

# SRN59 Past Performance (PR19 Reconciliation Mechanisms) Technical Annex

2<sup>nd</sup> October 2023  
Version 1.0



from  
**Southern  
Water** 

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# 1. Introduction

## 1.1. Objective

This technical annex explains:

- Our performance over AMP7, i.e., how we have delivered our AMP7 programme
- The outputs of all our end-of-period incentive mechanisms
- Our outcome delivery incentive (ODIs) performance in AMP7
- A representation for reduced ODIs in Long-term supply demand and Per Capita consumption

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

Data tables	OUT1	Overall outcome performance
	OUT6	Summary information on outcome delivery incentive payments
	OUT8	PR19 Outcome performance summary
	PD11	RCV midnight adjustments
	PD12	Price Review 2019 (PR19) reconciliation adjustment summary
Chapters	SRN04: Costs and outcomes approach	
	SRN05: Wholesale water (Costs and Outcomes)	
Annex	SRN06: Wholesale wastewater (Costs and Outcomes)	
	SRN09: Deliverability	
	SRN56: Deliverability	

## 2. Our Performance over AMP7

AMP7 has been a challenging period for Southern Water and the water industry with an unprecedented pandemic of COVID-19, the impact of severe and exceptional weather events in multiple areas across our region, and significant events such as the mains failure on the Isle of Sheppey. Further to this, the water industry has been under severe public scrutiny over the performance of our storm overflows. We have stepped up to these issues with both being an upper quartile performance for average spills in storm overflows and one of the lowest per capita consumptions in the industry.

We now have plans in place to make a marked improvement in key areas as set out in our turnaround plan. Our long-term plans are ambitious, and they need to meet the challenges posed by climate change and rapid population growth. In our turnaround plan, we have set our targets for year 4 and 5 of AMP7, to better meet customer expectations and to provide a glidepath for improving performance in AMP8.

Since 2020, in our water business, we have:

- Increased the number of people finding and fixing leaks by more than 20% and started using technology like drones and satellite imagery to find and fix around 500 leaks a week.
- Carried out 19,416 water saving visits to help customers save water.
- Collaboratively developed the first regional plan for water resources, the Water Resources South East.
- Connected 26,567 new properties to our water network.
- Started work on a two-year pilot project in Kent to replace old water mains containing lead, including giving customers information and advice to find and replace lead pipes in their homes.

Since 2020, in our wastewater business, we have:

- Installed nearly 24,000 sewer level monitors to digitalise our network and enable us to use machine learning to identify problems before they happen.
- Created a new proactive control centre to prioritise emerging issues, acting on intelligence from our sewers and pumping stations rather than waiting for events to happen.
- Started using our annual Pollution Incident Reduction Plan (PIRPs) to find and fix the root causes of problems.
- Implemented our Cleaner Seas and Rivers Task force to start reducing storm overflow spills and pilot nature-based solutions to inform our storm overflow plans.
- Delivered 864 WINEP schemes and investigations to date including:
  - seven water quality schemes last year, improving water quality in 20.2km river – in addition to the 102.7km we improved in 2021 / 22;
  - installing new monitors on 31 storm overflows – increasing our coverage to 98.6% of our combined sewer overflows and keeping us on track to have 100% coverage by December 2023; and
  - 392 site-specific investigations with our regulators to target future investment – including schemes in our next WINEP8.
- Connected 45,165 new homes and businesses to our wastewater network.

- delivered major rising main refurbishments at Lancing, Hastings and Margate to address repeat bursts.
- Published our first Drainage and Wastewater Management (DWMP) plan and used our findings to inform our Long-Term Delivery Strategy (LTDS) and business plan

Reflecting on the delivery of our PR19 business plan, we have identified gaps and put corrective measures in place to improve our performance, as evidenced in our AMP7 turnaround plans. We have reflected on the strength and completeness of the measures that we currently have in place against each of the four key deliverability requirements as explained further in SRN09: Deliverability and SRN56: Deliverability Technical Annex.

### 3. Our PR19 Reconciliation Models

The AMP7 regulatory framework had seven in-period reconciliation models and 12 end-of-period incentive models. Each of these models are overly complex. The flow of calculations are difficult to follow and it is difficult to understand how the overall outputs are derived. Further, several inputs are derived from a number in the PR19 final determination that could have been pre-populated from Ofwat prior to publication. This has significant regulatory burden on the industry. In future, we would encourage Ofwat to limit the amount of these mechanisms and where they are still part of the framework, to have them pre-populated with final determination inputs and for each input cell to have a column next to it which prescribes the exact location where the input can be found.

We have completed each end-of-period reconciliation model as per the PR19 reconciliation rulebook. We have also attached the ODI performance model for 2023-24 and 2024-25 and the PR24 RCV and revenue feeder models.

The table below summarises the results of our end of period reconciliation models.

**Table 1: Our End-of-Period Reconciliations (2022/23 prices)**

	Water		Wastewater		Retail	Total	
	RCV (£m)	Revenue (£m)	RCV (£m)	Revenue (£m)	Revenue (£m)	RCV (£m)	Revenue (£m)
Revenue forecasting incentive model		2.546		-7.219		0	-4.673
Bioresources reconciliation model				-2.426		0	-2.426
Residential retail revenue reconciliation model					-6.329	0	0
PR19 Water trading incentive model		0.349				0	0.349
Developer services model		-0.703		-6.054		0	-6.757
Cost of new debt reconciliation model		4.794		15.771		0	20.565

	Water		Wastewater		Retail	Total	
	RCV (£m)	Revenue (£m)	RCV (£m)	Revenue (£m)	Revenue (£m)	RCV (£m)	Revenue (£m)
Gearing outperformance sharing mechanism		1.822		3.239		0	5.061
Cost reconciliation model	109.915	93.704	142.711	100.729		252.626	194.433
Tax reconciliation		0		0		0	0
Land sales			-0.001			-0.001	0
RPI-CPIH wedge true up model	30.717	1.617	103.067	5.503		133.784	7.12
Strategic regional water resources model	-33.485	-42.806				-33.485	-42.806
<b>Total</b>	<b>107.147</b>	<b>61.323</b>	<b>245.777</b>	<b>109.544</b>	<b>-6.329</b>	<b>352.924</b>	<b>170.866</b>

### 3.1 Revenue forecasting incentive model

The revenue forecasting incentive model is a symmetric revenue adjustment applied in-period to reconcile any revenue under or over-recovery in an earlier year.

We had a large blind year adjustment in PR19 and through the AMP7 we have used the RFI in order to smooth bills. Given the expected increase in bills in AMP8 we are trying to recover our full allowance in year 5 of AMP7. We are currently setting our charges for 2024/25, meaning that there may be alterations to this model in our representations to our PR24 Draft Determination.

We are forecasting to recover a reconciliation of -£4.673m in AMP8, although this contains a penalty adjustments that we believe we should not incur. We have recovered revenues each year at a level compatible with smoothing our bills and reducing the impact of revenue recovery volatility on our customers' bills. Any incentive to recover the exact amount of revenue allowance each year may lead to volatile bills due to the impact of in-period ODIs and is not in the best interest of our customers.

### 3.2 Bilateral entry adjustment model

This model seeks to adjust relevant companies' revenues should bilateral entry in the water resources market occur. We have no bilateral entries and, therefore, this model is not applicable to us.

### 3.3 Bioresources revenue reconciliation model

This model shows how the average revenue control is modified each year based on the difference between outturn and forecast sludge production. In addition, the model shows how Ofwat adjust allowed bioresources revenue in one year to correct for any under or over-recovery of revenue in earlier years.

For AMP7, we are currently forecasting a revenue reconciliation of £219k. However, there may be alterations to this model in our response to our draft determination due to the timing of the charges setting process.

For the forecast accuracy incentive penalty, we have submitted a penalty of -£2.664m in 2022/23 prices, this is due to our forecast of sludge throughput being much lower than forecast. This is due to lower growth of

population equivalent than forecast at AMP7 and having a number of extreme storm events which have likely increased solids losses through CSO and final effluent.

### 3.4 Residential retail revenue reconciliation model

This model shows how to reconcile revenues over 2020-25 at PR24, dependent upon the actual customers we serve.

We are currently forecasting a retail revenue reconciliation of -£6.329m (2022/23 prices). This is due to lower than forecasted number of customers and the implications of the social tariff on our revenue recovery. We note that our charges setting process occurs in September/October and has not been reflected in these calculations. Therefore, the revenue we intend to recover is subject to change up until our final charges publication in January 2024.

### 3.5 PR19 Water trading incentive model

This model calculates AMP7 water trading incentives for qualifying trades starting in 2020-25.

Throughout AMP7 we have exported water to Affinity Water, Wessex Water and South East Water and we have imported water from Affinity Water, Sutton and East Surrey Water and Portsmouth Water. The value of these trades are set out in our model.

We emailed [WRMP@Ofwat.gov.uk](mailto:WRMP@Ofwat.gov.uk) and Colin Green on the 26<sup>th</sup> August 2022 with our draft trading and procurement code. We expect this to be accepted prior to the final determination for our incentives to be accepted as per our trades in the model.

### 3.6 Developer services model

This model reconciles developer services revenue as per the actual levels of growth in connections seen in AMP7.

COVID-19 restrictions and the associated economic disruption impacted the rate of development in the South East and resulted in fewer new properties being built than forecast. In the first 3 years of AMP7, we have supplied 26,567 new properties with water connections against a forecast of 27,390. This equates to around a 97% delivery rate against forecast. In wastewater, the slowdown has been more noticeable. We have supplied 45,165 new wastewater connections against a forecast of 50,377. This is only 90% of forecast wastewater connections.

### 3.7 Water industry national environment programme (WINEP) reconciliation model

The purpose of this model is to account for the impact of ministerial decisions on the scale of companies' environmental enhancement programmes where this differs from assumptions made at PR19 final determination.

In PR19, our WINEP was not fully agreed prior to the final determination. There were a number of obligations where the requirements were not specified at scheme level and merely noted as being at 'Water Company Scale'. Therefore, we had a bespoke arrangement where the Totex unit cost was a formula for a number of



our WINEP programmes and a deep dive approach for others which is impossible for us to understand the reconciliation without further guidance from Ofwat.

On the 7th of July 2023, Ofwat emailed all companies explaining the return of our WINEP reconciliation model and asking for a model submission by the 21st July filled in with the WINEP available information we had at the time. We responded via email which we attach in Appendix 1.

On the 2nd of August we had a meeting with Rosemary Barker and Asen Velyov to discuss our reconciliation model. Ofwat confirmed they understood our WINEP reconciliation was particular complicated and understood what we had submitted, they explained they would confirm the correct inputs to our reconciliation model. We have yet to receive these. Therefore, we have made assumptions on what these inputs should be, but given the level of complexity and uncertainty in this area, we expect Ofwat to confirm the correct reconciliation shortly after business plan submission and prior to draft determination.

The assumptions we have made are (a) on the correct Totex unit cost and (b) the reconciliation we expect through our cost reconciliation model. We have assumed a reconciliation of £43.838m (2017/18 prices), this is shown in table PD9.6 in 2022/23 prices.

The WINEP reconciliation model does not give the opportunity to explain how we are delivering against it, but we can confirm we are currently on track to meet our PR19 WINEP programme with agreement with the Environment Agency. However, there are 7 schemes we are currently negotiating a later delivery date with these are shown in the table below. The key rationale is that they are either tied in with growth requirements and we need permit updates from EA and/or they are linked to AMP8 schemes.

Wastewater treatment works	Driver
Lidsey WTW	U_IMP5; DWF
Oxted WTW	DWF; WFD; U_IMP5; MNI
Peel Common WTW	DWF; U_IMP5; U_IMP6; MNI
Sittingbourne WTW	DWF; U_IMP5; U_IMP6
Budds Farm WTW	U_IMP5; U_IMP6
Chichester WTW	U_IMP5
Swalecliffe WTW	U_IMP5

### 3.8 Cost of new debt reconciliation model

This model indexes the cost of new debt by reference to a market benchmark in 2020-25.

Due to the changes in the iboxx yields, there is a significant change in the cost of debt and thus we are due a revenue reconciliation of £20.565 (2022/23 prices).

### 3.9 Gearing outperformance sharing mechanism

The purpose of this model is to calculate gearing outperformance sharing payments for highly-g geared companies.

In 2024/25 we outperformed our gearing threshold and thus we are due a revenue reconciliation of £5.060m.

## 3.10 Cost reconciliations model

This model reconciles actual performance against the totex allowances from PR19. For 2023/24 and 2024/25 we have inputted our forecasts based on our most recent execution plan and our expected spending for the rest of the AMP. The inputs derive from our business plan data tables PD9 for actual totex and PD8 for business and abstraction rates and all inputs are inflated to nominal prices as per the model guidance.

**Table 22: Net totex for cost sharing reconciliation (2017/18 prices)**

	2020-21	2021-22	2022-23	2023-24	2024-25	Total	Variance
Water Resources	28.69	26.22	19.26	28.08	47.37	149.61	67.01
Totex allowance	16.23	15.80	15.64	16.66	18.28	82.61	
Water network plus	167.43	225.52	270.17	276.03	239.99	1,179.15	409.50
Totex allowance	162.98	164.04	151.78	139.59	151.26	769.65	
Wastewater network plus	353.07	479.26	526.21	504.65	434.87	2,298.07	531.96
Totex allowance	323.01	407.03	417.07	359.90	259.10	1,766.10	
<b>Total actual spend</b>	<b>549.19</b>	<b>731</b>	<b>815.64</b>	<b>808.76</b>	<b>722.23</b>	<b>3,626.82</b>	<b>1,008.45</b>
<b>Total totex allowance</b>	<b>502.22</b>	<b>586.87</b>	<b>584.49</b>	<b>516.15</b>	<b>428.64</b>	<b>2,618.37</b>	

Table 2 shows our total overspend in 2017/18 prices over AMP7, this along with the impacts on wage growth, abstraction rates and business rates determine our total RCV and revenue adjustment for PR24 for the cost sharing total costs reconciliation model.

In AMP7 we have overspent by our totex allowance for cost sharing by over £1bn in 2017/18 prices, this is driven through increased expenditure in our capital maintenance to ensure our assets keep running. Further, we are in a state of transformation and have invested heavily to improve performance and deliver that transformation

In August 2021 Macquarie Asset Management stated they will invest more than £1bn into Southern Water and its holding companies, and has promised improvements for customers and the environment. The outputs from the totex reconciliation are evidence of this equity injection and evidence that we are pushing forward with our turnaround plan.

Our turnaround has taken us from a position of being unable to deliver key outputs in AMP7, to addressing our core problems. In our transformation and SRN09: Deliverability Chapter and our SRN56: Deliverability Technical Annex more is explained of our lessons learnt and our future transformation programme.

## 3.11 Tax reconciliation

This model will true-up any tax. It will take account of any changes to corporation tax or capital allowance rates since the PR19 final determination.

As per our email to Gillian Tanfield, Stephen StPier and Gayle Webb at Ofwat on the 21/06/2023, we can confirm the tax rate of 0% should apply again for the 2023-24 and 2024-25.

It is clear from our profits set out in this email and in our tax reconciliation model that capital allowances available will be in excess of the projected taxable profits.

### 3.12 Land sales

This model calculates the adjustment to the Regulatory Capital Value (RCV) as at 1 April 2020 (the RCV midnight adjustment) for any disposal of land by the regulated business in the years from 2019/20 to 2024/25.

We have had disposals of land in 2021/22 and 2022/23 in our wastewater price control, we are not forecasting to have any disposals in 2023/24 and 2024/25. Therefore, our reconciliation is just -£0.001m RCV reduction.

### 3.13 RPI-CPIH wedge true up model

This model reconciles the difference between the actual RPI-CPIH (measures of inflation) wedge observed over the price control period, and the RPI-CPIH wedge included in the final determination.

This model has been completed as per the PR19 reconciliation rulebook. Our RCV is updated with the inflation wedge each year and the inflation adjusted RCV is reported annually in our annual performance report. Nevertheless, and in accordance with the rulebook, we have included the impact of the wedge on the RCV in this model. Therefore, we expect to have a revenue adjustment equivalent to £7.12m in 2022/23 prices and an RCV adjustment of £133.784m in 2022/23 prices. This is due to the variances of the assumptions in CPIH and RPI in the PR19 final determination and the actual level of inflation.

### 3.14 Strategic regional water resources reconciliation model

This model reconciles revenue allowances for the strategic regional water resource options. The reconciliation is required to account for the progression of strategic options through the gated process.

We have used the All Company Working Group version of the model issued in July 2023. The structure of this model differs from the one issued originally by Ofwat. Also, to our knowledge, the model guidance has not been updated to reflect the structure of the All Company Working Group, meaning that we had to make some assumptions regarding some model parameters.

Specifically, we have completed the models, one per SRO scheme, with what we believe is the correct approach but in some cases the old guidance does not describe which of the input cells in the new model should be populated in the various possible outcomes for the SRO. The costs are in 2017/18 prices in accordance with the original model. The table below shows the model results. We discuss each option considered in the model in turn below.

**Table 3: Strategic regional water model results (2017/18 prices)**

Model name	SRO Reconciliation models summary	Water resources		Water Network+	
	17/18 prices £m	Revenue adjustment	RCV adjustment	Revenue adjustment	RCV adjustment
SRN Desalination ACWG strategic-regional-water-resour	Fawley Desalination				
SRN River Itchen ACWG Strategic-regional-water-resour	River Itchen Recycling	-4.145	-3.165	-0.206	-0.222
Not populated data included in Hampshire Transfer an	Havant Thicket Water Transfer				
SRN Havant Thicket and Recycling Strategic-regional-wa	Hampshire Water Transfer and Recycling	-11.791	-9.482		
SRN West Country Sources North ACWG Strategic-regio	West Country North Sources	-0.913	-0.663		
SRN West Country South Sources and Transfers ACWG	West Country South Sources and Transfers	-0.8621	-0.6260		
SRN West Country South Southern Transfer ACWG Stra	West Country South Southern Transfer	-0.7982	-0.5796		
SRN T2ST ACWG Strategic-regional-water-resources-red	Thames to Southern Transfer			-1.061	-1.015
	Total	-18.508	-14.516	-17.749	-13.851
Total Revenue Adjustment			-36.258		
Total RCV Adjustment			-28.367		

## Desalination

This option ceased at Gate 2. The values reflect return of unspent money to customers, cost deductions on efficiency grounds and Gate 2 delivery penalties. The gate 1 penalty was disapplied at Gate 2. The costs include the assumption that RAPID will accept the early Gate 3 costs incurred prior to ceasing the option and that these costs will be accepted when RAPID make the Gate 3 decisions.

## Recycling and Havant Thicket transfer

The three recycling and transfer options have merged into a single preferred solution. The deductions reflect a combination of Gate 2 penalties, and Gates 2 to 3 overspending against the allowances, which result in a return of money to customers after cost sharing is applied.

A combined allowance for Hampshire transfer plus recycling was created at Gate 2. Gate 4 is now expected to take place in AMP8.

## West Country North Transfer

Southern Water participated in this scheme up to Gate 1. There were no cost deductions or penalties applied to the scheme but there was a 10% penalty applied to Southern Water on the total accelerated Gate 1 spend. This penalty has been applied in this model. We do not have involvement in this option after Gate 1.

## West Country South Transfer and West country South sources and transfer

Southern Water participated in these schemes up to Gate 1. We do not have any involvement in these options after Gate 1 and unspent money is then returned to customers.

## Thames to Southern Transfer

Thames Water and Southern Water have recommend that Gate 3 now occurs in AMP8 and expenditure in AMP7 is reduced, hence money is returned to customers.

## 3.15 Innovation competition

This model calculates the total amount of unused funds to be redistributed to individual companies' customers. This is done in line with the original allocation methodology set out in PR19 Final Determinations.

We have had one scheme accepted as part of the innovation fund – the 'Water 4 all' project. We had £0.617m funding allocated as part of this project. We have not forecast innovation funding for future years as we are yet to know which future projects may be accepted although we will look to lead on projects that deliver against our innovation roadmaps. Our future innovation projects and our future innovation strategy is discussed further in SRN54: Innovation technical annex.

## 3.16 ODI Performance models

These models reconcile the outcome delivery incentives (ODIs) that have been accrued by companies in each year of performance, based on the performance commitments set in the PR19 final determinations. Our performance is explained in section 4.

We have learnt a lot from our ODI performance in AMP7, and in AMP8 we are stretching our ambitions towards reaching upper quartile performance and meet the expectations of our customers. Details of our AMP8 ODI forecast is set out in our SRN18: Performance Commitments Methodologies Technical Annex.

The ODI performance model worked well for the annual performance report. However, we note that following through the revenue impacts into the k factors and how these impact our revenue allowance was overly complex and could be simplified in the future.

The ODI reconciliation has led to over £180m in 2017/18 prices be returned to our customers over the course of AMP7, Section 4 explains our performance of ODIs in AMP7.

## 4. Outcome Delivery Incentive (ODIs) Performance in AMP7

### 4.1 Summary

Our PR19 final determination has resulted in us having 47 performance commitments (PCs) agreed in AMP7. We monitor our performance monthly, report to Ofwat on a quarterly basis and annually in our Annual Performance Report and Financial Statements. Reporting our performance in this way to our customers and stakeholders provides a reputational incentive to meet our commitments. Out of our 47 PCs, 29 include financial penalties and rewards associated with delivering for our customers. The two additional customer facing Ps, C-MeX and D-Mex also included financial penalties and rewards. These incentive mechanisms provide a strong alignment between the interests of our shareholders and our customers. In the table below we have summarised our performance against our 29 ODIs by year, including the forecast outcomes for years 4 and 5 of the AMP.

#### Key

	Failing our PR19 target and our internal forecasts
	Meeting our internal forecast and turnaround plan
	Meeting or exceeding PR19 target

**Table 44: ODIs performance in AMP7**

Performance Commitment	2020-21	2021- 22	2022-23	2023-24	2024-25	End of AMP Target
Water quality compliance (CRI)					3.23	2.00
Water supply interruptions					0:07:23	0:05:00
Leakage (3 year rolling ave.)					97.3	84.9
Per capita consumption (3 year rolling ave.)					128.5	118.8
Mains repairs					150.0	87.3
Unplanned Outage					3.13	3.13
Drinking water appearance					0.65	0.46
Drinking water taste and odour					0.23	0.21
Abstraction Incentive Mechanism					-16	-15
Access to daily water consumption data					0	3,529
Voids					2.46	2.56
Replace lead customer pipes					0	43
Properties at risk of receiving low pressure					254	182
Long term supply demand schemes					0	0
Impounding Reservoirs					0.488	100
Internal sewer flooding					1.32	1.34
Pollution incidents					48.08	19.50
Sewer Collapses					6.23	5.48
Treatment works compliance					99.11	100.00
Effluent re-use					0	0
Renewable Generation					18.90%	24.00%
Satisfactory bioresources recycling					100%	100%
River water Quality					182.30	182.30

Performance Commitment	2020-21	2021- 22	2022-23	2023-24	2024-25	End of AMP Target
Maintain bathing waters at "Excellent"					57	57
Improve bathing waters to at least "good"					3	5
Improve nr bathing waters at "Excellent"					1	2
Surface water management					0	39,730
External sewer flooding					3,525	3,525
Thanet Sewers (months delay)					0	0

## 4.2 Our performance in 2020–21

The year of 2020–21 represented the first year of AMP7 with a new set of performance commitments and targets. Our performance in this first year was mixed, partly reflecting the step change in performance required from all companies by Ofwat, and partly reflecting the challenges of both climate change and Covid-19. We met or exceeded 14 of our performance commitments 12 of which were ODIs, but did not meet the targets for the remaining performance commitments.

In 2020-21 Covid-19 was a key challenge and resulted in significant changes to patterns of water consumption with much more consumption in the home and reduced business usage, both across our region and nationally. These changes particularly impacted our ODIs for leakage and per capita consumption (PCC).

Whilst we managed to maintain the planned level of leakage activity, the need to maintain social distancing meant that we were unable to increase the level of resources in the field to respond to higher leakage resulting from higher network pressure associated with COVID-19 related changes in demand patterns.

The industry wide impact on PCC was reflected in an increase of 8% in waste consumption, having in contrast with a fall of 16% in water consumption over the previous 7 years. The activities we had planned to encourage reducing water usage had to be placed on hold due to Government restrictions on face-to-face interactions. For us, this meant putting on hold planned activities such as 'Schools Visited & Engagement with Children' and 'Water Saved from Water Efficiency Visits', both of which act to reduce customer consumption, as well as a proportion of community engagement and Target 100 activities.

As well as the global challenge of Covid-19, extreme weather conditions in January of 2021 had a significant impact on both our mains repairs and interruptions to supply ODIs. The extreme temperatures resulting in a 65% month-on-month increase in the number of repairs and levels mains bursts only exceeded by the 'beast from the east' event in late 2018–19.

During the 2020 calendar year, ten of our wastewater treatment works were classified as failed works by the Environment Agency, a deterioration from the previous year. A new 'Go to Green' process was introduced to review all compliance breaches and near misses to understand the root causes and drive improvement actions across the region. Root causes included UV daily dose failures, repeat failure modes, asset inadequacy and human error. Whilst this is a disappointing outcome, mitigations were put in place with a comprehensive range of work streams within our Environment+ programme to improve performance. In addition, a new organisational design for the wastewater directorate was rolled out in April 2021 to enable closer working relationships between maintenance, process support and field teams.

Whilst we delivered a reduction in pollution incidents, we fell far short of our target and received the maximum underperformance payment. To address this, we published a detailed Pollution Incident Reduction Plan, which we shared with the Environment Agency. The plan is based on extensive data analysis and industry best practice, with its primary focus being on wastewater pumping stations and wastewater treatment works, where we have seen the largest increase in pollutions since 2018.

As with pollution incidents, we missed our target for sewer collapses, despite successfully reducing the number of incidents compared with 2019–20. In September 2020, we published our Pollution Incident Reduction Plan (PIRP) which set an ambitious target to reduce pollution incidents to zero by 2040. To work towards this, we have developed a detailed programme of activities to deliver a step-change in how we work and prioritise and remedy issues on our sites. This has resulted on a year-on-year reduction in pollutions across the AMP7.



We also fell short of our target for internal sewer flooding. However, we did successfully reduce the number of incidents below the level of the previous year thanks in part to actions outlined in our PIRP. Our new sewer level monitoring technology trials also helped prevent flooding incidents and rapidly develop data-led proactive maintenance improvements with an agile team working to deliver real impact visible from the start. This has led us to preventing two to three potential pollutions per week to date. As part of our targeted work on disposal of fat, oil and grease (FOG) and Unflushables, we identified blockage hotspots around Brighton, East Sussex and Chatham, Kent and used insights to develop targeted messages to match the life stage and living situation of local residents. We sent leaflets to over 100,000 homes which included practical tips about what can safely be disposed of down the drain. In areas with lots of young families, we enclosed a free pack of reusable bamboo wipes. The leaflets were reinforced through targeted radio and digital adverts. Overall, the campaign reached over 130,855 customers, helping to address the main source of internal flooding in those areas.

Factors beyond our control, such as weather events, will always put pressure on our sewer networks. Our Zero Flooding project, which began in 2017, is aiming to eliminate sewer flooding incidents in key hotspots across our region, while our Pollution and Flooding Resilience team is focused on delivering best practice reduction programmes and continuously improving our incident response across our network.

The other area of note in terms of underperformance was that we did not show an improvement in the percentage of our energy generated in 2020–21, meaning this was below our target of 21.2%. This principally resulted from a number of combined heat and power (CHP) engine maintenance issues and breakdowns which impacted the output of our CHP engines. Projects were put in place to replace our oldest CHP units during the rest of the AMP. In addition, a new solar array at our Peel Common treatment works came online in summer 2021. We have also developed projects to try and identify additional sites for further solar installations.

In May 2020 we successfully secured £825 million in sustainable bonds in one of the biggest public market financing issues for the water sector in recent years. This established an environmental, social and governance (ESG) sustainable financing framework to support our plans and aligning our long-term strategy with our social and environmental commitments. In March 2021, we issued a further £300 million bond under the same sustainable financing framework to further invest in delivering for our customers.

Several key strategic projects were approved by the Board in December 2020, which will see us focus on improving digital, logistics and asset maintenance capability across our network. These projects drove £150 million of efficiency improvements across AMP7, representing the final phase of our transformation programme. This will allow us to take a more proactive approach to risk management, in turn protecting our environment and improving our performance and services for customers.

Amongst our success stories, we count maintaining our record number of years of 100% satisfactory bio-resources recycling, with no waste going to landfill, and outperforming on our Abstraction Incentive Mechanism (AIM) metric. AIM focuses on the water abstracted from the River Itchen during September as this is when impacts on this sensitive chalk stream environment are most severe due to hot weather. The September abstraction limit is 2,280 MI. Our target is to outperform this by 15 MI/d, which we achieved. Other successes include our effluent re-use metric where in 2020–21, 273 m<sup>3</sup> was made available for reuse. We also undertook extensive work to better understand and improve the resilience of our water asset health. As a result, we more than halved unplanned outage to 9.21%, from 18.59% in 2019–20 and below our regulatory target of 9.45%.

## 4.3 Our performance in 2021–22

Coming out of the pandemic, we saw some exceptionally severe storms during 2021–22, challenging our operational teams. As a result of Storm Eunice, we lost power to 330 of our water and wastewater sites between the morning of Friday, the 11th of February 2022, and Monday afternoon, as 112mph gusts of wind battered the South East of England. Despite this, our teams managed to keep water supplied to all but 300 of our 2.6 million water customers. They also managed to ensure that there were no major pollution incidents.

Whilst we continued to deliver against our compliance improvement plan agreed with the Drinking Water Inspectorate (DWI), our water quality measure CRI score deteriorated to 6.69 as a result of an increased score at service reservoirs and consumer taps and failures at our Burham Treatment Works in November 2021.

Although we have improved the average number of minutes customers are without water during a loss of supply incident by achieving an average of nine minutes 22 seconds, this did not meet Ofwat's target of six minutes, eight seconds. This was mainly due to two major incidents, which should not occur in the future after changes in infrastructure and find-and-fix services. Improvements have largely been due to the measures put in place under the Calm Network programme. The resulting reduction in outages protects water quality and reduces inconvenience to the customer, as well as driving down leakage. We also increased our find-and-fix teams, carrying out checks seven days a week to stabilise network performance and repair leaks as quickly as we can.

Having set ambitious targets in our Execution Plan, our key aims were to reduce pollution incidents and minimise leakage. In both these areas, we improved our performance compared to the previous year. However, we did not meet our PR19 targets. We recorded a three-year rolling average leakage rate of 97.9 MI/d (2020–21: 98.5 MI/d) and this was outside the target set for us by our regulator of 93.9 MI/d, despite many improvements in a number of areas.

We are aware that in order to deliver for our customers and stakeholders, we needed to go beyond regulatory compliance to demonstrate long-term stewardship of the environment, deliver social value and respond to our customers' and stakeholders' needs. As such we refreshed our approach to environmental management to reduce our carbon emissions and water usage and optimise our positive impact on wildlife and habitats. We also made improvements to our asset management strategy to improve our understanding of the risks across our network through better use of real-time condition data. As part of a larger investment programme across our wastewater network totalling more than £400 million, we:

- Started making £18 million of upgrades at our Budds Farm Treatment Works – including new storm tanks and pipework – to increase its capacity and provide greater resilience during extreme weather.
- We led the Harbours Summit with key partners to address the declining health of Chichester, Langstone and Pagham harbours and agreed joint steps to restore these habitats. The plan includes investing £72 million by 2025 to improve the local water quality.
- Completed the first of £21 million of upgrades to 2025 at our Swalecliffe Wastewater Treatment Works, including lengthening the site's short sea outfall, to enhance the coastline and reduce any impact on water-based leisure and business.
- Launched our dedicated Storm Overflow Task Force in November 2021. Its five ground-breaking pathfinder projects align with our ambitious £1.5 billion investment programme, which is part of our PIRP and set out what is needed from Southern Water and others to achieve a significant reduction in pollution incidents.

Thanks to significant efforts to improve resilience and work with our customers at property level to reduce blockages, we saw a second year of improved performance for external flooding with us reducing incidents to 3,944, below the Ofwat target and resulting in a significant ODI reward. Our wastewater treatment works compliance improved from 10 failed works in 2020 to seven in 2021.

Whilst, as mentioned above, we performed better than our target for the number of external sewer flooding incidents, unfortunately internal flooding incidents increased in 2021. We had an exceptionally high number of internal sewer flooding incidents recorded in July and August 2021. This was due to intense rainfall over the summer, including a one in one-hundred-and-fifty-year rainstorm which caused flooding in Herne Bay – this represented a 254% increase in average rainfall.

Understanding the impact of the effects of climate change and significant population growth adding more pressure to the sewer system and mindful that these issues will likely only get worse, we partnered with local authorities and key stakeholders across our region to find new and innovative solutions to managing this issue. This resulted in us creating our Storm Overflow Task Force. Knowing that our customers and our regulators want us to reduce our use of storm overflows, we began working to deliver this, with five ground-breaking projects being implemented across the region over the remainder of AMP7. These projects are helping to reduce the amount of surface water entering our sewer network during a storm, from road and roof run-off, thereby reducing the need to use overflows and also helping to reduce flooding and pollutions.

We recorded 372 Category 1-3 pollution incidents, a 7.5% reduction from 2020. Our work specifically targeting operational pollutions resulted in a 27% reduction compared to 2020. However, these were offset by a higher number of pollutions related to spills due to the atypical weather seen, particularly over the summer months of 2021 with some very intense and heavy summer storms. Pumping stations were the largest contributor to our pollution incidents and together with treatment works, were our focus to improve this area. We have significant improvements to make to reach our Ofwat target in this area as outlined in our PIRP. The three strategic programmes that are driving improvements are the digitisation of our network, updates to our control room and planned preventative maintenance. During 2021, we implemented a variety of actions to reduce pollution incidents by:

- Improving asset resilience – this included carrying out health checks on water pumping stations and water treatment works.
- Trusted monitoring and analysis – our spills reporting system, ASPIRE, is an example of this.
- Customer participation and network – such as targeted campaigns for blockage reduction.
- Human error reduction – our Clever Nelly training-needs analysis tool checks knowledge and identifies gaps for training opportunities.

The percentage of our energy that we generated from renewable sources remained similar to 2020–21 at 15.85%. This is below our target of 21.3% but during the year we purchased Renewable Energy Guarantees of Origin (REGOs) through to April 2024, ensuring that even though we are generating less renewable energy than we planned, 100% of the energy we use is green.

We continued to meet our 100% commitment for using or disposing of our sludge. We maintained our Biosolids Assurance Scheme certification for a further 12-month period starting in July 2021 and satisfactorily met all treatment, storage, and disposal requirements under the relevant sludge regulations. We also continued to drive down unplanned water outage, outperforming the target set for a second year running.

## 4.4 Our performance in 2022–23

We have improved our performance against some metrics in year 3 of AMP7. However, we continue to recognise that our overall performance falls short of our customers' expectations. Thanks to new investment from our shareholders, during 2022–23 we made a capital investment of £213.5 million in water and £443.6 million in wastewater on base maintenance and enhancement of our sites and networks, thus accelerating delivery of our business plan. As a result, we have improved our financial stability and our performance in some critical areas, namely flooding, vulnerability support for our customers and delivery of our environmental programme.

We also introduced an innovative scheme for business consumers during the 2022 summer drought, incentivising them to save water and help us protect the environment in line with the developing of our metrics for AMP8.

We recognise that our performance in key areas – pollutions, water quality, leakage, customer service and supply interruptions – is not yet where it needs to be and that it will take time to improve. It is also clear that we cannot blame the weather for operational issues and water outages that we experienced this year. We remained challenged by annual targets set for the business in 2019, but with reinvestment of all profits and additional shareholder support, well beyond funds agreed in our 2019 Final Determination from Ofwat, we are a much-improved, more rigorous and a more innovative business.

Most significantly, we lost water supply to 24,000 of our customers on the Isle of Sheppey during one of the hottest weeks of the year in July due to two large trunk main bursts that needed complex repairs. Through the collective efforts of the team, and alongside what was a very challenging operational fix, we tankered water to critical services, including the hospital and prisons, and we provided 835,000 litres of bottled water, which included over 12,000 deliveries to support our priority services customers. We returned our customers to service quickly in a way that also kept everyone's safety – colleagues, customers and partners – front of mind. Since then, we have taken action and completed £4.5 million of emergency work to tunnel two new water mains across the Swale to Sheppey. The project began in autumn 2022 and has overcome huge engineering challenges due to the complex geology under the seabed. Now the pipes have been pulled through, we have multiple options to get water to the island. Two further significant operational failures at our Otterbourne Water Treatment Works left around 23,000 customers in Hampshire without access to water in the run up to the Christmas holidays and then again in February. An investigation has now concluded into the cause of this incident, and we are working to make sure the proper preventative process and procedure reviews are put in place.

We have since made amends with customers for each of these incidents, providing a blend of direct payments, shopping vouchers and community grants, depending on the area and what customers told us they needed most. We have also put in place a detailed four-site improvement strategy, focusing on upgrading our largest and most critical water supply sites, which will be delivered at pace in AMP8.

Our CRI score for 2022 was marginally better than the previous year, at 6.38 (2021: 6.69). The scores from treatment works and supply points remained fairly static, whereas service reservoirs dropped and breaches at customer taps rose. The main causes of CRI at our works (70%) were damp and unused sections of pipe, which are being addressed through improved regular maintenance of water tanks. A further quarter was due to issues at our sampling facilities, which are regularly inspected. The increase in CRI at customer taps was due to sediment build up in the mains, which will be addressed by our wider replacement programme in the next seven years. Taste and odour of customers' water was also an issue in some areas of Hampshire, which will be improved by the planned installation of carbon treatment at [REDACTED] Water Supply Works by 2031.

For leakage, we recorded 105.2 MI/d (2021–22: 97.9 MI/d) against a three-year rolling average target of 90.9 MI/d. Unprecedented weather conditions over the drought in the summer and rapid changes in temperatures during the winter resulted in high leakage levels. We increased our find-and-fix teams by 20% and we are exploring new technology to locate leaks, including the use of satellite mapping. A programme of advanced pressure management schemes has been delivered, with further improvements planned over the next two years. This approach has led to us repairing up to 500 leaks a week in 2023.

We outperformed our Ofwat target of 212 properties at risk of low pressure with 207 properties (2021–22: 210). Targeted cleaning and flushing of pipes helped keep the number of properties affected to this level. In addition, for a 3<sup>rd</sup> year we outperformed our target of 7.33% for unplanned outage with 6.44% of production capacity lost due to unplanned maintenance work.

Despite challenging weather, both internal and external flooding incidents reduced to 456 (2021–22: 614) and 3,748 (2021–22: 3,944) respectively. We also met all our targets in the EA’s Annual “Delivery of the Water Industry National Environment Programme (WINEP)” metric. Wastewater treatment works compliance improved to 98.22% (2021–22: 97.94%). The number of bathing waters at ‘excellent’ reduced to 57 (2021–22: 60). Increased beach activity during the summer heatwave may account for this decline. We are reporting 358 (2021–22: 372) Category 1 to 3 pollutions in the EA’s Environmental Performance Assessment (EPA), achieving a two-star rating for 2022–23.

In 2022, we began the roll-out of over 23,000 sewer level monitors as part of a programme to digitalise our wastewater network. The monitors are installed in manholes across high-risk areas of our region, and they can connect digitally with our Control Centre to proactively detect potential blockages. This smart technology enables a quick clean-up of the wastewater pipes to take place before the blockage causes pollution. The software used is a machine learning tool that constantly improves its data monitoring. In 2023, our flooding reduction plan aims to focus strongly on root cause analysis to drive a first-time fix approach to make sure that our customers do not suffer a repeat incident. This includes empowering our teams to deliver solutions and using insight to target our proactive interventions in a very precise way.

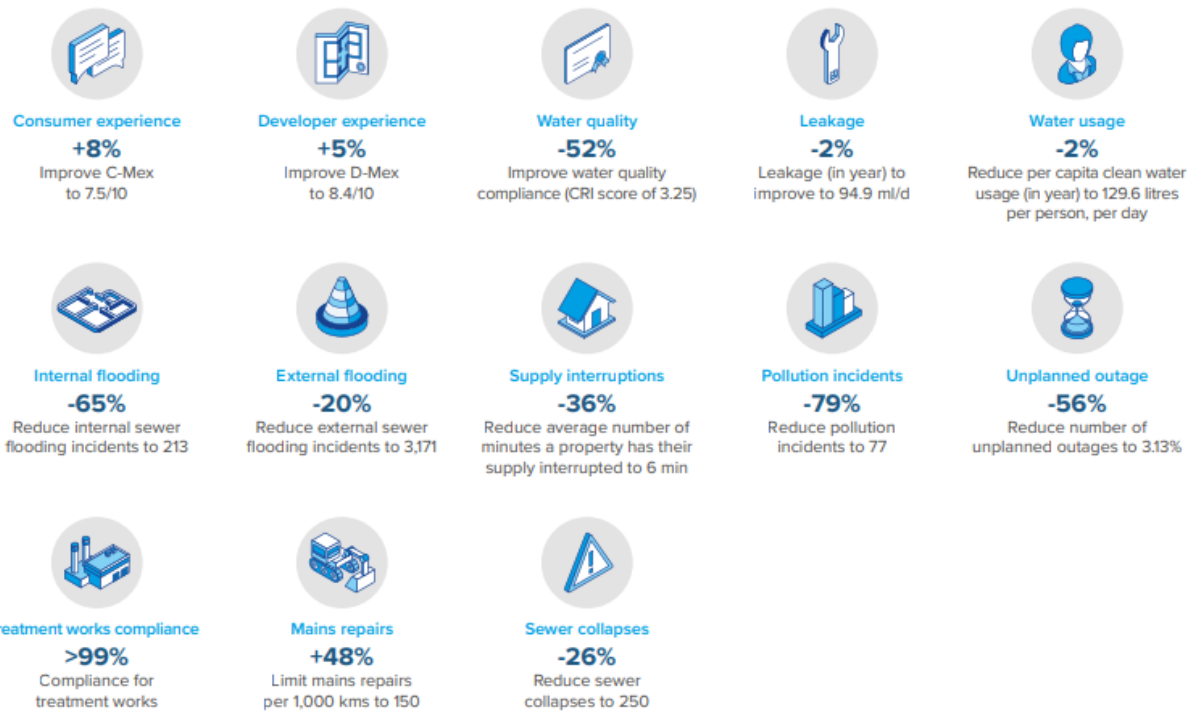
## 4.5 Our expected ODI performance in 2023-24 and 2024-25

Whilst we have put significant investment and effort into meeting our performance commitments over the AMP7, we recognise that there is a need for improvement to deliver for our customers. Significant lessons have been learnt in several areas with the industry wide challenges because of Covid-19, the impact of severe and exceptional weather events in multiple areas across our region, and significant events such as the mains failure on the Isle of Sheppey. We now have plans in place to make a marked improvement in key areas as set out in our turnaround plan.

Our long-term plans are ambitious, and they need to meet the challenges posed by climate change and rapid population growth. In our turnaround plan, we have set our targets for year 4 and 5 of AMP7, to better meet customer expectations and to provide a glidepath for improving performance in AMP8.

We know our performance is not yet good enough, and we have an ambitious plan to address this focused on the operational turnaround of the company.

Our Turnaround Plan will deliver a short sharp ambitious improvement by 2025, particularly in terms of our environmental performance. It includes four clear outcomes that we're promising to deliver, improving our service to customers and the environment. We know these plans are ambitious, however, we have 2,500 dedicated scientists, engineers and industry professionals working for Southern Water. They're all committed to making this plan a reality. We'll be reporting on progress every six months through to 2025. These forecasts have been put together based operational investment and targeted activity to deliver:



Whilst we are on track to meet our end of AMP turnaround plan targets in many PCs, we are aware that for 18 of our ODIs we will have fallen short of the target set at PR19 and in our turnaround plan. Whilst we are setting out representations for reduced ODIs in Long-term supply demand and Per Capita consumption, a summary of the significant ODIs expected to not meet their PR19 target in 2024-25 is below along with commentary around specific ODIs for which we are forecasting a 0 return.

## Lead pipe replacement

In July 2022, we started work in Deal, Kent to replace old water mains containing lead. The pilot project will take about 24 months and will see us replace pipes to the boundary of customers' properties, as well as offering sampling in their homes and advice and support if they want to get a plumber to replace internal lead pipes. As some customers might have been worried about the discovery of lead pipes in their homes, we also offered drop-in sessions so they could meet our team and ask any questions they might have. We also sent letters and leaflets out to those affected and created a central hub of information on our website. This trial scheme, which will help shape the strategy for other lead replacement schemes across our region, customer feedback showed there was a lack of interest in replacing their lead pipes therefore limited progress has been made on this ODI.

## Surface water management

We have made limited progress with this ODI due to finding the best way to tackle surface water management was through schemes to progress in our Clean Rivers and Seas Task Force, a leading programme to find sustainable solutions to the large amounts of surface water that run off our roads into drains. Work is already underway on six projects using innovative approaches to slow the flow, particularly after heavy rainfall, with the aim of reducing the use of storm overflows when the wastewater system gets overwhelmed. The projects use a variety of sustainable drainage solutions – or SuDS – including the use of water butts, planters (household and non-household), resolving misconnections and roadside schemes. The Clean Rivers and Seas Task Force is working with partners and stakeholders from a range of sectors to trial six 'Pathfinder' projects across Kent, Hampshire, the Isle of Wight and Sussex. This includes one in Cornwallis Circle in Canterbury, Kent, an area where 74 hectares of the surface is non-permeable. Working with Canterbury City Council and Kent County Council, we have been able to develop a scheme to manage the area and install SuDS. The scheme aims to adapt the area into parkland supporting the wellbeing of the local community and wildlife, managing up to 100,000 litres of run off.

## Thanet Sewers

As per our PR19 business plan, our metric for Thanet Sewers measures the expected number of months delay to deliver an enhancement scheme related to the reduction of exfiltration from sewers located within tunnels in Thanet by 31 March 2025. In the PR19 performance commitment, it was set out that at the next price review the company would submit an assurance report from a suitably qualified external third party that confirms the date on which the scheme is expected to be functionally completed and successfully commissioned. That report has been submitted along with our PR24 submission and confirms 0 months delay.

## Leakage

Over the course of 2023-24 and 2024-25 we have obtained board approval for a leakage improvement programme that ensures that we meet the end of AMP in year WRMP target of 76.9MI/d per year. Whilst this represents a significant step change from 2022-23 outcome of 116.2MI/d, unfortunately high levels of leakage in that year and the prior year mean we will fall short of our PR19 leakage target for a 3-year rolling average of 84.9, currently forecasting 97.3MI/d and a penalty of £1.988 million.

## Mains Repairs

Whilst mains renewals are a significant driver for reducing the number of mains repairs, root cause investigative work has shown that the scale of mains renewals we had proposed at PR19 is not necessary, so plans have subsequently been adapted to maximise benefit and learning without large-scale mains renewals. The leakage driven elements of the programme are being delivered through our ongoing increased leakage find and fix activities and through the implementation of our calm networks programme as reflected in our reduction of over 31MI/d of leakage in our Turnaround Plan. This significant push to reduce leakage, with increased find and fix activity, alongside periods of persistent dry weather results in the number of mains repairs remaining static. Increasing our activity by detecting leaks proactively means that more leaks, such as mains bursts, can be found, however, this increases the number of leaks and mains repairs overall, resulting in a penalty of £5.267 million.

## Pollution incidents

Whilst our PIRP still targets reducing the number of pollutions in 2025 to 77, we are conscious that this is a significantly ambitious target given the likely outcome of over 200 pollution incidents in 2023. As such, our current forecast for pollutions is that we will likely receive the maximum penalty of £9.003 whilst demonstrating a year-on-year reduction in the number of pollution incidents.

## Sewer collapses

During the AMP7, we have shown a year-on-year reduction in sewer collapses. However, we have not seen the reduction targeted at PR19 due to a combination of factors including extreme weather, meaning that whilst we are on track to deliver in line with our turnaround plan, this will result in a £1.272m penalty. The number of sewer collapses and rising main bursts has been higher than target in AMP7. This is due to two key factors:

- We have had to address some complex and high-cost refurbishments, for example at Military Road in Margate, Wencelling, Hastings and Golf Road. We have had to focus our resources and funding into these areas, which has reduced the overall length of sewer / rising main refurbishments.
- The more extreme weather we have seen in recent years has shown that our assets are not resilient to the more extremes of weather and ground conditions.

In response to this, we are proposing to increase the level of investment in rising mains for AMP8, making full use of network calming to reduce pressure surges.

## Renewable Generation

The percentage of energy produced is affected by the amount of Combined Heat and Power (CHP) generation as well as the amount of overall electricity we use, Our CHP generation has been below the performance commitment level across AMP7 due to a number of CHP failures. This has made the equipment unavailable contributing to lower renewable energy generation. It has also increased the need to import more electricity than normal in multiple years due to increased use of pumps during periods of wet weather. We remain committed to using renewable sources of energy where we can, and continue to have 100% of the energy we use being green, but continue to forecast the maximum penalty of £1.326m for this metric.

## Maintain Bathing waters at 'Excellent', Improve the number of Bathing waters to at least 'Good' & Improve the bathing waters at 'Excellent' quality

In our PR19 business plan we had 3 metrics on bathing waters. For the first 3 years of the AMP these metrics have been on track. However, we have remained conservative in our forecast for the last two years



of AMP7. This is because we are at risk of not meeting the Maintain 57 bathing waters at Excellent metric for 2023 as a result of a very high concentration samples which were taken during periods when our overflows were not operating and had not operated for many days beforehand. There have been a cluster of high concentration samples in St Mary's Bay. Littlestone, Dymhurch and St Mary's Bay are all located in this area and have all experience very high concentration samples in dry conditions.

We are investigating the reasons behind these very high concentration samples. These investigations include:

- Analysis of many samples for the source of contamination (microbial source tracking). This involves analysing for: human, dog, seabird, horse, cattle, pig and sheep markers.
- A high intensity sampling programme at 4 bathing waters to understand the conditions under which these high concentration samples occur.
- Engage a leading researcher in this field to investigate the environmental conditions (water temperature, seaweed, algae, eutrophication sect) at the time of sampling.

We continue to be committed to protecting our region's bathing waters and protecting these coastal waters to ensure they are of the highest quality as our £5 million bathing water enhancement programme in AMP7 continues.

## 5. Representations for Reduced ODIs

### 5.1 Long-term supply demand schemes

In 2021-22, we approached Ofwat to clarify the penalty mechanism attached to our Long-Term Supply Demand scheme (LTSDs) ODI. Our proposal at PR19 was that any penalty should be apportioned based on the size of the scheme. It was clarified at the time that the penalty is apportioned and based on the maximum delay to scheme delivery and the total shortfall, less any changes to demand, against the 182.5MI/d outlined at PR19. The ODI also stipulated that the delivery dates and volume of benefit would be assessed by an independent third party, for which we have employed Jacobs whose report is still being finalised this will be submitted when it is complete.

We would request an intervention from Ofwat in the calculation of any penalty for this ODI on the basis that it would not be beneficial to customers, as it would reduce our opportunity to invest in our system supply/demand strategies.

The overview of the 11 schemes set out in the ODI is detailed below:

- 5 schemes are progressing to be delivered as expected
- 2 schemes are progressing to be delivered with a revised benefit date, in line with our rdWRMP24 (Ford and Aylesford)
- 2 schemes were no longer able to proceed due to land availability (Shoreham and Lower Greensand)
- 2 schemes are no longer able to deliver due to water availability (Bournemouth and Hardham)

Consequently, we propose zero penalty against this ODI, due to three main drivers, these are:

1. Factors outside Southern Water control – significant issues such as land and water availability changes since WRMP 19 making an opportunity either no longer available, or driving delivery beyond March 2027
2. Developments in our supply demand strategy since WRMP19, especially the initial AMP7 strategic resource option (SRO) not being possible to progress, along with additional licence reductions. The updated view for WRMP24 shows that benefit is not required in some areas until 2031.
3. Other factors – such as the requirement to adopt direct procurement for customers extending delivery timescales.

We explain each of these three factors in detail below.

#### Factors outside Southern Water control

There are several factors that have resulted in schemes not progressing as planned which were not foreseen at WRMP19 and are out of Southern Water's control. These include:

- Land not being available therefore the scheme is unable to progress:
  - Shoreham harbour location is no longer available for construction and no alternative, viable sites have been found. The land initially identified at WRMP19 is now to be used for port activities and the port have equal statutory powers and did not want to sell.
  - Sussex Coast - Land is not available near the aquifer charge.

- Water no longer available:
  - The Bournemouth Water (Knapp Mill) transfer has had to be abandoned as Bournemouth Water were no longer able to support due to abstraction reductions they are having to make on the Hampshire river Avon.
  - Hardham – we are engaging with the EA and Natural England and investigating further the impact of abstraction which has been delayed due to water neutrality issues.
- Water quality challenges at Ford and Aylesford:
  - Delivery delay, in order to accumulate sufficient data to satisfy DWI more rigorous sampling regime than expected was needed.
  - A change in EQS in February 2022 to sample more determinants made the sampling process 3 years long. The EAs permitting process is also facing delays and so this has led to a greater than 4-year lead time between starting sampling and receiving a permit to abstract.
  - MI/d benefit. The high salt content at Ford, and potentially Aylesford, demands advanced treatment processes including reverse osmosis which mean there is a reduced MI/d output (due to a reject flow being required).

## Developments in our supply demand strategy since WRMP19

WRMP is an adaptive 25-year plan, updated every 5 years to reflect changes in the baseline supply and demand forecasts and updated knowledge on the range and details of potential solutions. Our no regrets solutions are often our most confident solutions to deliver in the next 5 years, although they will be at different points of development and understanding.

Since WRMP19, key factors have changed the supply demand balance so that the timeframe by which some schemes are required to deliver benefit has changed:

- The original SRO was not able to proceed, along with Section 20 licence reductions and Knapp Mill transfer, therefore the Western Area strategy had to be revisited.
  - The new preferred SRO options from Fawley desalination to water recycling plant at Budds Farm and Havant Thicket transfer have required changes to the system architecture, although the two link schemes are still projected to deliver to the PR19 output.
  - WRMP24 mitigates the deficit caused by the loss of the Bournemouth scheme but it was not possible to design and build within the March 2027 timescale.
- Central area growth in the Sussex North WRZ is on hold due to water neutrality, although some developments with planning continue.
- River basin management plans have changed, in part due to WFD investigations showing future growth has been partly offset, and therefore planned sustainability reductions have not been needed.

Projects have been realigned to match the change in supply/demand balance. Where a need is still required, we are investigating, such as the alternative scheme for Shoreham, Lewes Road groundwater (planned to be delivered ahead of its WRMP 24 deadline to meet the March 2027 target). Drought orders and permits may be utilised temporarily to meet customer demand whilst other alternative solutions are developed.

## Other factors

Southern Water should not be penalised for investigating appropriate options to reduce bills and find best value for customers. Direct procurement (DPC) is being considered on large infrastructure projects as per OFWAT's final methodology for PR24, to get lower cost for customers and innovation benefits. However, this route takes longer, and penalties should not be applied for this delay.

Drought orders and permits may be utilised temporarily to meet customer demand whilst other alternative solutions are developed.

In conclusion, we would propose a £0 penalty against this metric on the basis that:

- We are delivering against the WRMP24, and
- The delays incurred were due to unforeseeable circumstances beyond Southern Water's control, as supported by the independent report from Jacobs submitted to Ofwat alongside our PR24 submission.

## 5.2 Per capita consumption

As outlined by Ofwat in their information notice decision on reporting performance and ODI timing for Per Capita Consumption (PCC) as a direct result of the impact of Covid-19, this ODI was moved from in-period, to end of period. Companies were asked to make a case for an intervention where Ofwat would consider evidence of how measures introduced to mitigate the impact of Covid-19 affected companies' performance against the PCC performance commitment across all years of the 2020-25 price control period and the actions they had taken to manage demand. Ofwat also stated that they would consider this evidence when determining whether any intervention on ODI payments for PCC was necessary.

As we started AMP7, all water companies felt the significant impact of the changes in customer behaviour as a result of the COVID-19 pandemic. Whilst Southern Water customers were - and remain - some of the most water efficient in the country, customer consumption at the end of 2020-21 had risen by 8% directly impacted by lockdowns, increased hand washing and a move to home working.

The COVID-19 pandemic has had a profound effect on all aspects of UK society. Since March 2020, normal daily life has been significantly altered, with unprecedented changes to individual and household behaviours and the functioning of the UK economy. Not only was this impact felt across the industry, we are yet to return to pre-covid consumption levels. In a study commissioned in August of 2021<sup>1</sup>, to fully understand the impact of the pandemic on customer usage, Edge Analytics collated a variety of datasets to illustrate and estimate how the COVID-19 constraints affected population mobility and required people to spend far more time in their homes. These datasets were then combined with consumption data from 2017/18 to 2020/21 to demonstrate and better understand the additional time spent at home and associated usage, demonstrating an 8% uplift in usage compared to the PR19 baseline of 128.0l/pd.

A further collaborative study with other water companies by Artesia<sup>2</sup> consulting on the impact of Covid-19 showed an increase in total household consumption of around 9% and 13%, and a decrease in non-household consumption of around 25%. A social science study with the University of Manchester carried out during this study suggests that there was a change in the value and meaning attached to domestic gardens, which fuelled an already growing popular interest in gardening as a leisure activity resulting in a rise in water consumption. There were also changes in daily patterns of indoor water usage related to wider changes in the organisation of life and work, as people have more time to invest in activities within the household and have more flexible routines.

Despite the physical restriction of face-to-face activities and the related suspension of our home visits and other in-person water efficiency activities, Southern Water has continued to prioritise encouraging reasonable reductions to household consumption over the pandemic. Most of our water efficiency activity takes place under our Target 100 initiative, where we remain committed to reducing average household usage to 100l/p/d by 2040. Our T100 programme has been significantly hampered by Covid 19 but we have progressed on a number of fronts. In 2020-21, we had a limited baseline of our "always on" and hot weather communications, with limited digital and ration advertising, but targeting water scarce areas.

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<sup>1</sup> Appendix 2: COVID-19 Impact - Data Model - SW - August 2021

<sup>2</sup> Appendix 3: Artesia\_collaborative-impact-of-COVID-19-on-consumption-FINAL-20210521

In 2021-22, we introduced a “Get Water Fit” webtool in May garnering nearly 6,000 registrations, and completed a significant campaign in May – Sept ‘21 with activity ongoing Dec to March ‘22 in hotspot areas including extra digital and radio, plus regional print, outdoor (bus, bus stops, rail sheets/ticket gates, ad bike) and face-to-face (with partner, Zest) in North Sussex, Hampshire and the Isle of Wight targeting a reduction in usage of 4.3ML/d. We also partnered with Southampton City Council introducing communications across their region, including bus and billboards, tenant newsletter ads, flyer with Council Tax letter, and screensavers at local libraries, and on a limited basis resumed our in-person activities, including water saving visits and engagement with schools.

In order to further drive our T100 activities, we recruited a T100 Programme lead, and as Covid restrictions were lifted we have given a renewed focus to our activities in this area. This has included building out the T100 team to include dedicated resources, accelerating our water savings visits and a number of other activities and campaigns.

Our T100 programme is still feeling the massive effect of the pandemic. Consumption levels have come down gradually from their pandemic peak of 138.5 l/p/d to an average of 128.5 l/p/d over the 22/23 year, though we did introduce a hosepipe ban to some areas last summer, which is likely to have had a bearing on that figure. Crucially, consumption is still higher than at the start of AMP7 when we were due to meet our 20/21 market-leading PCC target of 127 l/p/d. Despite our considerable T100 effort, the success of home audits and drought campaigns, we’re still above forecast and – critically – five years behind where we expected to be on our T100 target trajectory. Despite this significant setback, over 2022-23, we worked out the details of our evolved T100 plan for both household, developers, and non-household customers. We have also gained vital intelligence from ethnographic studies to inform our design of water-saving options. We have witnessed the quality of data that smart meters can offer via our ‘clip-on’ smart meter trial. Additionally, we’ve started trialling innovations and initiatives.

We want to create a future where our residents, employers and employees are water stewards: fully aware of their water environment, feel connected to it, and willingly play their part in protecting and preserving it. It is how we will support our mission statement of Water for life and aim to lead the industry by reducing the demand for water and the amount consumed per person.

Our T100 water efficiency plan under the stewardship of our programme lead has evolved to manage and reduce consumptions on all parts of our water demand (household, non-household, and developer services). It is a blueprint for long-term behaviour change rooted in behavioural science principles with the single aim of creating a consciously water-efficient culture.

Our blueprint is made up of three elements:

- Catalysts: the workstreams and interventions that will accelerate the customer’s change journey.
- Approaches: our working ethos is to innovate, be agile and partner up wherever possible.
- Customer groups: householders, developers, and non-households.

The longitudinal ethnographic studies we commissioned have given us vital intelligence on how people use water in their everyday routines and how those behaviours become habits. These insights are now helping us to design the right sort of water-saving options (such as physical settings, cutting-edge technology, and water-saving devices) to help make it easy for customers to use less water. Our internal innovation team is feeding these insights into our innovation process (ideation, experimentation, evaluation and implementation) to come up with the best and most cutting-edge water-saving products, services, and technology ideas. Below we provide several examples of the insights, our consequent nudge activity and the behavioural science principles that inform our choices.

Our smart meter trial began in the summer of 2022, ultimately to test the assumption that we can reduce water consumption by 3-5% simply by telling people (via data) how much they use by means of an online platform (Advizzo). We installed clip-on 'smart' meter devices in 1500 homes, sharing the personalised usage data to the trial participants. Two-thirds of the devices worked well and gave us an insight into the quality, granularity and frequency of the data from smart meters. We are monitoring them for another 14 months. We do not yet have the findings of related data-led nudges.

With input from external studies and internal research into customer behaviour, we have identified several catalysts that will accelerate behaviour change among householders: home audits, communications and marketing, education, and water-efficiency solutions. Home audits (inclusive of fitting water-saving devices) are proven to reduce water consumption. This year (22/23), we have done another 8,630 home audits – which, for the first time, included 500 at a housing association. We're on track to deliver 45,000 home visits in AMP7, despite the impact of Covid.

We have formed our communications strategy, which divides the customer journey into three stages: build awareness of water scarcity and the need to use water wisely; make less water use socially acceptable; and Celebrate and encourage behaviour change. We launched a multi-platform, overarching awareness campaign 'Save a little water, make a lot of difference' (May 2023) that will form the backbone of the customer journey all the way to 2040. It will run for a full 12 months with adjustments to messages and content every year. It is designed to raise awareness of water scarcity, encourage people to use less of it and, importantly, provide useful tips on how to do it. It focuses on the simple things people can do around the home and has been informed by behavioural science insights gathered from our ethnographic studies.

We also introduced two new T100 educational modules as part of our educational programme New Wave. These are a set of curriculum-based classroom resources for teachers to help children to learn simple ways of saving water and protecting our local environment. We are also working with the South-East and Wessex Rivers Trust on a joint school education trial called Our River, Our Water, aimed at primary schools. It's made up of class and outdoor sessions on the River Dour, Rive Dun and Gatwick Stream where children take part in a range of outdoor activities. The project aims to help educate the next generation on the need to save water. In 2022-23, from these three activities alone, we have made 62 engagements and reached 21,996 pupils.

Water-efficiency solutions are the 'tools' we're planning to give our customers to ease their journey towards using less water. They will be water-saving products or an enabler, such as creating the sort of conditions that will encourage new habits. They can be motivational (helping the customer to use less water through choice), such as switching off the tap while brushing teeth, or devices designed to encourage less water use, such as a water-efficient showerhead. We currently have 10 trials/pilots in progress such as shower sensors, toilet leak sensors, flush saving tablets, garden hose flow monitors, flow restrictors and leak detection system. We also have another 23 ideas/opportunities in the innovation pipelines. In addition, the government announced new mandates for manufacturers to label water-efficient domestic appliances, for developers to build water-efficient homes and for existing homes to be retrofitted with water-efficient devices. These feature in our plan and forecasts as they will make the biggest water savings over time.

We are developing strategic partnerships with key stakeholders, such as land promoters and developers to create fundamental shifts in how housing emerges, what our built environment looks like and the future resilience of our network. We are working with developers to get them to consider water-efficient lifestyles seriously and to investigate opportunities to trial and build liveable water-efficient new homes. We are also proactively talking to local policymakers to bring about the changes we need to our networks, responding to water neutrality consultations and unlocking developments to make them viable for water efficiency. We are also making effective contributions to local plans and giving clear guidance on planning conditions to enable a resilient water future.

We are at the forefront of making change happen. We are working closely with local planning authorities in Sussex North and with developers to meet Natural England's requirement (as of September 2021) that new developments in that area require no further water abstraction. We've already reduced abstractions and demand, helped developers with potential strategic solutions, appointed a dedicated resource, and established better communications including a quarterly webinar, monthly newsletter, dedicated water neutrality email and a dedicated webpage going live imminently.

We have also introduced a financial incentive scheme that kicks in at the point a developer applies for a water connection. It's a three-tier scheme that refunds or credits money to the developer per connection based on the extent of water their developments will save: anything from £250 for households that will use an average of 100 l/p/d, £800 if their homes will use grey water harvesting and/or recycling technology that captures at least 50 litres of water per property per day and a chance to off-set water savings for anyone unable to cut water use further than 85 l/p/d with a payment towards a water-efficiency home audit and to retrofit water-saving devices to existing homes.

As a result of our activities, we have seen our PCC levels fall consistently since year 2 of AMP7 and are now forecasting at end of AMP minimum level of 127.5 for 2024/25, with a stretch target of 118.8 in line with the 3 year rolling average target set at PR19. Our PCC recovery plan means we are on track to have in-year PCC for 23/24 back in line with levels set out in the WRMP19 and having shown a full recovery from the impact of covid.

This consistent reduction in usage and ongoing activity demonstrates our commitment to safeguarding our customers supply and addressing the global issue of water usage and availability. This is reflected in us having continued to lead the industry in terms of PCC, having maintained one of the lowest levels of consumption both during and emerging from the pandemic.

Given the consistent and effective actions to keep driving down customer consumption, our recovery path and ambitious yet successful efforts to get us and our customer back on track with planned levels of usage, we propose an Ofwat intervention of a £0 penalty for this metric.



## Appendix 1: Email correspondence for WINEP reconciliation model

Hi,

Please see attached our WINEP reconciliation model.

We have checked the 'WINEP Inputs' tab and confirmed the list of WINEP actions that are in line with our own list covered by the Uncertainty Mechanism. All of the scheme identified in 'Table 5: WINEP uncertainty mechanism' in the 'Southern Water – Cost efficiency final determination appendix' have been included, even where no reconciliation changes are needed.

Red lines indicate where a scheme has been removed. Commentary in column CY states whether this is a simple removal or where the line has been removed but replaced with subsequent individual scheme.

Lines 7SO200195; 7SO200196; 7SO200198; 7SO200201; 7SO200199; 7SO200205; are programme holding lines that were in addition to schemes at site level, and therefore removed without any change to the work undertaken

At Southern Water our WINEP includes a number of obligations where the requirements were not specified at scheme level and merely noted as being at 'Water Company Scale' as per PR19-final-determinations-Southern-Water-Cost-efficiency-final-determination-appendix-revised-26-10-2020.pdf (ofwat.gov.uk). Therefore, we have been unable to calculate the unit rate for a number of our drivers.

We are requesting a meeting at your earliest convenience to discuss how we can reconcile a number of these drivers. We would like clarity on how to apply the formulas to our unit rates and how to apply unit rates where there was a deep dive approach at FD.

The reconciliation of the WINEP feeds into the cost reconciliation submission on the 31st July.

Regards,

[Redacted]

[Redacted]

[Redacted]

[southernwater.co.uk](http://southernwater.co.uk)



## Appendix 2: COVID-19 Impact - Data Model - SW - August 2021



COVID-19 Impact -  
Data Model - SW - A

## Appendix 3: Artesia\_collaborative-impact-of-COVID-19-on-consumption-FINAL-20210521



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