A5: Accounting for past performance

WONDERFUL ON TAP

SEVERN TRENT

OVERVIEW: LEARNING FROM PAST PERFORMANCE SO WE CAN DELIVER BETTER CUSTOMER OUTCOMES

This document supports the Severn Trent PR14 reconciliation data tables and models submitted to Ofwat in July 2018. It is intended to support Ofwat's review of our PR19 data tables by providing key insight about our forecast performance and the assumptions that underpin our modelling.

This document should also be read alongside:

- Severn Trent Annual Performance report 2016
- Severn Trent Annual Performance report 2017
- Severn Trent Annual Performance report 2018
- Ofwat's determination of in-period ODIs 2016
- Ofwat's determination of in-period ODIs 2017

This narrative includes the following sections:

- Section A5.1 – summary of the adjustments for Severn Trent England
- Section A5.2 – maintaining transparency
- Section A5.3 – managing the in-period border variation between Severn Trent and Hafren Dyfrdwy
- Section A5.4 – initial assessment of business plans
- Section A5.5 – Birmingham Resilience Programme
- Section A5.6 – other adjustments, including Totex and WRFIM
- Section A5.7 – a decision making process to enable successful delivery

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In this appendix we've redacted information that relates to the location of some of our water sites.

A5.1 Summary of adjustments for Severn Trent England

The tests we are responding to are:

1. How well has the company given evidence for its proposed reconciliations for the 2015-20 period, and has it proposed adjustments by following the PR14 reconciliation rulebook methodology?
2. How well has the company performed, and is forecast to perform, over the 2015-20 period and, taking into account this overall performance, how well has it put measures in place to ensure that it maintains confidence that it can successfully deliver its PR19 business plan?

This narrative covers adjustments relating to performance commitments, the Service Incentive Mechanism, Totex sharing, WRFIM, Retail true-ups, land sales and the PR09 legacy adjustments. The following tables summarises the adjustments which are discussed in detail in this chapter.

Summary of adjustments for Severn Trent England (SVE)

£m 17/18 prices	RCV	Revenue
Performance commitments (ODI)	-	120.4
SIM	-	(18.9)
Totex Sharing	(111.4)	4.0
WRFIM	-	(35.1)
Retail True-Up	-	1.2
Land Sales	(19.1)	-
PR09 Legacy	(141.1)	(5.6)

A5.2 Maintaining transparency

A clear baseline for assessment

We have compared our performance to the targets outlined in the PR14 Final Determinations for Severn Trent Water and Dee Valley Water. We formally updated the targets for both the Severn Trent mains bursts (WB6) and wastewater carbon emissions (SE1) commitments as stated in the corrigendum to the Final Determination. In addition to these documents, following the variation to our licence affective from 1 July 2018 our performance commitments and targets for 2018/19 and 2019/20 were altered and confirmed by Ofwat in their formal notice to vary our licence.

We note that in Ofwat's formal notice we believe there to be a transposition of England year 5 targets with those of Wales year 4 targets set out in appendix 3 of the NAV determination for the following measure.

For:

		England			Wales	
		Yr 4 – Q1	Yr 4 – Q2-4	Yr 5	Yr 4 – Q2-4	Yr 5
WB3	Speed of response in repairing leaks (% fixed within 24 hours)	95	95	95	100	100

Read:

		England			Wales	
		Yr 4 – Q1	Yr 4 – Q2-4	Yr 5	Yr 4 – Q2-4	Yr 5
WB3	Speed of response in repairing leaks (% fixed within 24 hours)	95	95	100	95	100

For 2015-20, we set out a comprehensive package of 45 performance commitments, many of which had incentives that result in in-period adjustments to revenue. This approach means we are required to reconcile our performance each year as part of our request to Ofwat to alter our revenue allowance; as such Ofwat has already made determinations on our 2015/16 and 2016/17 position.

Responding to feedback

Ofwat's determinations for our 2015/16 and 2016/17 ODI submission confirmed our assessment of performance and calculation of outperformance payments and under-performance penalties was accurate. For the years 2015/16 and 2016/17 the information presented in this report is consistent with the determinations Ofwat has made, including the adjustments we proposed to financial incentives where we determined it was in customers' best interests to do so.

We strive to ensure we are clear and transparent with our customers and stakeholders through our Annual Performance Report (APR). In APR 2018, published on 13 July 2018, we noted:

1. That we were including an additional £0.8m underperformance penalty related to the 2016/17 increase in real leakage losses. As well supporting our customers' trust and confidence this adjustment supported Ofwat's vision for the future of leakage. This was discussed with Ofwat in May 2018 prior to publication of the Severn Trent Annual Report and Accounts. We have also explained this in our customer facing APR18 document published on our website;
2. Catchment management – following discussion with our assurers, we may make a further improvement in the way successful engagement with farmers is demonstrated; and
3. Water service carbon emissions – we are considering a new, more innovative way to reduce our carbon footprint and to ensure that this is recorded as part of the performance commitment.

These last two changes are subject to scrutiny by our external audits as well as our customer challenge group, the Water Forum. As these are unconfirmed changes we have not, within the performance commitment section below, incorporated the impact of these changes in our forecasts. As such, all forecasts are provided on a like for like basis with our 2017/18 reported data.

A5.3 Managing the in-period border variation between Severn Trent and Hafren Dyfrdwy

The position for Severn Trent and Hafren Dyfrdwy is slightly more complex because of the border variation. This has seen Severn Trent taking on water supply duties for Chester and the surrounding area, formally part of the Dee Valley water supply area. Similarly, the water and wastewater operating area for Severn Trent now excludes the Powys region from our licence. These variations came in to affect from 1 July 2018.

This means that the reconciliation relies on data from both companies' determinations and both annual returns. We have developed a suite of models to reconcile the adjustments for the new borders, allocating these appropriately between Severn Trent England (SVE) and Hafren Dyfrdwy Cymru (HDD). We have submitted all of our workings to Ofwat alongside the tables and models.

During the New Appointments and Variations (NAV) process we agreed with Ofwat that in principle, the customer should – as far as possible – pay no more or less for the regulatory incentives than they would have done if there had been no change in the boundary. This guides our approach.

Performance rewards and penalties following the boundary change

For performance commitments and performance levels that Severn Trent will be reviewed against, we have:

- reported performance up to the 30th June 2018 based on the historic Severn Trent licence against a three month target for financial year measures (1st April to 20th June inclusive) and a six month target for calendar year measures (1st January to 30th June inclusive);
- reported the remaining year four performance against a nine month target for financial year measures (1st July 2018 to 31st March 2019 inclusive) or a six month target for calendar year measures (1st July to 31st December 2018 inclusive); and
- reported performance against the Dee Valley Water suite of performance commitments in the Chester region from 1st July 2018 in line with point two above.

Some of the water service commitments for Severn Trent Water and Dee Valley Water were very similar in their design but measure performance differently. We have not amalgamated them and instead continue to report against them as two separate commitments. In these circumstances we are reporting our performance against the Severn Trent Water commitment for our English operating area excluding the variation around Chester. We will report compared to the Dee Valley Water commitment in the Chester area only.

For those commitments where we measure normalised performance, and the targets remain the same for both the English and Welsh operating areas following the licence change, such as supply interruptions, we have proportionally allocated the incentive rate between the Severn Trent and Hafren Dyfrdwy in line with the revenue or RCV allocations for the relevant service. Whilst this was not specifically outlined in the NAV determination, it is necessary to ensure our ODI allocations reconcile with the counterfactual position.

Other incentives following the boundary change

We have also allocated the final determination allowances, for incentives other than the ODIs, between the new boundaries. From Q2 of 2018-19, the new companies are measured against these targets for revenue and totex incentives. The division of allowed revenue were accepted by Ofwat and included within its decision document on the NAV.

Cross checks

To demonstrate that customers are no worse off as a result of the variation, we have calculated the counterfactual for all incentives – that is, the rewards and penalties that would have resulted if the original boundaries had continued until the end of AMP6. We can demonstrate that the aggregate rewards for the two companies would have been materially the same.

We have set out a summary of the reconciliation adjustments for SVE and HDD compared to the counterfactual in the table below.

Note: we have been forced to over-write the pre-populated values in data tables for the historical Severn Trent Water counterfactual models in several instances:

- WS13 and WWS13 (WRFIM) K factors – the populated values were the original K factors from the FD and did not reflect our adjustments for in-period ODI determinations.
- R9 retail reconciliation customer numbers – the pre-populated values were not consistent with table 5 of our Final Determination letter or the PR14 Financial Model (we queried this on 27 June).
- Transition expenditure for Severn Trent – the value reflected in our Final Determination was £10.792 in 12/13 prices – the figure was agreed with Dawn Harrison in May 2016.

There are a few areas where our approach has resulted in differences of more than £1k compared to the counterfactual. In order of size these are:

1. *Totex revenue and RCV adjustments*: We've calculated a weighted average PAYG rate for HDD based on DVW and SVT. This results in a slightly higher allocation (+£265k) and a lower allocation to RCV (-£237k). There is a net increase of £28k for water. This is balanced by slightly lower values for both revenue and the RCV for waste (-£25k in total).

2. *WRFIM adjustment for water:* Compared to the counterfactual, there is a positive movement of +£25k. This is because the base revenue figures for 18/19 following the variation were based on the allowed revenue in the PR14 Ofwat financial model. These are different from those that would result from the application of PR14 K factors because the PR14 calculation of K was not consistent with the construction of the price limit within the licence. The calculation has been amended in Ofwat's PR19 model.

3. *ODI in-period revenue:* The separation of performance targets for waste results in a £17k penalty for HDD which would not have occurred if SVT had remained whole as it would have fallen within the cap.

The aggregate impact of all adjustments compared to the counterfactual is +£11k, which we do not consider material. If Ofwat considers it necessary, it would be possible to reduce or eliminate the movement between RCV and revenue (1) by adjusting the PAYG rates from the Final Determination.

We will continue to work constructively with Ofwat to determine additional requirements in respect of the reconciliation. We believe the pragmatic approach we have used meets Ofwat's needs and is consistent with the letter from Andy Duff dated 28 June 2018.

Reconciliation adjustments	Counterfactual			Factual			Diff
	SVT	DVW	Total	SVE	HDD	Total	
PR09 Legacy							
Water: RCV	11.0	(0.3)	10.7	10.8	(0.1)	10.7	(0.0)
Water: Revenue	(7.4)	0.1	(7.3)	(7.3)	0.0	(7.3)	0.0
Waste: RCV	1.0	-	1.0	1.0	0.0	1.0	0.0
Waste: Revenue	1.7	-	1.7	1.7	0.0	1.7	(0.0)
Water: CIS inflation	(71.5)	(1.9)	(73.5)	(72.1)	(1.4)	(73.5)	-
Waste: CIS inflation	(80.8)	-	(80.8)	(80.8)	(0.0)	(80.8)	-
Adjustment to RCV from disposal of land							
Water: Land	(8.3)	-	(8.3)	(8.3)	(0.0)	(8.3)	-
Waste: Land	(10.8)	-	(10.8)	(10.8)	(0.0)	(10.8)	-
Outcome delivery incentive reconciliation adjustments to be applied at PR19							
ODI in-period revenue	118.6	-	118.6	118.4	0.2	118.6	(0.0)
ODI end of period revenue	1.6	1.1	2.7	2.0	0.7	2.7	-
ODI end of period RCV	-	-	-	-	-	-	-
Wholesale total expenditure outperformance sharing							
Water: Totex revenue	23.3	(0.6)	22.7	23.8	(0.9)	22.9	0.3
Water: Totex RCV	86.6	(0.6)	86.0	88.4	(2.6)	85.8	(0.2)
Waste: Totex revenue	(19.8)	-	(19.8)	(19.8)	(0.0)	(19.8)	(0.0)
Waste: Totex RCV	(201.1)	-	(201.1)	(199.8)	(1.3)	(201.1)	(0.0)

Reconciliation adjustments	Counterfactual			Factual			Diff
	SVT	DVW	Total	SVE	HDD	Total	
Wholesale revenue forecasting incentive mechanism							
Water: WRFIM	(18.2)	3.4	(14.7)	(16.7)	2.0	(14.7)	0.0
Waste: WRFIM	(18.4)	-	(18.4)	(18.4)	(0.1)	(18.4)	-
Reconciliation of household retail revenue							
Residential retail	1.2	(0.0)	1.1	1.2	(0.0)	1.1	-
Service incentive mechanism							
SIM forecast	(18.9)	(0.1)	(19.0)	(18.9)	(0.1)	(19.0)	-
Total incentives and penalties	(210.5)	1.1	(209.4)	(205.7)	(3.7)	(209.4)	0.0

A5.4 Initial assessment of business plans

Reconciling our performance commitments

Our approach to forecasting performance in 2018/19 and 2019/20 has been driven by our internal governance processes. In early 2018, the Strategic Leaders accountable for delivery have presented their plans at our weekly Loopcells (cross company Executive level meetings to review and challenge performance and delivery plans). These plans have been used as the basis for our proposed outturn position for the remainder of the AMP with appropriate adjustments made to reflect the licence variations.

Ensuring transparency of reporting

We submitted a view of our expected performance for 2018/19 and 2019/20 – the final two years of this AMP - to Ofwat in July 2018. Our forecasts were overseen by our internal governance processes, which included scrutiny of delivery plans for each performance commitment at our weekly cross-company executive level oversight meetings. This established process has also been used to review performance during the prolonged warm weather this summer, and has proved critical in understanding and co-ordinating our response. We've triggered a number of activities in response including accelerating investment, establishing a focussed incident team and suspending some routine activities to enable operational response to be prioritised. These activities are having an impact.

Given our commitment to transparency, we've highlighted below those metrics which have been materially impacted by the operating conditions in recent weeks. We have not updated the data tables given the risk of changing audited data at this late stage of the PR19 process.

WA1: Asset Strategy – Coliforms

We initially forecast five water treatment works failing their coliform limits for the calendar year 2019 against a regulatory target of less than six. Our performance across the summer has been disappointing, partly due to resources being redirected to support the hot weather action plan. At the time of submission we have now recorded seven failing sites, failing our regulatory target and incurring a penalty of at least £926k.

WB4: Number of minutes customers go without supply

Our performance commitment of 8.6 minutes is stretching and exceeded the upper quartile target of 12 minutes set at PR14. We were confident that we had plans in place to achieve our regulatory target, but the hot weather has significantly impacted our performance. The full validation of loss of supply incidents over the summer is still ongoing and will be reviewed as part of the half-year assurance programme. We are forecasting performance being between 12.5 to 16.5 minutes, with underperformance penalties of £1.1m per minute applied for any performance adverse to 12 minutes.

SC6: Serious Pollution Incidents

We forecast two serious pollution incidents which was in line with our performance commitment. At the time of submission we have experienced four serious pollution incidents meaning we have missed our commitment. There is no financial incentive for this commitment.

Update on other performance commitments

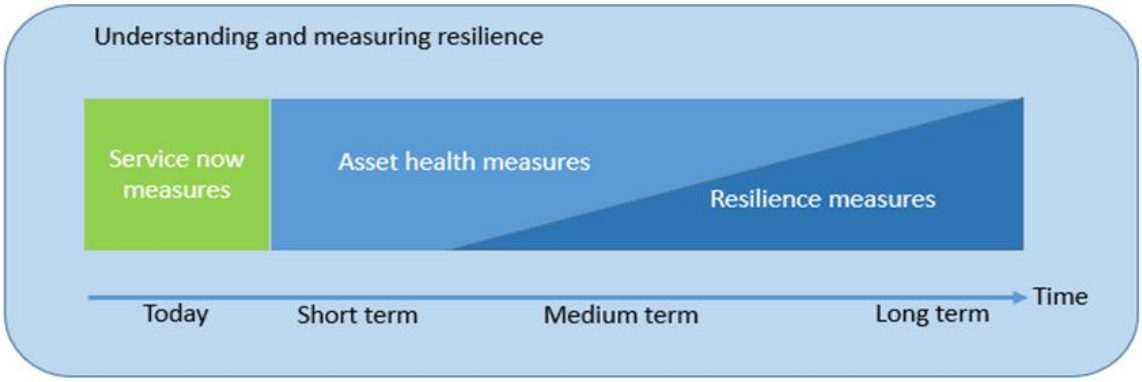
The table below identifies other commitments where our performance is likely to be impacted but the current impacts are less material and recovery plans are in place to limit the impact.

Performance Commitment	July Submission	September Submission	Justification
WA4: Catchment Management	21	18	The hot weather over the summer has significantly impacted the farming community and we expect this to impact on the level of positive engagement we have throughout 2018/19. As such we consider it prudent to revise our forecast to 18.
WB6: Asset Stewardship – Mains Bursts	5,394	5,800 – 6,500	As part of our recovery plans to limit the impact of the hot weather we have increased our find and fix activity to increase the water available for use. The revised position remains within the FD target.
SC2: Category 3 pollution incidents	266	280 – 310	The hot, dry weather intensifies the impact of pollution incidents. Our current view is that performance is likely to be stable for category 3 incidents, well ahead of the target of 374. Category 4 incidents are likely to deteriorate below our target of 182 as discharges have a greater impact.
SC8: Category 4 pollution incidents	182	250 to 275	

We will use our annual half-year assurance programme to analyse and quantify the year to date performance position and update full year forecast.

Forecasting our performance to 2020

We've started by summarising the expected change from 2017/18 to 2019/20 using a simple performance overview. This was developed for the Annual Performance Report 2018 following customer feedback which indicated that the most important aspects of performance were those that had a personal or immediate impact. The approach also enables us to see measures covering different time horizons (as shown in the diagram below) - looking at all these aspects together helps us understand our level of overall resilience.



- Service now metrics provide information on the resilience of services that have immediate impact;
- Asset health metrics capture resilience issues that occur frequently (that is many times per year); and
- Resilience measures which focus on issues that occur far less frequently (e.g. drought), or evolve on a long timescale (e.g. flood risk).

We've provided a commentary to summarise key changes through the AMP6 period – much more detail can be found in our Annual Performance Reports. In the following sections we have used a simple RAG assessment to visualise performance.

Transition from current position (2017/18):

Service now – waste 2 PCs in this area, of which: 2 were green.	**Asset health** 5 PCs in this area, of which: 4 were green/deadband 1 was red	**Resilience** 10 PCs in this area, of which: 8 were green/on-track; 2 were to be delivered.	**Environment** 14 PCs in this area, of which: 9 were green/on-track; 2 were red; 3 were to be delivered.
Service now – water 6 PCs in this area, of which: 2 were green/deadband; 4 were red.	**Service now – retail** 5 PCs in this area, of which: 4 were green; 1 was red.	**Serving our community** 3 PCs in this area, of which: 3 were green.	**Responsible, efficient investment** No PCs – measured by totex performance

The expected 2019/20 position:

Service now – waste Forecast for the 2 PCs: 2 to be green, with UQ/frontier performance	**Asset health** Forecast for the 5 PCs: 5 to be green/deadband.	**Resilience** Forecast for the 10 PCs: 9 to be green; 1 not triggered.	**Environment** 14 PCs in this area, of which: 12 to be green/deadband; 2 to be red.
Service now – water Forecast for the 6 PCs: 5 to be green/ deadband; 1 to be forecast to be red	**Service now – retail** Forecast for the 5 PCs: 4 to be green/deadband; 1 to be red.	**Serving our community** Forecast for the 3 PCs: 3 to be green.	**Responsible, efficient investment** No PCs – measured by totex performance

In general, our performance on the wastewater measures has strengthened even as targets have become more stretching. In 2017/18, we had delivered or were on-track to achieve 100% of targets. Our ambition is to retain this position through to 2019/20.

We have performed particularly well on **Service now – waste** measures (internal and external sewer flooding incidents), and will continue to seek improvements each year. Our performance has been driven by significant investment and through the use of multiple interventions – large scale investment, quick-fix mitigation and more extensive mitigation – all supported by an experienced team using improved data and development of leading-edge analytics. We've also worked with commercial outlets that could cause sewer blockages by incorrectly disposing of fats, oils and greases in our network to prevent such misuse – and taken action where misuse has continued. We are confident our actions will continue to deliver our AMP6 targets.

In contrast, our performance on some aspects of our water service has been disappointing. In 2017/18, **service now – water** was assessed as red to reflect the frequency and extent to which service to our customers had been disrupted. The March 2018 freeze-thaw in particular resulted in an unacceptable level of service being delivered but we have learned lessons and are putting in place improved processes to deal with short-term shocks and stresses. We will publish a response to the areas of concern highlighted by Ofwat and CC Water by 28 September 2018. We are forecasting an improvement to our position and achievement on all but one target in 2019/20 – speed of response to visible leaks.

Speed of response is one of two measures we have for leakage:

- Reducing leakage and improving environmental outcomes (less waste, less use of chemicals and energy and deferring need for new capex);
- Increasing the speed with which we fix customer reported leaks, thereby improving customer perception.

We set a stretching 6% reduction in overall leakage. In addition, despite our lack of knowledge on the drivers, interactions and activities to drive performance, we set ourselves the most stretching commitment of its type in the industry. We committed to deliver 100% of repairs to visible leaks with 24 hours and we applied a financial incentive. Not only did we set ourselves a more stretching target than other companies on speed or response, we designed a commitment which encompassed a greater breadth of leaks.

While we are forecasting to meet our overall 6% leakage reduction this AMP, we have found our speed of response measure extremely difficult to meet. Our analysis shows that there are significant costs in increasing the speed of fixing all customer reported leaks within 24 hours which is not cost-beneficial. We have and will continue to try a number of initiatives and technology improvements to improve performance. For example we are using data analytics to identify leaks early so we can both reduce leakage and improve customer perceptions. This is currently going through trials and feasibility testing and will not be available for full roll out until the end of the AMP.

So whilst we have been able to reduce leakage, we recognise we need to do more to address perceptions of wastage. We are forecasting to receive underperformance penalties for speed of response to visible leaks for the remainder of AMP6.

Our performance on drinking water quality complaints is forecast to improve significantly to 2019/20 to meet Ofwat's drive for performance to be upper quartile. We sought to identify and implement solutions knowing there was an inevitable time-lag between investments and securing sustainable improvements in performance. During 2017/18 we recorded a 12% year-on-year performance improvement and have continued this trajectory in the early part of this year. As such, we are forecasting an underperformance penalty for 2018/19 but envisage our continued improvement will meet our committed level of performance for 2019/20.

We have a consistently strong position on most of our **environmental** measures. We expect to be meet our category three commitment five years out of five whilst understanding that the industry continues to drive forward the upper quartile position. We also expect to be able to demonstrate substantial outperformance on Water Framework Directive (partly driven by changes agreed with the Environment Agency after PR14) and carbon emissions for wastewater.

Our environmental position is in part due to our collaborative relationship with our stakeholders, principally the Environment Agency and Natural England. We've worked with both to deliver a new way of working through catchment management and sewer flooding partnership working, where their networks and expertise has proven to be significantly beneficial. Both stakeholders also provide constructive challenge – on the biodiversity programme, for example, our activities led to a net reduction in the number of hectares of biodiversity improvement in the early AMP6 period and this was strongly challenged by Natural England. We've worked hard to rectify and improve the position and, by 2017/18, had reversed the early deterioration. We are forecast to outperform our commitment by the end of the AMP and this achievement is in a large part down to a plan agreed with Natural England.

While our overall environmental performance is forecast to be green, there are two water environmental measures which are and will remain off-target - resource efficiency and carbon footprint for water. Both of these measures are driven primarily by the volume of water put in to supply. When we set our performance targets we made assumptions relating to the volume of water required each day to supply our customers. It has become clear during AMP6 that our assumptions understated the volume of water required. This has led to both an increase in distribution input, leading to our resource efficiency measure missing its target, and the additional treatment and pumping required to move a greater volume of water, impacting on our carbon footprint. Despite our efforts to reduce energy use and improve the efficiency of our assets, they have not been sufficient to reverse this increase in energy demand. Notwithstanding investigating new options to reduce our carbon emissions for the water service, we are forecasting underperformance penalties for this measure through to 2019/20.

Our **resilience** performance continues to perform well. Progress on the six measures relating to Birmingham Resilience are described separately in this narrative. Our underlying **asset health** remains strong, albeit we experienced an unexpected increase of coliforms detected at our treatment works in 2017/18 which has also been seen in 2018/19. Other measures in this area remain on target or within the deadband.

Our **community** measures include our education programme and helping customers who find themselves struggling to pay their bills. On both these measures, we embarked on a programme that included a marked step change in activity from previous AMPs. We narrowly missed our targets in 2015/16, but increased activity to outperform in subsequent two years and expect to continue this high level of education for the remainder of the AMP.

Our **service now – retail** measures include customers' perception of value for money. This has remained relatively stable across the AMP so far and our targeted communications planned for the remaining years of the AMP are intended to drive improvements to continue to meet our committed performance levels. Whilst we expect to outperform our target we do not expect to exceed the reward deadband and so no further financial incentives will be earned.

Read more: we've described our approach to assuring our forecasts in Appendix A12: Securing confidence and assurance.

The following tables show all performance commitments against a simple colour coding system to demonstrate progress against the regulatory target:

- Green – committed performance level met or exceeded
- Amber – committed performance level missed but within the penalty deadband
- Red – committed performance level missed and outside of any penalty deadband

Service now – waste overview (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
SA1	Number of internal sewer flooding incidents	809* £	901 £	662 £	701 £	680 £
SA2	Number of external sewer flooding incidents	7,163* £	5,801 £	3,763 £	3,474 £	3,425 £

*In APR17 we formally updated our 2015/16 reported sewer flooding numbers.

Service now – water overview (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
WA1	DWQ Complaints	13,941 (£)	14,461 (£)	12,687 (£)	11,105 (£)	9,842 £
WA2	DWQ Compliance	99.962%	99.944% (£)	99.96%	99.97%	99.97%
WB2	Leakage	434 £	432 £	443 (£)	422.5 £	419
WB3	Speed of response to visible leaks	53% (£)	33% (£)	23% (£)	24% (£)	25% (£)
WB4	Minutes lost to supply	11.17 £	10.13 £	34.3 (£)	8.6* £	8.0 £
WB7	Low pressure	162 £	187 £	204 £	183 £	183 £

* Note that the number of minutes lost to supply was reported as 8.6 minutes in table App5 reported in July 2018. We have had a difficult summer period and estimate that 2018/19 performance will be in penalty.

Service now – retail overview (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
SB1 WC1	Customers rating our services as good value for money	57.5% £	58% £	59%	63% £	63% £
RA1	Customer satisfaction ranking	Median	Median	Upper quartile	Upper quartile	Upper quartile
RA2	Service incentive mechanism	83.7	83.61	83.2	85.4	
RB2	Percentage of customers who do not pay	1.8	1.8	2.2	2.2	2.2

Asset health overview (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
SA4	Asset stewardship – sewer blockages	44,107	45,240	45,401	43,412	42,956
WD2 SC3	Asset stewardship – environmental compliance	97.51%	97.99%	97.67%	97.67%	97.67%
WA3	Asset stewardship - coliforms	5	5	8 (£)	<6*	<6
WB6	Asset Stewardship – Mains bursts	4,784	5,173	5,825	5,286**	5,251**

*Note that the coliforms value for 2018/19 was reported in table App5 as <6 in July 2018. The value represented here is the total number of sites failing for coliform at the time of submission in September 2018 noting we are targeting no more failures in 2018.

** Due to the increase in burst pipe repairs we have are undertaking during the hot weather, and to target the three-year rolling average leakage reductions, we have revised the number of expected mains bursts for 2018/19 and 2019/20.

Resilience overview (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
WB5	% Customers with resilient supplies					78.0%
WB8	Temporary use bans	0	0	0	0	0 £
WB9	Timing delays on Birmingham resilience scheme				Progress milestone	Completion
WB10	Non-delivery of the outcome of the Birmingham resilience scheme			Progress milestone		Completion
WB11	Timing delays on the community risk schemes			Progress milestone	Completion (2/3)	Completion (3/3)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
WB12	Non-delivery of the community risk schemes			Progress milestone	Completion (2/3)	Completion (3/3)
WB13	Timing delays on Elan Valley Aqueduct (EVA) maintenance		Completion			
WB14	Non-delivery of the Elan Valley Aqueduct (EVA) maintenance		Completion			
SA3	Partnership working	0	0	8	8	5
SC5	Sustainable sewage treatment	0	0	0	0	0

Environment overview (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
SA5	Statutory obligations – s101A schemes	35	14	32	115	116
SC1	Improvements in our river water quality against WFD criteria (wastewater)	0	8	16	55	142 £
SC2	Category three pollution incidents	293 £	301 £	327 £	262* £	258 £
SC6	Serious pollution incidents	2	7	2	2*	0
SC7	Overall environmental performance					Exceed target £
SC8	Category four pollution incidents	186	239	157	176*	170
SD1	Carbon emissions (wastewater)	204** £	207 £	206 £	205 £	208 £
WA4	Successful catchment management				21*** £	
WB1	Resource efficiency	237	236	235	232	229
WD1	Improvements in river water quality (water)	0	0	0	10	11
WD4	Sites with eel compliance					Milestone met

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
WE1	Carbon footprint (water)	247 (£)	250 (£)	256 (£)	251 (£)	246 (£)
WD3 SC4	Biodiversity	323	293	337	351	588 £

* Note that the forecasts for pollution incidents presented in table App5 in July 2018 have been revised. We have included here 4 serious pollution incidents as the current level of performance at the time of submission in September 2018 noting we are targeting no more incidents in 2018. We have revised the forecast for category 3 and category 4 incidents.

** In our APR17 report we formally updated our 2015/16 reported wastewater carbon emissions in line with a change in calculation that impacted on our targets.

*** Note that we forecast 21 catchment management schemes in table App5 when submitted to Ofwat in July 2018. Due to difficulties engaging with the farming community over the summer we have revised the forecast down to 18.

Serving our community overview (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
WF1 SE1	Improved understanding of our service through education	117,728	167,024	200,536	148,950	147,957
RB1	Number of customers engaged with on debt	24,110	50,903	51,652	49,665	49,655

From July 2018 we also have the following commitments to meet in our Chester operating area.

Overview of our water PCs – Chester area (£ indicates where an ODI has been triggered)

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
A1	Discoloured water contacts				0.85 £	0.80 £
A2	Mean zonal compliance				99.97%	99.97%
B1	Average duration of interruptions				0.2	0.2
B2	Sustainable economic level of leakage				90.8	90.8
B3	Security of supply index				100	100
B4	Number of bursts				54	67
C1	Gross operational greenhouse gas emissions				1,646	2,192
D1	Customers' perception based on market research				Improved	Improved

Code	Definition	Actual Performance			Forecast Performance	
		2015/16	2016/17	2017/18	2018/19	2019/20
E1	Per capita consumption and water efficiency				128.37	127.28
E2	SIM				86.5	
F1	Non-household SIM				94.0	94.0

Outcome Delivery Incentive summary

As part of our Annual Performance Reports each year we have confirmed the outperformance payments and underperformance penalties that are due. We have also identified where we did not consider that it was appropriate to claim the full outperformance payment or increase the underperformance penalty. The tables below replicate this data that has previously been published and the forecast ODI position as reported to Ofwat in table App5 in July 2018. We have not updated the 2018/19 forecasts for the changes identified above – we will review this impact as part of our half-year assurance programme and update Ofwat in November 2018 as to the impact of this on our 2018/19 forecasts.

Water service

		2015/16	2016/17	2017/18	2018/19	2019/20
Outperformance	Gross	£2.3m	£3.1m	£0.0m	£10.4m	£1.6m
	Adjustment	(£1.0m)	(£0.9m)	-	-	-
Underperformance	Gross	(£2.3m)	(£3.9m)	(£30.4m)	(£3.0m)	(£2.1m)
	Adjustment	-	-	£7.2m	-	-

Wastewater service

		2015/16	2016/17	2017/18	2018/19	2019/20
Outperformance	Gross	£19.8m	£41.0m	£88.2m	£90.9m	£88.5
	Adjustment	-	(£1.0m)	-	-	-
	Cap				(£85.5m)	(£88.5m)
Underperformance	Gross	-	-	-	-	-
	Adjustment	-	-	-	-	-

Our wastewater services will breach the overall cap for outperformance payments of 2% of our return on regulated equity. This equates to £153.4m which will be breached during the 2018/19 report year.

Retail performance commitments

In order to forecast the SIM incentive position we have modelled the alternative approaches Ofwat could take as well as a number of industry scenarios considering how companies perform in 2017/18 and 2018/19. Our proposal below uses the following assumptions:

- Ofwat continue to use a relative ranking based on average performance rather than adopting a more simplistic approach;
- Ofwat will apply a level of stretch by positioning the deadband at the arithmetic UQ rather than the mean;
- performance is assessed over the four year period 2015/2019, so incentive will also be calculated based on the four years' of retail revenue; and

- companies 2017/18 and 2018/19 performance will follow their individual three year trajectory of improvement/deterioration (excluding Severn Trent and Dee Valley where 2017/18 actuals have been used and stable performance assumed for 2018/19)

Based on this analysis, the summary table below shows the industry and company averages and ranks.

	2015/16	2016/17	2017/18	2018/19	Four year average	Rank
Industry Average	82.5	83.7	84.8	86.0	84.3	
Industry UQ	85.1	86.0	87.2	89.5	86.4	
SVT	83.7	83.6	83.2	85.4	84.0	12
DVW	83.4	86.0	86.5	86.5	85.6	9

In order to determine the incentive value we made the further following assumptions:

- Companies close to the UQ would receive no financial penalty or outperformance payment;
- companies up to 1 standard deviation below the UQ would receive underperformance payments between -1% and -6%; and
- companies greater than 1 standard deviation below the UQ would receive underperformance payments of between -7% and -12%.

We determined that Severn Trent Water would receive a penalty of -4% equal to £19.2m in 2017/18 prices; Dee Valley Water would receive a penalty of £0.1m. These were then apportioned between the new licence regions, Severn Trent England and Hafren Dyfrdwy, in line with the approach confirmed in Ofwat's determination. We have reviewed the sensitivity of our analysis based on 2017/18 actual performance and note that the outcomes were not materially different from that included in the PR14 reconciliation submission; as such no adjustments have been made.

A5.5 Birmingham Resilience Programme

In this section, we describe our Birmingham Resilience Programme (BRP) and evidence to support delivery of the six performance commitments covering delivery and timing of the programme. There are multiple financial delivery incentives based around delivery of specific elements or milestones being reached.

An overview of the Birmingham Resilience Programme

BRP contains three key parts, each tracked through its own performance commitments:

- The Birmingham Resilience Scheme – creating a new alternative supply of water including upgrades to Frankley WTW. This element of the programme is an enabler which will allow longer shut downs of the EVA from 2020 onwards to undertake more detailed inspections and maintenance. This element will not alter the risk of failure itself.
- Community Risk schemes – reducing the risk that a failure of the EVA will lead to significant impacts for three communities along the EVA route. This element specifically reduces are removes risk of failure at three critical locations.
- Elan Valley Aqueduct maintenance – maintaining a specific element of the route at Bledffa where the structure requires essential maintenance. This will remove the risk of failure of the current tunnel and conduit by transferring the flow to a new tunnel adjacent to the current asset.

[REDACTED]

It was originally commissioned in 1904 and covers a distance of 119km with a vertical drop of just 52m from start to finish. The aqueduct is completely gravity fed along its entire route. This, combined with the high quality water which requires very little treatment, results in a very low carbon water source. The low costs are shared by all our customers and contribute to our customers having the lowest average bills in England and Wales.

Justifying the need for investment

[REDACTED]

[REDACTED]

Delivery of the six BRP performance commitments

As part of including investment for BRP in the PR14 Final Determination, Ofwat confirmed a series of customer protection measures through six performance commitments and associated outcome delivery incentives covering delivery of the schemes to time and a minimum capacity. The incentives are penalty only.

We have summarised the progress we've made against each of the commitments and evidenced the milestones delivered. Pivotal to the success of delivering one of the largest schemes in the water sector has been the management team overseeing delivery - we actively secured expertise from outside of sector, with a proven track record of delivering large scale civil engineering infrastructure projects. We've also closely collaborated with our supply chain. This has substantially increased the expertise of those managing the end to end programme, enabling us to mitigate risks and manage issues.

WB9/10 – Birmingham Resilience Schemes

The commitments we made

Delivery is measured in terms of completion of three elements:

- a new 117 Ml/d pumping station on the River Severn;
- a 117 Ml/d pipeline to Frankley WTW; and
- an upgrade to the Frankley WTW to allow it to treat 237 Ml/d of river water

In our Final Determination we agreed to monitor delivery against both the timescales for delivery of the individual components (WB9) and the treatment capacities provided in the final solution (WB10).

Collectively, these enhancements provide Birmingham and its surrounding area with a reduction in the overall risk to supply by both increasing our ability to undertake maintenance along the aqueduct and by improving our resilience in the event of failure through an alternative water supply. This investment does not, in itself, reduce the likelihood of any particular section of the EVA failing but is an enabler to allow essential inspections and maintenance to occur.

Changes to our commitments

Our initial design considered provision of 117 Ml/day but our final design has increased the capacity of both the pumping station and pipeline to deliver 237 Ml/day direct from the new abstraction site at the River Severn. This change increases the resilience of the water source in to Frankley through the original EVA, the transfer from Trimpley and the new abstraction site on the River Severn. Our abstraction licence at the River Severn allows for a greater volume of abstraction.

Before committing to the increase in pipeline capacity we reviewed the treatment process design at Frankley WTW to ensure the increase could be accommodated. We undertook detailed engineering design work and identified changes to the onsite configuration at Frankley WTW which allowed us to deliver a final treatment solution with sufficient capacity to treat the 237 Ml/day flow from the new pipeline and continue to allow shutdown of the EVA for around 30 days at a time without additional investment. The decision to change the scope also took into account the additional operational resilience provided at Frankley WTW achieved by cross-connecting the process streams as part of our normal maintenance programme.

Summary of the additional benefits delivered

Scheme component	PR14 Final Determination	Delivered solution	Change in benefits
Treatment works – clarification units	4 Actiflow units at 30 Ml/day per unit = 120 Ml/day capacity	3 Actiflow units at 80 Ml/day per unit = 240 Ml/day capacity	Each individual unit has greater treatment capacity than two of the original units combined. In the event of two units failing at the same time, the revised design provides customers with a greater level of treatment than initially intended. The increased capacity also provides additional day-to-day resilience for the normal treatment stream at Frankley WTW.

Treatment works – RGF	20 units at 6 Ml/day per unit = 120 Ml/day capacity	18 units at 16 Ml/day per unit = 287 Ml/day capacity	Increased capacity to align with changes to the pumping station and pipeline, with changes in site configuration leading to reduction in the number of clarification and RGF units required but designed to deliver additional capacity.
Pumping station and pipeline	117 Ml/day	237 Ml/day capacity	The revised design provides more than double the pumping capacity than the original solution. As such greater volumes of water can be transported to Frankley WTW to match the full capacity of the treatment stream from the new source alone. Additional ability to shut down the EVA for maintenance even if the Trimpley source is not available. Resilience against a failure in the EVA that is critical to the supply of water from the Trimpley source.

Delivery of our commitments

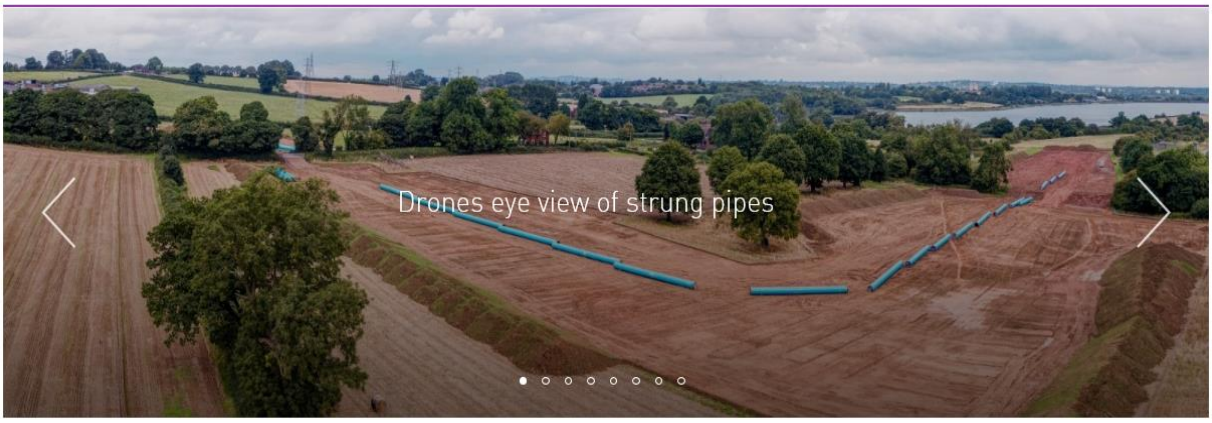
We're on track to deliver the performance commitments but the scheme has not been without its own unique difficulties. Perhaps the biggest risk to delivery came in spring 2017 when we made the decision to move away from the initial delivery partner because our assurance process highlighted significant concerns that the partnership would not deliver to the required quality, timescales or budget. A decision to terminate the contract was made in customers' best interests, as we explained in an update note to Ofwat in April 2017.

In terms of delivery progress, we completed two key milestones for the new pumping station in 2017/18 – successful acquisition of land and receipt of planning permission for the design at the site. As soon as permission was granted, work began on constructing the secant walls to shore up the river bank as well as on the pumping station itself. Construction completion is forecast in the early summer of 2019 which will allow over six months for commissioning and testing the system prior to the required date for water into supply (February 2020).

By the end of 2017/18, we'd laid around 17km (over 50%) of the new pipeline, with much of the rest laid on top of our land. The work is complex as it includes seven road crossings along the route and, where possible, these are being done by tunnelling underneath so the roads can remain open throughout the work. Where we cannot do this, road closures or temporary traffic management systems will be used to enable us to put trenches across the road. We've also increased resources to begin work on the remaining civil structures in parallel with laying the pipeline to enable accelerated delivery. The new pipeline, break pressure tank and Frankley connection are all forecast to be completed by October 2018.

Laying the pipeline

The pipeline will be built using two different techniques; 'open cut' and 'trenchless'. Most of the pipeline will be 'open cut' (see picture above), this involves preparing an area to layout and weld the pipes together and then digging a trench to put the pipe in. We then fill in the trench and reinstate the land back to its original condition. In a few places, mostly crossings such as roads, railways and waterways, we will use a 'trenchless' method. This involves digging a trench at either side of the crossing and tunnelling or boring between the two. This method means there is no need to close the road or railway but does take longer to complete



Initial construction at Frankley WTW began once the final design has been approved. By the end of 2017/18, our mass balance and hydraulic designs had been finalised and agreed. We obtained external expert review and challenge of all elements of the design. Our mass balance design was a particular success point.

Our current programme has all elements of the treatment works upgrades on track for completion in mid-2019. This is in line with the completion of the pipeline and pumping station to all up to six months to undertake full system tests of the end to end solutions prior to the water into supply date in February 2020. The revised configuration to integrate the new workstreams with the existing treatment lines at Frankley WTW is forecast to be complete in 2020/21 – this is additional resilience, not critical for the delivery the WB9 and WB10 performance commitments.

Throughout its delivery our external assurance partners, Jacobs, have reviewed progress against the plan including undertaking onsite audits with the programme team. As the project nears completion we will seek additional scrutiny and challenge from our assurance providers to ensure the assumptions outlined here regarding delivery are held true.

Driving efficiencies in the programme

Throughout the design and construction of the programme we have continually reviewed each element of the design, as well as our approach to construction and programme risk to seek the most cost-effective solution whilst maintaining the outputs we promised for our customers.

An additional key driver followed the cancellation of our partnership contract in 2016/17. Whilst this decision was not taken lightly, we knew it would add delivery risks to the programme due to the delays it would cause initiating construction. As part of the final construction partnership we agreed to explore all opportunities to reduce the delivery timescales in an effort to ensure we had delivered beneficial use by the date promised to our customers. This approach is a notable success where the scope and delivery efficiencies we have been able to identify have allowed us to catch up with the programme delivery and forecast completion of all elements, to an enhanced scope, ahead of our regulatory commitment.

Below we have provided some examples of the efficiencies we, and our partners, have identified within the programme. They are categorised as either:

- Design – adaptations to the detailed design that drive time and cost efficiencies
- Construction – considering alternative construction processes
- Programme – reviewing our approach to programme and risk management

Element	Type	Description	Efficiency
Pumping station – raw water	Construction	Initial designs included a location for the pumping station on contaminated land. The cost to remove and process the waste were significant. By reviewing the location of the pumping station and an alternative route for the pipeline we were able to significantly reduce the construction costs of the pumping station.	£2.6m
Pipeline – raw water	Programme	Our Community of Practice reviewed the detailed pipeline pressure testing programme to explore efficiency opportunities. They developed	£1.6m – combination

		and approved a programme that significantly reduced the time requirements whilst continuing to align with the British Standards.	of time and resource
Actiflo unit – treated water	Design	As detailed above, a reduction in the number of Actiflo units whilst increasing the total treatment capacity and maintaining the operational resilience of the solution. The economies of scale also led to cost efficiencies.	£0.75m
RGFs – treated water	Design and construction	As detailed above, reduction in the number of rapid gravity filters. This also led to a change in flow around the site and the removal of two diversion mains. At the same time the media retention baffles of the RGFs were confirmed as adding no additional treatment benefit and as such they were removed from the final design.	18 days' time saving £2.0m
Tunnel boring	Programme	Identifying synergies between elements of the Birmingham resilience programme and other construction projects to share costs of key equipment and resources such as the tunnel boring machine	Unquantified

In addition, there are a number of future opportunities we are continuing to explore during the final construction and commission stages of the programme. These include:

- A change in material type for sections of the pipeline from steel to Weholite pipe. This change is driven by the new route for the pipeline and to better accommodate the curved sections. This recommendation has been approved by the Community of Practice (our team of cross company experts and specialists). Saving of c£500k.
- Adaptations to concrete benching and superstructures at the pumping station could lead to around £400k of savings.
- Continual review of scope requirements and innovation opportunities of each individual element could result in a further £500k saving.

The above examples are not an exhaustive list and we will continue to seek further opportunities for the remainder of the programme. In total the approach we have taken means we are confident we will deliver all elements of the programme to time, to an improved scope and within the Final Determination cost allowance. Our customers will share in this outperformance through the totex sharing incentive mechanism.

Keeping our customers informed

Our research shows that customers care about the consistency of the water they receive. Small changes in the taste, odour or appearance can lead to some customers thinking there is a problem with their supply. We know that shutting down the EVA will result in hundreds of thousands of our customers receiving water from a different source. It's important that we work hard to ensure our customers understand why the change has occurred and when it is going to happen. The more we do, the more our customers will continue to trust the quality and safety of the water we provide.

We've been undertaking different pieces of research to understand the impact the change will have and how we can mitigate against this. We know that even small changes in customers' daily routines can be disruptive to them, and a lack of trust in the water coming from their tap can have a real impact.

Channel	Approach	Results
Focus groups	Cross-section of our customers looking both at the understanding and acceptability of the programme as well as exploring what it is about the water customers notice first.	Initially customers are concerned if the look of water changes. It's the difference that they notice immediately and is highly likely to drive avertive behaviour, such as only drinking bottled water. Whilst changes in appearance can occur through disturbance in the network, and not through a change in raw water source, it is something we need to be mindful of as our operations switch the supply points. Any smell or odour is the next noticeable sign. A bad smell will put customers off the water and again is likely to lead to avertive behaviour. This will most likely be related to the treatment process, such as chlorination, and could come as a surprise to customers if it's not something they are used to. Finally, customers are likely to notice a change in the taste. This will primarily be due to the mineral content of the raw water source and is something that

Channel	Approach	Results
		we can do little to change. We can, however, ensure that customers are fully aware of the change before it occurs to minimise the disruption to their lives.
Acceptability of water testing	Series of blind trials to understand the point at which a change in the blend of water was noticeable	The results were used to develop the protocols we needed to follow when we shut down the EVA to minimise the impact on customers. It also allowed us to, where possible, look to blend the water supply within an optimal range to prevent noticeable changes for customers in the taste of their water.
Arthur Jones and the genie of the tap	A storybook sent to all customers who are provided by, or who may work in an area supplied by, the EVA	By introducing our customers to the work we are doing on the EVA through a fun, child friendly cartoon book we have been successful at both informing our customers of the need for the work and promoting the great work Severn Trent does in the round. Feedback on social media has been really positive with parents agreeing they have learned a lot themselves.
Website	Regular updates provided for customers on the individual schemes within BRP	Our customers and stakeholders are interested in the progress we are making so we have provided this information in an easy to access way [https://www.stwater.co.uk/in-my-area/planned-improvements/]
Customer events	Public events held to keep local customers informed of progress	These events have provided an essential link with communities we're working with, allowing us a channel to explain individual schemes and listen to concerns as we progress through the programme.

[REDACTED]

[REDACTED]

A5.6 Other adjustments, including TOTEX and WRIFM

Totex sharing

Expenditure to date: As set out in the APR, total cumulative expenditure (restated to 2012/13 price base) is £254.6m (7.8%) lower than allowed in the FD menu.

There are significant differences between service and expenditure performance in our Water service compared with our Wastewater service:

- Ofwat assessed our Wastewater plan as efficient, but we have still worked hard to achieve service and expenditure outperformance of £259.6m as shown above.
- Ofwat assessed our Water plan as less efficient than they would expect and therefore targeted us to reduce our costs. Our cumulative totex position is broadly in line with Ofwat's assessment.

Differences between actual and allowed totex

Totex in £m at 12/13 prices	Service	Cumulative to 16/17	Cumulative to 17/18
Adjusted Actual totex (menu)	Water	1,068.7	1,662.0
	Wastewater	880.8	1,363.0
FD menu assumptions	Water	1,064.1	1,657.0
	Wastewater	1,039.9	1,622.7
Total variance	Water	4.6	5.0
	Wastewater	(159.1)	(259.7)
	Total	(154.5)	(254.7)

For both water and waste water services, the totex position is more complex than the headline figures in the 4B table above suggest, as explained below.

Water service

We have increased the level of activity on water quality and security between 2015 and 2018 because we knew we needed to do more to meet customers' expectations. Given our performance, we believe this has been the right course of action – we do not want to store up problems for the future. This has however resulted in some timing delays in other programmes within the water business.

We have delivered significant efficiency, using our established risk based investment approach, implementing innovative techniques and working with our supply chain to implement better ways of working – such as using pre-fabricated construction techniques to reduce the on-site implementation cost, and reduce overall construction time.

We have highlighted power cost pressures as this is the single largest operating cost pressure we face, although other operating costs have also risen this year, eroding some of the earlier efficiencies delivered.

Cumulative variations to plan (£m)	16/17	17/18
Increased spending on WTW, service reservoir and boreholes to improve drinking water quality	46	103
Increased spending on security at our sites	11	13
Contract efficiencies	(31)	(38)
Other efficiencies	(45)	(44)
Upward cost pressure (power)	11	13
Total scope/efficiency difference	(8)	47
Acceleration of the planned work on WTW, service reservoirs and boreholes	21	6
Delays to remainder of capital programme	(8)	(48)
Total timing difference	13	(42)
Total difference to FD	5	5

Wastewater service

We have spent around 16% less than the totex Ofwat assumed in the Final Determination, but at the same time we have increased activity on water framework directive to improve more rivers in our region than originally in our plan – our innovative incentive has allowed us this extra flexibility to work with the Environment Agency to do our fair share in 2015-20 rather than delaying improvements. The changes have led to us being a little behind on the programme but we are confident we can catch up over the next two years with the added benefit that we've aligned the improvements with our maintenance work to secure more efficient costs.

Cumulative variations to plan (£m)	16/17	17/18
Increased spending on STW maintenance and WFD	-	18
Efficiency within FD (cumulative difference between plan and FD)	(54)	(81)
Efficient design and planning of private pumping station adoption	(17)	(24)
Contract efficiencies	(49)	(71)
Other efficiencies	(5)	(65)
Reduced energy costs due to self-generation (net of upward pressure)	(13)	(12)
Total scope/efficiency difference	(138)	(235)
Acceleration of the planned work on STW and sewer rehab	6	16
Delays to WFD programme	(27)	(41)
Total timing difference	(21)	(25)
Total difference to FD	(159)	(260)

Combining data, design and innovation to drive efficiency

Our approach does not focus on cost alone – quality plays an important part in our supply chain incentives. We are also investing in research and development and also encouraging all our people to come forward with novel ideas – we want to do things safer, better and faster. Our planning is also becoming more systems based – we're looking for solutions which solve more than one problem, enabled by the quality of our data and modelling. We're confident we can continue delivering efficiency, driving the frontier on waste and ensuring we make appropriate, balanced decisions on water.

Looking forward, we know we'll need to do more to meet our customers' expectations in 2020-25. We'll only be able to do this if we invest to improve now. We're confident enough in our delivery and efficiency plans to earmark an additional £100m to be reinvested back into our wholesale business over the next two years. We're excited to be investing in things like robotics, extra loggers across our network, and a new training academy – all designed to help improve our performance and set ourselves up responsibly for the future.

Wholesale Revenue Forecasting Incentive Mechanism

Over the course of AMP6 to date, Severn Trent has collected more than the amount assumed in the final determination. The primary driver has been capital income:

- Requisitions income of £15.2m (12/13 prices) from our PR14 Business Plan was not included within the Final Determination, meaning that any income from this source is a variance from the FD. This occurred because requisition income was netted off wholesale costs but not included in tables W9/S9 (Following the Draft Determination Ofwat issued further guidance in Appendix A3 explaining the costs should be included in W9/S9, however this clarification was missed so that costs were subtracted but not added back)
- Income from infrastructure charges has been higher than we anticipated in the plan.
- As these variances have flowed through we have made downward adjustments to charges in 17/18 and 18/19. There is a mixed picture for charges in 19/20 where Severn Trent under collected waste charges in 17/18 and this will result in an upward movement in charges.

Dee Valley under-collected against allowed wholesale revenue, particularly in the first year of the AMP (5.6%). Because DVW did not accept the licence modification allowing for symmetrical in-period corrections, these amounts are all carried forward to AMP7. Since part of this relates to Chester, revenue for Severn Trent England will include an upward adjustment but in the context of SVE this is far less material.

At this point in the year, we are not forecasting a variance against our revenue controls in 18/19. Our charges were based on central estimates of properties, volumes and capital income; unless there were very strong trends away from these values at the end of Q1 we would not anticipate a variance. Likewise, our charges for 19/20 will be set with the aim of recovering revenue in line with the determination.

Land sales

Severn Trent aims to realise £100m through land sales over the course of 10 years; the actual and forecast numbers included within our legacy adjustments reflect that ambition. The disposals include land which we are selling to our non-appointed business, Green Power, in order to further our objective of generating 50% of our overall power requirements.

Through the process of collating our net proceeds from land sales for 2017/18, we identified an error in our 2016/17 APR submission for these numbers. The figures had been understated by £2.0m because the list of disposals was not complete. We are using the lessons learned from this to update our procedures and strengthen controls in this area. We have corrected the reported numbers in our PR14 reconciliation data table for land sales, App9.

PR09 Legacy Adjustments

We have reflected the values published by Ofwat in December 2017. As with other adjustments relating to the legacy companies, we have allocated these values between SVE and HDD.

A5.7 A decision making process to enable successful delivery

In this section we discuss our decision making process which has evolved over PR14 and stands us in good stead to deliver for our customers' at PR19.

An effective decision making process

The outcomes approach has provided a framework for defining longer term objectives, moving away from prescribed outputs, levels of activity and the serviceability approach. We recognise that the flexibility of the outcomes approach requires us to act responsibly to ensure we continue to deliver our licence obligations to provide a sustainable level of service to customers.

This is why we look holistically at all of the factors (short and long term) that affect delivery of an outcome. We use a hierarchy of measures to streamline the reporting processes to give the right people the right information at the right frequency. The rigour and structure of monitoring performance at this further level of granularity ensures that investment decisions are not unduly focused on delivery ODI performance.

The main components of the governance structure

User	Frequency	Required level of detail	Role in decision making
Senior Executive and Board	Board – monthly STEC – weekly and monthly	Overall trend in performance by outcome and performance commitment. Overall risk profile and trend	Part of board assurance that we are managing our assets for the long term and delivering on customer priorities Part of challenging and signing off PR19 plan. Part of annual performance reporting and assurance
Leadership team (e.g. Production, Customer Delivery commcells, Weekly cross company loopcells Investment Control Group, Programme Board, Risk Review Committee)	Weekly and monthly	Overall performance of all PCs and serviceability sub-measures. Plus deep dives e.g. critical assets, in areas where high level PC & ODI's are off track, in areas where investment plans are off track or to test and challenge future delivery plans and strategies	In-AMP reprioritisation Risk management Informing policies Building rolling business plan Aligning initiatives and priorities
Local management	Weekly	Trends in individual indicators, split by operating areas, assets or processes and equipment.	Understanding root cause Intervening to correct adverse trends Updating/ informing standards & procedures In-year investment reprioritisation Sharing best practice

Asset health

We recognised at PR14 that there was a need to increase our focus on asset health. This increased focus has not only improved asset health, it has also provided a more transparent approach to decision making. The main factors of success of our approach are:

- Having well-defined measures. We are achieving the greatest success where we have the most clarity about the definition of the measure, the way it is calculated, the relationship between cause and effect (i.e. a good understanding of the factors/ levers we can pull to improve performance).

- Aligning the processes we use. Using and building the same set of data across our processes from modelling to planning through implementation to reviewing performance, is efficient and gets best result.
- Using Commcells and weekly Loopcells. These have been instrumental in enabling communication about performance to be delivered in a consistent and timely manner across the organisation and enabling action plans to be challenged and agreed. These are held weekly and attended by the CEO, members of the Executive Team, Strategic Leaders responsible for key measures and the Regulatory team.
- Getting the right balance between mature/well established/good data history and newer measures to support, provide new insight (but without the pressure of the 'target').
- Learning from other sectors. We have recruited a number of new leaders from the oil and energy sectors and their skills and experience in asset management techniques have complemented our existing water sector knowledge.

A Chief Engineer to challenge our thinking

In 2014/15, we created a Chief Engineering Officer function designed to provide assurance that we were challenging ourselves to create the very best engineering solutions, bringing innovation to life within our business and using the totex framework appropriately. We recognised there could be a risk that totex thinking could unduly skew the balance towards shorter term solutions, which in time could lead to more volatility in the underlying capability of the assets or an accelerated rate of deterioration. The team have helped ensure we have a good understanding of the relationship between alternative solutions and the impact they will have on the assets, and the implicit change in the level of risk. This is why we monitor and take a more holistic approach by tracking asset health, service delivery to customers and expenditure.

Assurance

Each year we ask our independent, third party assurance partners, Jacobs Consulting, to review the documentation and processes we use to produce our Annual Performance Report. They also closely scrutinise the quality of the data and report directly to our Audit Committee on their findings.

Because of this, and the additional scrutiny required as part of the in-period ODI determinations, we are confident that our reported data for 2015/16 to 2017/18 is robust and our customers can trust in its accuracy.

To ensure our forecasts for 2018/19 and 2019/20 follow a sound process and are underpinned by justifiable assumptions, our Internal Audit team have reviewed the methodology used to produce the performance forecasts. In particular they have reviewed consistency with the licence boundary change and the assumptions applied to delivery are reasonable. At the same time, our Senior Management Team and Executive have reviewed the delivery plans up to 2020 to ensure forecasts are justifiable and deliverable.