investment plan that address the causal factors of water supply interruptions. The flowing interventions were identified:

- Alternative response planned / reactive activities, e.g., tankering;

- Operations activities, including inspections; and
- Business as usual mains replacements.

Benefits from these activities were determined by running our asset deterioration model with and without these interventions. The results were then validated through workshops with experts.

We have estimated supply interruption benefits from base expenditure at 45 seconds by 2029/30. This would be insufficient to offset the natural rate of deterioration, which our asset deterioration model estimates at 1 minute and 52 seconds. This means that part of the benefits from enhancement will be needed to fully offset our current natural rate of deterioration.

2.3.2. Benefits from enhancement

We have run expert workshops to identify the interventions in our Price Review 2024 (PR24) enhancement programme that impact water supply interruptions. We have also asked our experts to identify where benefits could be quantified and attributed to individual enhancement activities. The table below summarises the results. Only the Supply Resilience Enhancement case (four-site surface water works upgrading programme) was found to deliver benefits that we were directly attributable to it and that could quantify.

Table 3: PR24 enhancement activities with impacts on water supply interruptions

Enhancement activities	Expert view on benefits quantification	Quantified benefits
Supply-side improvements delivering benefits in 2025-2030	Direct benefits are difficult to quantify	Not quantified
Internal interconnectors delivering benefits in 2025-2030		
Supply demand balance improvements delivering benefits starting from 2031		
Strategic Water Resource Options (SROs)		
Operational resilience (heat stress, power resilience, flooding)		
Supply Resilience (four-site surface water works upgrading programme)	Benefits directly attributable to these activities can be quantified	00:04:00

We have quantified the benefits from the Supply Resilience Enhancement at 04 minutes as follows:

- We have forecasted the service levels in the ‘do nothing / pre-investment’ scenario using our asset deterioration model which takes into account the condition of our assets and their remaining useful life.
- We have then forecasted the service levels in the ‘post-investment’ scenario, using our asset deterioration model and assuming like-for-like asset replacement. This is a conservative estimate because many assets are planned to be replaced with superior solutions that will deliver greater benefits.
- The benefits were determined as the delta in service levels, i.e., as the difference between the service level pre- and post-investment.

2.4. Industry performance forecasts

Our performance in 2022/23 was 01:28:10, although this was primarily driven by a small number of large incidents.

We have forecasted the industry upper quartile performance (UQ) in 2029/30 by considering historic performance and expected improvements from each companies' business plan assuming a logarithmic time trend forecast. We have forecasted the industry UQ water supply interruptions in 2029/30 at 00:04:08 . This is slightly better than our forecast level of 00:04:31.

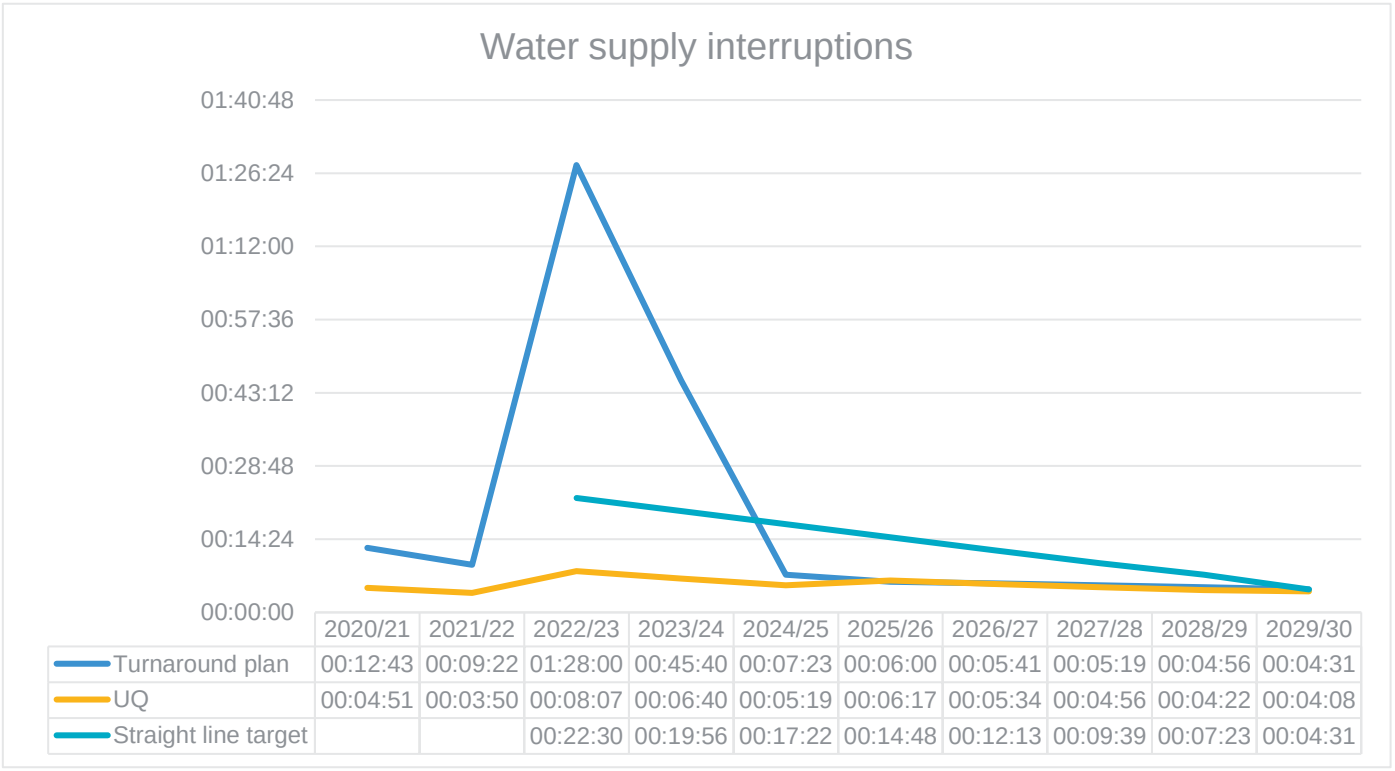
Nevertheless, and as the chart below shows, our trajectory to 2029/30 is a stepped improvement from our 2022/23 performance and almost closes the gap to the industry UQ.

2.5. Our current performance and our trajectory to meet our 2029/30 destination

In order to meet our destination of 00:04:31 by 2029/30 we would need to meet our turnaround plan[6] target of 6 minutes in 2024/25 with further business improvements up to 2029/30. However, given the ambitious improvement set in our turnaround plan, there is a risk we may not achieve this level in 2024/25.

We are, therefore, proposing to reach the same destination in 2029/30 but through a straight-line projection from our current underlying performance in 2022/23, which sets achievable targets and give us, a turnaround company, reasonable time to achieve the forecasted level of performance in 2029/30.

Figure 4: Water supply interruptions trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Turnaround plan	00:12:43	00:09:22	01:28:00	00:45:40	00:07:23	00:06:00	00:05:41	00:05:19	00:04:56	00:04:31
UQ	00:04:51	00:03:50	00:08:07	00:06:40	00:05:19	00:06:17	00:05:34	00:04:56	00:04:22	00:04:08
Straight line target			00:22:30	00:19:56	00:17:22	00:14:48	00:12:13	00:09:39	00:07:23	00:04:31

We have started our straight-line projection in 2022/23 at 00:22:30 which is a level of performance consistent with our underlying performance with one large incident. Our forecast performance then steps down consistently until 2029/30 to 00:04:31. As we report in our Annual Performance Report (APR) 2023,[1] we experienced several exceptional and significant incidents during 2022-23 that left our customers without water supply for periods up to 35 minutes, which is much longer than average time. Excluding these exceptional events, we would have seen a performance of 00:07:30 in line with our 2022-23 turnaround plan. Since these incidents, we have improved our response by ensuring better communication with customers and improved availability and deliveries of bottled water. We, therefore, believe that this is a realistic starting position to use as the basis for the trajectory to our 2029/30 destination.

We are proposing our year-on-year targets for AMP8 in line with this straight-line approach. We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.

2.6. Our long-term ambition

Our long-term ambition is to ensure a reliable supply of high-quality water for the future and this goal is supported by our customers. We have set a target of 2 mins in 2049/50 which will be a 56% reduction from our end of AMP8 position. This target is based on forward looking analysis of customer expectations and improved water sector delivery performance.

Table 4: Long term targets for water supply interruptions

Unit: hh:mm:ss	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	00:04:31	00:03:12	00:02:48	00:02:24	00:02:00
Benefits from enhancement	00:04:00	00:05:19	00:05:43	00:06:07	00:06:31
Performance from base expenditure	00:08:31	00:08:31	00:08:31	00:08:31	00:08:31

Performance = Performance from base – performance from enhancement

This target has been set against a position where base expenditure is unable to maintain the assets against the rate of deterioration. Our analysis has shown that this target is not achievable from base expenditure and we would need to undertake significant enhancement investment to achieve this target.

The loss of raw water in drought conditions, we will address through our Water Resources Management Plan (WRMP) investments which aims to:

- Improve available water supply through a major program of new schemes and
- Reduce leakage to over 50%.

Further detail of this program is available in our WRMP.

This will not address the ability of our works to be resilient in all circumstances and based on the work undertaken at four of our main water treatment works in AMP8, we forecast additional work will be needed at our other main works to achieve this target. These works will need to improve asset resilience at reservoirs and water works and mitigate the risks of deteriorating water quality from surface water sources.

2.7. Incentive rates

The incentive rate for PR19 was £244k per minute of supply interruption. This was derived from our PR19 customer research.

For PR24, Ofwat have set the incentive rates it expects us to accept. For water supply interruptions this is £978k with a marginal benefit sharing rate of 70% and a final incentive rate of £685k per minute of supply interruptions.

We do not accept this incentive rate.

Considering the risk for the notional company, water supply interruptions incentive rate at £680k produces a significant downward skew with material negative P50 positions. Therefore, we have recalibrated the ODI model for this PC and propose an incentive rate of £180k with a marginal benefit sharing rate of 70% and a final incentive of £126k per minute of supply interruptions. For details on how we appropriately calculated the proposed incentive, please see our SRN57: Risk Technical Annex.

As proposed in the PR24 Final Methodology, there will be consideration for a collar for water supply interruptions. On the expectation that Ofwat accept our proposed incentive rate, we propose collars as set out in the table below. For details on how the collars have been calculated, please see our SRN57: Risk Technical Annex . If Ofwat does not accept our proposed collars, we expect that to be reflected in the ODI rate that keeps the same level of risk.

Table 5: Collars proposed for water supply interruptions

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
Water supply interruptions (hh:mm:ss)	0:52:11	0:58:14	1:02:57	1:05:27	1:05:13

2.8. Summary

The table below summarises our overall position on water supply interruptions.

Table 6: Summary of our position on water supply interruptions

Unit: hh:mm:ss	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	00:14:48	00:12:13	00:09:39	00:07:23	00:04:31
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	0:52:11	0:58:14	1:02:57	1:05:27	1:05:13
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We propose a rate of £126k per minute of supply interruptions				
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast. If Ofwat does not accept our proposed collars, we expect that to be reflected in the ODI rate that keeps the same level of risk.				

3. Compliance Risk Index (CRI)

The compliance risk index (CRI) performance commitment is designed to incentivise full compliance with our statutory obligations related to treated water compliance and thereby limit water quality failures. Lowering the CRI performance commitment will promote customer confidence that our water is clean and safe to drink.

3.1. Customer views

Perceptions of water quality are high on our customers priorities, with most customers satisfied. Customers want to ensure we maintain high quality water.

Figure 5: Our customer views on safety of drinking water

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern				■														
Ofwat					■													
Others			■															

What our customers have told us:

"The improvement of water quality (or at least, avoiding a degradation of water quality). I think the benefit here is clear - better quality water (and safer) which looks and tastes better for all customers concerned." Household Customer

"I am confident that my tap water is safe to drink, as I have done so for many years and have never become ill or had any issues. It is expected to have some floaty bits in the water as we live in a hard water area, and it must be difficult to get every single trace of chalk etc out of the water." Household customer panel

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

3.2. Our performance forecast

At PR19, Ofwat set a CRI performance commitment level of zero with an underperformance deadband to a score of 2.00. We have forecasted our CRI performance to be at 2.00 by 2029/30, down from a forecast starting position of 4.5 in 2025/26. We expect the deadband until 2029/30 to match this. We aim to reduce our CRI score further to 1.33 by 2034/35 and 1.00 by 2049/50. Our improvement trajectory is supported by our customers. We explain our rationale to reach these targets below.

Table 7: Our proposed deadband for compliance risk index

Unit: numerical score

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
4.50	3.88	3.25	2.63	2.00	1.33	1.00

3.3. Build-up of our 2029/30 performance

The table below shows the build-up of our CRI forecast for 2029/30.

Table 8: Compliance risk index performance build up

Unit: numerical score	Performance
PR19 deadband for 2024/25	2.00
Current forecast performance for 2024/25	3.23
Benefits from enhancement	2.06
Benefits from base expenditure	0.74
Natural rate of deterioration	1.57
Performance 2029/30	2.00
Performance in 2029/30 from base expenditure (i.e. without enhancement)	4.06

$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

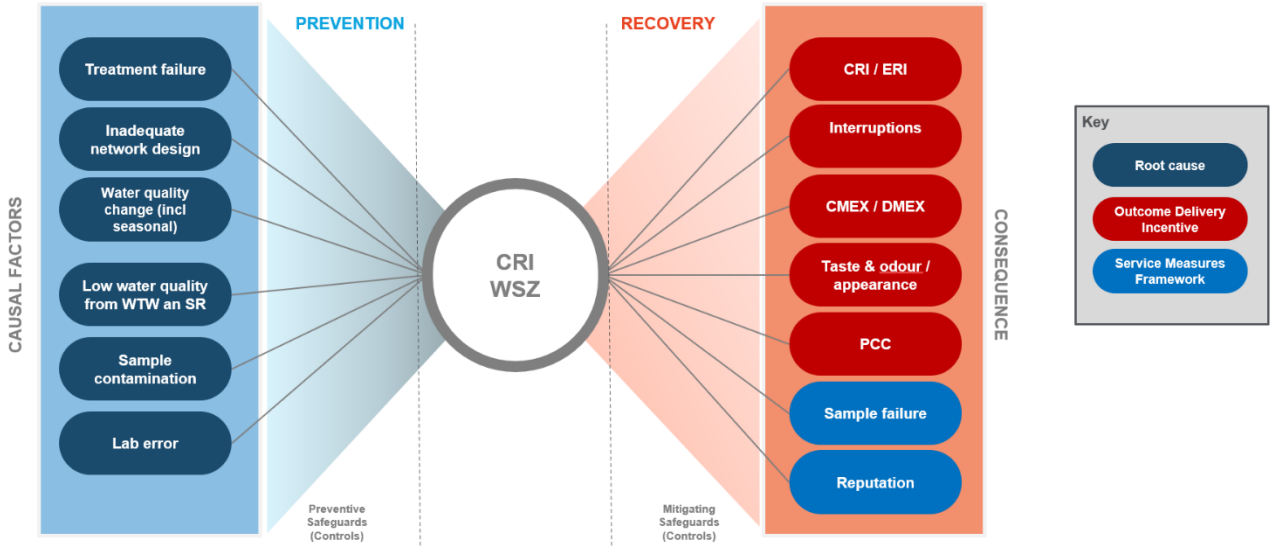
Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

3.3.1. Benefits from base

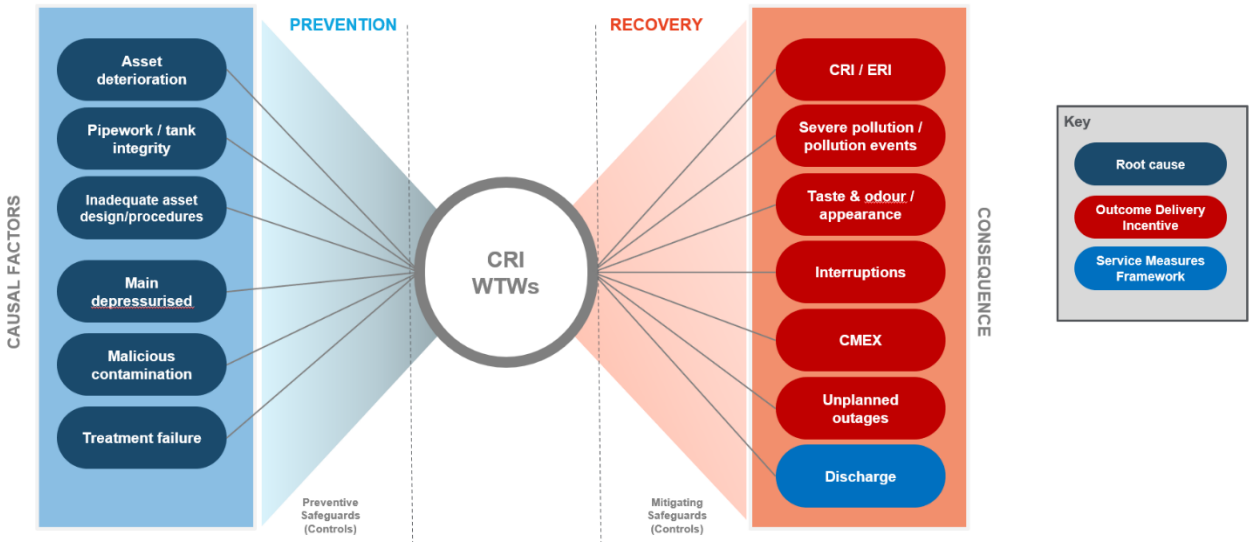
We have used our 'bow tie' risk frameworks for each component of CRI to identify the asset-related risks to CRI and link these to the risk-reduction interventions in our base plan and corresponding performance benefits.

Figure 6: Risk 'bow ties' framework for compliance risk index

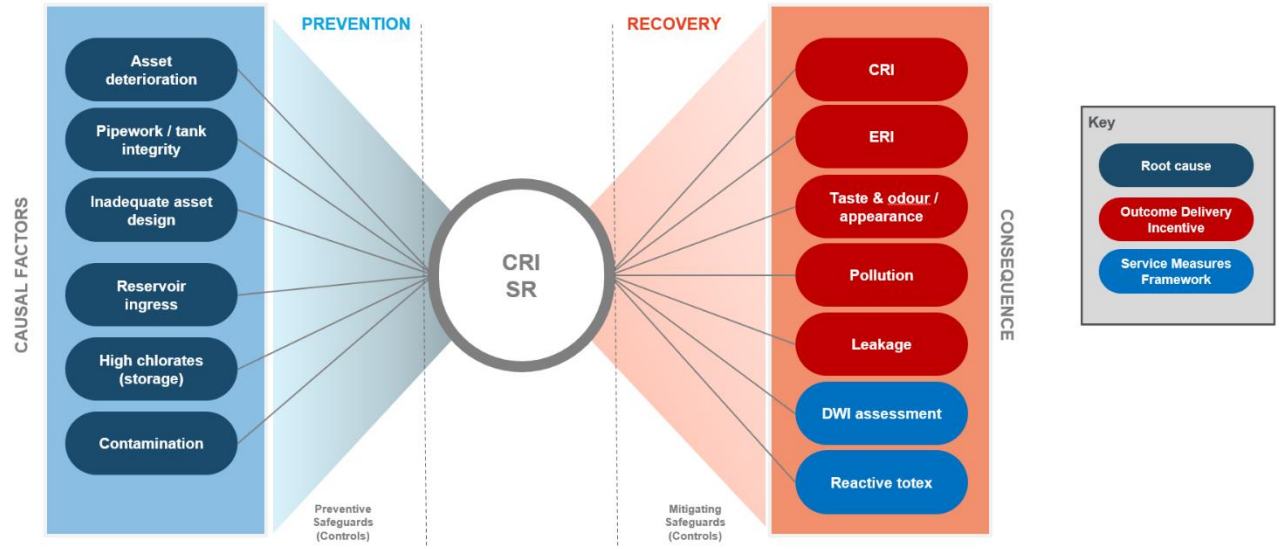
a) Water supply zones



b) Supply points and treatment works



c) Service reservoirs



Our asset management experts have used these frameworks to identify the activities in our base plan that address the causal factors of risks to CRI performance. The flowing interventions were identified:

- Water Supply Works (WSW) compliance;
- Water Service Reservoirs (WSR) Compliance;
- Water quality General; and
- Network management.

Benefits from these interventions were determined by running our asset deterioration model with and without these interventions. The results were then refined through workshops with experts.

We have estimated CRI benefits from base expenditure at 0.74 score points by 2029/30. These are insufficient to offset our natural rate of deterioration of 1.57, as estimated by our asset deterioration model. The remaining natural rate of deterioration is offset by enhancement benefits.

We recognise that Ofwat sets out in the PR24 methodology an expectation that companies would reach a CRI performance level of zero from base expenditure by 2029/30. However, we consider the gap between current performance and zero is too big for us, a turnaround company, to close only through base expenditure. We are, therefore, proposing to contribute to close this gap also with enhancement expenditure.

3.3.2. Benefits from enhancement

We have conducted expert workshops to identify the PR24 enhancement interventions that impact CRI. Our experts have also identified whether the benefits could be quantified and attributed to individual enhancement activities. The table below summarises the results. We have found that only the Supply Resilience Enhancement case (four-site surface water works upgrading programme) will deliver directly attributable benefits that could be quantified.

Table 9: PR24 enhancement activities with impacts on CRI

Enhancement activities	Expert view on benefits quantification	Quantified benefits
Addressing raw water quality deterioration (grey solutions)	Direct benefits are difficult to quantify	Not quantified
Addressing raw water quality deterioration (green solutions)		
Supply Resilience (four main surface water works upgrading programme)	Benefits directly attributable to these activities can be quantified	2.06

We have quantified the CRI benefits from the Supply Resilience Enhancement at 2.06 score points as follows:

- We have forecasted the service levels in the ‘do nothing / pre-investment’ scenario using our internal asset deterioration model which takes into account the condition of our assets and their remaining useful life.
- We have then forecasted the service levels in the ‘post-investment’ scenario, using our asset deterioration model and assuming like-for-like asset replacement. This is a conservative estimate because many assets are planned to be replaced with superior solutions that will deliver greater benefits.
- We have determined the benefits as the delta in service levels, i.e., as the difference between the service level pre- and post-investment.

3.4. Industry performance forecasts

We have forecasted the industry upper quartile performance by considering historic performance and expected improvements from each companies’ business plan and using a logarithmic time trend forecast.

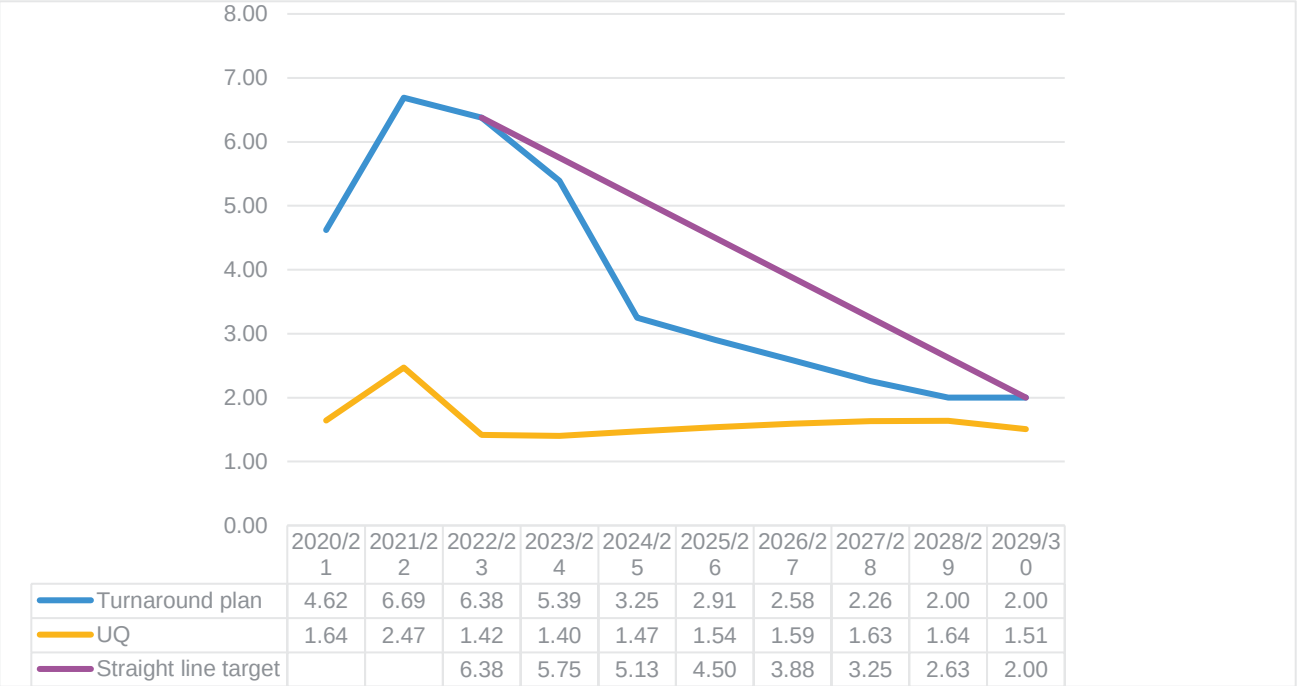
For CRI, in 2029/30, we have forecasted the upper quartile as 1.51. This is slightly below our forecast level of 2, meaning that we forecast to perform worse than the UQ. However, as the graph below shows, our trajectory to 2029/30 is a stepped improvement closing most of the gap to the industry upper quartile.

3.5. Our current performance and our trajectory to meet our 2029/30 destination

Our performance in 2022/23 was 6.38. In order to meet our destination of 2.0 by 2029/30, we would need to meet our turnaround plan[6] target of 3.25 in 2024/25 and further business improvements. Given the ambitious improvement in our turnaround plan, there is a risk we may not achieve this level in 2024/25.

We are proposing to reach the same performance in 2029/30 but through a straight-line projection from our current performance in 2022/23, which sets achievable targets and give us, a turnaround company, reasonable time to achieve the forecasted level of performance in 2029/30.

Figure 7: CRI trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Turnaround plan	4.62	6.69	6.38	5.39	3.25	2.91	2.58	2.26	2.00	2.00
UQ	1.64	2.47	1.42	1.40	1.47	1.54	1.59	1.63	1.64	1.51
Straight line target			6.38	5.75	5.13	4.50	3.88	3.25	2.63	2.00

Therefore, we are proposing a deadband for compliance risk index in line with our straight-line targets.

3.6. Our long-term ambition

Our long-term ambition is to ensure a reliable supply of high-quality water for the future and this goal is supported by our customers. We are expecting our CRI performance to be a score of 1 in 2049/50, which will be an improvement from our end of AMP8 position. This performance forecast is based on our customer priorities:

- Our customers expect us to get the basics right and value they current quality of water on a day-to-day basis.
- Customers expect us to improve in-line with the other companies performance; however, they have higher priorities for our future investments.

Table 10: Long term targets for CRI

Unit: numeric score	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	2.00	1.33	1.22	1.11	1.00
Benefits from enhancement	2.06	2.73	2.84	2.95	3.06
Performance from base expenditure	4.06	4.06	4.06	4.06	4.06

Performance = Performance from base – performance from enhancement

This performance has been set against a continuing natural rate of deterioration that is offset by the base expenditure. Our analysis has shown that this level of performance is not achievable from base expenditure and we would need to undertake significant investment to achieve this. Please, refer to our SR12: Long Term Delivery Strategy Technical Annex for details on how we reached these trajectories.

Our enhancement expenditure would need to be focussed in the areas measured by the PC:

- Water supply
- Supply points and treatment works
- Service reservoirs

We will need to expand the proposed work to be undertaken at four of our main water treatment works in AMP8 to other main works to achieve this level of performance. In addition, we would need to improve asset resilience at reservoirs and mitigate the risks of deteriorating water quality from surface water sources.

3.7. Incentive rates

The incentive rate for CRI at PR19 was £628k. This was derived from our PR19 customer research.

For PR24, Ofwat have set out the incentive rates it expects us to accept. For compliance risk index this is £960k with a marginal benefit sharing rate of 70% and a final incentive rate of £672k per score.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are not proposing a collar but we expect the underperformance deadband to be set in line with our performance forecasts.

3.8. Summary

The table below summarises our overall position on compliance risk index

Table 11: Summary of our position on compliance risk index

Unit: numeric score	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	0	0	0	0	0
Underperformance deadband	4.50	3.88	3.25	2.63	2.00
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a

ODI incentive rate	We have used the Ofwat rate of £672k per score
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.

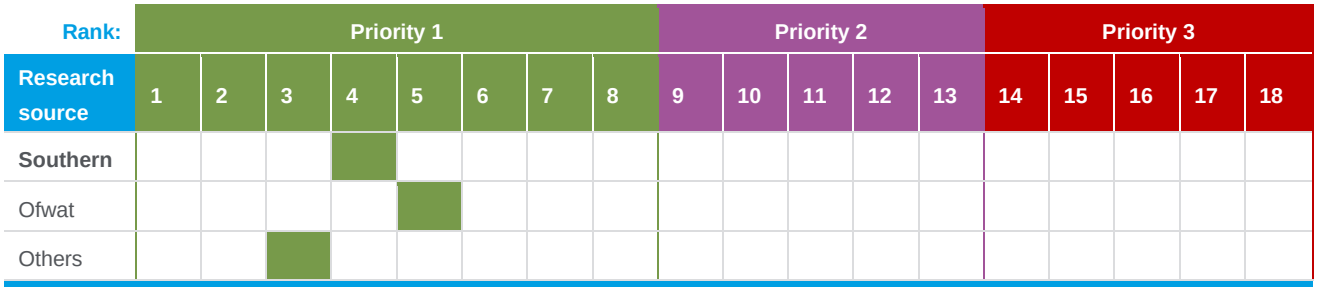
4. Customer Contacts About Water Quality

This performance commitment incentivises us to reduce the number of contacts from customers complaining about the taste, odour and appearance of our water. A reduction in the number of contacts about the quality of drinking water indicates an increase in the acceptability of water to our customers and a reduction in disruption and other negative social impacts for our customers.

4.1. Customer views

Our customers expect us to supply water to their homes and business without bad taste, odour or appearance issues. Perceptions of water quality are high, with most customers satisfied. However, where issues arise, they are on taste, appearance and hardness, rather than safety. Customers want to ensure we maintain high quality water and therefore consider this a Priority 1 area.

Figure 8:Our customer views on quality of drinking water



What our customers have told us:

"The improvement of water quality (or at least, avoiding a degradation of water quality). I think the benefit here is clear - better quality water (and safer) which looks and tastes better for all customers concerned." Household Customer

"The taste and smell of the water is absolutely normal and fine. I believe that we live in a hard water area and therefore the water is a little bit different from most people's normal, however I don't know any different!" Household customer panel

"I am confident that my tap water is safe to drink, as I have done so for many years and have never become ill or had any issues. It is expected to have some floaty bits in the water as we live in a hard water area, and it must be difficult to get every single trace of chalk etc out of the water." Household customer panel

"The last thing we want as a business is below par water and appearance can really have an effect on perceptions. I would like to receive this data on a regular basis (it can be yearly) and be shown how it works, why it works etc." Business Customer

"Contacts about water quality doesn't correlate with safety of drinking it. I'd be more influenced by actual testing of the quality rather that what it looks like - that can be mitigated by education of the customers." Business customer reliant on water for their product

"I think I'm far more concerned about having a drought and water running down the street, because there's a leak underneath the surface. I think they'd be much better putting their money towards technology to stop leaks, then try to improve, you know, a tiny bit of taste, which might be coming out of a 50 year old pipe." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

4.2. Our performance forecast

We want to maintain the quality of our water which is supported by our customers. To that end, we have forecasted improving our performance on water quality contacts to 0.80 customer contacts per 1,000 population by 2029/30, down from a starting position of 1.01 in 2025/26. We forecast to further reduce it to 0.65 in 2034/35 and 0.4 in 2049/50. We explain our rationale to reach these targets below.

Table 12: Our proposed targets for water quality contacts

Unit: customer contacts per 1,000 population

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
1.01	0.96	0.91	0.85	0.80	0.65	0.40

4.3. Build-up of our 2029/30 performance

The table below shows the build-up of our water quality contacts forecast for 2029/30.

Table 13: Water quality contacts target build up

Unit: customer contacts per 1,000 population	Performance
PR19 performance target for 2024/25	0.67
Current forecast performance for 2024/25	0.88
Benefits from enhancement	0.12
Benefits from base expenditure	1.54
Natural rate of deterioration	1.58
Performance 2029/30	0.80
Performance in 2029/30 from base expenditure (i.e. without enhancement)	0.92

$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

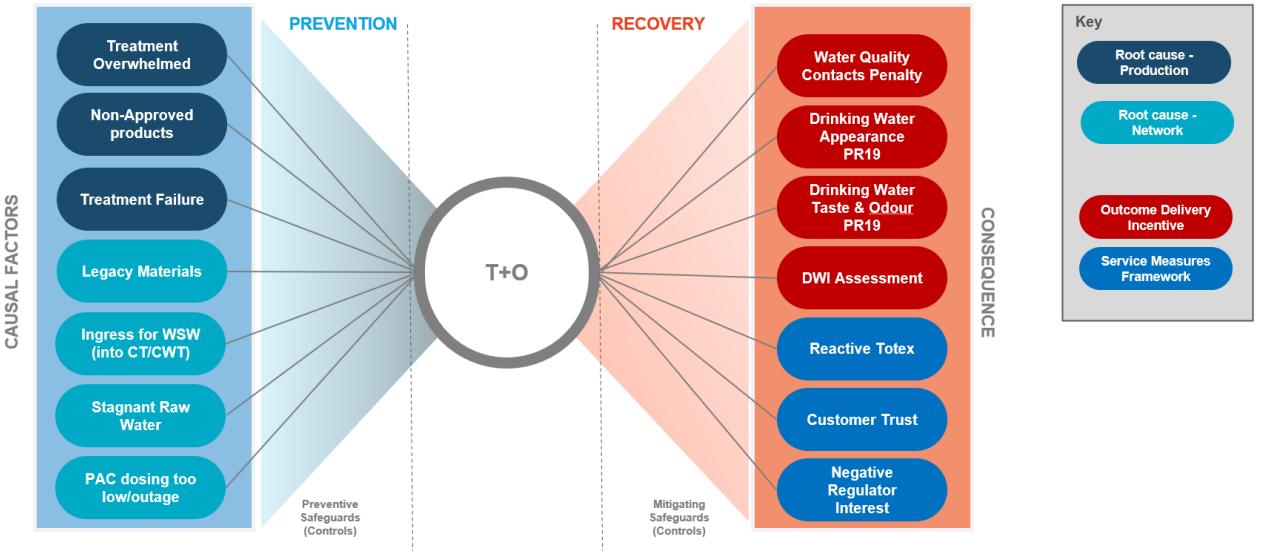
Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

4.3.1. Benefits from base

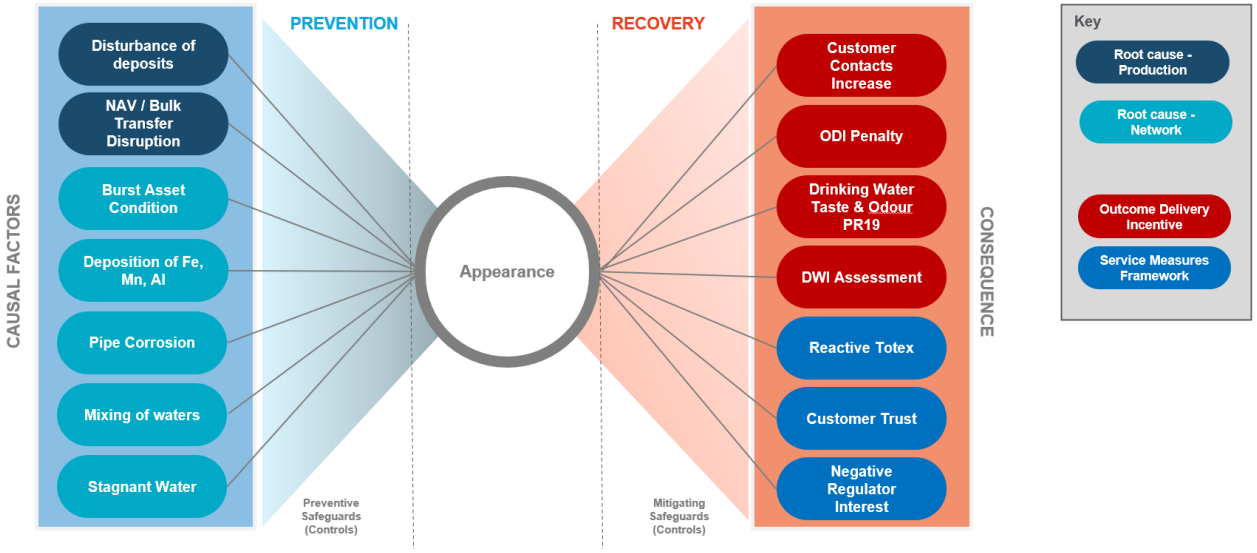
Interventions in our base business plan impacting water quality contacts were identified and linked to performance risks and benefits using our risk ‘bow tie’ frameworks below.

Figure 9: Risk 'bow ties' framework for water quality contacts

a) Taste and odour



b) Appearance



Using the frameworks above, our asset manager experts have identified the following risk-reduction activities in the base investment plan:

- Network maintenance, including proactive mains flushing and ice pigging;
- Water supply works compliance;
- Water service reservoirs compliance; and
- Water quality general Operational Expense (opex) interventions, including lab and sampling improvements and hygiene audits.

We have quantified the benefits from these interventions by running our asset deterioration model with and without these interventions. The results were then refined and validated through workshops with experts.

We have estimated the overall water quality contact benefits from base expenditure at 1.54 contacts per 1,000 population. These benefits would almost offset the estimated natural rate of deterioration of 1.58 with the remaining being offset by enhancement expenditure. We have estimated the natural rate of deterioration using our asset deterioration model.

4.3.2. Benefits from enhancement

The table below identifies the PR24 enhancement interventions that are likely to impact water quality contacts, following workshops with experts. Only benefits from the Supply Resilience Enhancement case (four-site surface water works upgrading programme) was found to deliver benefits that could be quantifiable and directly attributable to this enhancement activity.

Table 14: PR24 enhancement activities with impacts on water quality contacts

Enhancement activities	Expert view on benefits quantification	Quantified benefits
Strategic Water Resource Options (SROs)	Direct benefits are difficult to quantify	Not quantified
Supply Resilience (four main surface water works upgrading programme)	Benefits directly attributable to these activities can be quantified	0.12

We have quantified the benefits from the Supply Resilience Enhancement at 0.12 contacts per 1,000 population as follows:

- We have forecasted the service levels in the ‘do nothing / pre-investment’ scenario using our internal asset deterioration model which takes into account historic information on water contacts about water quality.
- We have then forecasted the service levels in the ‘post-investment’ scenario, using our asset deterioration model and assuming like-for-like asset replacement. This is a conservative estimate because many assets are planned to be replaced with superior solutions that will deliver greater benefits.
- We have determined the benefits as the delta in service levels, i.e., as the difference between the service level pre- and post-investment.

4.4. Industry performance forecasts

We have forecasted the industry upper quartile performance by considering historic performance and expected improvements from each companies’ business plan and using a logarithmic time trend forecast.

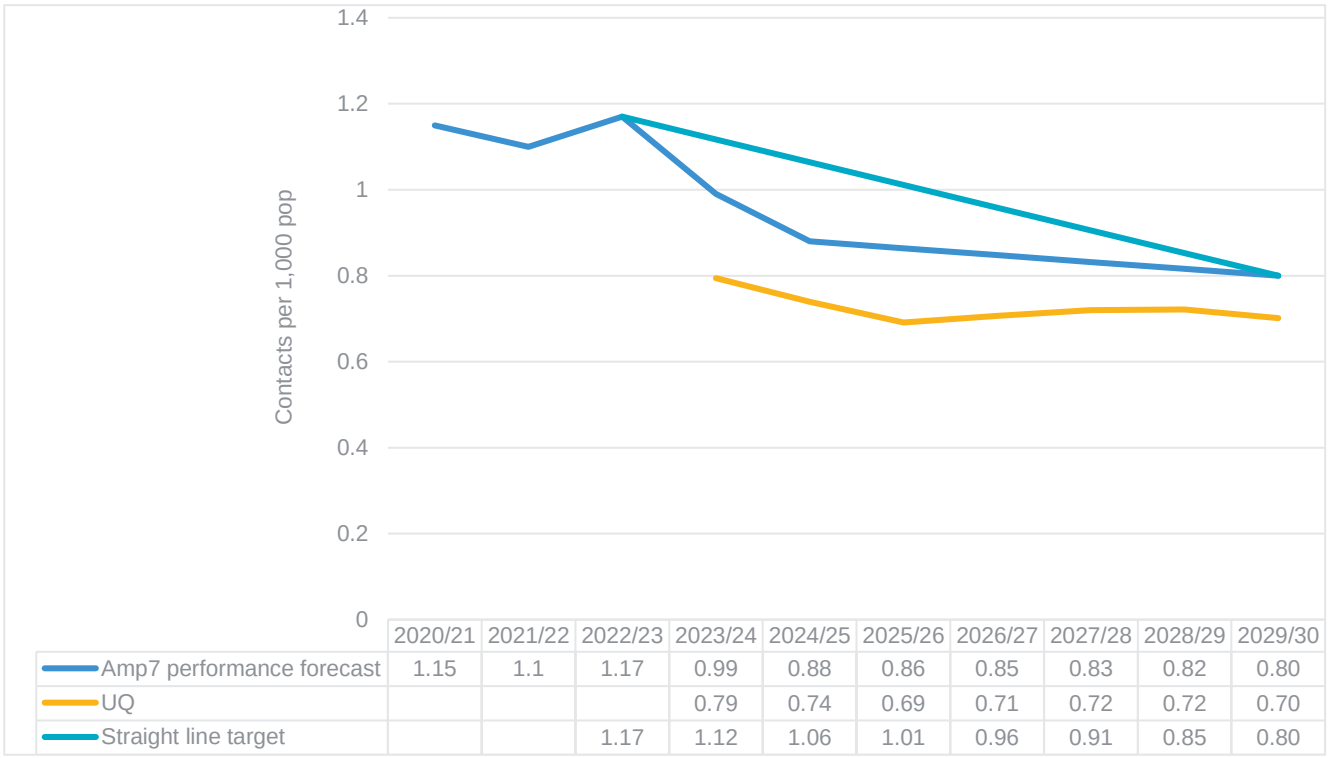
For compliance risk index in 2029/30, we have forecasted the upper quartile as 0.7, which is slightly better our forecast level of 0.87. However, as the graph below shows, this is a significant improvement in reducing the gap to the industry upper quartile.

4.5. Our current performance and our trajectory to meet our 2029/30 destination

Our performance in 2022/23 was 1.17. In order to meet our destination of 0.8 by 2029/30, we need to meet our AMP7 performance forecast of 0.88 in 2024/25 with further business improvements. However, given the ambitious improvement required in the last years of AMP7, there is a risk we may not achieve this level in 2024/25.

Therefore, we are proposing a straight-line projection from our current performance in 2022/23 to the same destination in 2029/30, which sets achievable targets and give us, a turnaround company, reasonable time to achieve the forecasted level of performance in 2029/30.

Figure 10: Water quality contacts trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Amp7 performance forecast	1.15	1.1	1.17	0.99	0.88	0.86	0.85	0.83	0.82	0.80
UQ				0.79	0.74	0.69	0.71	0.72	0.72	0.70
Straight line target			1.17	1.12	1.06	1.01	0.96	0.91	0.85	0.80

For water quality contacts, we are proposing that our targets for AMP8 are in line with this straight-line approach. We acknowledge that we should not receive outperformance payments unless we outperform our AMP7 performance forecast.

4.6. Our long-term ambition

Our long-term ambition is to ensure a reliable supply of high-quality water for the future and this goal is supported by our customers. We have set a target of 0.4 contacts per 1,000 population in 2049/50, which will be an improvement from our end of AMP8 position. This target is based on our customer priorities:

- Our customers expect us to get the basics right and value they current quality of water on a day-to-day basis.
- Customers expect us to improve in-line with the other companies' performance; however, they have higher priorities for our future investments.

We have set a target that we consider reflects sector improvements and customer priorities.

Table 15: Long term targets for water quality contacts

Unit: customer contacts per 1,000 population	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	0.80	0.65	0.57	0.49	0.40
Performance from enhancement	0.12	0.27	0.37	0.51	0.64
Performance from base	0.92	0.92	0.94	1.00	1.04

Performance = Performance from base – performance from enhancement

This target has been set against a continuing natural rate of deterioration that exceeds the ability of base expenditure to mitigate. Our enhancement spend on our main water sites to improve our water treatment resilience over the future AMPs should allow us to achieve this target. However, this is caveated that customers will accept water from Water Recycling Plants and Desalination, as a negative response to these would cause a significantly higher level of complaints. This would be exacerbated by the transient impact in drought years when we would need to move from normal to alternative sources.

4.7. Incentive rates

The incentive rate for PR19 was £4.62m underperformance and £3.85m for outperformance. This was derived from our PR19 customer research.

For PR24, Ofwat have set the incentive rates it expects us to accept. For water quality contacts this is £9.649m with a marginal benefit sharing rate of 70% and a final incentive rate of £6.754m.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are not proposing a collar or a deadband for water quality contacts.

4.8. Summary

The table below summarises our overall position on consumer contacts about water quality.

Table 16: Summary of our position on consumer contacts about water quality

Unit: customer contacts per 1,000 population	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	1.01	0.96	0.91	0.85	0.80
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We have used the Ofwat rate of £6.754m customer contacts per 1,000 population				
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.				

5. Internal Sewer Flooding

This performance commitment incentivises reducing the number of properties flooded from a public sewer. A reduction in the number of internal sewer flooding incidents indicates a reduction in disruption and other negative impacts for our customers. It is measured in total number of incidents and incidents normalised by 10,000 sewer connections.

5.1. Customer views

Ensuring sewage does not flood homes or businesses is Priority 1 for our customers. Our customers understand the devastation that internal sewer flooding can have, linking the causes to an out-of-date network and storm overflows but also understanding the role customers play in clogging up drainage in the home.

Figure 11:Our customer views on internal sewer flooding

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern			■															
Ofwat	■																	
Others				■														

What our customers have told us:

"To imagine this happening is devastating. It does make me appreciate all the things customers never even think about when we turn our water taps on and have running water." Household Customer

The 0.02% makes me think things are generally managed well and this is a very rare scenario and should have been sorted by now. Household Customer

"Southern Water is at the higher end of this, which is relatively disappointing especially when considering the health risks and gross inconveniences that these instances cause for their customers." Future customer

"I feel sorry for the households that are experiencing additional flooding but if these are new build properties then I think the programme should be financed by the house builders. Local housing estates are being built on known flood plains in my area." Future customer (on repeat flooding)

"I can't even begin to imagine what it must be like to experience this, no customer should be allowed to have this happen to them. Being one of the worst just feels unfair to customers and their homes." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

5.2. Our performance forecast

We forecast reducing the number of internal sewer flooding incidents to 240 by 2029/30, down from 364 in at the starting year of 2025/26; a 34% reduction. We aim to reduce it further to 235 incidents by 2034/35 (35% reduction from the baseline year 2024/25) and to 172 incidents by 2049/50 (53% reduction). This pace of reduction is supported by our customers. We explain our rationale to reach these targets below.

Table 17: Our proposed targets for internal sewer flooding

Metric	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Number of Incidents	364	333	302	271	240	235	172
Incidents per 10,000 sewer connections	1.74	1.58	1.43	1.27	1.12	1.06	0.78

5.3. Build-up of our 2029/30 performance

The table below shows the build-up of our internal sewer flooding forecast for 2029/30, measured in number of incidents.

Table 18: Internal sewer flooding target build up

Unit: Number of incidents	Performance
PR19 performance target for 2024/25	274
Current forecast performance for 2024/25	274
Benefits from enhancement	4
Benefits from base expenditure	118
Natural rate of deterioration	88
Performance 2029/30	240
Performance in 2029/30 from base expenditure (i.e. without enhancement)	244

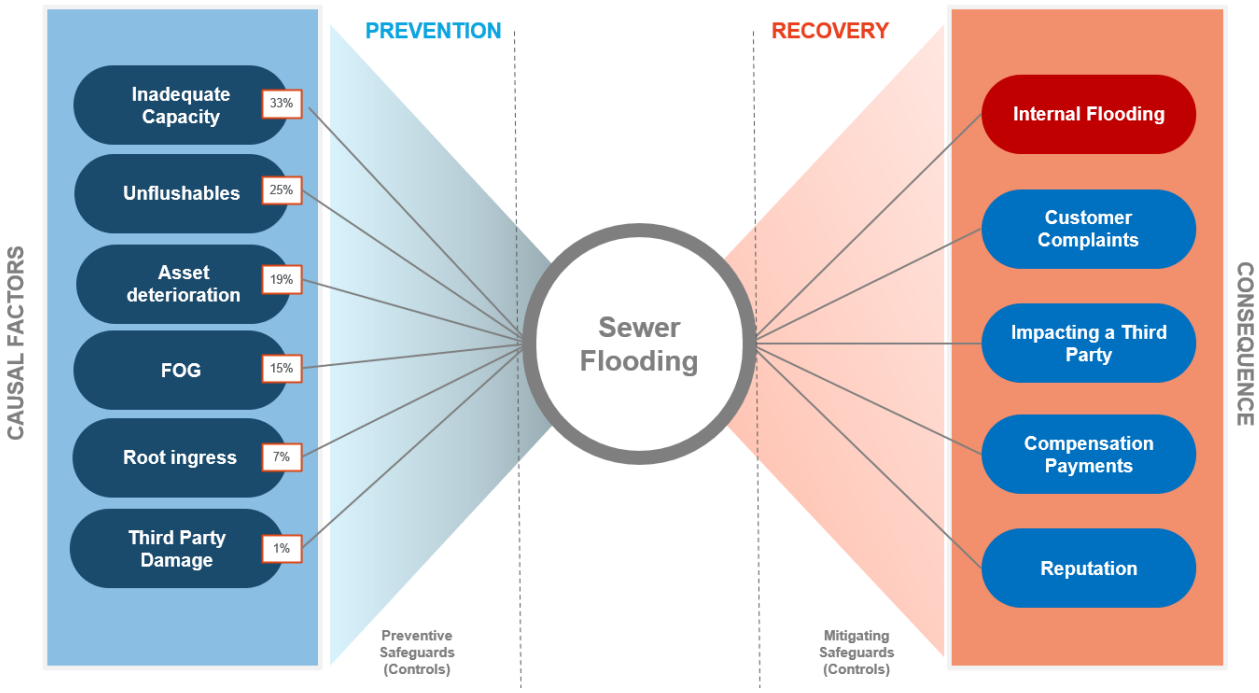
$Performance_{29/30} = Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

5.3.1. Benefits from base

We have identified the interventions in our base plan that impact internal sewer flooding and the benefits they are expected to generate using the risk ‘bow tie’ framework below which links root causes, risks to performance and benefits.

Figure 12: Risk 'bow tie' framework for internal sewer flooding



We have estimated internal sewer flooding benefits from base expenditure top down based on expert judgement and informed by past performance. We have iterated and calibrated the benefit calculations through expert workshops. The benefits were then allocated to interventions using the route cause percentage distributions as set out in the 'bow tie' framework.

We have identified the following set of interventions in our base plan as delivering internal sewer flooding benefits:

- Sewer Level Monitoring and proactive blockage clearance;
- Planned sewer cleansing program and proactive root ingress surveys and remedial work;
- Installation of non-return valves ; and
- Rehabilitation schemes.

We have estimated internal sewer flooding performance from base at 118 incidents in 2029/30, with a natural rate of deterioration of 88 incidents. We estimated the natural rate of deterioration based on the benefits delivered via interventions defined as being required to maintain performance.

5.3.2. Benefits from enhancement

Through workshops with experts, we identified the PR24 enhancement interventions listed below as delivering internal sewer flooding benefits:

- Increase storm storage / reduce need for storm tanks on site –green solution;
- Storm overflow - source surface water separation;
- Storage schemes to reduce spill frequency at Combined Sewer Overflows (CSOs) etc - grey solution;
- Storm overflow - infiltration management; and
- Storm Overflow - discharge relocation.

We have quantified the benefits from all enhancement activities at 4 incidents. The table below shows the split of benefits across the enhancement lines.

Table 19: PR24 enhancement activities with impacts on internal sewer flooding

Enhancement activities	Benefits (incidents)
Increase storm storage / reduce need for storm tanks on site –green solution	1
Storm overflow - source surface water separation	1
Storage schemes to reduce spill frequency at CSOs etc - grey solution	2
Storm overflow - infiltration management	0
Storm Overflow - discharge relocation	0
Total	**4**

We have followed the top-down approach below to quantify the benefits from enhancement:

- Benefits were calculated by dividing the enhancement expenditure in the business plan with a positive impact on internal sewer flooding by the unit rate per incident reduced through enhancement from the Drainage and Wastewater Management Plan (DWMP).
- The unit rate from DWMP was calculated as follows:
  - Unit rate = enhancement expenditure over 25 years / (number of incidents with base expenditure – number of incidents with enhancement expenditure taken into account).
  - This rate was adjusted to 2022-23 prices.
- The enhancement benefits were then calibrated to align with the split of benefits between base and enhancement modelled in the DWMP.

5.4. Industry performance forecasts

We have forecasted the industry upper quartile performance by considering historic performance and expected improvements from each companies' business plan and assuming a logarithmic trend forecast.

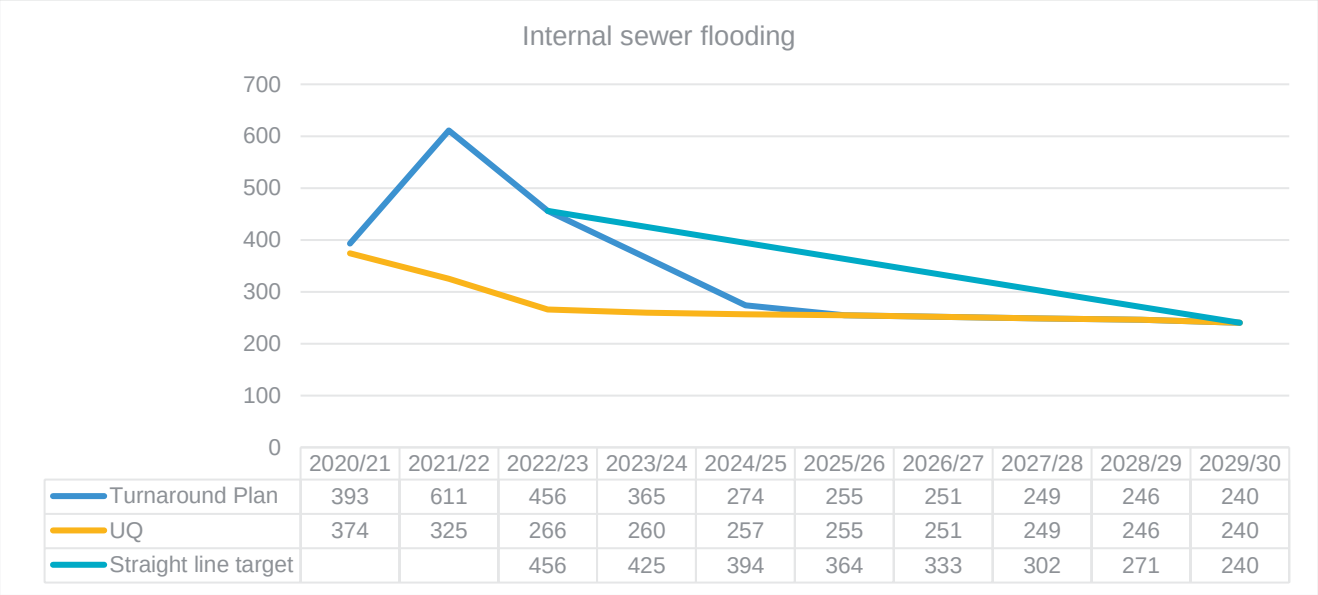
For internal sewer flooding in 2029/30 we have forecast the industry upper quartile as 240 incidents, or 1.12 incidents normalised, which is in line with our forecast UQ of 240 incidents (1.12 normalised).

5.5. Our current performance and our trajectory to meet our 2029/30 destination

Our performance in 2022/23 was 456 incidents. In order to meet our destination of 240 incidents in 2029/30, we would need to make large strides towards our turnaround plan[6] target and further business improvements to achieve our 2029/30 destination.

However, given the ambitious improvement in our turnaround plan, there is a risk we may not achieve this. Therefore, we are proposing a straight-line projection from our current performance in 2022/23 to the same destination in 2029/3, which set achievable targets and give us, a turnaround company, reasonable time to achieve this level of performance.

Figure 13: Internal sewer flooding trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Turnaround Plan	393	611	456	365	274	255	251	249	246	240
UQ	374	325	266	260	257	255	251	249	246	240
Straight line target			456	425	394	364	333	302	271	240

For internal sewer flooding, we are proposing our targets for AMP8 are in line with this straight-line approach.

We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.

5.6. Our long-term ambition

Our long-term ambition is to reduce internal sewer flooding from current levels by about 50%. This is a priority as it is potentially damaging, disrupting and a health hazard, and can be deeply upsetting and distressing for our customers. Hence, this was a key part of our DWMP with specific planning objectives that focussed on internal sewer flooding and the risk of sewer flooding in a 1 in 50 year storm. We have a target 172 incidents by 2050 for internal sewer flooding incidents.

Table 20: Long term targets for internal sewer flooding

Unit: Number of Incidents	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	240	235	214	193	172
Performance from enhancement	4	9	35	61	87
Performance from base expenditure	244	244	249	254	259

Performance = Performance from base – performance from enhancement

Our DWMP highlighted a number of key areas in our region where we need to focus. These are detailed in our BRAVA maps[7]. Blockages of sewers account for approximately 70% of internal flooding incidents and our data shows that the main cause of blockages is through the misuse of toilets and sinks for the disposal of

fats, oils and grease (FOG), as well as 'unflushable' items such as wet wipes, plastics, sanitary products and nappies. Our focus is to make flooding of homes an exception by 2040, but we recognise that preventing flooding can be technically challenging and cost more than our customers are willing to pay for us to resolve them.

In addition, internal sewer flooding can be caused by rainfall overwhelming the sewer. We have recognised that we need significant investment in reducing flood risk and we plan to continue this into the future. For more detail on this refer to our DWMP.

5.7. Incentive rates

The incentive rate for PR19 was £5.557m. This was derived from our PR19 customer research.

For PR24, Ofwat have set the incentive rates it expects us to accept. For internal sewer flooding this is £12.685m with a marginal benefit sharing rate of 70% and a final incentive rate of £8.879m per incident per 10,000 sewer connections.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are not proposing a collar or a deadband for internal sewer flooding.

5.8. Summary

The table below summarises our overall position on internal sewer flooding.

Table 21: Summary of our position on position on internal sewer flooding

Unit: Incidents per 10,000 sewer connections	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	1.74	1.58	1.43	1.27	1.12
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We have used the Ofwat rate of £8.879m incidents per 10,000 sewer connections				
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.				

6. External Sewer Flooding

This performance commitment incentivises companies to reduce the number of flooding events due to escape of water from a sewage system. A reduction in the number of external sewer flooding incidents reduces the disruption and other negative impacts for our customers. It is measured in total number of incidents and incidents normalised by 10,000 sewer connections.

6.1. Customer views

Our customers have told us that disruption and the health impact feel much more significant with internal than external sewer flooding. Although ensuring sewage does not flood external property is also high on our customers' priorities, customers expect higher number of incidents for external than for internal sewer flooding. The impact of climate change and increase in wet weather means that external sewer flooding feels more acceptable.

Figure 14:Our customer views on external sewer flooding

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern					■													
Ofwat						■												
Others									■									

What our customers have told us:

"I feel much more sympathetic towards the water companies over this one because no one can control the weather and it is unpredictable nowadays. I felt angry about internal flooding because it seems much more preventable to me." Household Customer

"My initial reaction here isn't anywhere near as strong as with the internal flooding. I don't think external flooding is anywhere near as bad as internal." Household Customer

"This is concerning as there is a risk to the public health, and it must be tough if it happens to your home." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

6.2. Our performance forecast

We forecast reducing the number of external sewer flooding incidents to 3,011 by 2029/30, down from 3,432 forecasted at the starting point year 2025/26, a reduction of 12%. We aim at reducing incidents further to 2,791 by 2034/35 (19% reduction from 2025/26) and 1,000 incidents by 2049/50 (71% reduction). These levels of performance and pace of improvement is supported by our customers. We explain our rationale to reach these targets below.

Table 22: Our proposed targets for external sewer flooding

Metric	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Number of Incidents	3,432	3,327	3,222	3,116	3,011	2,791	1,000
Incidents per 10,000 sewer connections	16.4	15.8	15.2	14.6	14.0	12.6	4.6

6.3. Build-up of our 2029/30 performance

The table below shows the build-up of our internal sewer flooding forecast for 2029/30, measured in number of incidents.

Table 23: External sewer flooding target build up

Unit: number of incidents	Performance
PR19 performance target for 2024/25	3,525
Current forecast performance for 2024/25	3,525
Benefits from enhancement	149
Benefits from base expenditure	877
Natural rate of deterioration	512
Performance 2029/30	3,011
Performance in 2029/30 from base expenditure (i.e. without enhancement)	3,160

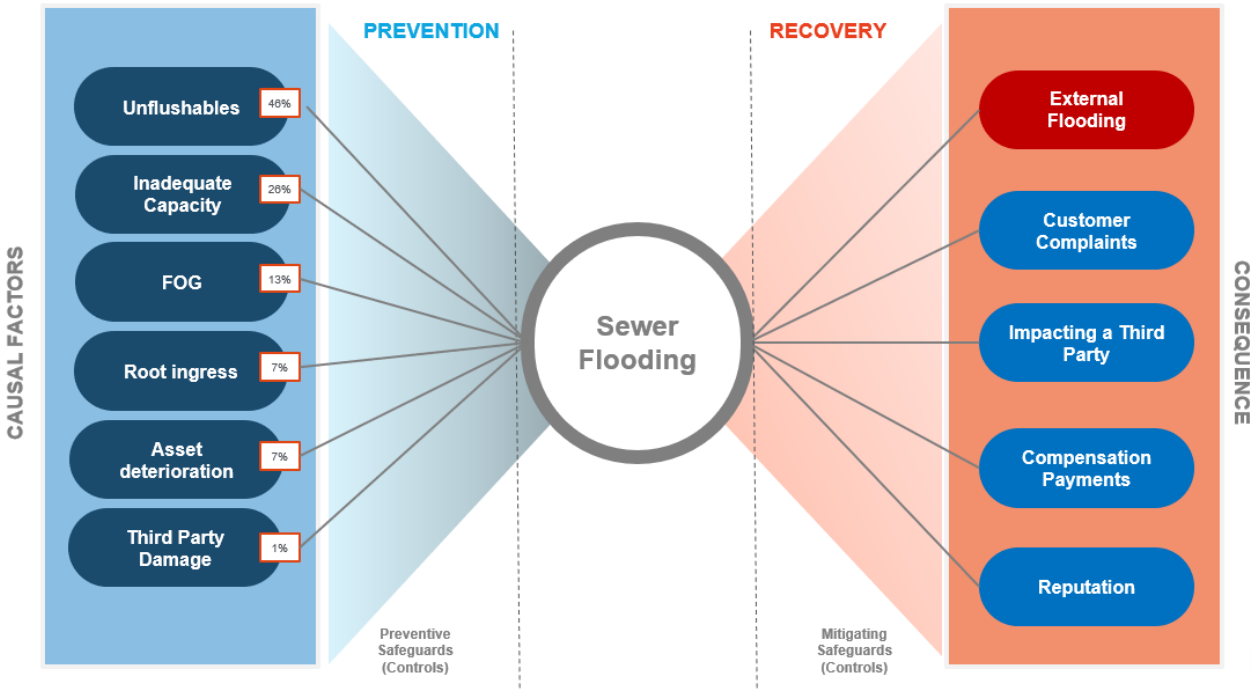
$Performance_{29/30} = Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

6.3.1. Benefits from base

We have identified the interventions in our base plan that impact external sewer flooding and the benefits they are expected to generate using the risk 'bow tie' framework below linking root causes, risks to performance and benefits.

Figure 15: Risk 'bow ties' framework for external sewer flooding



We have estimated external sewer flooding benefits from base expenditure using a top-down approach based on expert judgement informed by past performance. We have challenged and calibrated the results through expert workshops. The benefits were then allocated to interventions using the route cause percentage distributions as set out in the 'bow tie' framework.

We have identified the following interventions on our base plan as delivering internal sewer flooding benefits:

- Sewer Level Monitoring and proactive blockage clearance;
- Sewer Abuse Prevention - Customer engagement
- Planned sewer cleansing program and Proactive root ingress surveys and remedial work

We have estimated internal sewer flooding performance from base at 877 incidents in 2029/30, with a natural rate of deterioration of 512 incidents. Our natural rate of deterioration was calculated based on the benefits delivered via interventions defined as being required to maintain performance.

6.3.2. Benefits from enhancement

We have used expert workshops to identify the PR24 enhancement interventions delivering internal sewer flooding benefits as follows:

- Increase storm storage / reduce need for storm tanks on site –green solution;
- Storm overflow - source surface water separation;
- Storage schemes to reduce spill frequency at CSOs etc - grey solution;
- Storm overflow - infiltration management; and
- Storm Overflow - discharge relocation.

We have quantified the external sewer flooding benefits from all enhancement activities at 149 incidents. The table below shows the split of benefits across the enhancement lines.

Table 24: PR24 enhancement activities with impacts on external sewer flooding

Enhancement activities	Benefits (incidents)
Increase storm storage / reduce need for storm tanks on site –green solution	28
Storm overflow - source surface water separation	37
Storage schemes to reduce spill frequency at CSOs etc - grey solution	62
Storm overflow - infiltration management	20
Storm Overflow - discharge relocation	2
Total	**149**

We have followed a top-down approach to quantify the benefits from enhancement:

- Benefits were calculated by dividing the enhancement expenditure in the business plan with a positive impact on external sewer flooding by the unit rate per incident reduced through enhancement from DWMP.
- The unit rate from DWMP was calculated as:
  - Unit rate = enhancement expenditure over 25 years / (number of incidents with base expenditure – number of incidents with enhancement expenditure taken into account).
  - This rate was then adjusted to 2022-23 prices.
- The enhancement benefits were then calibrated to align with the split of benefits between base and enhancement modelled in the DWMP.

6.4. Industry performance forecasts

We have forecasted the industry upper quartile performance by considering historic performance and expected improvements from each companies' business plan and assumed a logarithmic time trend forecast. For external sewer flooding in 2029/30 we have forecasted our performance as 3,011 incidents or 14.0 per 10,000 connections. This is in line which is in line with our forecast of the industry upper quartile of 3,183 incidents corresponding to 14.8 per 10,000 connections.

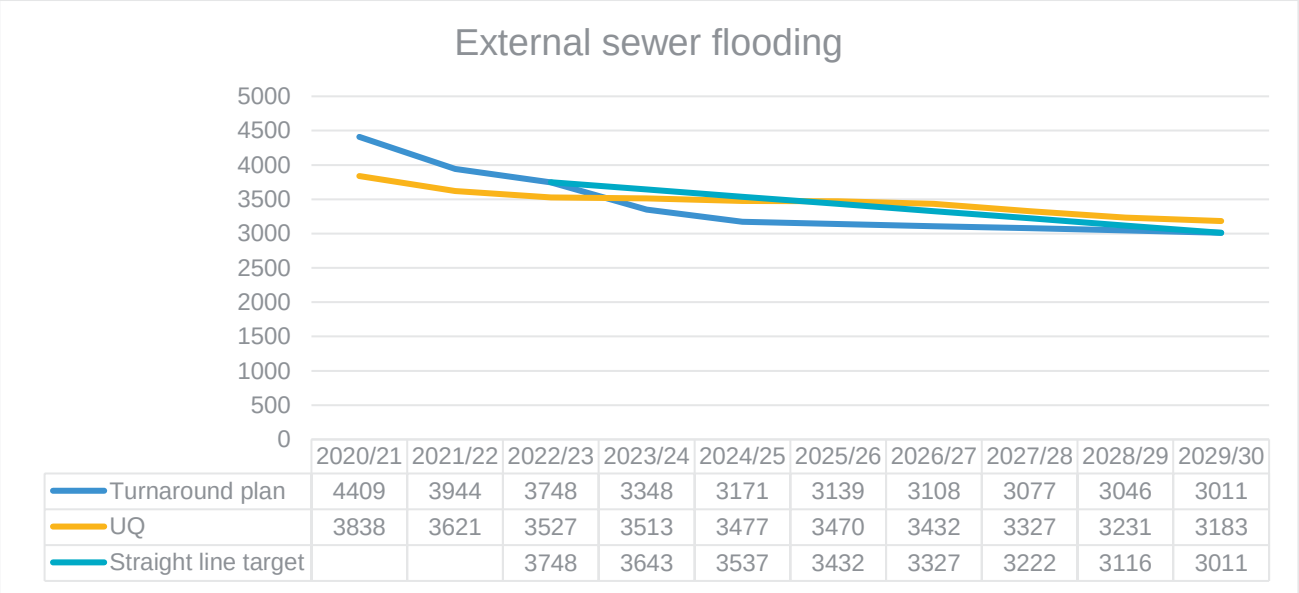
6.5. Our current performance and our trajectory to meet our 2029/30 destination

Our performance in 2022/23 was 3,748 incidents. In order to meet our destination of 3,011 incidents by 2029/30, we would need to meet our turnaround plan[6] target of 3,171 in 2024/25 and further business improvements to reach the 3,011 target by 2029/30.

Given the ambitious improvement in our turnaround plan, there is a risk we may not achieve this level of performance in 2024/25. Therefore, we are proposing a straight-line projection from our current performance

in 2022/23 to the same destination in 2029/30, which sets achievable targets and give us, a turnaround company, reasonable time to achieve the forecasted level of performance for 2029/30.

Figure 16: External sewer flooding trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Turnaround plan	4409	3944	3748	3348	3171	3139	3108	3077	3046	3011
UQ	3838	3621	3527	3513	3477	3470	3432	3327	3231	3183
Straight line target			3748	3643	3537	3432	3327	3222	3116	3011

For external sewer flooding, we are proposing our targets for AMP8 are in line with this straight-line approach. We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.

6.6. Our long-term ambition

Our long-term ambition is to reduce external sewer flooding for our customers from current levels by about 66%. This is a priority as it is potentially damaging, disrupting and a health hazard, and can be deeply upsetting for our customers. Hence, this was a key part of our DWMP and linked with our internal sewer flooding approach. We had planning objectives that focussed on external sewer flooding and the risk of sewer flooding in a 1 in 50 year storm. We have a target 1000 incidents by 2050 for external sewer flooding incidents.

Table 25: Long term targets for external sewer flooding

Unit: number of incidents	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	3,011	2,791	2,194	1,597	1,000
Benefits from enhancement	149	369	966	1,563	2,160
Performance from base expenditure	3,160	3,160	3,160	3,160	3,160

Performance = Performance from base – performance from enhancement

Our DWMP highlighted a number of key areas in our region where we need to focus these are detailed in our BRAVA maps[7]. Our approach to reducing flood risk is three-fold:

- Operational solutions: For example, improving the resilience of pumping stations, increased sewer cleaning targeted in hotspot areas to reduce the number and impact of blockages.
- Sustainable solutions: Work with local councils and other organisations such as developers, catchment partnerships and community groups to separate rainwater from the foul and combined sewer systems, using nature-based and sustainable drainage systems (SuDS).
- Traditional solutions:
  - Deliver property level resilience measures to reduce the risk of a repeat flooding for specific properties.
  - Increase the capacity of storm tanks at WTWs, increase network storage through underground concrete tanks or increase the size of the network. This will be delivered using an adaptive approach, on a no regrets basis, so that future storage needs may be met through more sustainable solutions.

These all need investment to deliver the improvement particularly when faced by the challenges of climate change. For more detail on this refer to our DWMP.

6.7. Incentive rates

The incentive rate for PR19 was £5.557m. This was derived from our PR19 customer research.

For PR24, Ofwat have set the incentive rates it expects us to accept. For external sewer flooding this is £5.679m with a marginal benefit sharing rate of 70% and a final incentive rate of £3.976m per incident per 10,000 connections.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are proposing a cap and collar as this PC as our risk analysis has shown that this PC has the potential to skew the outcomes package. This is in line with Ofwat Methodology which states that Ofwat will make a targeted use of caps and collars on individual PCs that have the potential to significantly skew the outcomes package For details on how the caps and collars have been calculated please see our SRN57: Risk Technical Annex. If Ofwat does not accept our proposed collars, we expect that to be reflected in the ODI rate that keeps the same level of risk.

Table 26: Caps proposed for external sewer flooding

Caps	2025/26	2026/27	2027/28	2028/29	2029/30
External sewer flooding incidents per 10,000 connections	14.13	13.48	12.81	12.02	10.94

Table 27: Collars proposed for external sewer flooding

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
External sewer flooding incidents per 10,000 connections	20.01	19.44	18.89	18.48	17.37

6.8. Summary

The table below summarises our overall position on external sewer flooding.

Table 28: Summary of our position on external sewer flooding

Unit: Incidents per 10,000 sewer connections	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	16.4	15.8	15.2	14.6	14.0
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	20.01	19.44	18.89	18.48	17.37
Outperformance caps	14.13	13.48	12.81	12.02	10.94
ODI incentive rate	We have used the Ofwat rate of £3.976m per Incidents per 10,000 sewer connections				
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast. If Ofwat does not accept our proposed collars, we expect that to be reflected in the ODI rate that keeps the same level of risk				

7. Biodiversity

Biodiversity is a new performance commitment that incentivises companies to conserve and enhance biodiversity. It measures the net change in the number of biodiversity units (BDUs). It is reported in BDUs and BDUs per 100km^2 of land in our water and wastewater estate.

7.1. Customer views

Improving the local environment and habitats by using more 'nature-based solutions' is second level of priority for our customers, ranking at middle of the priority table. We have found that awareness of natural capital and nature-based solutions can be low to less informed customers. However, once understood it is seen as the right first choice option, with most agreeing that a twin-track approach with engineering solutions is needed.

Figure 17: Our customer views on biodiversity

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern											■							
Ofwat								■										
Others										■								

What our customers have told us:

"Emphasise sustainability at the heart of the priorities and future proof the methods which Southern Water will use." Future Customer

"I could be making cutbacks financially for myself to benefit my life now but I'm not because I know that in the future me and my daughter will benefit from them. The world doesn't revolve around my generation." Vulnerable customer

"The environment is of huge importance and perhaps overshadowed by recent global events; sustainability needs to be at the core of decisions made." Household Customer Panel

"For me it is a lot more of a complete and sustainable solution working directly with farmers for example, so involving people at ground level across the UK to support and help drive the initiative for long-term outcomes." Household customer panel

"Clearly NCS are not sufficient to deal with the sheer capacity of wastewater and freshwater needed in an increasingly growing population. It simply cannot be done in isolation. But they are important and have a significant place in the strategy." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

7.2. Our performance forecast

We have forecasted no net change in BDUs by 2029/30. This is because the change in BDU will only occur at the four-year re-survey cycle point which we have assumed to be in 2030/31, i.e. year one of the AMP9 cycle. We have forecasted a net change of 163 BDUs by 2034/35 and 652 by 2049/50, across water and wastewater. Our customers support this level of ambition.

Table 29: Our proposed targets for biodiversity

Unit: change in biodiversity units

Control	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Water	0	0	0	0	0	143	339
Wastewater	0	0	0	0	0	20	313
Total	0	0	0	0	0	163	652

7.3. Build-up of our 2029/30 performance

The table below shows the build-up of our biodiversity forecast for 2029/30.

Table 30: Biodiversity target build up

Unit: change in biodiversity units	Performance Water	Performance Wastewater
PR19 performance target for 2024/25	n/a	n/a
Current forecast performance for 2024/25	0	0
Benefits from enhancement	0	0
Benefits from base expenditure	0	0
Natural rate of deterioration	0	0
Performance 2029/30	0	0
Performance in 2029/30 from base expenditure (i.e. without enhancement)	0	0

$Performance_{29/30}$ = $Performance_{24/25}$ + benefits from enhancement + benefits from base - natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ - benefits from enhancement

We have set our target of zero net change in BDU by 2029/30 as a result of the following methodology:

- Baseline assessment. We commissioned a project report from [redacted] in March 2022, which surveyed the land in our estate and estimated the baseline Biodiversity Units and areas of habitat on our estate.
- First year when net changes in BDUs are counted. According to Ofwat's guidance, net change in BDUs is counted only at the four-year re-survey cycle point. We have assumed that the first four-year re-survey will occur in year one of the AMP9 cycle (2030/31). This means that we forecast change in BDUs starting only in 2030/31, with zero changes until 2029/30.
- BDU change. The [redacted] report went on to estimate potential BDU uplifts on our estate, at high level. We have used this as a basis to project a four-year rolling programme based on an initial estimate of sites that will accommodate BDU uplift delivery in the future. The uplift estimates on our own estate are the best estimates based on the data available at the time of business plan submission and are conservative estimates, i.e. they represent the least risk estimates. Although risks to delivery are still present.

We have estimated that biodiversity net gains by 2034/35 and beyond would come from enhancement expenditure in the following areas:

- Water enhancement:
  - Biodiversity and conservation
  - Invasive non-native species
  - Water framework directive
  - Strategic water resources.
- Wastewater enhancement WINEP:
  - Increase flow to full treatment
  - Increase storm tank capacity -grey solution
  - Increase storm system attenuation / treatment on a STW - green solution
  - Storage schemes to reduce spill frequency at CSOs etc - grey solution
  - Storage to reduce spill frequency at CSOs etc - green solution
  - Storm overflow - increase in combined sewer / trunk sewer capacity
  - Storm overflow - sustainable drainage / attenuation in the network
  - Treatment for chemical removal
  - Treatment for total nitrogen removal (chemical)
  - Treatment for total nitrogen removal (biological)
  - Treatment for phosphorus removal (chemical)
  - Treatment for phosphorus removal (biological)
  - Treatment for nutrients (N or P) and / or sanitary determinands, nature based solution
  - Treatment for tightening of sanitary parameters
  - Catchment management - nutrient balancing
  - Catchment management - catchment permitting
  - Catchment management - habitat restoration
  - Microbiological treatment - bathing waters, coastal and inland
  - Septic Tank Replacements - Treatment Solution.

7.4. Industry performance forecasts

We have not been able to forecast the industry upper quartile performance on biodiversity by 2029/30. This is because there is limited, if any, information collected in a systematic and comparable manner across the industry on historic and planned biodiversity units.

7.5. Our current performance and our trajectory to meet our 2029/30 destination

We have forecasted no change in BDU units by 2029/30 in our estate. This is by virtue of how the biodiversity performance commitment measures change in BDU. The change is measured at the four-year re-survey cycle point which we have assumed to be in 2030/31, i.e. year one of the AMP9 cycle.

7.6. Our long-term ambition

Our long-term ambition is to achieve a 10% biodiversity gain over our estate by 2050. This supports the goals of the 25-year Environment Plan to increase biodiversity in the UK. This is a second-tier priority for customers although they recognise the benefits. We have phased a steady gain over the period to reflect our ability to deliver at a low level.

Table 31: Long term targets for biodiversity

Unit: change in biodiversity units	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	0	163	326	489	652
Performance from enhancement	0	163	326	489	652
Performance from base	0	0	0	0	0

Performance = Performance from base – performance from enhancement

The [redacted] report estimated a high potential uplift to a number of our sites. The improvements to our sites would not be achieved through base expenditure and we have allowed a small level of enhancement expenditure to improve our sites.

7.7. Incentive rates

Ofwat has not defined an indicative incentive rate for biodiversity and has indicated that will do so only at Draft Determination.

We are proposing an incentive rate of £15,000 per BDU with a marginal benefit sharing rate of 70% and a final incentive rate of £10,500 per BDU. This is our best estimate based on information currently available from open sources.[2,3,4,5]

7.8. Summary

The table below summarises our overall position on biodiversity.

Table 32: Summary of our position on biodiversity

Unit: change in biodiversity units	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	0	0	0	0	0
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We propose a rate of £10,500 per BDU				

8. Operational Greenhouse Gas Emissions (Water and Wastewater)

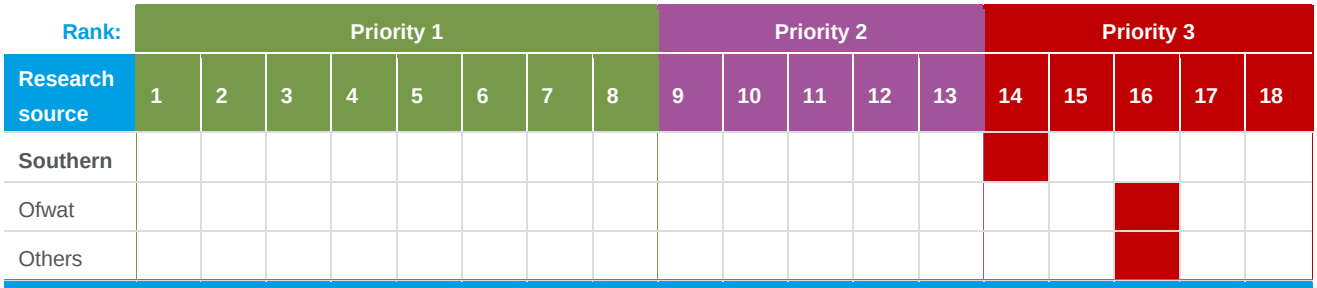
Operational greenhouse gas emission performance commitments measure our progress in reducing carbon emissions to ultimately be operationally neutral by 2050. Ofwat has set two separate PCs, one measuring progress in reducing operational emissions from water activities and a separate one measuring operational emissions from wastewater activities. This section covers these two PCs. These PCs are reported in Carbon dioxide equivalent (CO2e) emissions and the percentage reduction since 2021-22.

8.1. Customer views

For current customers, minimising and reducing greenhouse gas emissions in how we operate and make the most of renewable energy is third-tier priority, but it is higher for future customers. Net Zero is a familiar and positive term to customers. However, it is not fully understood. It's generally felt to be something that companies and governments need to work towards.

Initiatives, such as electric vehicles or reducing emissions, are felt to be part of the day to day and will be met by legislation and the natural adoption of ways of working. As a result, we have seen limited support for any increase in funding through bills to support enhancement of net zero. Customers feel they already pay through taxes and behaviour change programmes. In trade-off exercises, they place greater emphasis on issues they see the responsibility lie solely with water companies, such as storm overflows and resilience.

Figure 18:Our customer views on operational carbon emissions



What our customers have told us:

"On changing to electric vehicles, the customer perception is that this will happen anyway with vehicle manufactures being forced to change by government, thus there is no benefit in accelerating the programme." Household customer

"Southern Water should remain committed to Net Zero, but that commitment should be part of a balancing act on future needs. They are acknowledging leakage and other issues so I think the 'date stamp' attached to Net Zero is very unrealistic. Household customer

"I think the balance would come together. If you're not polluting or wasting your harmfulness to the environment would come down naturally." Household customer

"I would love to live in a society that prioritises economic and social equality and a more sustainable way of living that aligns with the environment." Future customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

8.2. Our performance forecast

We have forecasted keeping operational emissions from water activities by 2029/30 above the baseline 2021/22 by 32.9% and by 30% in 2034/35. Our emissions from wastewater activities would be above the baseline year 2021/22 by 5% in 2029/30 and by 3% in 2034/35. We note these targets were estimated following a location-based approach and the UK government fixed national grid emission factor published in 2022. We have forecasted to be operationally net zero by 2049/50 in both water and wastewater activities, when decarbonisation of the grid is taken into account. However, the PC definition does not take into account the decarbonisation of the grid. Therefore, the forecasts for 2049/50 below reflect the remaining emissions that the decarbonisation of the grid will remove.

Table 33: Our proposed targets for operational carbon emissions

	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Tonnes CO2e							
Water	71,009	71,654	72,140	72,632	72,120	70,515	37,000
Wastewater	151,899	150,776	151,264	152,603	159,727	156,849	58,000
Change % from 2021/22 baseline							
Water	30.8%	32.0%	32.9%	33.8%	32.9%	29.9%	-31.8%
Wastewater	-0.5%	-1.3%	-0.9%	-0.1%	4.6%	2.7%	-62.0%

Note: All the emissions above are calculated using a location-based approach and the UK government fixed national grid emission factor published in 2022. In line with the PC definition, the emissions do not take into account any potential for decarbonisation of the grid.

8.3. Build-up of our 2029/30 performance

The table below shows the build-up of our operational emissions performance targets for 2029/30, for water and wastewater, distinguishing between carbon from base activities and enhancement activities. The table also shows a breakdown of carbon from enhancement activities by areas of PR24 enhancement.

Table 34: Operational carbon emissions target build up

Unit: tonnes of CO2e		Water 2029/30	Wastewater 2029/30
Emissions from base activities		68,819	151,083
Emissions from enhancement activities	Bioresources	n/a	-1,795
	WINEP	0	10,438
	WRMP	2,317	n/a
	Other	985	0
	Total enhancement	3,302	8,643
Total emissions		72,120	159,727

8.3.1. Methodology for estimating operational emissions

We have followed the Carbon Accounting Workbook (CAW) to estimate our operational carbon emissions. Using the CAW is in accordance with Ofwat's guidance for PR24 and in line with the annual performance report's (APR) data collection and reporting methodology, which we have employed since 2012, when we started recording emissions data.

The main source of our operational emissions is the use of electricity to power our pumps, operate our treatment works and, to a lesser extent, to light our offices. While the use of electricity contributes to the total carbon dioxide emitted by us, emissions from our water and wastewater treatment processes, contribute to our process emissions. Process emissions primarily account for our methane (CH4) and nitrous oxide (N2O) emissions, both of which have a significantly higher global warming potential than carbon dioxide. However, to maintain consistency, emissions from all our sources are accounted and reported as carbon dioxide equivalent. Carbon dioxide equivalent, or CO2e, is a measurement of the total greenhouse gases emitted, expressed in terms of the equivalent measurement of carbon dioxide.

Our SR46: Net Zero Technical Annex details our methodologies for forecasting our carbon emissions from base activities and from enhancement activities. As the SR46: Net Zero Technical Annex explains, for the majority of enhancement schemes in the plan, they correspond to Level 1 carbon estimates using the current emissions factors from the CAW over the remainder of the project life. It also explains that our emissions are calculated using a location-based approach and decarbonised using the UK government fixed national grid emission factor published in 2022.

8.4. Industry performance forecasts

We have not been able to forecast the industry upper quartile performance on carbon emissions by 2029/30. This is highly dependent on the enhancement programmes that companies are submitting in their PR24 plans, which will only be known to us at Draft Determination.

8.5. Our current performance and our trajectory to meet our 2029/30 destination

We have forecasted our operational emissions reduction bottom up as a result of the emission estimates from individual schemes. We have not stretched this level further for 2029/30. We are committed to meeting net zero by 2049/50. Our customers support this trajectory and level of ambition.

8.6. Our long-term ambition

Our long-term ambition is to achieve Net Zero by 2050. The supports the UK Net Zero Strategy and is in-line with the Ofwat Strategic Priorities. The Ofwat guidance has been clear on the approach we should be taking with regard to operational greenhouse gas emissions and linked to our customer priorities we will focus active GHG emissions reductions after AMP8. This is to allow the technologies to be further developed to a position that allows investment with clear quantification of benefits.

Table 35: Long term targets for operational carbon emissions

Unit: kt of CO2e	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	232	227	183	139	95
Performance from enhancement	12	3	-47	-96	-147
Performance from base expenditure	220	224	230	235	242

Performance = Performance from base + performance from enhancement

The Ofwat definition of this PC does not allow us to show a Net Zero position by 2050 in the targets due to the measurement of UK grid electricity carbon emissions static by using the UK government fixed national grid emissions factor for 2022. The UK government target to de-carbonise the grid by 2035 is not included in this definition.

Our long term focus will be to:

- Reduce process emissions
- Improve our self-generation capacity
- Use our biogas optimally.

Further details on how we intend to achieve Net Zero by 2050 is detailed in our SR46: Net Zero Technical Annex .

8.7. Incentive rates

Ofwat has not defined an indicative incentive rate for operational carbon emissions and has indicated that will do so only at Draft Determination.

We are not proposing an incentive rate for these PCs at this stage. We will review Ofwat's ODI decision when it is released at Draft Determination.

8.8. Summary

The table below summarises our overall position on operational carbon emissions.

Table 36: Summary of our position on operational carbon emissions

Unit: tonnes of CO2e	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target (water)	57,572	50,046	46,458	45,495	44,036
Performance target (wastewater)	119,691	106,131	98,439	97,352	100,740
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate					n/a

9. Leakage

Reducing leakage is an important part of our water resources strategy. It also demonstrates to our customers that while we are asking them to use water more efficiently, we are also making efforts to reduce water losses by as much as we can. Reducing leakage will help us to improve our long-term water supply-demand balance, reduce water abstraction and increase the asset health of our water supply network.

This performance commitment measures three-year average leakage in megalitres per day (Ml/d) and as a percentage reduction from the 2019/20 baseline.

9.1. Customer views

Reducing the overall amount of fresh water that is lost through leaks and fixing new leaks quickly is first tier for our customers and a top area that our customers want us to improve. Customers challenge any volume of leakage, especially when we have asked customers to reduce their use. Southern Water current performance as compared to the industry is surprising to customers. They want Southern Water to respond quickly and use innovation and technology to help accelerate plans to reduce leakage.

Figure 19:Our customer views on leakage

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern							■											
Ofwat			■															
Others												■						

What our customers have told us:

These numbers are crazy, if you think how this adds up over how many customers Southern Water have then its so much wastage!" Household customer

"I mean, how many toilet flushes is 80 litres? Okay, I'm losing that from my house effectively, every day. And so is my neighbour. And so is the person over the road? Yeah. A lot of water going to waste." Household customer

"How can they be asking us to reduce how much we use, and putting us under hosepipe bans when they are being so wasteful?" Household customer

"25 years to reduce leakage by 35%. It seems like something that should be done anyway, in less time." Business customer

"Aspirationally, I would like to see a greater aspiration to reduce leaks. But on the other hand, I can fully appreciate the reasons why it's not the practical reasons." Vulnerable customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

9.2. Our performance forecast

We have set stretching leakage targets in our WRMP24 and have aligned our PC targets with these. This is what our customers have said they want us to deliver. We have forecasted reducing leakage by 32% in 2029/30 from the 2019/20 baseline reaching 68.4 Ml/d, down from 83.7 Ml/d in 2025/26. We have forecasted further reducing it to 63.9 Ml/d by 2034/35. Our long-term target is to reach 48.4 Ml/d in 2049/50, a 52% reduction from the 2019/20 baseline. We explain our rationale to reach these targets below.

Table 37: Our proposed targets for leakage

Metric	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Ml/d, 3-year rolling average	83.7	75.5	73.3	70.9	68.4	63.9	48.4
Reduction % from 2019/20 baseline	16.2%	24.4%	26.6%	29.0%	31.5%	36.1%	51.5%

9.3. Build-up of our 2029/30 performance

The table below shows the build-up of our leakage forecast for 2029/30, measured in Ml/d.

Table 38: Leakage target build up

Unit: Ml/d	Performance
PR19 performance target for 2024/25	84.9
Current forecast performance for 2024/25	97.3
Benefits from enhancement	10.2
Benefits from base expenditure	135.8
Natural rate of deterioration	117.2
Performance 2029/30	68.4
Performance in 2029/30 from base expenditure (i.e. without enhancement)	78.6

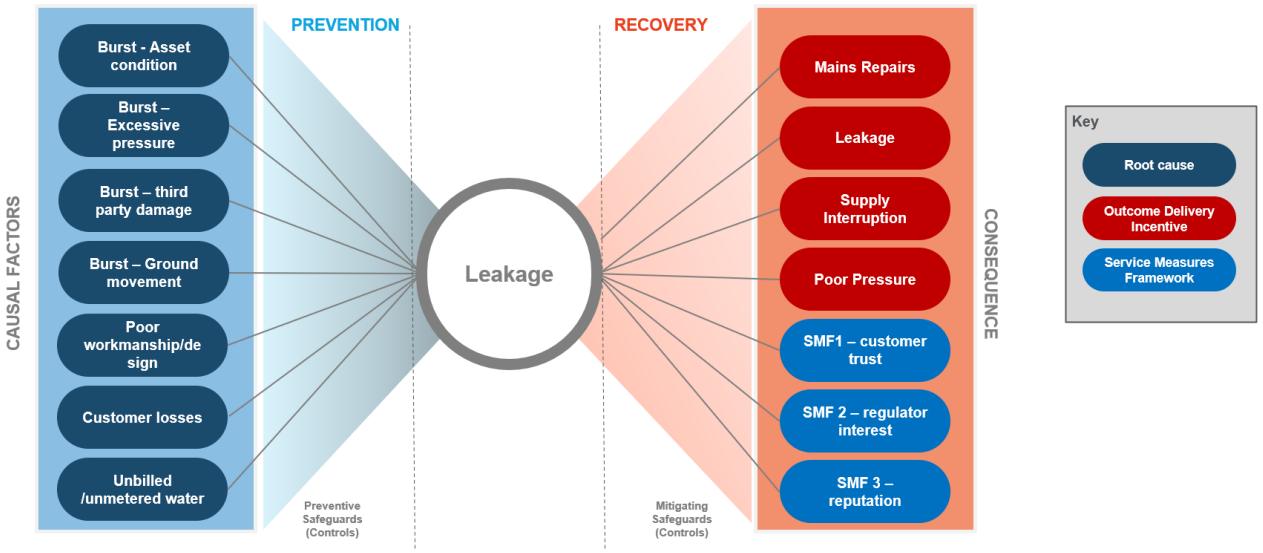
$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

9.3.1. Benefits from base

We have used our ‘bow tie’ framework below to link root causes of leakage with interventions considered in our base business plan, risks to performance and benefits.

Figure 20: Risk 'bow tie' framework for leakage



We have relied on expert judgment to identify risk-reduction interventions in our base plan that address the causal factors of leakage. The flowing interventions were identified:

- Reactive and proactive operational maintenance;
- Business as usual capital maintenance mains replacement; and
- Business as usual advanced find and fix capital maintenance.

Benefits from these activities were determined by running our asset deterioration model with and without these interventions. The results were then refined through workshops with experts.

Leakage performance from base expenditure is estimated at 135.8 Ml/d which mostly goes into offsetting the natural rate of deterioration at 117.2 Ml/d, as estimated by our latest technical review.

9.3.2. Benefits from enhancement

Using workshops with experts we have identified the PR24 enhancement interventions listed below as delivering leakage benefits:

- Smart metering programme;
- Enhanced find and fix;
- Advanced pressure management (including smart networks); and
- Enhanced mains replacements programme.

We have quantified the leakage benefits from enhancement activities at 10.2 Ml/d. These benefits were obtained from the WRMP24 modelling and tested with stakeholders. The table below shows the split of benefits by enhancement activities.

Table 39: PR24 enhancement activities with impacts on leakage

Enhancement activities	Benefits (Ml/d)
Smart metering programme	3.8
Leakage improvements delivering benefits in 2025/30, which include: ○ Enhanced find and fix ○ Advanced pressure management (including smart networks)	4.4
Enhanced mains replacements programme	2.0
Total	**10.2**

9.4. Industry performance forecasts

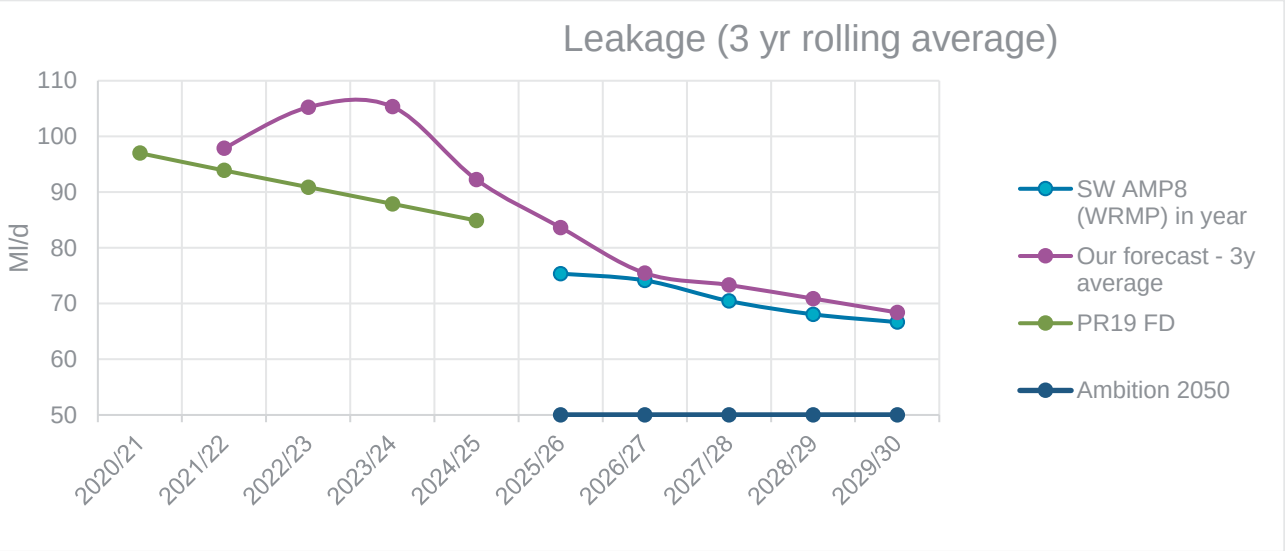
We have not forecast industry performance. This is because each company has different levels of leakage as a reflection of differences in the health of their assets.

9.5. Our current performance and our trajectory to meet our 2029/30 destination

We committed to reduce leakage by 50% by 2050 in WRMP19. The first three years of our AMP7 programme did not deliver the leakage reductions we had forecast due to a range of factors outside management control. These included hot and dry weather in the Summer 2022 followed by a freeze/thaw event in December 2022. We have embarked on an ambitious turnaround programme with the objective to start our AMP8 position as we originally forecasted in WRMP19 at circa 84Ml/d.

Given the ambitious improvement in our turnaround plan, there is a risk we may not achieve this level of performance in 2024/25. Therefore, we are proposing a straight-line projection from our current performance in 2022/23 of 105.2 Ml/d to the same destination in 2029/30, which sets achievable targets and give us, a turnaround company, reasonable time to achieve the forecasted level of performance for 2029/30.

Figure 21: Leakage trajectory to 2029/30 target and WRMP 3 year leakage forecast



9.6. Our long-term ambition

Our long-term ambition is to reduce leakage below the 50% target set by the UK government in UK government in Statement of Priorities to Ofwat.
This PC is a high priority for our customers and we have ensured that we are adopting a multi-facetted approach to reducing leakage. This is an important part of our water resources strategy.

Table 40: Long term targets for leakage

Unit: Ml/d	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	68.4	63.9	58.7	53.7	48.4
Performance from enhancement	10.2	14.0	19.2	24.2	29.5
Performance from Base	78.6	77.9	77.9	77.9	77.9

Performance = Performance from base – performance from enhancement

Our WRM24P details our approach to reducing leakage through

- Advanced find and fix
- Communication pipe replacement
- Advanced Pressure Management
- Smart Metering
- Digitalisation /Smart Networks and
- Mains Replacement

Detailed explanation of the measures to achieve this goal can be found in the WRMP technical report.

9.7. Incentive rates

The incentive rate for PR19 was £265k for underperformance and £137k for outperformance per Ml/d. These were derived from our PR19 customer research.

For PR24, Ofwat has set the incentive rates it expects us to accept for leakage. This is £521k with a marginal benefit sharing rate of 70% and a final incentive rate of £365k per Ml/d.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are not proposing a collar or a deadband for leakage.

9.8. Summary

The table below summarises our overall position on leakages.

Table 41: Summary of our position on leakages

	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target (Ml/d, 3-year rolling average)	83.7	75.5	73.3	70.9	68.4
Performance target (Reduction % from 2019/20 baseline)	16.2%	24.4%	26.6%	29.0%	31.5%
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We have used the Ofwat rate of £365k per Ml/d				
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.				

10. Per Capita Consumption

This performance commitment measures our efforts to help customers reducing water consumption. We operate in a water stressed area. Water consumption reduction is an import part of our water resources strategy to reach supply/demand balance and reduce water abstraction.

This performance commitment measures three-year average per capital consumption (PCC) in litres per household per day (l/h/d) and as a percentage reduction from the 2019/20 baseline.

10.1. Customer views

Providing information, support and help to customers to reduce their own water consumption is tier three priority for our customers. They felt that the balance is wrong, and the focus of behaviour change is placed too much on customers, rather than the industry. However, as people are more informed, they understand that collaboration is needed. They do see there is a big role they can play, particularly on demand reduction and per capita consumption compared to leakage targets.

Figure 22:Our customer views on water consumption

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern															■			
Ofwat													■					
Others																	■	

What our customers have told us:

"I'm more conscious personally because of the cost of living. I'm very much more aware of everything we are using." Vulnerable customer

"Businesses are much more likely to respond to 'how much money can you save me' than reducing my water usage." Business customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

10.2. Our performance forecast

We have aligned our PCC forecasts with our WRMP24 targets and these are aligned with our leakage targets to improve overall water efficiency. We will continue to work with our customers to improve information on how they can play a part in improving water efficiency in our water stressed area. We have forecasted reducing PCC from 128.0 l/h/d in 2025/26 to 122.4 l/h/d in 2029/30, corresponding to a 4.3% reduction from the 2019/20 baseline. We have forecasted reaching 114.5 l/h/d in 2034/35 (10.5% reduction from the baseline 2019/20). Our long-term target is to reach 105.6 l/h/d in 2049/50 (17.5% reduction from 2019/20). This level of ambition is supported by our customers priorities. We explain our rationale to reach these targets below.

Table 42: Our proposed targets for per capita consumption

Metric	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
l/h/d, 3-year rolling average	128.0	126.6	125.4	124.0	122.4	114.5	105.6
Reduction % from 2019/20 baseline	0.0%	1.1%	2.0%	3.1%	4.3%	10.5%	17.5%

10.3. Build-up of our 2029/30 performance

The table below shows the build-up of our per capita consumption forecast for 2029/30, measured in l/h/d.

Table 43: Per capita consumption target build up

Unit: l/h/d	Performance
PR19 performance target for 2024/25	118.8
Current forecast performance for 2024/25	128.5
Benefits from enhancement	6.4
Benefits from base expenditure	0.9
Natural rate of deterioration	1.2
Performance 2029/30	122.4
Performance in 2029/30 from base expenditure (i.e. without enhancement)	128.9

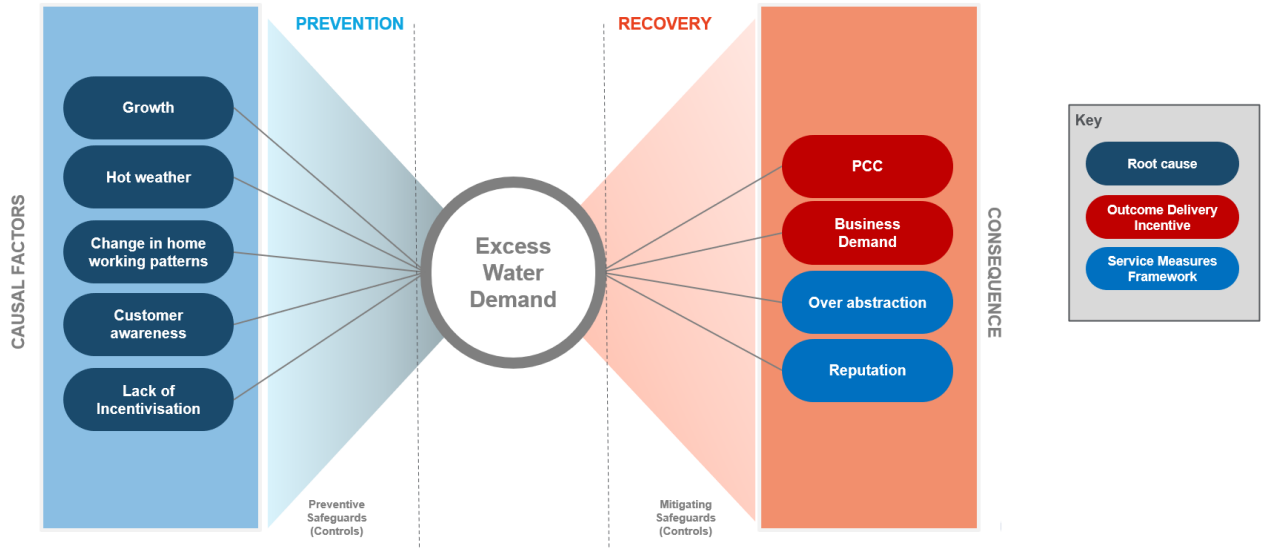
$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

10.3.1. Benefits from base

We have used our ‘bow tie’ framework below to link root causes of per capita consumption with interventions considered in our business plan and corresponding risks to performance and benefits.

Figure 23: Risk 'bow tie' framework for PCC



Our PR24 opex base plan includes on-going educational campaigns and communications as well as marketing initiatives started in AMP7 which we plan to carry on in AMP8. We have quantified the PCC benefits of these base water-saving initiatives at 0.9 l/h/d by 2029/30 using the same £/benefit from similar enhancement initiatives as modelled in the WRMP24.

The natural rate of deterioration reflects the deterioration in PCC performance that would result in the absence of water-saving initiatives. We have estimated it at 1.6 l/h/d using expert judgement based on the best information available. Offsetting the natural rate of deterioration will require some enhancement expenditure as benefits from base will be insufficient to offsetting it.

10.3.2. Benefits from enhancement

Our PR24 enhancement includes the following interventions in our WRMP24 which our experts have identified as delivering PCC benefits:

- Smart metering programme;
- Innovative tariffs;
- Home audits;
- New communications and marketing initiatives;
- New educational campaigns;
- New water-saving enablers; and
- Roll out of initiative to capitalise on Government water-saving policies.

We have quantified the PCC benefits from these enhancement activities at 6.4 l/h/d saved by 2029/30, as compared to the PCC level forecast for 2024/25. These benefits were obtained from the WRMP24 modelling and validated with stakeholders. The table below shows the breakdown of these benefits across the corresponding PR24 enhancement activities.

Table 44: PR24 enhancement activities with impacts on PCC

Enhancement activities	Benefits (l/h/d)
Smart metering programme	4.0
Demand-side improvements delivering benefits in 2025-30 (excl leakage and metering), which include: ○ Innovative tariffs ○ Home audits ○ New communications and marketing initiatives ○ New educational campaigns ○ New water-saving enablers ○ Roll out of initiative to capitalise on Government water-saving policies	2.4
Total	**6.4**

10.4. Industry performance forecasts

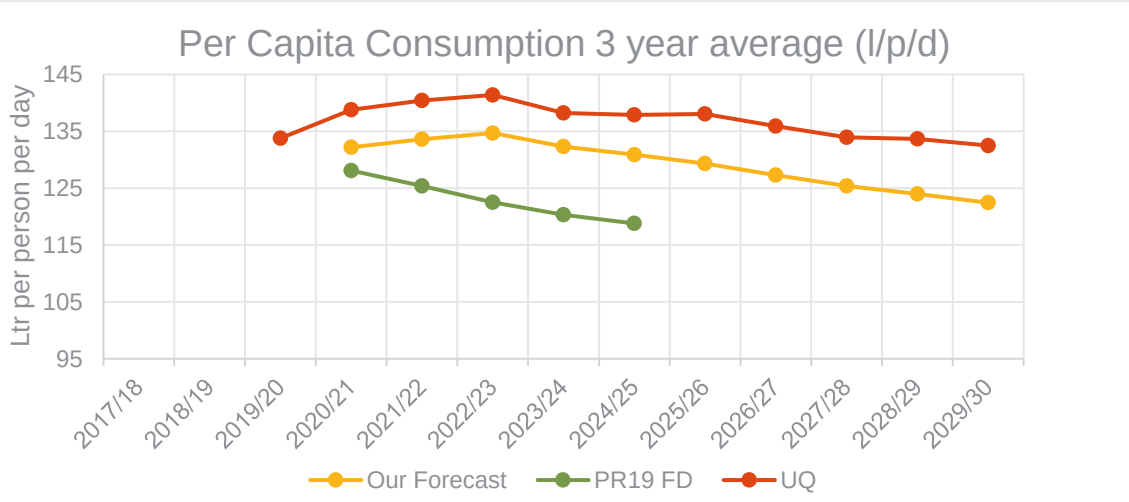
We have forecasted the industry upper quartile PCC performance by considering historic performance and expected improvements from each companies' business plan and using a logarithmic time trend forecast. By 2029/30, we have forecasted the industry upper quartile at 132 l/h/d. Our forecast level for 2029/30 of 122.4 l/h/d by 2029/30 means that we forecast to continue to perform substantially better than industry upper quartile.

10.5. Our current performance and our trajectory to meet our 2029/30 destination

Our current performance for PCC has been higher than forecasted in AMP7 and higher than the targets set at PR19. This is mainly a result of significant changes in customer behaviour following from the COVID-19 pandemic and a shift in working habits with longer periods of working from home.

Our AMP8 forecast will be set in line with our WRMP24. As the figure below shows, we are forecasting to perform well below the industry upper quartile so we believe our target should be set in line with our forecast.

Figure 24: PCC trajectory to 2029/30 target and industry comparison



10.6. Our long-term ambition

Our long-term ambition is to reduce per capita consumption below the 110 l/h/d target set by the UK government in Statement of Priorities to Ofwat and is recommended in the National Framework.

This PC is a lower priority for our customers although they recognise it as a necessity, given the scarcity of water in our region. It is a vital component part of our water resources strategy and at PR19 we identified this as a key area and set ourselves a Target 100 commitment. The COVID-19 pandemic and home working increased per capita demand but despite the additional change, we will endeavour to achieve these targets.

Table 45: Long term targets for PCC

Unit: l/h/d	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	122.4	114.5	115.5	109.5	105.6
Performance from Enhancement	6.4	13.9	21.9	27.8	31.6
Performance form Base	128.9	128.4	137.4	137.3	137.2

Performance = Performance from base – performance from enhancement

Our WRMP details our approach to reducing leakage through:

- Communication and marketing
- Deploying smart meters
- Innovative tariffs
- Water-saving solutions and
- Home audits

Detailed explanation of the measures to achieve this goal can be found in our WRMP24 technical report.

10.7. Incentive rates

The incentive rate for PR19 was £178k underperformance and £70k for outperformance This was derived from our PR19 customer research.

For PR24, Ofwat have set the incentive rates it expects us to accept. For PCC this is £1.345m with a marginal benefit sharing rate of 70% and a final incentive rate of £941k per l/h/d.

We do not accept this incentive rate.

Considering the risk for the notional company, a PCC incentive rate at £941k produces a significant downward skew with material negative P50 positions. Therefore, we have recalibrated the PCC model and propose an incentive rate of £256k with a marginal benefit sharing rate of 70% and a final incentive of £179k per litre per household per day. For details on the methodology followed, please see SRN57: Risk Technical Annex.

10.8. Summary

The table below summarises our overall position on per capita consumption.

Table 46: Summary of our position on per capita consumption

	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target (l/p/d, 3-year rolling average)	128.0	126.6	125.4	124.0	122.4
Performance target (Reduction % from 2019/20 baseline)	0.0%	1.1%	2.0%	3.1%	4.3%
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We propose a rate of £179k per litre per household per day				

11. Business Demand

This new performance commitment is designed to incentivise us promoting water efficiency among business customers. We operate in a water stressed area. Water consumption reduction is an import part of our strategy to reach water supply/demand balance and reduce water abstraction.

This performance commitment measures three-year average business consumption reduction, in megalitres per day (Ml/d) and as a percentage reduction from the 2019-20 baseline.

11.1. Customer views

Providing information, supporting customers, households and business, to reduce their own water consumption is third tier for our customers. They felt that the balance is wrong, and the focus of behaviour change is placed too much on customers, rather than the industry leading. However, as people are more informed, they understand the collaboration needed. They do see there is a big role they can play in reducing water demand as compared to leakage targets.

Figure 25:Our customer views on water consumption

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern															■			
Ofwat													■					
Others																	■	

What our customers have told us:

"I'm more conscious personally because of the cost of living. I'm very much more aware of everything we are using." Vulnerable customer

"Businesses are much more likely to respond to 'how much money can you save me' than reducing my water usage." Business customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

11.2. Our performance forecast

Similarly to per capita consumption, we have aligned our business consumption forecasts with our WRMP24 targets. We have forecasted reducing business consumption from 107.9 Ml/d in 2025/26 to 106.1 Ml/d in 2029/30. This is a 8.3% reduction from the 2019/20 baseline by 2029/30. We forecast to reach 103.6 Ml/d in 2034/35 (10.4% reduction from baseline 2019/20). Our long-term target is to reach 102.4 Ml/d in 2049/50 (11.5% reduction from 2019/20). We explain our rationale to reach these targets below.

Table 47: Our proposed targets for business demand

Metric	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Ml/d, 3-year rolling average	107.9	107.7	107.2	106.6	106.1	103.6	102.4
Reduction % from 2019/20 baseline	6.8%	6.9%	7.4%	7.8%	8.3%	10.4%	11.5%

11.3. Build-up of our 2029/30 performance

The table below shows the build-up of our per business demand forecast for 2029/30, measured in Ml/d.

Table 48: Business consumption target build up

Unit: Ml/d	Performance
PR19 performance target for 2024/25	n/a
Current forecast performance for 2024/25	107.3
Benefits from enhancement	3.8
Benefits from base expenditure	0.1
Natural rate of deterioration	2.7
Performance 2029/30	106.1
Performance in 2029/30 from base expenditure (i.e. without enhancement)	109.9

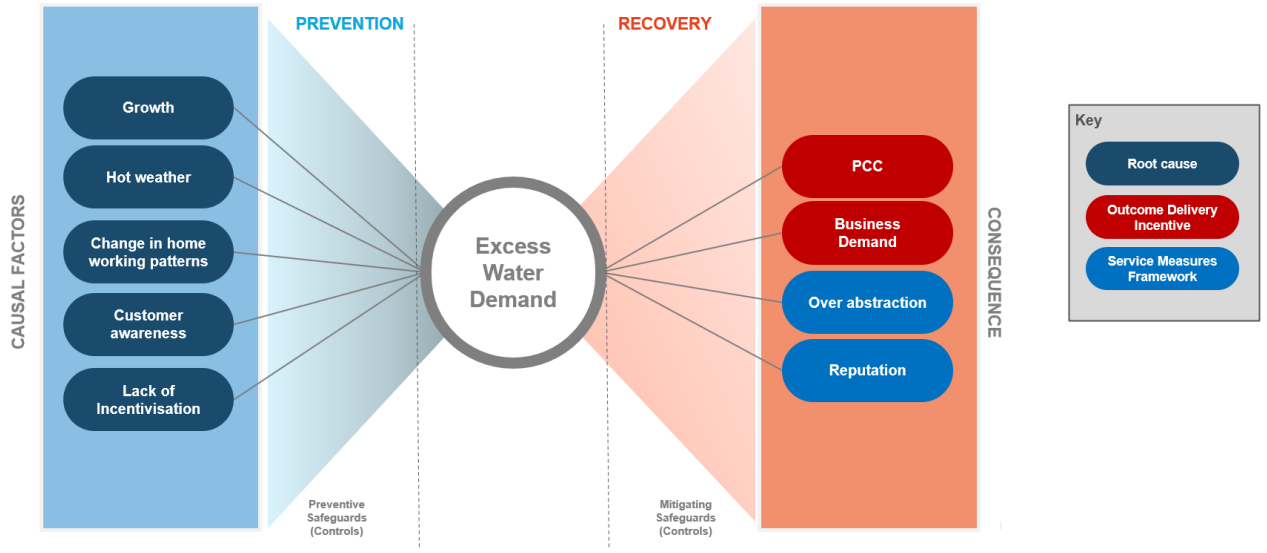
$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

11.3.1. Benefits from base

We have used our ‘bow tie’ framework below to link root causes of business consumption with interventions considered in our business plan and corresponding risks to performance and benefits.

Figure 26: Risk 'bow tie' framework for business consumption



Our PR24 opex base plan includes on-going communication and marketing initiatives targeting business consumption reduction started in AMP7, which we plan to carry on in AMP8. We have quantified the benefits of these base water-saving initiatives 0.1 Ml/d using the same £/benefit from similar enhancement initiatives as modelled in the WRMP24.

Benefits from base would be insufficient to offset the natural rate of deterioration estimated at 2.7 Ml/d, meaning that enhancement expenditure would also offset part of it. The natural rate of deterioration reflects the deterioration in business consumption performance in the absence of any water-saving initiatives. It was estimated using expert judgement based on the best information available.

11.3.2. Benefits from enhancement

Our PR24 enhancement programme includes the following enhancement interventions considered in our WRMP24 which our experts have identified as delivering business consumption benefits:

- Smart metering programme;
- Innovative tariffs;
- Business audits;
- New communications and marketing initiatives;
- New educational campaigns; and
- Trials and innovations in water efficiency for businesses.

We have quantified the business consumption benefits from these enhancement activities at 3.8 Ml/d saved by 2029/30 from the level forecasted by 2024/25. These benefits were obtained from the rdWRMP24 modelling and tested with stakeholders. The table below shows the breakdown of these benefits across the corresponding PR24 enhancement activities.

Table 49: PR24 enhancement activities with impacts on business consumption

Enhancement activities	Benefits (Ml/d)
Smart metering programme	2.6
Demand-side improvements delivering benefits in 2025-30 (excl leakage and metering), which include: ○ Innovative tariffs ○ Business audits ○ New communications and marketing initiatives ○ New educational campaigns ○ Trials and innovations in water efficiency for businesses	1.2
Total	**3.8**

11.4. Industry performance forecasts

We have not estimated the industry upper quartile for business demand because the information at industry level is not readily available.

11.5. Our current performance and our trajectory to meet our 2029/30 destination

This is a new performance commitment at PR24. We have aligned our business consumption forecasts with our WRMP24 targets for a dry year and also with our leakage targets to improve overall water efficiency.

11.6. Our long-term ambition

Our long-term ambition is to reduce business demand to 102.4 Ml/d in line guidance set by the UK government in the Statement of Priorities to Ofwat. This PC is a lower priority for our customers although they recognise it as a necessity given the scarcity of water in our region. It is an important component of our water resources strategy combined with the improvement of per capita consumption.

Table 50: Long term targets for business demand

Unit: Ml/d	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	106.1	103.6	100.3	101.0	102.4
Performance from enhancement	3.8	7.4	11.6	11.6	11.6
Performance from base	109.9	111.0	111.9	112.6	114.0

Performance = Performance from base – performance from enhancement

Our WRMP24 details our approach to reducing business demand, in similar ways to PCC, through:

- Communication and marketing
- Deploying smart meters
- Innovative tariffs
- Water-saving solutions and
- Business audits

Detailed explanation of the measures to achieve this goal can be found in the WRMP24 technical report.

11.7. Incentive rates

This was not a performance commitment for Southern water in PR19.

For PR24, Ofwat has set the incentive rates it expects us to accept. For business demand this is £521k with a marginal benefit sharing rate of 70% and a final incentive rate of £365k per Ml/d.

We do not accept this incentive rate.

Considering the risk for the notional company, a business demand rate at £365k produces a significant downward skew with material negative P50 positions. Therefore, we have recalibrated the business demand ODI model and propose an incentive rate of £99k with a marginal benefit sharing rate of 70% and a final incentive of £69k per Ml/d. For further details on how we appropriately calculated the incentive please see our SRN57: Risk Technical Annex.

We are proposing caps and collars for business demand because this is a new performance commitment. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on individual PCs that are new and therefore more uncertain. For details on how the collars have been calculated please see our SRN57: Risk Technical Annex.

Table 51: Caps proposed for business demand

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
Business demand (Ml/d)	40.4	24.6	11.2	2.0	0

Table 52: Collars proposed for business demand

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
Business demand (Ml/d)	175.7	191.1	204.2	212.2	216.5

11.8. Summary

The table below summarises our overall position on business demand.

Table 53: Summary of our position on business demand

	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target (Ml/d, 3-year rolling average)	107.9	107.7	107.2	106.6	106.1
Performance target (Reduction % from 2019/20 baseline)	6.8%	6.9%	7.4%	7.8%	8.3%
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars (Ml/d, 3-year rolling average)	175.7	191.1	204.2	212.2	216.5
Outperformance caps (Ml/d, 3-year rolling average)	40.4	24.6	11.2	2.0	0
ODI incentive rate	We propose an incentive rate of £69k per Ml/d				

12. Pollution Incidents – Total and Serious

This chapter covers the two performance commitments related to pollution incidents that impact our water environment: total pollution incidents and serious pollution incidents.

The total number of pollution incidents performance commitment is reported in number of incidents and normalised by 10,000 km of sewer length. It applies only to our wastewater activities as it measures the pollution incidents from discharges or escapes of contaminants from our sewerage assets affecting the water environment.

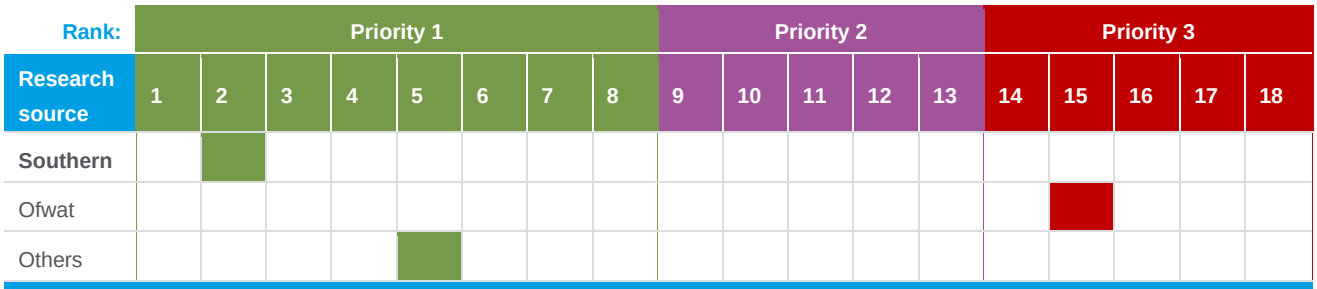
The serious pollution incidents is a new performance commitment at PR24 for us. It is reported in number of serious incidents resulting from discharges or escapes of contaminants from our sewerage assets or water supply assets affecting the water environment. It applies to all our water and wastewater activities.

12.1. Customer views

Preventing wastewater polluting or spilling into the environment through rivers or seas is a top area that our customers want to see improved. Our seas are particularly important to our large coastal communities' wellbeing, leisure and tourism. Stakeholders and our customer groups have highlighted that addressing storm overflows and pollution performance is a condition to improving our reputation and rebuilding trust.

Our customers have rated pollution higher than Ofwat's ODI research and Consumer Council for Water (CCW) preferences research. This is due to our customers' strong connection with the coast. Intense media scrutiny since the Ofwat ODI research and CCW preferences research will have increased this score across England and Wales – as shown in companies' your water, your say sessions. Our previous performance on pollutions and wastewater, the fine the EA applied to us in 2021, and high population growth felt across our communities, have driven greater emphasis on wastewater infrastructure by Southern Water customers as compared to regulatory and third parties' research.

Figure 27:Our customer views on pollution



What our customers have told us:

"Make coastal contamination a thing of the past." Household customer panel

"I am in absolute agreement of taking a step back and re-looking at a process as a whole and working out if there is now a better way of doing things. Collaborating with other partners for this can only be an advantage." Business customer

I would like to know how Southern Water plans to cut pollution incidents from circa 90 per 10,000k of sewers to 34 in 2023. What plans are in place, as this is an urgent problem, with far too frequent spills into our sea?" Business Customer

"It's so important, it's a much needed thing. The amount of damage it does so they really need to tackle that." Vulnerable customer

"In terms of what I read that shocked me, I think the main thing was how, in the comparisons how the pollution was so much higher for Southern Water than anywhere else. Obviously, that was shocking, because it sort of makes me think there, there wasn't really a valid reason for it." Future customer

"Pollution needs to go down more. It makes me unhappy because I don't actually go to the beach so much. But if I took my grandchildren to the beach, would I feel comfortable taking them into the into the sea?." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

12.2. Our performance forecast

We are stretching our pollution performance targets for PR24 and beyond, recognising that this is one of our customers' top priorities. We are planning to cut serious pollution incidents to zero as earlier as 2025/26 and forecast keeping this performance to 2049/50. By 2029/30, total pollution incidents will have come down by 63%, from 170 incident in 2025/26 to 63 in 2029/30, reducing further to 50 by 2034/35 (71% reduction from 2024/25) and down to zero by 2049/50. We explain our rationale to reach these targets below.

Table 54: Our proposed targets for pollution

PC	Metric	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Total pollution incidents	Incidents	170	143	116	89	63	50	0
	Per 10,000km of sewer	42.3	35.5	28.8	22.1	15.5	12.2	0
Serious pollution incidents	Incidents	0	0	0	0	0	0	0

12.3. Build-up of our 2029/30 performance

The table below shows the build-up of our pollution forecast for 2029/30 in number of incidents.

Table 55: Pollution targets build up

Unit: number of incidents	Total pollution incidents	Serious pollution incidents
PR19 performance target for 2024/25	77	n/a
Current forecast performance for 2024/25	193	2
Benefits from enhancement	0	0
Benefits from base expenditure	171	2
Natural rate of deterioration	41	0
Performance 2029/30	63	0
Performance in 2029/30 from base expenditure (i.e. without enhancement)	63	0

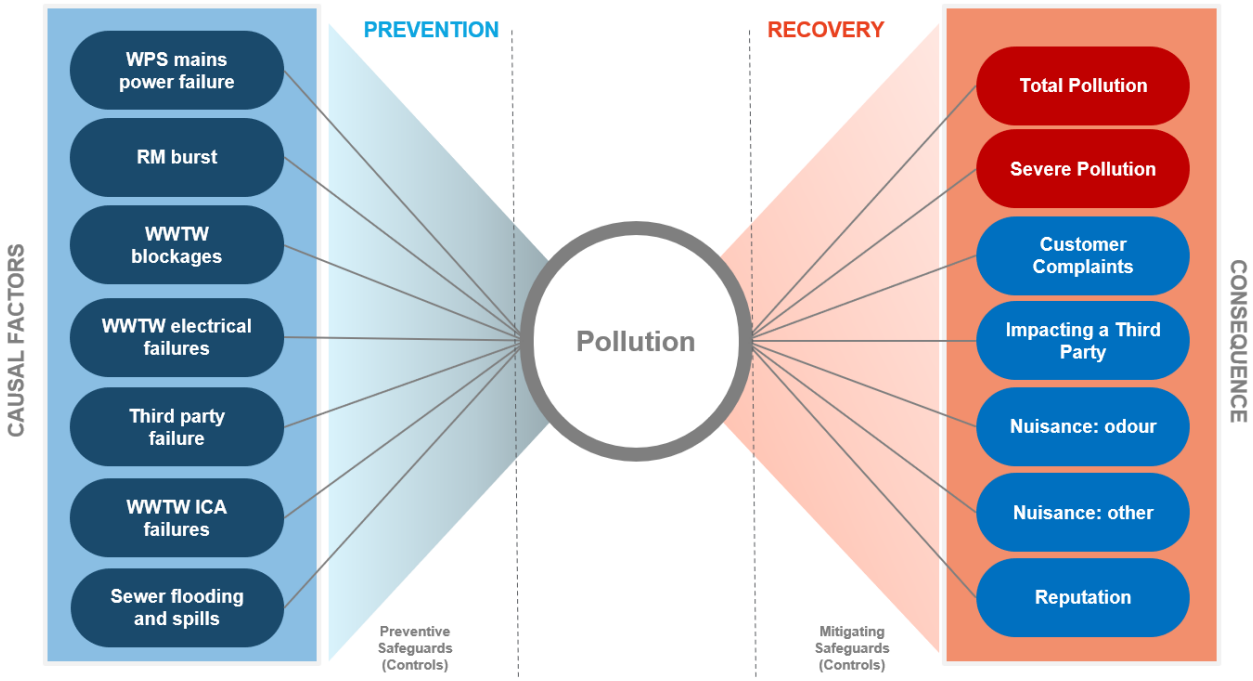
$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

12.3.1. Benefits from base

We have linked the interventions funded through base expenditure to pollution risks and benefits using our risk 'bow tie' framework below.

Figure 28: Risk 'bow tie' framework for pollution incidents



Through workshops with asset manager and pollution experts, we have identified the risk-reduction interventions in our base investment plan that address the causal factors of pollution incidents. The following set of interventions were identified:

- Network cleaning and escape prevention;
- Pumping stations refurb; and
- Asset health checks.

We have quantified the benefits from these activities by running our asset deterioration model with and without these interventions. The results were then validated through workshops with experts.

The natural rate of deterioration was calculated based on the benefits delivered by interventions defined as being required to maintain performance.

In line with Ofwat PR24 methodology we are proposing to reach zero serious pollution incidents by 2025/26 and keep this performance throughout the 2025-30 and will do so through base expenditure.

12.3.2. Benefits from enhancement

We have run expert workshops to identify the interventions in our PR24 enhancement programme with impacts on pollution incidents. We have also asked our experts whether benefits could confidently be quantified and attributed to individual enhancement activities. The table below summarises the results. We

have assumed that there are no quantifiable pollution reduction benefits from any enhancement activities in our plan.

Table 56: PR24 enhancement activities with impacts on pollution incidents

Enhancement activities	Expert view on benefits quantification
Water Industry National Environment Programme (WINEP)	We assumed there is no impact from WINEP on total or serious pollution incidents. This is due to difficulties in quantifying and attributing benefits to individual investment activities.
Operational resilience (heat stress, power resilience, flooding)	These enhancement activities indirectly contribute to reducing pollution incidents. However, such benefits are difficult to disentangle from the benefits from base expenditure. We have, therefore, assumed that these investments have no quantifiable pollution benefits.

12.4. Industry performance forecasts

We have forecasted the industry upper quartile performance for total pollution incidents by considering historic performance and expected improvements from each companies' business plan and assuming a logarithmic time trend forecast. For total pollution incidents, in 2029/30 we have forecast the industry upper quartile as 14.5 per 10,000km of sewer which is slightly below our forecast level of 15.9 per 10,000km of sewer. However, as the graph below shows, this is a stepped improvement in reducing the gap to the industry upper quartile.

12.5. Our current performance and our trajectory to meet our 2029/30 destination

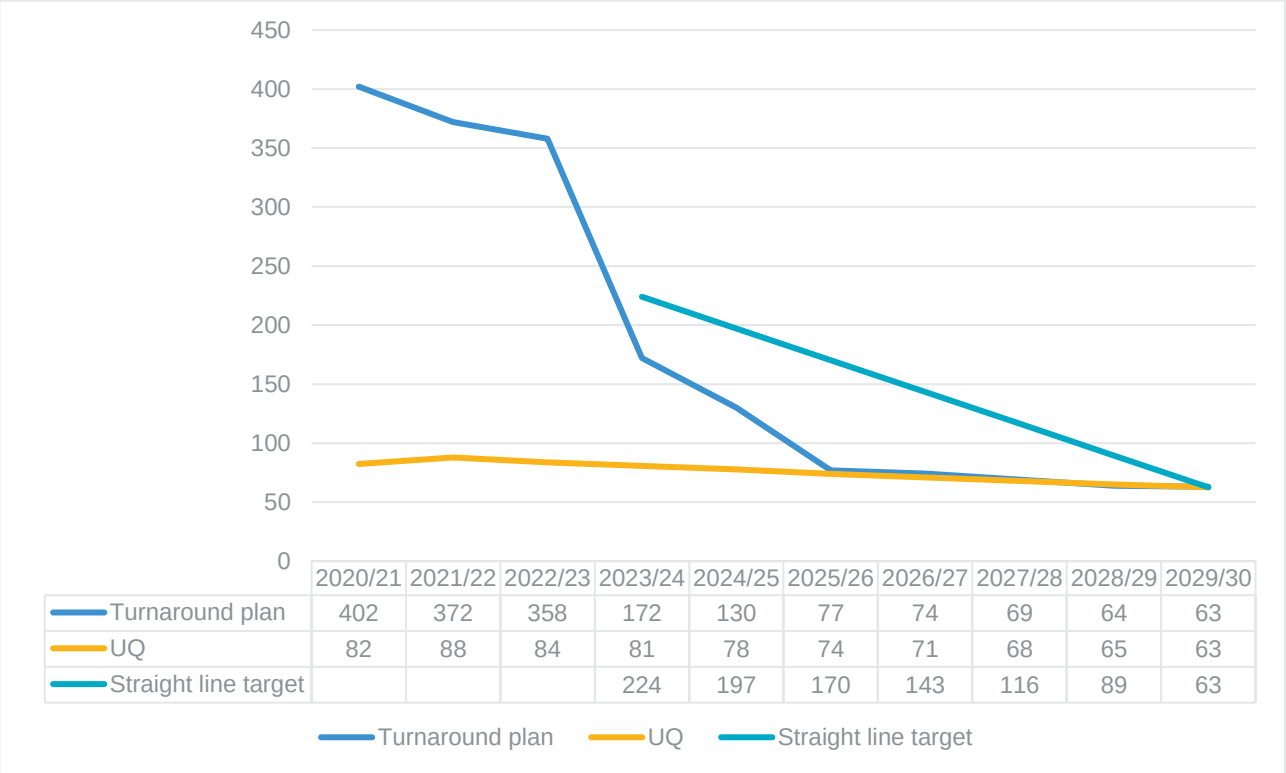
Our performance in 2022/23 was 358 total pollution incidents and 5 serious pollution incidents. In order to meet our destination of 63 total pollution incidents by 2029/30, we need to meet our turnaround plan[6] target of 77 total pollution incidents in 2025/26 with further business improvements to reach our 2029/30 target of 63 incidents. However, given the ambitious improvement in our turnaround plan there is a risk we may not achieve this.

Therefore, we are proposing:

- For total pollution incidents we are proposing a straight-line projection from our current 2022/23 performance of 358 incidents to the same destination in 2029/30 of 63 incidents;
- For serious pollution incidents, we are proposing to reduce to 2 in 2024/25 and zero from 2025/26 onwards.

We consider these to set achievable targets and give us, a turnaround company, reasonable time to achieve the forecast levels of performance by 2029/30.

Figure 29: Total pollution incidents trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Turnaround plan	402	372	358	172	130	77	74	69	64	63
UQ	82	88	84	81	78	74	71	68	65	63
Straight line target				224	197	170	143	116	89	63

For total pollution incidents we are proposing our targets for AMP8 are in line with this straight-line approach. We acknowledge that we should not receive outperformance payments unless we outperform our turnaround forecast.

12.6. Our long-term ambition

Our long-term ambition is to achieve the UK targets for pollution incidents ahead of time against that targets set in the Environment Act 2021. We agree with our customers that this is a high priority for the region. Reducing pollution incidents was a key part of our DWMP with a specific planning objective that focussed on pollution. We have adopted a target 0 by 2040 for pollution incidents and will continue to target 0 serious pollution incidents from 2025.

Table 57: Long term targets for pollution incidents

Unit: number of incidents	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	63	50	0	0	0
Performance from enhancement	0	0	50	50	50
Performance from base expenditure	63	50	50	50	50

Performance = Performance from base – performance from enhancement

The DWMP highlighted a number of key areas in our region where we need to focus these are detailed in our BRAVA maps PO2 pollution 2020. We consider that we can maintain the current number of pollution incidents from base expenditure however to achieve the UK targets we will need to continue to invest in the following areas:

- Replace assets at risk of impacting performance, to reduce risks of asset breakdowns.
- Enhance our customer education programmes to reduce blockages.
- Extend our programme of proactive jetting to clear debris before blockages occur.
- Increase the coverage of sewer level monitors in the system to provide early detection of sewer. blockages and enable active clearance prior to customer and environment impacts.
- Invest in smart technology to monitor, in real time, the performance of the sewer network and identify blockages before pollution or flooding occurs.
- Deliver an effective and timely emergency response to clear blockages and rectify equipment breakdowns.

We also have strategic projects, focused on upgrading our asset maintenance, digitalisation of our networks and logistics, to improve resilience of our assets and systems to reduce pollution risk. For more detail on this refer to our DWMP.

12.7. Incentive rates

At PR19, the incentive rate for total pollution incidents was £315k for underperformance and £270k for outperformance. This was derived from our PR19 customer research.

For PR24, Ofwat has set the incentive rates it expects us to accept. These are:

- For total pollution incidents this is £1.285m with a marginal benefit sharing rate of 70% and a final incentive rate of £899k per pollution incident per 10,000 km of sewers.
- For the new PC serious pollution incidents, this is £1.626m with a marginal benefit sharing rate of 70% and a final incentive rate of £1.138m per serious pollution incident.

We have used the Ofwat indicative incentive rate for serious pollution incidents in our data tables.

We do not accept Ofwat indicative incentive rate for total pollution incidents.

Considering the risk for the notional company, the total pollution incidents incentive rate at £899k produces a significant downward skew with material negative P50 positions. Therefore, we have recalibrated the ODI model for total pollution incidents and propose an incentive rate of £569k with a marginal benefit sharing rate of 70% and a final incentive of £398k per pollution incident per 10,000km sewers. For further details on how we appropriately calculated the incentive please see our SRN57: Risk Technical Annex.

We are not proposing a collar or cap for the total pollution incidents performance commitment. But we are proposing a cap and collar for the serious pollution incidents PC as this is a new PC. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on individual PCs that are new and therefore more uncertain. For details on how the collars have been calculated please see our SRN57: Risk Technical Annex. If Ofwat does not accept our proposed collars, we expect that to be reflected in the ODI rate that keeps the same level of risk.

Table 58: Caps proposed for serious pollution incidents

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
Serious Pollution incidents (incidents)	0	0	0	0	0

Table 59: Collars proposed for serious pollution incidents

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
Serious pollution incidents (incidents)	11.27	11.40	11.61	12.27	12.23

12.8. Summary

The tables below summarise our overall position on total and serious pollution incidents.

Table 60: Summary of our position on serious and total pollution incidents

	2025/26	2026/27	2027/28	2028/29	2029/30
Total pollution incidents (incidents per 10,000km of sewer)					
Performance target	42.3	35.5	28.8	22.1	15.5
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We propose a rate of £398k per incident per 10k km of sewers				
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.				
Serious pollution incidents (number of incidents)					
Performance target	0	0	0	0	0
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	11.27	11.40	11.61	12.27	12.23
Outperformance caps	0	0	0	0	0
ODI incentive rate	We have used the Ofwat rate of £1.138m per serious pollution incident. If Ofwat does not accept our proposed collars, we expect that to be reflected in the ODI rate that keeps the same level of risk.				

13. Discharge Permit Compliance

This performance commitment measures the percentage of water and wastewater treatment works compliant with discharge permit limits. Meeting the discharge permits of our treatment works help to improve the status of the water bodies into which we discharge. At PR19, this applied only to wastewater treatment works. At PR24 it applies to both water and wastewater treatment works. The performance reported here refer to the combined performance of our water and wastewater treatment works, in line with Ofwat guidance.

13.1. Customer views

Our customers have told us that ensuring the quality of rivers, beaches and bathing waters is important for them and place it as a tier two priority. Many of our population centres are coastal and customers feel connected to the sea. Ensuring good standard of our bathing waters and beaches is important to our customers. Protecting rivers from environmental harm is equally important, but less frequently referred to by Southern Water customers due to the proximity and use of the beaches and seas. Our customers have rated bathing waters and rivers quality higher than Ofwat's ODI research and CCW preferences research due to our customers' strong connection with the coast.

Figure 30: Our customer views on bathing waters and rivers quality

Rank:	Priority 1								Priority 2					Priority 3				
Research source	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Southern									■									
Ofwat																		■
Others													■					

What our customers have told us:

"Infrastructure improvements have very wide benefits. A new pumping station might minimise sewer floods or storm drain overflows. Enhancing a local environment, say a riverbank, will give pleasure but that will be short lived if the sewer in the road outside your house floods." Household customers

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

13.2. Our performance forecast

At PR19, Ofwat set a discharge compliance performance commitment level of 100% with an underperformance deadband to 99.0%. We have forecasted our performance flat at the 2024/25 level of 99.1% until 2034/35. By 2049/50 we aim to improve our performance to 100% treatment works compliant. This level of ambition is consistent with our customers' priorities. We explain our rationale to reach these targets below.

Table 61: Our proposed underperformance deadband for discharge permit compliance

Unit: percentage treatment works compliant

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
99.1%	99.1%	99.1%	99.1%	99.1%	99.1%	100%

13.3. Build-up of our 2029/30 performance

The table below shows the build-up of our discharge permit compliance forecast for 2029/30.

Table 62: Discharge permit compliance deadband target build up

Unit: percentage treatment works compliant	Performance
PR19 underperformance deadband for 2024/25	99.0%
Current forecast deadband for 2024/25	99.1%
Benefits from enhancement	27.9%
Benefits from base expenditure	0
Natural rate of deterioration	27.9%
Performance 2029/30	99.1%
Performance in 2029/30 from base expenditure (i.e. without enhancement)	71.2%

$Performance_{29/30}$ = $Performance_{24/25}$ + benefits from enhancement + benefits from base - natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ - benefits from enhancement

13.3.1. Benefits from base

We have not identified interventions in our base plan with a direct and quantifiable impact on discharge permit compliance.

We recognise that Ofwat sets out in the PR24 methodology an expectation that companies would reach a discharge permit compliance performance level of 100% from base expenditure by 2029/30. However, we consider that given our current performance position and estimated deterioration rate (see below for details), keeping the level of performance flat will require interventions to enhance the level and quality of the service provided, including some WINEP interventions, which are inherently enhancement activities.

13.3.2. Benefits from enhancement

Our experts have identified two main areas of our PR24 enhancement programme with impacts on the percentage of compliant wastewater treatment works:

- Enhancement to accommodate growth at wastewater treatment works; and
- WINEP programme enhancing wastewater treatment which includes:
  - Treatment for chemical removal;
  - Treatment for total nitrogen removal (chemical and biological)
  - Treatment for nutrients (N or P) and / or sanitary determinants, nature based solution;
  - Treatment for tightening of sanitary parameters; and
  - Microbiological treatment - bathing waters, coastal and inland.

We have calculated the benefits from these enhancements as the estimated reduction in the number of failed works, compared to a 'do nothing' scenario. Specifically:

- We have estimated the number of sites that would fail discharge compliance if investment to accommodate growth and WINEP investment was not made.
- We have done so by using our internal models which take into account dry weather flow (DWF) exceedance and process capacity measured by population increase (PE) forecasts at each of our 365 sites. The number of sites that would fail discharge compliance in a 'do nothing' scenario would range from 2 in 2025/26 to 102 in 2029/30.
- We have assumed that each treatment works that failed would result in a 0.27 percentage points (or 1/365 sites) detriment in the PC level.

We have quantified the discharge permit compliance benefits from enhancement activities at 27.9 percentage points by 2029/30. This means that our performance our drop from 99.1% to 71.2% without these enhancement investments. The table below shows the split of benefits by enhancement activities.

Table 63: PR24 enhancement activities with impacts on discharge compliance index

Enhancement activities	Benefits (% points)	
Growth at wastewater treatment works		7.9%
WINEP programme enhancing wastewater treatment which includes:		20%
○ Treatment for chemical removal	1.2%	
○ Treatment for total nitrogen removal (chemical and biological)	12.3%	
○ Treatment for nutrients (N or P) and / or sanitary determinands, nature based solution	0.4%	
○ Treatment for tightening of sanitary parameters	4.2%	
○ Microbiological treatment - bathing waters, coastal and inland	1.9%	
Total		**27.9%**

The natural rate of deterioration has been calculated as the benefits that would need to be realised to maintain performance, i.e., in a 'do nothing' investment scenario. Because we have forecasted performance improvements vis-à-vis the 'do nothing' scenario, the estimated benefits only offset the natural rate of deterioration.

13.4. Industry performance forecasts

We have not estimated the industry upper quartile for discharge permit compliance because Ofwat has set the level at 100% across the industry at PR19 with an underperformance deadband to 99.0%.

13.5. Our long-term ambition

Our long-term ambition is to ensure that we return wastewater safely to the environment and we are required to do this as part of The Urban Wastewater Treatment Regulations, 1994. Ensuring that we carry out this duty was a part of our DWMP with a specific planning objective that focussed on wastewater treatment works compliance. We have adopted a target 100% by 2050 for discharge compliance.

Table 64: Long term targets for discharge permit compliance

Unit: % treatment works compliant	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	99.1%	99.1%	99.4%	99.7%	100%
Performance from enhancement	27.9%	27.9%	28.2%	28.5%	28.8%
Performance from base expenditure	71.2%	71.2%	71.2%	71.2%	71.2%

Performance = Performance from base – performance from enhancement

The DWMP highlighted a number of key areas in our region where we need to focus these are detailed in our BRAVA maps PO6 pollution 2020. We will focus on proactively managing our assets and systems and to comply with our permits to ensure our services and infrastructure do not lead to environmental harm.

We will need to invest in the future to continue to achieve the required levels for chemicals and population growth. For more detail on this refer to our DWMP.

13.6. Incentive rates

The incentive rate for PR19 was £10m per percentage point of treatment works compliance.

For PR24, Ofwat has set the incentive rates it expects us to accept. For discharge permit compliance this is £3.264m with a marginal benefit sharing rate of 70% and a final incentive rate of £2.285m per percentage point of treatment works compliance.

We have used this incentive rate and marginal benefit sharing rate in our data tables. We are not proposing a collar, although we expect the underperformance deadband to be set in line with our forecast performance expectations.

13.7. Summary

The table below summarises our overall position on discharge permit compliance.

Table 65: Summary of our position on discharge permit compliance

Unit: percentage treatment works compliant	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	100%	100%	100%	100%	100%
Underperformance deadband	99.1%	99.1%	99.1%	99.1%	99.1%
Underperformance collars	n/a	n/a	n/a	n/a	n/a
Outperformance caps	n/a	n/a	n/a	n/a	n/a
ODI incentive rate	We have used the Ofwat rate of £2.285m per % point of treatment works compliance				

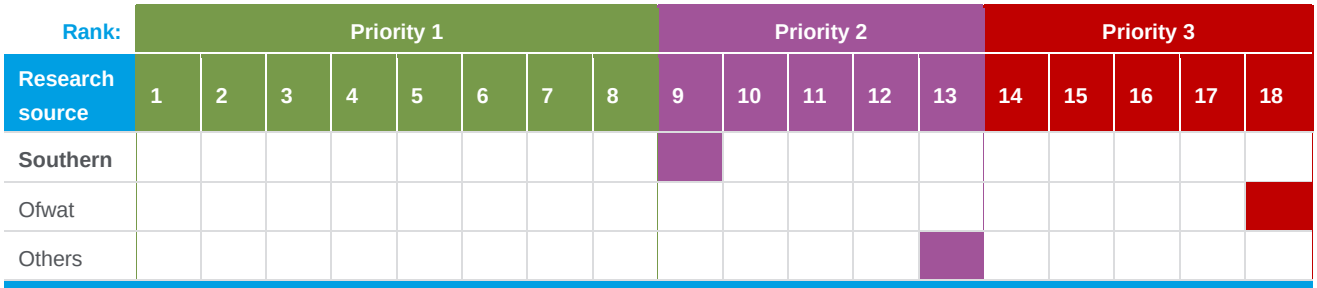
14. Bathing Water Quality

Bathing water quality is a new performance commitment introduced at PR24. It is a single overall average 'score' measuring the quality of our waters designated for swimming, ranging from 0 (all bathing waters are of poor quality) to 100 (all bathing waters are of excellent quality).

14.1. Customer views

This is tier two priority for our customers. The environmental, recreational and tourism impacts of the sea are felt across the region, which makes our bathing waters a topic of conversation for our customers. In recent years, sea swimming, paddle boarding and other recreational uses have further increased our customers connection to the sea. Protecting rivers from environmental harm are equally important, but less frequently referred to by Southern Water customers due to the proximity and use of the beaches and seas. Our customers have rated bathing waters and rivers quality higher than Ofwat's ODI research and CCW preferences research due to our customers' strong connection with the coast.

Figure 31:Our customer views on bathing water quality



What our customers have told us:

"I think this has been demonstrated by other more widely recognised factors e.g. litter -when an urban area is full of litter, we know the area feels depressed and undesirable, wildlife is negatively affected, it can affect house prices etc! It feels as if this focus on water quality is similarly applicable" Household customer

"I am pleased that bathing water quality has improved since the 1990s. I suspect that water companies were asked to meet stricter government and EU standards over that period. The level of improvement is good, but 30 years is a long time to implement a change, so I don't feel that this is beyond a reasonable expectation." Household customer panel

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

14.2. Our performance forecast

We have forecasted keeping performance at 88.3% from 2025/26 to 2029/30; improve to 89.5% by 2034/35 and reach our 100% performance target (i.e., all bathing waters with 'excellent' status) from 2040 onwards. This is consistent with our customers' priorities. We explain our rationale to reach these targets below.

Table 66: Our proposed targets for bathing water quality

Unit: %

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
88.3%	88.3%	88.3%	88.3%	88.3%	89.5%	100.0%

14.3. Build-up of our 2029/30 performance

The table below shows the build-up of our bathing water quality forecast for 2029/30.

Table 67: Bathing water quality target build up

Unit: percentage	Performance
Forecast performance 2024/25	87.1%
Benefits from enhancement	n/a
Benefits from base expenditure	1.2%
Natural rate of deterioration	n/a
Performance 2029/30	88.3%
Performance in 2029/30 from base expenditure (i.e. without enhancement)	88.3%

$Performance_{29/30} = Performance_{24/25}$ + benefits from enhancement + benefits from base - natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ - benefits from enhancement

Our root cause analysis identified two main factors impacting bathing water quality:

- Misconnections and sewer relining, which are funded through base expenditure; and
- Storm overflow spills, which are funded through enhancement.

We have estimated the benefits from base expenditure using our asset deterioration model. These have been calculated as the difference between the level of performance with the misconnections and sewer relining schemes in the PR24 plan versus a ‘do nothing’ scenario without these schemes.

We were unable to collect the granular data necessary to estimate the benefits from our enhancement storm overflow spill reduction programme in the short period since Ofwat published the final definition of this PC (May 2023). We have, therefore, assumed that these were equal to zero.

14.4. Industry performance forecasts

There is not enough industry performance available with extremely varying ranges of bathing waters per company with only 4 companies having a material amount of bathing waters.

14.5. Our current performance and our trajectory to meet our 2029/30 destination

This is a new performance commitment at PR24. We have forecasted our performance by 2029/30 flat at the level forecasted for 2024/25.

14.6. Our long-term ambition

Our long-term ambition is to ensure that we return wastewater safely to the environment and the Storm Overflow Discharge Reduction Plan sets out additional targets in the vicinity of bathing waters. In developing our DWMP we added a planning objective that focussed on improving bathing waters within our region. This was driven by our customers actively demanding that we improve the quality of the water of our 84 bathing waters. We have adopted a target 100% by 2040 for all our current bathing water sites.

Table 68: Long term targets for bathing water quality

	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	88.3%	89.5%	100%	100%	100.0%
Performance from enhancement	0%	3.3%	13.3%	13.3%	13.3%
Performance from base expenditure	88.3%	86.2%	86.7%	86.7%	86.7%

Performance = Performance from base – performance from enhancement

The DWMP highlighted key coastal areas where we need to focus our efforts to improve the bathing water quality PO13 bathing-water. To ensure that these waters meet the targets and we will:

- Reduce releases from storm overflows and minimise pollution incidents from our systems
- Continue with our bathing water enhancement programme, investing in sewer misconnections and other activities with partner local authorities, to deliver excellent classification of all 84 bathing waters across our operating area

We will need to invest in the future to continue to improve those sites that are most at risk. For more detail on this refer to our DWMP.

14.7. Incentive rates

This was not a performance commitment in PR19.

For PR24, Ofwat has set the incentive rates it expects us to accept. For bathing water quality this is £6.698m with a marginal benefit sharing rate of 70% and a final incentive rate of £4.689m per percentage point.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are proposing a cap and collar as this is a new common performance commitment. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on individual PCs that are new and therefore more uncertain. These are set below. For details on how these have been calculated please see our SRN57: Risk Technical Annex.

Table 69: Caps proposed for bathing water quality

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
Bathing water quality (%)	89.49%	89.52%	89.58%	89.74%	89.73%

Table 70: Collars proposed for bathing water quality

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
Bathing water quality (%)	84.51%	84.48%	84.42%	84.26%	84.27%

14.8. Summary

The table below summarises our overall position on bathing water quality.

Table 71: Summary of our position on bathing water quality

Unit: Percentage (%)	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	88.3%	88.3%	88.3%	88.7%	88.7%
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	84.51%	84.48%	84.42%	84.26%	84.27%
Outperformance caps	89.49%	89.52%	89.58%	89.74%	89.73%
ODI incentive rate	We have used the Ofwat rate of £4.689m per 1 percentage point				

15. River Water Quality (Phosphorus)

This performance commitment is new at PR24. It incentivises reducing the amount of phosphorus entering the rivers in our area. Phosphorus is a significant reason why rivers fail to be classified as having good status. Reducing phosphorus is a key part of improving river water quality. This PC is measured as reduction in kg of phosphorus discharged from a 2020 starting point and as a percentage reduction relative to 2020.

15.1. Customer views

Protecting rivers from environmental harm are important for our customers, but less frequently referred to by Southern Water customers, due to the proximity and use of the beaches and seas. Our customers have rated bathing waters and rivers quality higher than Ofwat's ODI research and CCW preferences research due to our customers' strong connection with the coast.

Figure 32:Our customer views on river water quality

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern									■									
Ofwat																		■
Others													■					

What our customers have told us:

"I think this has been demonstrated by other more widely recognised factors e.g. litter -when an urban area is full of litter, we know the area feels depressed and undesirable, wildlife is negatively affected, it can affect house prices etc! It feels as if this focus on water quality is similarly applicable" Household customer

"I am pleased that bathing water quality has improved since the 1990s. I suspect that water companies were asked to meet stricter government and EU standards over that period. The level of improvement is good, but 30 years is a long time to implement a change, so I don't feel that this is beyond a reasonable expectation." Household customer panel

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

15.2. Our performance forecast

We have forecasted reducing phosphorus (P) discharged in our rivers by 58.5% by 2029/30, from a 2020 starting point, 66.5% by 2034/35 and 80.0% by 2049/50, in line with the target of 80% reduction by 2038 set by the Environment Act. Our customers support this level of ambition. We explain our rationale to reach these targets below.

We show the benefits when they arise according to our investment profile in financial years (where FY25 = financial year 2024-25), rather than when they will be reported in the Annual Performance Reports (APRs).

Table 72: Our proposed targets for river water quality

Metric	Unit	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
P reduction from 2020	kg	85,287	85,287	85,287	85,287	144,219	164,149	192,202
% P reduction from 2020	%	34.6%	34.6%	34.6%	34.6%	58.5%	66.5%	80.0%

15.3. Build-up of our 2029/30 performance

The table below shows the build-up of our river water quality forecast for 2029/30 in percentage of P reduction from 2020.

Table 73: River water quality target build up

Unit: % of P reduction from 2020	Performance
Forecast performance 2024/25	34.6%
Benefits from enhancement	23.9%
Benefits from base expenditure	0
Natural rate of deterioration	0
Performance 2029/30	58.5%
Performance in 2029/30 from base expenditure (i.e. without enhancement)	34.6%

$Performance_{29/30} = Performance_{24/25} +$ benefits from enhancement + benefits from base - natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ - benefits from enhancement

Our phosphorus removal is an important component of our enhancement WINEP programme for PR24. We have assumed that the full benefits from the 2024/25 level would be delivered by our PR24 WINEP programme across the following enhancement activities and in line with the WINEP drivers:

- Treatment for phosphorus removal (chemical); and
- Treatment for phosphorus removal (biological); and

We have estimated the phosphorus discharge reduction benefits from our WINEP programme as follows:

- We have considered treatment works in scope for benefits quantification as the treatment works with a new or changed P permit in AMP8.
- We have assumed the P reduction through partnerships to be zero in both AMP8 and in the base year 2020.
- We have assumed the annual mean P concentration in the reporting year to be equal to the new or changed P permit for AMP8 at each treatment works.
- We have made the following assumptions regarding the mean daily flow in the reporting year:
  - For treatment works with measured flow data, we have assumed the average of the three last measured years: 2020, 2021, 2022;

- For treatment works without measured flow data, we have calculated the mean daily following Ofwat's guidance, i.e.:
- Mean daily flow in the reporting year = 1.2 x dry weather flow (DWF) in the initial permit with a P limit.

- We have made the following assumptions regarding the mean daily flow in the 2020 starting point:
  - For treatment works with measured flow data, we have used the mean daily flow for 2020.
  - For treatment works without flow data, we have calculated the mean daily following Ofwat's guidance, i.e.:
    - Mean daily flow in 2020 = 1.2 x dry weather flow (DWF) in the initial permit with a P limit.
- We have assumed that the benefits materialise in the last year of the 5-year period in which the investment takes place.

We have quantified the phosphorus discharge reduction benefits from our enhancement WINEP activities at 23.9 percentage points by 2029/30. The table below shows the split of benefits by enhancement activities.

Table 74: PR24 enhancement activities with impacts on river water quality

Enhancement activities	Benefits (% points)	
WINEP programme for phosphorus removal:		23.9%
○ Treatment for phosphorus removal (chemical)	18%	
○ Treatment for phosphorus removal (biological)	5.9%	
Total		**23.9%**

15.4. Industry performance forecasts

We have not been able to forecast the industry upper quartile performance for river water quality by 2029/30. This is because this depends on each companies' enhancement programme for PR24, which will not be available to us until draft determination.

15.5. Our current performance and our trajectory to meet our 2029/30 destination

This is a new performance commitment at PR24. We have forecasted our performance by 2029/30 bottom up based on our WINEP schemes proposed in our PR24 plan.

15.6. Our long-term ambition

Our long-term ambition is to ensure that we return wastewater safely to the environment and we are required to do this as part of The Urban Wastewater Treatment Regulations, 1994. In addition, we will achieve the target of 80% reduction by 2038 set by the Environment Act. Ensuring that we carry out this duty was a part of our DWMP with a specific planning objectives that focussed on nutrient neutrality and achieving good ecological status.

Table 75: Long term targets for river water quality

Unit: percentage	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	58.5%	66.5%	80%	80%	80%
Performance from enhancement	23.9%	31.9%	45.4%	45.4%	45.4%
Performance from base expenditure	34.6%	34.6%	34.6%	34.6%	34.6%

Performance = Performance from base – performance from enhancement

Phosphorus is directly linked to population growth and the DWMP predicted forecast population predictions would need addition P treatment capacity at a number of sites. For further details see the DWMP.

15.7. Incentive rates

This was not a performance commitment in PR19.

For PR24, Ofwat has set the incentive rates it expects us to accept. For river water quality this is £0.944k with a marginal benefit sharing rate of 70% and a final incentive rate of £0.661k per kg of P-load removed.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are proposing a cap and collar as this is a new common performance commitment. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on individual PCs that are new and therefore more uncertain. These are set below and are set below. For details on how these have been calculated please see our SRN57: Risk Technical Annex.

Table 76: Caps proposed for river water quality

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
P-load removed (kg/y)	99,593	99,821	100,194	101,325	160,193

Table 77: Collars proposed for river water quality

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
P-load removed (kg/y)	64,235	64,008	63,635	62,503	121,499

15.8. Summary

The table below summarises our overall position on river water quality.

Table 78: Summary of our position on river water quality

	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target (%)	34.6%	34.6%	34.6%	34.6%	58.5%
Performance target **(kg/y)**	85,287	85,287	85,287	85,287	144,219
Underperformance deadband (kg/y)	n/a	n/a	n/a	n/a	n/a
Underperformance collars (kg/y)	64,235	64,008	63,635	62,503	121,499
Outperformance caps (kg/y)	99,593	99,821	100,194	101,325	160,193
ODI incentive rate	We have used the Ofwat rate of £0.661k kg of P reduction				

16. Storm Overflows

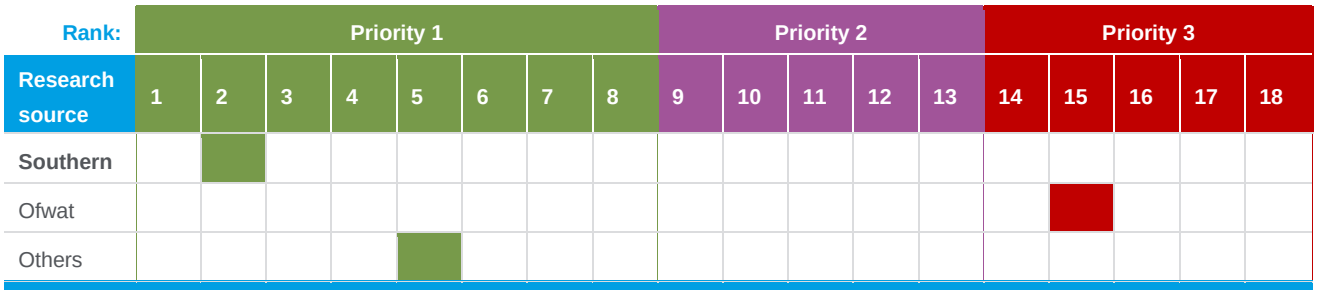
Storm overflows is a new performance commitment at PR24. It incentivises a reduction in the adverse effects of discharges from our storm overflows on public health and the environment.
It is measured as the average number of monitored and unmonitored spills per storm overflow. The unmonitored storm overflow adjustment is calculated as the percentage of the year the storm overflow was unmonitored times 100 spills.

16.1. Customer views

Our customers have prioritised storm overflows alongside pollution. Preventing wastewater polluting or spilling into the environment through rivers or seas is a top area that our customers want to see improved. Stakeholders and our customer groups have highlighted that addressing storm overflows and pollution performance is a condition to improving our reputation and rebuilding trust.

Our customers have rated pollution higher than Ofwat's ODI research and CCW preferences research due to our customers' strong connection with the coast. Intense media scrutiny since the Ofwat ODI research and CCW preferences research will have increased this score across England and Wales, as shown in companies' your water, your say sessions. Our previous performance on pollutions and wastewater, the fine the EA applied to us in 2021, and high population growth felt across our communities have driven greater emphasis on wastewater infrastructure by Southern Water customers as compared to regulatory and third parties' research.

Figure 33: Our customer views on pollution and storm overflows



What our customers have told us:

"Make coastal contamination a thing of the past." Household customer panel

"We have had quite a few incidences of sewage outages in the sea when we actually couldn't swim. The fact that this happens at all is still too often." Business customer

"I am in absolute agreement of taking a step back and re-looking at a process as a whole and working out if there is now a better way of doing things. Collaborating with other partners for this can only be an advantage." Business customer
I would like to know how Southern Water plans to cut pollution incidents from circa 90 per 10,000k of sewers to 34 in 2023. What plans are in place, as this is an urgent problem, with far too frequent spills into our sea?" Business Customer

"It's so important, it's a much needed thing. The amount of damage it does so they really need to tackle that." Vulnerable customer
"Surely one spill in shellfish waters is too many.. And what about where people swim?" Household customer

"I would guess that storm overflows is a highly visible thing if you if you mess up on that you get in the newspapers and chief execs get sacked." Household customer

"I just think you need to act fast. Climate change is no surprise or shock, but swimming in amongst wastewater is vile and destroying our planet. Stop talking about it and do something." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

16.2. Our performance forecast

We have forecasted a reduction in the average number of spills per overflow from 20.6 in 2025/26 to 18.5 by 2029/30, 13.9 by 2034/35 and 5.9 by 2049/50. Our customers support this level of stretch. Our forecasts assume that the PC definition will continue to count unmonitored spills as the current PC definition does, i.e., assuming the number of spills for unmonitored overflows equal to 100 spills times the proportion of the time the storm overflow is unmonitored in a year. We explain our rationale to reach these targets below.

We show the benefits when they arise according to our investment profile in financial years (where FY25 = financial year 2024-25), rather than when they will be reported in the Annual Performance Reports (APRs).

Table 79: Our proposed targets for storm overflows

Unit: average number of spills per overflow

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
20.6	20.4	20.4	20.2	18.5	13.9	5.9

16.3. Build-up of our 2029/30 performance

The table below shows the build-up of our storm overflows forecast for 2029/30.

Table 80: Storm overflow target build up

Unit: average spills per overflow	Performance
PR19 performance target for 2024/25	n/a
Current forecast performance for 2024/25	21.0
Benefits from enhancement	2.5
Benefits from base expenditure	0
Natural rate of deterioration	0
Performance 2029/30	18.5
Performance in 2029/30 from base expenditure (i.e. without enhancement)	21

$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

Storm overflows is a key component of our enhancement WINEP programme for PR24. We have made the assumption that the full storm overflow benefits from the base year 2024/25 would be delivered by our PR24

WINEP programme across the following enhancement activities and line with the WINEP drivers:

- Increase storm system attenuation / treatment on a Sewage Treatment Works (STW) - green solution
- Increase storm tank capacity at STWs–grey solution
- Storage schemes to reduce spill frequency at CSOs, etc-grey solution
- Storm overflow - source surface water separation
- Storm overflow- sustainable drainage/ attenuation in the network
- Storm overflow- infiltration management

We have estimated the storm overflows benefits from our enhancement WINEP programme as follows:

- We have taken the number of spills avoided by each WINEP scheme from our WINEP modelling. These were allocated to each AMP in line with our WINEP submission, including the proposed re-phasing of schemes from AMP8 to later AMPs as we have proposed to the Environment Agency.
- We have assumed that the expenditure planned for AMP8 will deliver benefits throughout the 10-year period of AMP8 and AMP9. We have profiled the benefits within this 10-year period based on our best judgment of construction lead time, as follows:

Table 81: Annual profile of storm overflows benefits

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
System attenuation - green solution					75%				25%	
Storm tank capacity at STWs–grey solution					20%				80%	
Reduce spill frequency at CSOs - grey solution					20%				80%	
Surface water separation				15%	15%	17%	17%	19%	17%	
Sustainable drainage		20%	20%	20%	20%	20%				
Infiltration management		20%				20%	20%	20%	20%	

- We have also considered as AMP8 benefits the number of spills avoided from schemes that we have proposed to Ofwat as part of our accelerated programme. We have assumed these benefits will materialise in 2025/26 (year 1 of AMP8).
- We have forecasted the base year 2024/25 spills per overflow by including two adjustments, for unmonitored spills and for monitored spills available less than 100% of the year, as follows:
  - Attributed 100 spills to each unmonitored overflows; and
  - For monitored overflows with uptime lower than 100%, we added a spills uplift equal to 100 spills times (1 - % uptime)
- We have assumed an average 97% uptime in setting the baseline for 2024/25 and have kept it at this level across AMP8 and AMP9.

We have quantified the storm overflow benefits from our enhancement WINEP activities at 2.5 average spills per overflow by 2029/30. The table below shows the split of benefits by enhancement activities.

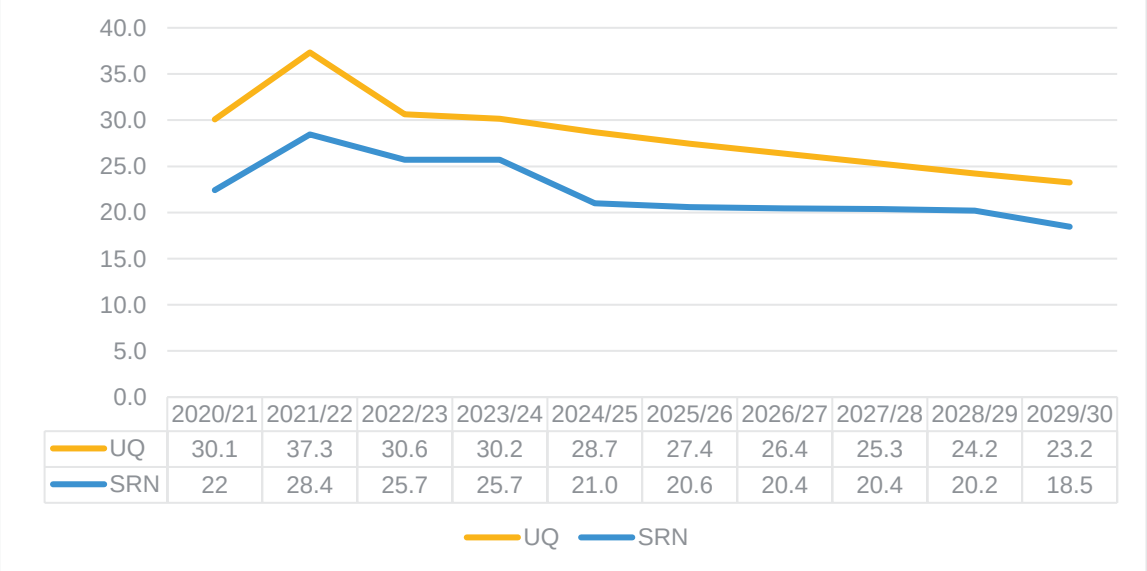
Table 82: PR24 enhancement activities with impacts on storm overflows

	Benefits (average spills avoided per overflow)
System attenuation - green solution	1.4
Storm tank capacity at STWs–grey solution	0.3
Reduce spill frequency at CSOs - grey solution	0.2
Surface water separation	0.2
Sustainable drainage	0.4
Infiltration management	0.03
Total	**2.5**

16.4. Industry Performance Forecasts

We have forecasted the industry upper quartile performance by considering historic performance and expected improvements from each companies' business plan and assuming a logarithmic time trend forecast. For average spills at storm overflows in 2029/30 we have forecasted our performance as 18.5, which is significantly below our forecast upper quartile of 23.9 average spills.

Figure 34: Storm Overflows trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
UQ	30.1	37.3	30.6	30.2	28.7	27.4	26.4	25.3	24.2	23.2
SRN	22	28.4	25.7	25.7	21.0	20.6	20.4	20.4	20.2	18.5

16.5. Our current performance and our trajectory to meet our 2029/30 destination

This is a new performance commitment at PR24. We have forecasted our trajectory performance to 2029/30 bottom up based on our WINEP schemes proposed in our PR24 plan.

16.6. Our long-term ambition

Our long-term ambition is to achieve the UK targets for storm overflows ahead of time against that targets set in the Environment Act 2021 and the Storm Overflow Discharge Reduction Plan. We agree with our customers that this is a high priority for the region and reducing storm overflows was a key part of our DWMP with a specific planning objective. We have adopted a target of 5.9 by 2050 for the average number of spills per overflow and this should be considered together with our approach to zero pollutions by 2040.

Table 83: Long term targets for storm overflows

Unit: average spills per overflow	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	18.5	13.9	9.8	7.0	5.9
Performance from enhancement	2.5	7.1	11.2	14	15.1
Performance from base expenditure	21	21	21	21	21

Performance = Performance from base – performance from enhancement

The DWMP highlighted a number of key areas in our region where we need to focus these are detailed in our BRAVA maps[8]. We will focus on proactively managing our assets and systems and to reduce storm overflows against a back drop of increased rainfall and storms due to climate change.

For more detail on this refer to our DWMP.

16.7. Incentive rates

Spills at storm overflows was not a performance commitment in PR19.

For PR24, Ofwat has set the incentive rates it expects us to accept, for storm overflows. This is £880k with a marginal benefit sharing rate of 70% and a final incentive rate of £616k per average spill per overflow.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are proposing a cap and collar as this is a new common performance commitment. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on individual PCs that are new and therefore more uncertain.

These are set below. For details on how these have been calculated please see our SRN57: Risk Technical Annex.

Table 84: Caps proposed for storm overflows

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
Average spills per overflow	1.63	1.19	0.79	-	-

Table 85: Collars proposed for storm overflows

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
Average spills per overflow	39.57	39.61	40.01	41.03	39.26

16.8. Summary

The table below summarises our overall position storm overflows.

Table 86: Summary of our position on storm overflows

Unit: average spills per overflow	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	20.57	20.45	20.36	20.21	18.45
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	39.57	39.61	40.01	41.03	39.26
Outperformance caps	1.63	1.19	0.79	-	-
ODI incentive rate	We have used the Ofwat rate of £616k per average spills per overflow				

17. Mains Repairs

This performance commitment measures the number of mains repairs per 1,000 km of our mains network. It seeks to incentivise reducing the volume of mains repairs under the assumption that fewer mains repairs are an indication of greater overall asset health, thereby causing fewer mains bursts impact the supply to our customers.

However, proactive find and fix activities designed to prevent mains bursts and reduce leakage generate greater mains replacement activity. This means that a deterioration in mains repairs performance may be necessary to ensure improved asset health and reliable water supply to our customers in the long term.

17.1. Customer views

Our customers have grouped the health of our water assets, including mains repairs, under the 'future water supplies' priority. Ensuring our water assets will be fit for securing a reliable supply of fresh water for the future is first tier for our customers. They have told us that this is especially important to ensure that future generations are protected.

Figure 35: Our customer views on future water supplies (including mains repairs)

Rank:	Priority 1								Priority 2					Priority 3				
Research source	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Southern						■												
Ofwat				■														
Others							■											

What our customers have told us:

"Populations will only grow and there will be a huge bottleneck for future generations if we don't tackle issues now both current and potential. To me that is what sustainability is and being responsible as humans." Household customer

"It is critical to consider future generations as the need / demand will change and if we base our plans on current society then it will become outdated extremely quickly. Overall that will mean it is a waste of money." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

17.2. Our performance forecast

We have forecasted reaching 152.9 mains repairs per 1,000 km of mains by 2029/30, which is higher than the 150.0 level estimated for 2025/26. This deterioration is a result of our significant proactive find and fix programme in PR24, which is needed to reach our leakage targets for 2029/30 and 2034/35. This programme will improve the future asset health of our water network contributing to bring down the level of mains repairs to 98.1 per 1,000 km by 2049/50. It will also contribute to ensure greater water reliability for

future generations, which is what our customers told us that they wanted. We explain our rationale to reach these targets below.

Table 87: Our proposed targets for mains repairs

Unit: Number per 1,000 km of mains

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
150.0	148.4	150.6	151.2	152.9	152.9	98.1

17.3. Build-up of our 2029/30 performance

The table below shows the build-up of our mains repairs forecast for 2029/30.

Table 88: Mains repairs target build up

Unit: Number per 1,000 km of mains	Performance
PR19 performance target for 2024/25	87.3
Current forecast performance for 2024/25	150.0
Benefits from enhancement	5.2
Benefits from base expenditure	150.2
Natural rate of deterioration	158.3
Performance 2029/30	152.9
Performance in 2029/30 from base expenditure (i.e. without enhancement)	158.1

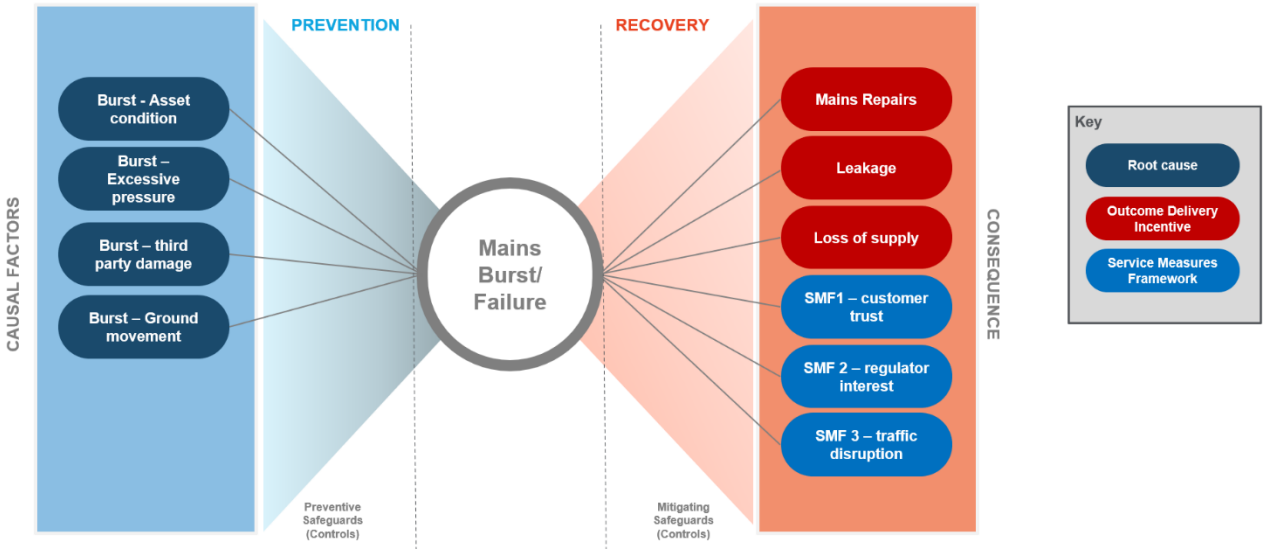
$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

17.3.1. Benefits from base

We have used our ‘bow tie’ framework below to link the interventions in our base plan with root causes, risks to performance and benefits.

Figure 36: Risk 'bow ties' framework for mains repairs



We have used expert judgment to identify risk-reduction interventions in our base investment plan that addressed the causal factors of mains bursts/failure. The following interventions were identified:

- Reactive and proactive operational maintenance;
- Business as usual capital maintenance mains replacement; and
- Business as usual advanced find and fix capital maintenance.

We have determined the benefits from these activities by running our asset deterioration model with and without these interventions. The results were then refined through workshops with experts.

The mains repairs net benefits vis-à-vis the 2024/25 baseline from base initiatives is 150.2 mains repairs per 1,000 km. This is insufficient to offset the natural rate of deterioration of 158.3, as estimated by our latest technical review.

17.3.2. Benefits from enhancement

Mains repairs performance from enhancement has been estimated at 5.2 mains repairs per 1,000 km of network by 2029/30. These benefits come from our enhanced mains replacement programme which is part of our leakage reduction strategy. These benefits were obtained from the WRMP24 modelling and tested with experts.

17.4. Industry performance forecasts

We have forecasted the industry upper quartile performance by considering historic performance and expected improvements from each companies' business plan and using a logarithmic time trend forecast. For mains repairs in 2029/30 we have forecasted the industry upper quartile as 97.5 mains repairs per 1,000 km of mains.

17.5. Our current performance and our trajectory to meet our 2029/30 destination

Our performance in 2022/23 was 152.8 mains repairs per 1,000km of mains. By 2029/30 we forecast a similar performance at 152.9. This is a reflection of the knock-on impact of the proactive find and fix activities designed to prevent mains bursts and reduce leakage in the long term. In the short term, these activities generate greater mains repairs activity, hence the deterioration in mains repairs performance.

17.6. Our long-term ambition

Our long-term ambition is to ensure a reliable supply of high-quality water for the future and this goal is supported by our customers. Mains repairs are a key element in achieving the leakage reductions to achieve the challenges in our WRMP. We have set a target of 98.1 repairs per 1,000 km of mains in 2049/50 which will be a 36% reduction from our end of AMP8 position.

Table 89: Long term targets for mains repairs

Unit: Number per 1,000 km of mains	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	152.9	152.9	134.6	116.3	98.1
Performance from enhancement	5.2	16.3	28.8	41.9	54.7
Performance from base expenditure	158.1	169.2	163.4	158.2	152.8

Performance = Performance from base – performance from enhancement

Our WRMP details our approach to our network with regard to leakage management and a essential part of this is improving the assets. There are 2 main activities that will impact the number of mains repairs:

- Mains replacement
- Advanced pressure management

For more details on these activities in the longer term refer to our WRMP.

17.7. Incentive rates

The incentive rate for PR19 was £84k underperformance and £55k for outperformance. This was derived from our PR19 customer research.

For PR24, Ofwat have set the incentive rates it expects us to accept. For mains repairs this is £173k with a marginal benefit sharing rate of 70% and a final incentive rate of £121k per mains repairs per 1,000 km of mains.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are proposing a cap and collar as this is an asset health metric. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on PCs related to asset health.

These are set below. For details on how these have been calculated please see our SRN57: Risk Technical Annex.

Table 90: Caps proposed for mains repairs

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
Mains repairs per 1,000km	111.24	100.70	95.36	90.98	89.97

Table 91: Collars proposed for mains repairs

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
Mains repairs per 1,000km	188.76	196.10	205.88	211.38	215.83

17.8. Summary

The table below summarises our overall position on mains repairs.

Table 92: Summary of our position on mains repairs

Unit: Number per 1,000 km of mains	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	150.0	148.4	150.6	151.2	152.9
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	188.76	196.10	205.88	211.38	215.83
Outperformance caps	111.24	100.70	95.36	90.98	89.97
ODI incentive rate	We have used the Ofwat rate of £121k per 1,000 km of mains				

18. Unplanned Outage

The unplanned outage performance commitment measures the unplanned loss of peak water production capacity. It incentivises the maintenance of our treatment works in order to reduce the incidents of unplanned outage when capacity is required. It is measured as unplanned loss of peak capacity as a percentage of our overall peak week water production capacity.

18.1. Customer views

Unplanned outage of our water treatment works will ultimately have a detrimental impact on water restrictions. Supply of water to customers' home or business without any interruption ranks high as a priority for our customers. Customers have told us that they generally accept restrictions such as temporary usage bans when driven primarily by severe conditions outside our control (i.e., drought). Major restrictions driven resulting from asset failures are more of a concern for our customers.

Figure 37:Our customer views on water restrictions (including unplanned outage)

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern				■														
Ofwat					■													
Others			■															

What our customers have told us:

"Outages can range from mildly annoying (to a single person living alone), to critical (water needed for medical reasons, elderly, etc) so reducing these outages and ensuring a more stable, reliable supply is a definite benefit in my eyes." Household Customer

"I am 100% supportive of this plan and for Southern Water to progress with this work. Because it is hugely important in terms of people's health. We are talking about something that will affect people's health. So for me, that is hugely important, and I am supportive of this plan." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

18.2. Our performance forecast

By 2029/30 we have forecasted reaching unplanned outages at 3.13% of peak capacity, down from 5% in 2025/26. Our performance is forecasted to improve to 3.07% by 2034/35 and to 2.00% by 2049/50. We explain our rationale to reach these targets below.

Table 93: Our proposed targets for unplanned outage

Unit: percentage of peak capacity

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
5.00	4.53	4.06	3.60	3.13	3.07	2.00

18.3. Build-up of our 2029/30 performance

The table below shows the build-up of our unplanned outage forecast for 2029/30.

Table 94: Unplanned outage target build up

Unit: % of peak capacity	Performance
PR19 performance target for 2024/25	3.25
Current forecast performance for 2024/25	3.13
Benefits from enhancement	0.18
Benefits from base expenditure	3.64
Natural rate of deterioration	3.82
Performance 2029/30	3.13
Performance in 2029/30 from base expenditure (i.e. without enhancement)	3.31

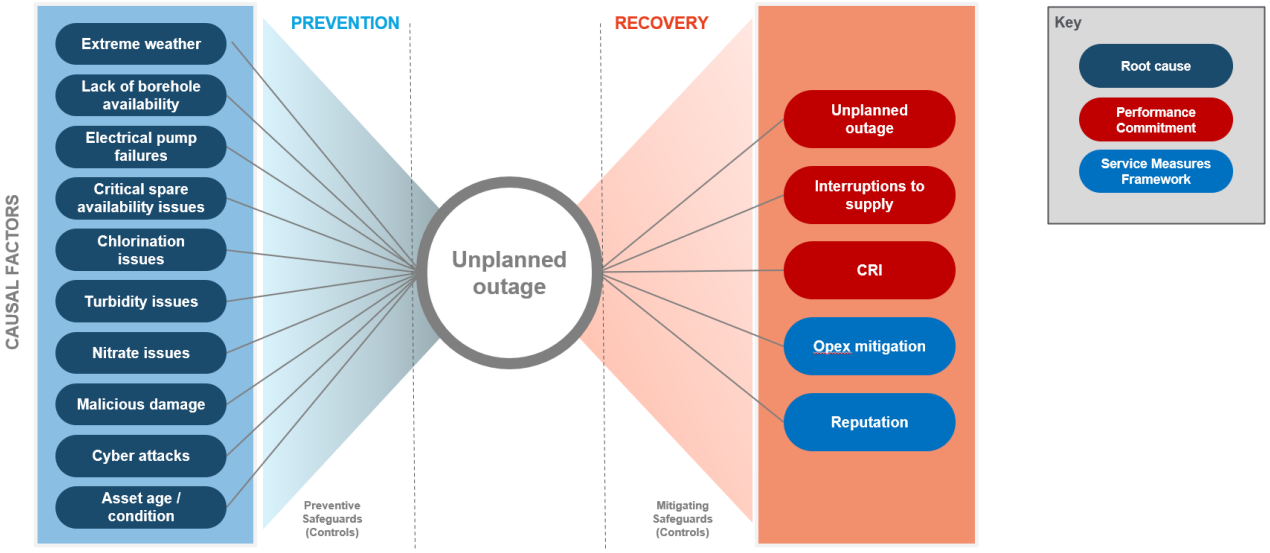
$Performance_{29/30}$ = $Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

18.3.1. Benefits from base

Interventions in our base business plan impacting unplanned outage were identified and linked to risks to performance and benefits using our risk ‘bow tie’ framework below.

Figure 38: Risk 'bow tie' framework for unplanned outage



Our asset manager experts have identified the risk-reduction activities in the base investment plan linked to the root causes in the framework above. We have identified interventions related to capital maintenance of non-infra or above ground water assets (supply works, booster stations service reservoirs) across multiple of our water treatment works. We have then used a top down approach to categorise these interventions as:

- 'Maintain', when these were considered necessary to maintain performance at the 2024/25 base year level; and
- 'Improve', when we have considered the interventions to be necessary to improve performance from the 2024/25 base year.

We have quantified the benefits from these interventions by running our asset deterioration model with and without these interventions. The results were then refined through workshops with experts.

We have estimated the benefits from base at 3.64% of peak capacity, which corresponds to the benefits from interventions labelled as 'improve'.

We have assumed the benefits from interventions labelled as 'maintain' to be a proxy for the natural rate of deterioration as they represent the benefits from interventions needed to maintain performance at the 2024/25 base year. This has resulted in a natural rate of deterioration of 3.82%.

18.3.2. Benefits from enhancement

The table below identifies the PR24 enhancement interventions that our experts have identified as having an impact on unplanned outage. Only benefits from the Supply Resilience Enhancement case (four-site surface water works upgrading programme) was found to deliver benefits that could be quantified and directly attributed to this enhancement activity.

Table 95: PR24 enhancement activities with impacts on unplanned outage

Enhancement activities	Expert view on benefits quantification	Quantified benefits (% of peak capacity)
Operational resilience (heat stress, power resilience, flooding)	These enhancement activities indirectly contribute to reducing unplanned outage. However, such benefits are difficult to disentangle from the benefits from base expenditure. We have therefore assumed that these investments have no quantifiable unplanned outage benefits.	Not quantified
Supply Resilience (four main surface water works upgrading programme)	Benefits directly attributable to these activities can be quantified.	0.18

We have quantified the benefits from the Supply Resilience Enhancement at 0.18% of the peak capacity as follows:

- We have forecasted the service levels in the 'do nothing / pre-investment' scenario using our internal asset deterioration model.
- We have then forecasted the service levels in the 'post-investment' scenario, using our asset deterioration model and assuming like-for-like asset replacement. This is a conservative estimate because many assets are planned to be replaced with superior solutions that will deliver greater benefits.
- We have determined the benefits as the delta in service levels, i.e., as the difference between the service level pre- and post-investment.

18.4. Industry performance forecasts

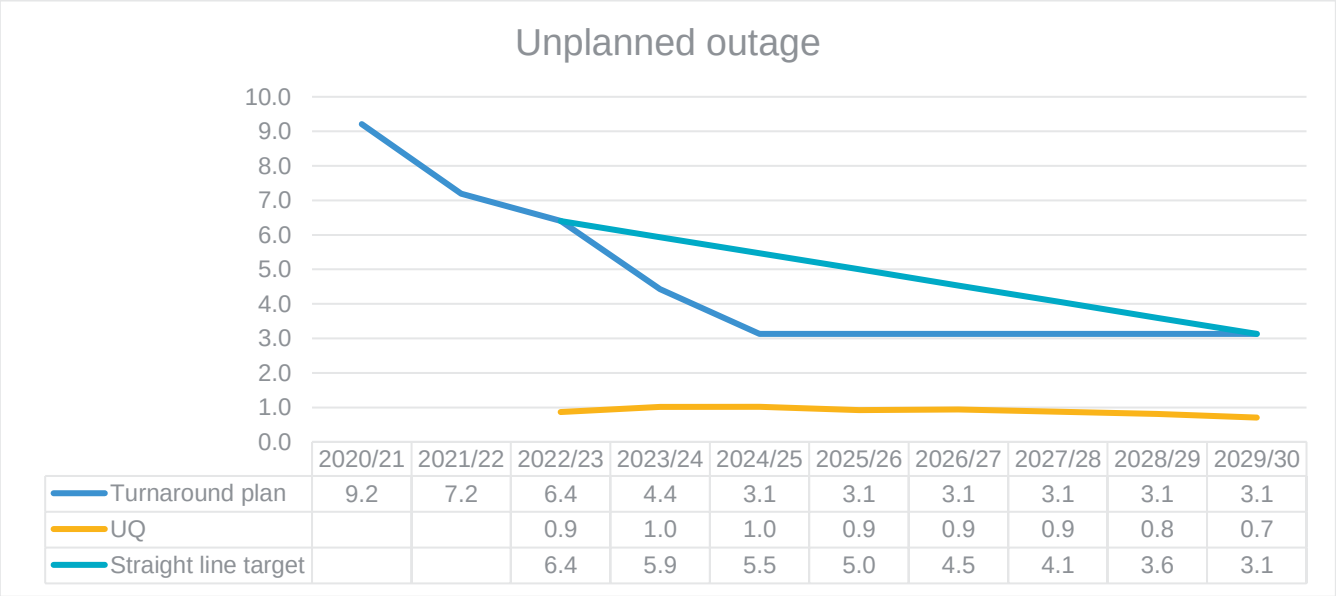
We have forecast the industry upper quartile performance by considering historic performance and expected improvements from each companies' business plan and using a logarithmic time trend forecast. For unplanned outage in 2029/30 we have forecasted the industry upper quartile as 0.7% of peak capacity, which is substantially below our forecast level of 3.13%. However, as the graph below shows, this is a significant improvement in reducing the gap to the industry upper quartile.

18.5. Our current performance and our trajectory to meet our 2029/30 destination

Our performance in 2022/23 was 6.44% unplanned outage as a percentage of peak capacity. In order to meet our destination of 3.13 by 2029/30, we would need to meet our turnaround plan[6] target of 3.13% in 2024/25. Given the ambitious improvement in our turnaround plan there is a risk we may not achieve this level in 2024/25.

We are proposing to reach the same performance in 2029/30 but through a straight-line projection from our current performance in 2022/23, which sets achievable targets and give us, a turnaround company, reasonable time to achieve the forecasted level of performance in 2029/30.

Figure 39: Unplanned outage trajectory to 2029/30 target and industry comparison



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Turnaround plan	9.2	7.2	6.4	4.4	3.1	3.1	3.1	3.1	3.1	3.1
UQ			0.9	1.0	1.0	0.9	0.9	0.9	0.8	0.7
Straight line target			6.4	5.9	5.5	5.0	4.5	4.1	3.6	3.1

We are proposing our year-on-year targets for AMP8 in line with this straight-line approach. We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.

18.6. Our long-term ambition

Our long-term ambition is to ensure a reliable supply of high-quality water for the future. Outage is one of the basics that customers expect us to manage in a planned and efficient manner. They also expect us to have a resilient operation that has capacity and a network that can react to unplanned outages. We have set a goal of reducing unplanned outage to 2% by 2050 This is aligned with our WRMP expectations to reduce overall outage to a level that supports our ability to deliver in a drought.

Table 96: Long term targets for unplanned outage

Unit: % of peak capacity	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	3.13	3.07	2.71	2.36	2.00
Performance from enhancement	0.18	0.24	0.60	0.95	1.31
Performance from base expenditure	3:31	3.31	3.31	3.31	3.31

Performance = Performance from base – performance from enhancement

Our analysis from historical data has shown that base allowances are insufficient to deliver improvements in unplanned outage leading to the major resilience works being undertaken, as set out in our Supply Resilience Enhancement case (four main surface water works upgrading programme). This work will only address the issues at these four works and we will need to carry out similar enhancement activity at our other main works.

In the future, we expect climate change to also impact our resilience through heat stress and localised flooding from storm activity. This is being started through our operational resilience enhancements and we expect further work will need to be done over the future AMPs as the actual impact starts to manifest.

18.7. Incentive rates

The incentive rate for unplanned outage at PR19 was £896k. This was derived from our PR19 customer research.

For PR24, Ofwat have set out the incentive rates it expects us to accept. For unplanned outage this is £1.509m with a marginal benefit sharing rate of 70% and a final incentive rate of £1.056m.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are proposing a cap and collar as this is an asset health metric. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on PCs related to asset health.

These are set below. For details on how these have been calculated please see our SRN57: Risk Technical Annex.

Table 97: Caps proposed for Unplanned outage

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
% Unplanned outage	0.00%	0.00%	0.00%	0.00%	0.00%

Table 98: Collars proposed for Unplanned outage

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
% Unplanned outage	9.45%	10.01%	10.41%	10.52%	10.36%

18.8. Summary

The table below summarises our overall position on unplanned outage.

Table 99: Summary of our position on unplanned outage

Unit: % of peak capacity	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	5.00	4.53	4.06	3.60	3.13
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	0.00%	0.00%	0.00%	0.00%	0.00%
Outperformance caps	9.45%	10.01%	10.41%	10.52%	10.36%
ODI incentive rate	We have used the Ofwat rate of £1.056m per percentage point of peak capacity				
Any other relevant information	We acknowledge that we should not receive outperformance payments unless we outperform our turnaround plan forecast.				

19. Sewer Collapses

This performance commitment measures failures in our below ground or infrastructure wastewater assets. It is measured as the number of sewer collapses that we have not proactively identified and causing a detrimental impact to our service to customers and the environment. It is reported in number of incidents and normalised by 1,000 km of sewers.

19.1. Customer views

Ensuring a reliable and continuous service of removing wastewater is first tier for our customers. The impact of wastewater entering the environment, the risk of flooding, blockages and pollutions are high on our customers priorities. Asset health improvements with less visibility to customers such as reducing sewer collapse have less traction with our customers.

Figure 40: Our customer views on wastewater infrastructure (including wastewater infrastructure)

Rank:	Priority 1								Priority 2					Priority 3				
Research source	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Southern								■										
Ofwat												■						
Others								■										

What our customers have told us:

"Climate change is going to affect us all. The weather system is changing. You have to have the capacity to protect it." Vulnerable customer

"Repairing and reinstalling the infrastructure is paramount to achieving all the other objectives….it must be fit for purpose and be able to deal with a changing climate and increased population." Household Customer

"They also need to focus on consumer habits and educate them on appropriate use e.g. don't flush wet wipes down the toilet. Prevention is much better than the cure." Household customer

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

19.2. Our performance forecast

We have forecasted a reduction in number of sewer collapse incidents from 246 in the 2025/26 to 230 in 2029/30 (7% reduction) and keep this level of performance up to 2049/50. Our customers support some ambition but are not prepared to pay for more stretching levels of performance in this area. We explain our rationale to reach these targets below.

Table 100: Our proposed targets for sewer collapses

Unit: number of incidents

Metric	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
Number of sewer collapses	246	242	238	234	230	230	230
Sewer collapses per 1,000 km of sewer	6.11	6.00	5.89	5.78	5.67	5.61	5.61

19.3. Build-up of our 2029/30 performance

The table below shows the build-up of our sewer collapses performance forecast for 2029/30 in number of sewer collapses.

Table 101: sewer collapses target build up

Unit: number of sewer collapses	Performance
PR19 performance target for 2024/25	222
Current forecast performance for 2024/25	250
Benefits from enhancement	0
Benefits from base expenditure	73
Natural rate of deterioration	53
Performance 2029/30	230
Performance in 2029/30 from base expenditure (i.e. without enhancement)	230

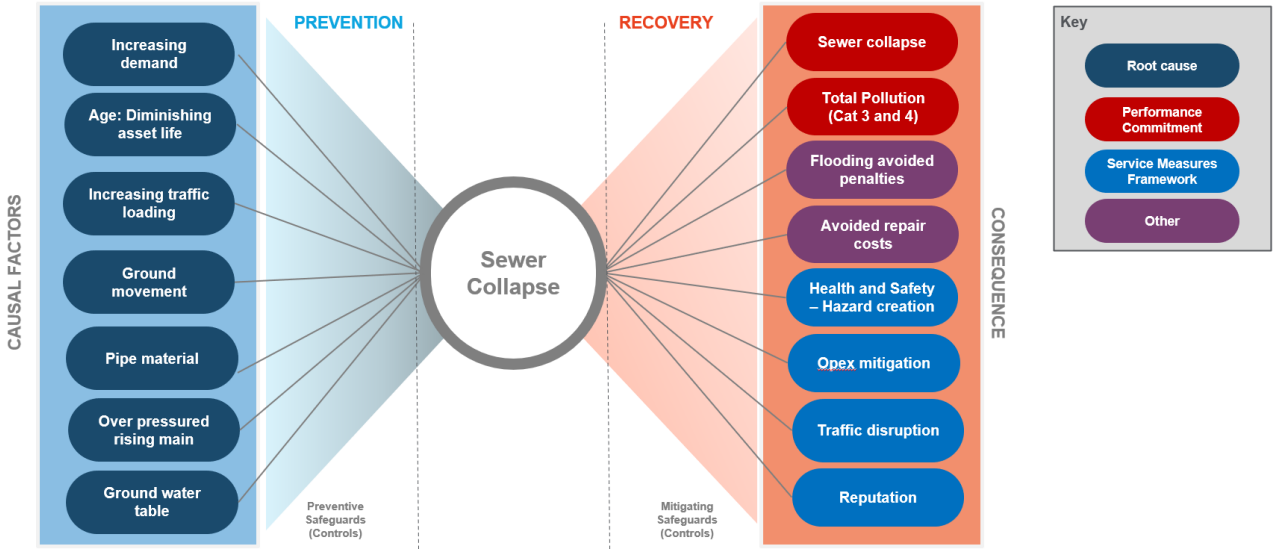
$Performance_{29/30} = Performance_{24/25}$ – benefits from enhancement – benefits from base + natural rate of deterioration

Performance in 2029/30 from base expenditure = $PCL_{29/30}$ + benefits from enhancement

19.3.1. Benefits from base

We have used our ‘bow tie’ framework below to link the interventions funded through base expenditure to performance risks and benefits.

Figure 41: Risk 'bow tie' framework for sewer collapses



Our asset manager experts have identified the following risk-reduction interventions in our base investment plan that address the causal factors of sewer collapses:

- Rising main replacement, including sewer surveillance;
- Sewer - CCTV Survey;
- Sewer critical A + B and non-critical C High risk– (Survey)
- Rising Main calming to reduce pressures in higher risk mains; and
- Sewer rehabilitation.

We have quantified the benefits from these base interventions at 73 incidents by running our deterioration model with and without these interventions. The results were then validated through workshops with experts.

The natural rate of deterioration of 53 incidents was calculated based on the benefits delivered by interventions defined as being required to maintain performance.

19.3.2. Benefits from enhancement

We have run expert workshops to identify the interventions in our PR24 enhancement programme with impacts on sewer collapses. We have also asked our experts whether benefits could confidently be quantified and attributed to individual enhancement activities. The table below summarises the results. We have assumed that there are no quantifiable sewer collapses reduction benefits from any enhancement activities in our PR24 plan.

Table 102: PR24 enhancement activities with impacts on sewer collapses

Enhancement activities	Expert view on benefits quantification
Operational resilience (infiltration, raising mains, flooding)	These enhancement activities indirectly contribute to reducing sewer collapse incidents. However, such benefits are difficult to disentangle from the benefits from base expenditure. We have therefore assumed that these investments have no quantifiable sewer collapse benefits.

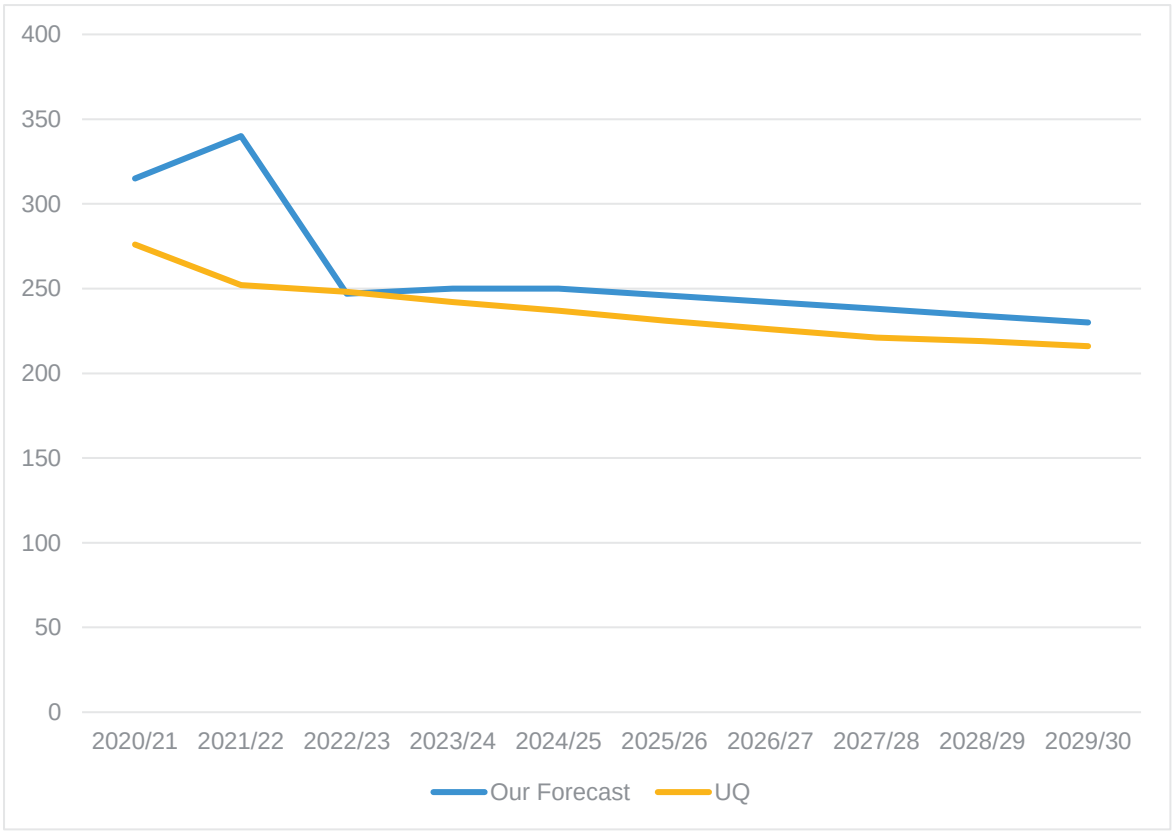
19.4. Industry performance forecasts

We have forecast the industry upper quartile performance by considering historic performance and expected improvements from each companies' business plan and using a logarithmic time trend forecast. For sewer collapses in 2029/3,0 we have forecasted the industry upper quartile as 216 sewer collapses, corresponding to 5.4 sewer collapses per 1,000 km of sewer.

19.5. Our current performance and our trajectory to meet our 2029/30 destination

We have forecasted our performance to get to 230 incidents by 2029/30. This is an 8% reduction from our turnaround plan and is derived from our DWMP.

Figure 42: Sewer collapse SWS and Industry Performance



19.6. Our long-term ambition

Our long-term ambition is to maintain our sewers in a similar condition to the current condition over the majority of our network. Our DWMP had a specific planning objective that focussed on sewer collapse. For this iteration of DWMP it was only able to assess the current condition and priority risk areas. It was not able to forecast the interventions needed out to 2050 under the different uncertainty areas expected in the LTDS. As such we have forecast a target that maintains our position from the end of AMP8.

Table 103: Long term targets for sewer collapses

Unit: number of sewer collapses	2029-30	2034-35	2039-40	2044-45	2049-50
Performance	230	230	230	230	230
Performance from enhancement	0	0	0	0	0
Performance from base expenditure	230	230	230	230	230

Performance = Performance from base – performance from enhancement

The DWMP highlighted a number of key areas in our region where we need to focus. These are detailed in our BRAVA maps[7]. We consider that we can maintain the current condition of our sewers from base expenditure without the need for major enhancement investment. For more detail on this refer to our DWMP.

19.7. Incentive rates

The incentive rate for sewer collapses at PR19 was £1.843m. This was derived from our PR19 customer research.

For PR24, Ofwat have set out the incentive rates it expects us to accept. For sewer collapses this is £1.236m with a marginal benefit sharing rate of 70% and a final incentive rate of £0.865m per sewer collapse per 1,000km of sewers.

We have used this incentive rate and marginal benefit sharing rate in our data tables.

We are proposing a cap and collar as this is an asset health metric. Ofwat's Final Methodology states that it would make a targeted use of caps and collars on PCs related to asset health

These are set below. For details on how these have been calculated please see our SRN57: Risk Technical Annex.

Table 104: Caps proposed for sewer collapses

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
Collapses per 1,000km sewers	0.00	0.00	0.00	0.00	0.00

Table 105: Collars proposed for sewer collapses

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
Collapses per 1,000km sewers	19.62	19.68	19.86	20.61	20.45

19.8. Summary

The table below summarises our overall position on sewer collapses.

Table 106: Summary of our position on sewer collapses

Unit: incidents per 1,000 km of sewers	2025/26	2026/27	2027/28	2028/29	2029/30
Performance target	6.11	6.00	5.89	5.78	5.67
Underperformance deadband	n/a	n/a	n/a	n/a	n/a
Underperformance collars	19.62	19.68	19.86	20.61	20.45
Outperformance caps	0.00	0.00	0.00	0.00	0.00
ODI incentive rate	We have used the Ofwat rate of £0.865m per sewer collapse per1,000 km of sewers				

20. Abstraction Incentive Mechanism

20.1. Our reasons

We operate in a water stressed area and we rely on some environmentally sensitive water abstraction sites, including chalk streams. This is a local circumstance that does not apply to most other companies and, therefore, a bespoke performance commitment is required to provide incentives to preserve our unique chalk stream ecosystems.

In April 2023, we proposed to Ofwat an abstraction incentive mechanism (AIM) as a bespoke performance commitment. This would incentivise us to reduce water abstraction from one of our most environmentally sensitive sites when river flows or levels are below an agreed trigger point.

Our proposal is a continuation of our PR19 bespoke AIM for the River Itchen at the Otterbourne and Twyford abstraction sites.

Our reasons for proposing the AIM again for PR24 against the criteria Ofwat set in the PR24 Final Methodology are as follows:

- **Measuring a key outcome important for PR24 and future periods.** The key outcome of the proposed AIM is the environment al benefit from reduction of abstraction of our environmentally sensitive River Itchen chalk stream.
- **Focused on the environment**. Our AIM is focused on the improvement of the local environment through the protection of the River Itchen habitat and ecology at and downstream of our Otterbourne site. This provides protection to this Special Area of Conservation over and above the protection provided by the current abstraction licences.
- **Addressing a company specific issue**. The River Itchen where the AIM performance commitment is focused is an internationally recognised chalk stream habitat. These are unique local ecosystems and need to be protected.
- **Sources of information which can be used to set a PC level that reflects stretching performance for an efficient company with reasonable confidence**. We have set the baseline as the license abstraction volume against which our performance can be measured, as per the current (PR19) AIM performance commitment but, we propose that the part of the abstraction that is immediately discharged to the Nightingale Leat should be excluded from the AIM Scheme abstraction as the Leat flows to the River Itchen, so it is counter-productive to reduce that component of the abstraction.

20.2. Customer views

Our customers have told us that water abstraction is a first tier for them as part of ensuring a reliable supply of fresh water for the future. Our customers support protecting the environment from reducing reliance on abstraction by developing new sources. They first want us to protect what we have today. Second, they want us to develop new sources that are scalable for future needs. They expend a blend of solutions to address root cause and build greater resilience.

Figure 43: Our customer views on future water supplies and water abstraction

Rank:	Priority 1								Priority 2					Priority 3				
Research source	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Southern						■												
Ofwat				■														
Others							■											

What our customers have told us:

"Emphasise sustainability at the heart of the priorities and future proof the methods which Southern Water will use." Future Customer

"The environment is of huge importance and perhaps overshadowed by recent global events; sustainability needs to be at the core of decisions made." Household Customer Panel

Note: Appendix 1 provides additional information on our approach and the quality of our customer research. Our SRN03: Customer Acceptability Chapter provides further details on our customer research.

20.3. Ofwat feedback and our response

Ofwat told us on 30 June 2023 that the proposed AIM was potentially suitable as a bespoke PC, subjected to addressing some issues raised in the feedback letter that Ofwat sent to us. The table below lists the recommendations we received from Ofwat and explains how we have addressed these in our proposed revised PC definition.

Table 107: Ofwat feedback on AIM proposal and our responses

Definition area	Ofwat feedback	Our response
Detailed definition	Remove the reference to "discussion with Ofwat" and refer to the change control process instead.	Replaced reference to "discuss with Ofwat" with reference to the change control process.
Additional detail and measurement units	Include the following additional information for the trigger and baselines: • the data sources for abstraction data; • the average daily maximum abstraction data; and • how any missing data will be handled.	Added the data sources and explanation of how missing data will be handled.
Specific exclusions	Remove the drought exclusions	We propose to keep the drought exclusion but only such that outperformance payments do not apply when: • Formal water restrictions (TUB and/or NEUB) on customers are in place; or • An abstraction drought order is in place; • An emergency drought order is in place.

Definition area	Ofwat feedback	Our response
		Otherwise, the outperformance can be claimed if achieved.
Reporting and assurance	Include third party assurance of the data with the resulting report(s) being provided on an annual basis alongside the Annual Performance Report submission. Provide also contextual information around AIM performance as part of our reporting.	Our abstraction data goes through a rigorous process of meter verification and data quality assurance in order to provide data reported to the EA. We apply these same standards in quality assurance of the AIM data.
Overall observations	Consider how it can provide Ofwat and the Environment Agency with confidence and assurance with regard to the setting and reporting of this performance commitment	The month of September remains the appropriate definition for our scheme and the incentive performance thresholds should remain the same, as they have been challenging over the AMP7 period. The existing thresholds are expected to remain challenging over the AMP8 period. At present an environmental benefit is assumed to result from our AIM scheme because it targets achieving an abstraction for the month of September that is significantly below the abstraction licence monthly limit for September. This is itself a new licence limit set only since March 2019 and representing the Environment Agency view of sustainable abstraction level relative to the sensitive (Special Area of Conservation) environment of River Itchen downstream of the abstraction. Reporting the AIM performance is straightforward as it is based on assured abstraction data.
	Undertake a study to show how the environmental impact could be measured using credible data, the likely timescale of the impacts and how any changes could be attributed to AIM.	We have recently committed to develop a hydrodynamic and water quality model of the lower River Itchen (downstream of our river abstraction), the lower River Test and Southampton Water, the receiving water body for both the rivers. We aim to have this model established within 2024. It will provide a valuable new tool for assessing the environmental impacts of abstraction and will allow us to quantify the benefits of alternative abstraction levels for future licensing. It will also allow us to assess and quantify the benefits of the AIM scheme. Since 2020, we have installed 11 real time water quality stations on the River Itchen and intend to install two more in the tidal reach this year. We are also working collaboratively with ABB Ports Authority and will have access to tide modelling they undertake and water quality data that they collect

Definition area	Ofwat feedback	Our response
		for Southern Water. These workstreams provide a significant data pool for the modelling. Consultants have completed a scoping review for the modelling application, and we have a contract in place, commenced with surveyors gathering river channel and estuary bathymetric information for the model. We aim to procure and commence the model development within 2023/24.
	We recommend that the definition is stated in clearer terms	We have reviewed the documented definition of our scheme to make it clearer where possible. The revised definition is set out in the next section of this chapter.
	Stakeholders have previously commented that AIM can be difficult to engage with. We expect you to consider how to best communicate with stakeholders to increase transparency.	We have communicated our AIM scheme previously to the EA, NE, and Hampshire stakeholders, achieving acknowledgement but, little detailed feedback. We intend, to increase stakeholder engagement around the modelling commitment outlined above. The model will have a formal Steering Group with Regulators and key project partners. This Group will agree an engagement and communication plan for the modelling work. This can also be used for wider communication of the AIM Scheme to stakeholders.

20.4. Revised AIM performance commitment and parameters

Detailed definition of performance measure

The abstraction incentive mechanism (AIM) reduces abstraction of water at environmentally sensitive sites when flow or levels are below an agreed point otherwise known as a trigger. The trigger point is usually based on a level or flow, beyond which the AIM is considered to be “switched on”. This trigger will usually be related to the point at which damage is caused and is intended to prevent this from happening or ameliorate the negative impacts.
The company has included one site for AIM for the period 2025-30. This is the River Itchen at Otterbourne as influenced by the aggregate abstraction of three abstraction licences: Otterbourne surface water licence; Otterbourne groundwater licence; and, Twyford groundwater licence.

Triger point

The trigger point for this site is the month of September as this is when impacts on the environment are of most concern according to the abstraction licence limits. The trigger level is the current aggregate September abstraction limit for the 2025-30 period of 2,280 Ml from the three abstraction licences.

The three licences are due to expire in 2025. The company will apply for renewal and has no reason to believe the September monthly limit will change in the renewed licences. However, if the licences change in any way affecting the AIM commitment, it will be reviewed in accordance with Ofwat change control process as outlined in section 2.5 of the PR24 final methodology.

Target

The company's stated target is to outperform the abstraction limit (trigger point) of 61 Ml/d by 15 Ml/d. This target excludes groundwater abstraction that is immediately discharged back to the River Itchen drainage system (i.e. discharge to Nightingale Leat according to the Otterbourne groundwater licence).

The abstraction incentive mechanism is defined in the reporting guidance – Guidelines on the abstraction incentive mechanism, published in 2016.

Additional details on measurement units

AIM performance is measured in megalitres (Ml) and can also be measured in Megalitres per day (Ml/d).

Performance is equal to the average daily abstraction during the period when flows are at or below the trigger point minus the baseline, multiplied by the length of the period when flows are at or below the trigger point.

> *AIM performance in Ml = (average daily abstraction during period when flows are at or below the trigger threshold –baseline) * length of period when flows are at or below the trigger threshold.*

The baseline is equal to the average daily abstraction during the period when flows are at or below the trigger threshold. For the AIM PC, the baseline is set at 15 Ml/d below the trigger level of 2280 Ml for the month of September.

For example, with an AIM baseline of 5 Ml/day, if the company abstracts an average of 4 Ml/day from the abstraction site when past the trigger point, then, the company has an improved performance relative to the baseline of (4 Ml/day minus 5 Ml/day) = -1 Ml/d. A negative number signifies an improved performance as average abstraction is less than the baseline.

The data source for abstraction data is the telemetered data from the abstraction meters that fulfil our compliance and reporting requirements for our Otterbourne surface water, Otterbourne groundwater and Twyford groundwater abstraction licences.

The daily abstraction data will be determined according to the measurements by the verified telemetered data from the meters referenced above.

Missing data will be replaced by infill from previous and subsequent data by meter or, by reference to valid secondary meters. Any infill and assumptions are always detailed in our reporting.

Specific exclusions

Exclusions apply as defined in the reporting guidance.

Abstraction under any of the specific drought measures listed below are excluded and will not contribute to the final score:

1. Ordinary drought orders, as provided for in sections 73 to 81 and Schedules 8 and 9 of the Water Resources Act 1991 and detailed in the Drought Direction 2011; and
2. Emergency Drought Orders as defined in the Water Resources Act 1991.
3. Formal water use restrictions become imposed on customers as part of drought management, e.g. Temporary Use Ban.

Outperformance payments will not be permitted in any year where the company has used the above drought and Temporary Use Ban measures.

Reporting and assurance

The company shall maintain a methodology statement, which shall be used as a decision support tool for this performance commitment. It should record any changes in approach compared to previous years and will be reviewed as part of the company's assurance process.

The company shall ensure that its outcome delivery incentive payments only relate to real performance changes and not definitional, methodological or data changes in performance commitments.

The accuracy of the data will be assured by Southern Water's application of its abstraction data assurance procedures. A third party will review the data and assurance for the AIM PC with the resulting report(s) being provided on an annual basis alongside the Annual Performance Report submission. The annual reporting will also provide contextual information around AIM performance.

20.5. Our performance forecast

We propose to keep the target flat at 15Ml/d as in AMP7.

Table 108: Our proposed targets for AIM

Unit: Ml/d

2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2049/50
-15	-15	-15	-15	-15	-15	-15

20.6. Incentive rates

The incentive rate for PR19 was £634k for underperformance and £511k for outperformance (2017/18 prices). This was derived from our PR19 customer research.

For PR24, we propose the same incentive rate as the outperformance incentive rate set out by Ofwat at PR19 but adjusted to 2022/23 prices using CPIH. This is £861k with a cost sharing rate of 70% and a final incentive rate of £603k.

We are also proposing to keep the cap and collar for AIM as in PR19 and set out in the tables below. Note, rounding applies. For example, an abstraction of 14.500 Ml/d to 15.499 Ml/d counts as "15" Ml/d.

Table 109: Caps proposed for AIM

Cap	2025/26	2026/27	2027/28	2028/29	2029/30
AIM (Ml/d)	-16	-16	-16	-16	-16

Table 110: Collars proposed for AIM

Collars	2025/26	2026/27	2027/28	2028/29	2029/30
AIM (Ml/d)	-14	-14	-14	-14	-14

List of references

1 Southern Water, 'Annual Performance Report 2022-23', Summer 2023 (link)
2 Net gain Consultation proposals (defra.gov.uk)
3 Savills | What does biodiversity net gain mean for residential development?
4 Q & A for land managers on Biodiversity Net Gain (BNG) - Strutt & Parker (struttandparker.com)
5 Biodiversity Net Gain market – how will it work in practice? - Farmers Weekly (fwi.co.uk)
6 Southern Water, 'Turnaround Plan 2023-24, April 2023 (link)
7 PO3-sewer-collapse-2020
8 PO5 storm overflow

Appendix 1: Our Approach to Customer Research

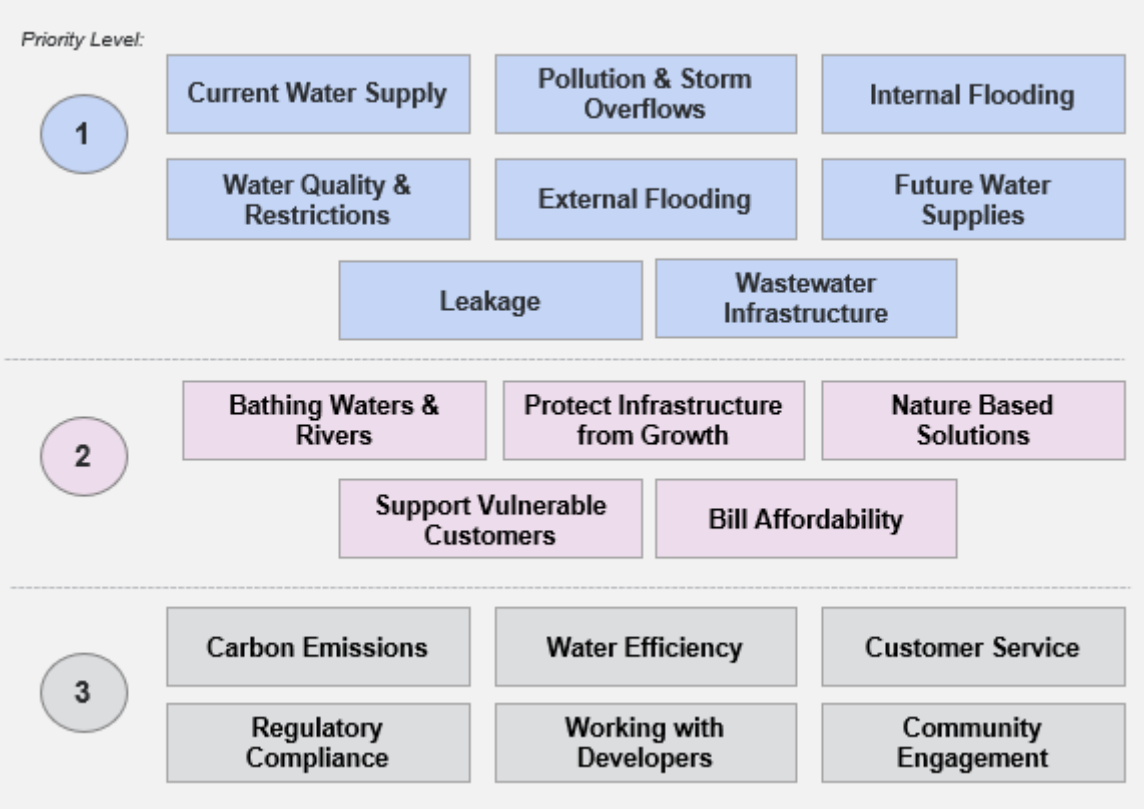
Outcomes from water companies can be confusing to customers, with most priorities not being mutually exclusive. So, our priorities and the definitions used were developed by customers. Our household customer panel explored water company and industry materials (e.g. Ofwat priorities) and spoke with their families / friends to develop their priorities. Fresh deliberative insight with households, businesses, future, vulnerable and stakeholders then combined results to create our customer priority list.

We used a robust and independently assured triangulation approach from over 30 unique data sources. This included: research across our range of audiences; customers data (such as contacts, complaints and environmental information requests); our performance data compared to previous commitments and other companies; reports from the industry (Ofwat, CCW, Water UK) and other water companies.

Expert external assurance rated our engagement as having good coverage across the topics. No topics had any major gaps. Where some priorities have moderate coverage in the assessment, this was because we used external sources such as industry reports from Ofwat, CCW and the Institute of Customer Service to support our research.

We used customers to develop priorities. The overall results are shown in below.

Figure 44:Overview of our customers priorities



The table below summarises the key insights from our research and the view from our expert external assurance panel.

Table 111: Summary of customer research and external assurance panel

Priority	Overview	Summary of feedback	Depth of insight	Key references include
Current Water Supplies	Ensuring a reliable and continuous supply of wholesome clean water	**Priority level 1.** Customers recognise that the most important and fundamental service is the provision of clean, wholesome and safe drinking water. Other than some local issues, most feel that resilience for water supplies must be good – so we generally see customers wanting service levels to maintain rather than improve. Performance in 2022-23 places greater emphasis on improvement. For those impacted by a loss of supply for a significant period the impact is disruptive and can be sever, especially for vulnerable audiences and businesses that can't open. All agree, failure is not acceptable.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Four Site Strategy • CCW Customer Preferences • Social Media Listening • Incident Management • Water Community • WRMP Engagement
Pollution	Preventing wastewater polluting or spilling into the environment through rivers or seas	**Priority level 1 and top area to improve and see ambition.** Customers tend to group the impacts of pollution and use of storm overflows into wastewater entering the environment. Neither are acceptable to customers. Informed customers want the environment prioritised in reducing impacts. This is the top areas customers want to see improved, especially important is our seas to our large coastal communities' wellbeing, leisure and tourism. Stakeholders and our customer groups highlight that without addressing storm overflows and pollution performance is a condition to improving our reputation and rebuilding trust.	Strong	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Storm Overflows Longitudinal Research • Environmental Ambition Research • Regional Community Research • Social Media Listening • Media analysis • Investment Communication Framework • Stakeholder regional workshops • Water Futures quant • Customer Engagement Events
Bill affordability	Ensuring our bills are as low and stable as they can be	**Priority level 2, although especially important to lower income households**. When customers are informed, they are prepared to fund environmental infrastructure. The key concern is that it needs to be affordable to everyone, and that vulnerable customers can afford to pay their bill. Whilst the water bill is not seen as 'expensive', all people are feeling stretched in every direction with the cost of living, and customers are feeling the pain. Customers want bills to remain as stable as they can with support for vulnerable customers.	Strong	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Investment Communication Framework • Ofwat Cost of Living Tracking • Stakeholder regional workshops • Water Futures quant • Affordability Deep Dive • Priority Services Register (PSR) Tracking & Benchmarking
Water quality & restrictions	Supply of water to your home or business without any interruption, bad taste, odour or appearance	**Priority level 1**. Perceptions of water quality are high, with most customers satisfied. However, where customers arise, they are on taste, appearance and hardness, rather than safety. Customers want to ensure we maintain high quality water. Customers are generally accepting of restrictions such as temporary usage bans. Acceptance of the restrictions are driven by the perception of the severity of the situation (i.e. drought) and company's management of their supplies. Major restrictions are more of a concern. COVID has helped customers understand the need for restrictions due to extreme events, and place greater emphasis on the need for planning. Businesses want to understand better how they could be impacted so they can plan extra resilience.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Four Site Strategy • CCW Customer Preferences • Social Media Listening • Incident Management • Water Community • WRMP Engagement • Businesses Drought Plan • Collaborative Testing on • Drought Plan with Portsmouth Water
Leakage	Reducing the overall amount of fresh water that is lost through leaks and fixing new leaks quickly	**Priority level 1 and top area to improve and see ambition.** Customers want leakage to improve. It has consistently been a top priority for the industry. It is seen as not managing / looking after what you already have – and is 'wasteful'. Any volume of leakage is met with challenge by customers, especially when asking customers to reduce their use. Southern Water current performance to the industry is surprising to customers. They want Southern Water to respond quickly and us innovation and technology to help accelerate plans.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • CCW Customer Preferences • Social Media Listening • Water Community • WRMP Engagement • Water Resource South East (WRSE) Collaborative Research • Repositioning Research

Priority	Overview	Summary of feedback	Depth of insight	Key references include
				• Investment Communication Framework
Internal flooding	Ensuring sewage does not flood homes or businesses	**Priority level 1.** All understand the devastation that internal sewer flooding can have, linking the causes to an out of date network and storm overflows but also understanding the role customers play in clogging up drainage in the home. Customers sympathise and appreciate the devastation internal sewer flooding can have. Any flooding feels like too many occurrences. Prevention is felt to be part of a wastewater providers role. Disruption and the health impact feel much more significant with internal than external sewer flooding. The relatively low percentage of customers impacted can undermine the distress it causes.	Moderate	• Acceptability Testing & Pilots • CCW Customer Preferences • Household, Future, Business and Vulnerable Panels. • Water Futures quant • Customer Interactions and complaints analysis • Spontaneous Priorities
External flooding	Ensuring sewage does not flood external property	**Priority level 1**. The impact of climate change and wet weather means that external sewer flooding feels a little more normalised, we need to work harder to shock. An increase in wet weather means external flooding is felt to be more frequent, as such customers expected figures shown here to be higher.	Good	• Acceptability Testing & Pilots • CCW Customer Preferences • Household, Future, Business and Vulnerable Panels. • Water Futures quant • Environmental Ambition Research • Customer Interactions and complaints analysis
Future water supplies	Ensuring a reliable supply of fresh water for the future	**Priority level 1, especially to ensure future generations are protected.** Awareness of water scarcity is low, with most thinking water is abundant. For those more informed, the importance of protecting future supplies is needed – for a reliable and continuous supply of wholesome and safe water. Customers support protecting the environment from reducing reliance on abstraction by developing new sources. They first want us to protect what we have today (e.g. leakage / water efficiency). Second, they want us to develop new sources that are scalable for future needs. They expend a blend of solutions to address root cause and build greater resilience. Customers want the right long term solution, that offers best value rather than short term fixes.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Water Hub • Water Community • WRMP Engagement • WRSE Collaborative Research • Community Events • Water for Life Hampshire Programme
Nature Based Solutions	Improve the local environment and habitats by using more 'nature-based solutions'	**Priority level 2**. Awareness of natural capital and nature based solutions can be low to less informed customers. However, once understood it is seen as the right first choice option – with most agreeing that a twin-track approach with engineering solutions is needed. Future customers especially see nature as the primary lead and would not support anything that hasn't explored the natural options first, whereas many businesses tend to favour certainty / stability.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Storm Overflows Longitudinal Research • Environmental Ambition Research • Nature Based Solutions Deep Dive • Stakeholder regional workshops • Water Futures quant • Youth Customer Engagement Event
Bathing waters & rivers	Ensuring that the quality of rivers, beaches and bathing waters	**Priority level 2, our customers are connected to the sea.** Many of our population centres are coastal and customers feel connected to the sea – which is unique to Southern Water. The environmental, recreational and tourism impacts of the sea are felt across the region – which makes our bathing waters a topic of conversation for customers. In recent years sea swimming, paddle boarding and other recreational uses have further increased our customers connection to the sea. Protecting rivers from environmental harm are equally important, but less frequently referred to by Southern Water customers due to the proximity and use of the beaches and seas.	Moderate	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Storm Overflows Longitudinal Research • Environmental Ambition Research • Water quality and Wellbeing • Stakeholder regional workshops • Water Futures quant • CCW River Awareness & Perception • Social Listening • Media analysis

Priority	Overview	Summary of feedback	Depth of insight	Key references include
Wastewater infrastructure	Ensuring a reliable and continuous service of removing wastewater	**Priority level 1**. Storm overflows and pollution incidents are top of mind for customers and stakeholders. However, overall infrastructure for wastewater is often not top of mind. Customers want to see the same services for future generation as there are today. The impact of wastewater entering the environment, the risk of flooding, blockages and pollutions all place greater importance on the infrastructure.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Environmental Ambition Research • Regional Community Research • Social Media Listening • Investment Communication Framework • Stakeholder regional workshops • Water Futures quant • Long term strategy • DWMP Engagement
Support vulnerable customers	Providing support and assistance to vulnerable customers	**Priority level 2.** The pandemic and the cost of living crisis has increased the importance of supporting vulnerable customers. Being available and with tailored services, tariffs and wider support is fundamental for customers who have both short term and long term vulnerabilities. When customers look at possible bill increases for investment, a primary consideration is ensuing that those that need it are supported. During loss of supply events we see the importance of wider support to incidents and protecting vulnerable customers.	Moderate	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Stakeholder regional workshops • Water Futures quant • Affordability Deep Dive • PSR Tracking • Vulnerability Benchmarking • CCW Customer Preferences • Spontaneous Priorities
Carbon emissions	Minimising and reducing carbon emissions in how we operate and making the most of renewable energy	**Priority level 3, although higher for future customers.** The environment is important with customers witnessing climate change around them. Net Zero is a familiar and positive term to customers. However, it is not fully understood. It's generally felt to be something that companies and governments and companies need to work towards. Initiatives, such as electric vehicles or reducing emissions, are felt to be part of the day the day and will be met by legislation and the natural adoption of ways of working. As a result, we seen limited support for any increase in funding through bills to support enhancement of net zero. Customers feel they already pay through taxes and behaviour change programmes. In trade-off exercises they place greater emphasis on issues they see the responsibility lie solely with water companies, such as storm overflows and resilience.	Moderate	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Environmental Ambition Research • Stakeholder regional workshops • Water Futures quant • Youth Customer Engagement Event • Long Term Strategy Engagement
Regulatory compliance	Ensure Southern Water deliver on the conditions set by regulators	**Priority level 3**. Whilst important to ensure Southern Water delivers on the conditions to regulators, this was an area of lower interest to our customers. We see when looking at specific measurement that there is an expectation this will happen and thus not a focus needed for customers.	N/A	• Household, Future, Business and Vulnerable Panels. • Spontaneous Priorities
Water efficiency	Providing information, support and help customers to reduce their own water consumption	**Priority level 3.** It is widely felt by customers that the balance is wrong, and the focus of behaviour change is placed too much on them – rather than the industry leading. However, as people get more informed, they understand the collaboration needed. They do see there is a big role they can play. For example, demand reduction on per capita consumption compared to leakage targets. With water efficiency, they still seems less focus placed on government intervention, working with new homes and new legislation.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Social Media Listening • Water Community • WRMP Engagement • Behaviour change (BIT) with SEW • Collaborative Garden Usage • T100 Campaign Tracking • Smart Metering Research
Protect infrastructure from growth	Protecting the water and waste infrastructure to account for a growth in the number	**Priority level 2, although a top priority for stakeholders.** The impacts of population growth are well understood and customers want to see extra resilience and planning of infrastructure to keep up with demand. Most regional communities feel they are trying to protect their way of life and all local infrastructure (including water and wastewater) from new homes being built.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Regional Community Research • Stakeholder regional workshops

Priority	Overview	Summary of feedback	Depth of insight	Key references include
	of new homes			• Stakeholder Business as Usual (BaU) Engagement • Long term strategy • DWMP Engagement
Customer service	Providing the best overall customer service	**Priority level 3.** Customer service isn't always top of mind – the water industry can invisible to some customers, until something goes wrong. Customers want a consistent level of good service. They want it to be personal, easy, tailored, relevant, reliable and for us to do what we say we'll do. They want to be able to engage through a range of channels that depend on their need and type of issue. When things do go wrong (e.g. loss of supply or flooding) customers expect great service to resolve the issue quickly, properly and to be kept informed.	Moderate	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • UK Customer Satisfaction Index (UKCSI) Reporting and Recommendations • C-Mex Analysis • Interaction analysis • Complaints analysis • Social Media Listening
Working with developers	Ensuring new housing and developments are built sustainably	**Priority level 3, but critical to several non-household groups.** Household customers recognise the importance of working with developers. Non-household developers, NAVs and SLPs place this as a top priority. They need easy and tailored service and to collaborate in their activity.	Good	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • NHH Deep Dives with Developers, SLP's and Navs • Stakeholder BaU • Regional Stakeholder Workshops
Community Engagement	Engaging and working with local communities to support local initiatives / issues	**Priority level 3, and an area customers want to hear more from.** Challenge from informed customers and stakeholders recognise that Southern Water needs better engagement to rebuild trust and reputation. Following on from the pandemic, customers do feel a stronger sense of local community, and the context and plan outlined by. Customers see Southern Water very much as providing an essential service to their community which is the priority –getting the basics right first. If anything, customers feel that Southern Water should be shouting about what they already do in the community more.	Moderate	• Acceptability Testing • Household, Future, Business and Vulnerable Panels. • Community PR24 Events • Regional Stakeholder Workshops • Regional Community Research

Some priorities scored a rating of moderate in our assurance. We asked our assurers to review the main parts of Southern Water direct research. However, in our analysis we also used:

- Internal flooding – Key parts from our Acceptability testing and use of CCW customer preference research
- Bathing waters & rivers – CCW customer research on River Awareness and perceptions of river water quality, as well as social listening into bathing waters.
- Support vulnerable customers – Benchmarking of support for vulnerable audiences, profiles of demographics, recommendations from stakeholder groups and CCW research.
- Carbon emissions – In-depth analysis through our environmental ambition research identified the key responsibilities felt to lie cross multiple areas, especially government.
- Regulatory compliance – In testing, whilst our customers felt this an important priority, they felt it was the responsibility of regulators to manage.
- Customer service – In addition to research we looked at contact, complaint, social media, C-Mex reporting (from Ofwat), CCW research and expertise from the institute of customer service.
- Community Engagement – We engaged over directly with communities to understand their issues.