

# Thames Water – PR14 reconciliation commentary



July 2019

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## 1 Assurance approach

This section provides an overview of the approach that we have used to assure data tables for the PR14 reconciliation submission.

### Our assurance framework

Using our company wide assurance approach, as defined in our [“Statement of Risks, Strengths and Weaknesses for 2018/19 \(November 2018 update\)”](#) and [“Final Assurance Plans 2018/19”](#), we have implemented multiple lines of defence<sup>1</sup> for this submission.

Overall, for this submission we implemented a combination of:

- **Methodology statements and approval:** our standardised methodology statement template is used across our business areas to ensure effective recording of any compliance requirements, the sources of data, calculation processes, assumptions used, any judgements made; change control, version control and the final outputs. Each methodology statement includes the name of author, sign-off by a reviewer, and approval by a senior accountable manager;
- **Internal information integrity declarations (IIDs):** our IIDs are internal checklists required from information preparers, internal reviewers and senior accountable managers. These provide evidence over the validation checks undertaken by internal staff. They include, for example, accuracy and completeness of information, adherence to Ofwat and other relevant guidance, consistent application of the methodology statement, consistency with other information (including other data tables, previous submissions etc.), and undertaking of internal processes/controls;
- **Internal reviews by senior managers and Executive:** in addition to our IIDs accountable Heads of Department, where relevant, and members of our Executive Team have also reviewed, challenged and signed-off each element of our submission;
- **External independent assurance:** we used PwC as our third line of defence they provided a combination of methodology, process and data assurance using Agreed-Upon-Procedures (“AUP”). The process element of their work provided assurance over earlier lines of defence; and
- **Final ‘Gateway’ review:** two members of the Thames Water Senior Leadership Group completed read through sessions across all elements of the submission.

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<sup>1</sup> The “three lines of defence” model is used in risk management frameworks to ensure efficient and effective coordination across risk and control processes, providing assurance that they are operating as intended

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### External Independent Assurance Results

The PR14 reconciliation submission AUPs required PwC to form a team consisting of both financial and non-financial auditors. Their agreed-upon-procedures covered all components of the PR14 Reconciliation.

Over the course of their audit work, they raised 11 management actions which we addressed to mitigate the risk of inaccuracy and/or non-compliance with guidance. They also raised two recommendations for ongoing management oversight on areas of risk and general improvement.

Overall, they considered our tables, models and commentary to be reliable, accurate, complete and prepared in accordance with guidance.

### Final Sign-off and Approval

Reports on our PR14 Reconciliation submission were presented to our full Board on 27 June 2019.

As the submission was due on or before 15 July 2019, after our Board governance meetings, the reports were noted and delegated authority for final approval was given at the 27 June 2019 Board meeting to:

- Nick Land, Chair of ARRC [Independent Non-Executive Director];
- Brandon Rennet, Director of Finance [Executive Director];

### Role of Customer Challenge Group in External Reporting

Our performance commitment and outcome delivery incentive progress is reviewed with our Customer Challenge Group (CCG) on a quarterly basis. These reviews consider both under and outperformance as well as ensuring an understanding of root causes of performance issues and mitigating actions.

## 2 APP5: performance commitments

### 2.1 Overview

We have set out below commentary on each performance commitment. We explain:

- The assumptions we have made when filling in the tables;
- The calculation steps for each financial Outcome Delivery Incentive (ODI) forecast, including those that are in the underperformance payment or outperformance payment deadband;
- How the ODI has been calculated for each of the performance commitments with sub-measures in relation to the individual forecast sub-measure performance levels;
- Whether the amount being claimed for each ODI is the same or different from the outperformance payment/ underperformance penalty determined by their reported performance;
- Where the forecast ODI value in table APP5 differs in any way from the automatic operation of the ODIs as set out in the PR14 final determination company-specific appendix;
- The reasons behind any material changes in performance;
- Whether, and how, any mitigating factors have been applied to the actual or forecast performance for each ODI and its justification for applying these. We also explain how we have interpreted any ambiguity and what assurance we obtained on the interpretation of the ambiguity;
- Where we have identified issues with past reporting of data and the impact it has had on the past reported figures. We also explain how we have adjusted our ODI claim for any issues identified with past reporting of our data;
- Where we have refined our methodology for reporting any performance commitment and the impact that this has had on its reported figures; and
- The internal and external assurance (including our CCG) for our ODI claim. We have provided a full and accurate summary of the results of any audits carried out, outlining any issues that have arisen and what actions we have taken to rectify them.

We also note that there have been any mitigating factors (for example, weather, third party actions or exceptional events) applied to the forecast performance.

Detailed commentary on our performance for 2018/19 is included in our Annual Performance Report (APR) commentary which was submitted to Ofwat on 28 June 2019.

### 2.2 Calculation of ODIs

The method for calculating ODIs is published in a document called “[Update on Outcome Delivery Incentives<sup>2</sup>](#)” which is available on our company website. The calculation of ODIs to populate tables is undertaken in our ODI calculator, which is assured annually by PwC, as part of their assurance over our APR, for accuracy of the calculations and for the data input and output into tables APP5 and APP6.

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<sup>2</sup> <https://www.thameswater.co.uk/-/media/Site-Content/Thames-Water/Corporate/AboutUs/Our-strategies-and-plans/our-five-year-plan/Supporting-information/Update-on-outcome-delivery-incentives-May-2018.pdf>

The specific calculation steps for each ODI are explained in the performance commitment and sub-measures in section 2.7.

### 2.3 ODI Claims and Reported Performance

With the exception of SB3 - Properties protected from flooding due to rainfall (including Counters Creek project), the amount that is being claimed for each ODI is the same as the outperformance payment/underperformance payment determined by our reported performance; and the forecast ODI value in table APP5 does not differ from the automatic operation of the end of AMP ODIs as set out in the PR14 final determination company-specific appendix.

In our APR commentary for table 3A we set out our proposal for calculating the ODI.

We reported our performance on SB3 in preceding annual reports and our PR14 submissions as the total number of equivalent properties that our flooding programme, comprising the Counters Creek Flood Alleviation Scheme (CCFAS) and other schemes, protects. As per SB3 as agreed at PR14, we did not report performance on CCFAS and other schemes separately. This accorded with the target of this performance commitment being set as the total number of equivalent properties protected, so independent to whether CCFAS or other schemes deliver this protection.

We proposed amending SB3 to recognise that we are not cancelling our CCFAS but are delivering it using a different mix of solutions to those envisaged at PR14.<sup>3</sup> The need for these amendments originates from SB3, as agreed at PR14, not envisaging a scenario where in light of better evidence we identify a mix of solutions that protect customers at risk of flooding in the Counters Creek area as effectively, yet using a different mix of solutions to those funded at PR14 (which included a strategic sewer).

We proposed amending SB3 in two ways<sup>4</sup>:

- restating the performance commitment tables and incentive rates in SB3 to reflect that the automatic financial incentive that applies to other schemes is separate to CCFAS; and
- inserting additional wording into the SB3 'additional details' table to clarify how the CCFAS incentive works when delivered using a different mix of solutions<sup>5</sup>.

The first amendment was implemented by setting the target for other schemes at 668 (in number of properties). The annualised benefits associated with these 668 properties to be protected amount to £5.8m<sup>6</sup>. Table 1 reports our AMP6 performance on other schemes in number of equivalent properties.

**Table 1: Our performance on other schemes over AMP6**

2015/16	2016/17	2017/18	2018/19	2019/20	Cumulative
327	60	19	49	168	622 <sup>7</sup>

<sup>3</sup> See "Counters Creek Flood Alleviation Scheme – ODI Amendment proposal", November 2018.

<sup>4</sup> We proposed complementing these amendments by committing to fully refund our customers for the underspend that is a result of our alternative CCFAS saving a considerably amount of money (~£124m).

<sup>5</sup> We refer to our ODI Amendment Proposal for the precise wording of these amendments.

<sup>6</sup> This concerns the sum of Annualised Benefits that we committed other schemes to deliver as per Table 1 in our PR14 Performance commitment response: SB3 Properties protected from flooding due to rainfall.

<sup>7</sup> The cumulative forecast of 622 is determined as the sum of non-rounded performances across individual years. This explains why this forecast is 622 and not 623.

Our forecast of 622 equivalent properties protected by the end of AMP6 implies that we are on track to deliver annualised benefits of £5.87m. As such, we are on track to deliver the target of £5.8m and neither an under-performance payment applies nor is an over-performance payment available. Any payment from under- or over-performance relative to the target of £5.8m will be determined in accordance with the formulas and approach set out in our June 2014 Performance Commitment Response. We explained in this response that, whilst we defined the process for determining incentive rates ex ante, we would only determine the exact incentive rate and ODI true-up, ex post at PR19 and subject to independent assurance. This allows for ODI true-up to be based on the actual costs and benefits of the specific solutions that we implemented. We are committed to do this. That is, we will determine any under- or over-performance on other schemes in 2020/21 using the formulas from the June 2014 response and based on the actual costs and benefits associated with the solutions that we implemented. We do not report an indicative penalty or reward at this stage as there is significant uncertainty around the actual costs and benefits that should be used in this determination.

The second amendment expresses that SB3 regarding Counters Creek would be met where all properties, identified by Thames Water before 28 February 2018, to be at risk of flooding (with a high degree of confidence) in the Counters Creek area are alleviated to a 1 in 30 standard by 31 March 2020 with a mix of solutions that does not include a strategic sewer. As we are not cancelling CCFAS, and our alternative CCFAS will provide at risk properties with greater localised protection, sooner and for a lower cost than could be delivered by a strategic sewer, there should be no ODI penalty. We confirm that we are on track to provide the required protection by March 2020.

### 2.4 Mitigating factors

Our mitigating factors are set out in our [“AMP6 Outcomes Reporting Policy – Annex 1”](#), which is published on our company website. Mitigating factors could include weather, changes in the methods of measurement, exceptional regional or national events, and disproportional impact of single asset failure or combination of events or transferred S105a assets.

In 2018/19 we have applied our mitigating factors policy for severe weather to our low pressure performance commitment in accordance with our outcomes reporting policy which is published on our website. During July 2018, 18,016 customers’ properties experienced low pressure in Slough, Wycombe, Aylesbury and Guildford, the majority of whom were impacted between 5 July and 17/18 July, with one area being impacted until 26 July. Of these, 14,542 satisfied the severe weather exclusion criteria. The remaining 3,474 were added to the low pressure register. These have since had operational solutions delivered and the customers are no longer suffering low pressure. Our approach was endorsed by our CCG on 1 March 2019 and the application of it has been audited by PwC.

No mitigating factors have been applied to our forecasts for any measures for 2019/20.

### 2.5 Methodology Changes and Past Reporting of Data

For 2018/19 we have made the following changes:

- One small change to our methodology for low pressure which includes retrospective application of the methodology to our 2017/18 reported performance.

As we indicated that we would do in our 2017/18 Annual Return, we have reviewed our process document for this measure and a small change in methodology is being implemented relating to the validation period after a solution has been applied. In previous years the validation period, which can take up to 28 days, was included in a property’s time on the low pressure register.

This meant that some properties, for which a solution was applied during March, would still be reflected in the year end figure, despite the solution being in place before year end. This has been reviewed and the change is to exclude the validation period from the time on the register.

Under the historical methodology the end of year figure would be 668 properties on the low pressure register, and under the adjusted methodology it is seven properties. All solutions were applied by 21 March and were proven to be successful without further intervention in the validation period.

Retrospective application of our new methodology to our 2017/18 performance would result in the end of year figure for 2017/18 being six properties (all allowable exclusions for resolution under Section 65 of the Water Industry Act 1991), rather than the 206 properties reported in the Annual Return.

This aligns the register time with the low pressure actually being experienced by our customers and was endorsed by our CCG on 1 March 2019. This also aligns with our methodology for reporting sewer flooding where we take the data cut of flooding incidents for the period 1 April to 31 March on 1 May after the reporting year in question. This is to allow enough time for a lag in customer reports of flooding in March and to allow site investigations to progress.

The change in methodology has no impact on the WB1 Asset Health assessment of “marginal” which we are reporting this year in 2018/19. In addition, the retrospective application of the methodology would not change the 2017/18 WB1 assessment of “marginal”. Therefore, the change in methodology does not result in any change to the ODI under performance payment related to WB1.

- Restating of our 2017/18 number for SB7 – Population Equivalent for sites made resilient to extreme rainfall events. In 2017/18 we reported actual PE (including growth) rather than design capacity as stated in our PR14 submission. In our reconciliation commentary we stated the equivalent design capacity. We have now restated our 2017/18 performance as design capacity. We are now expecting a potential small under-performance payment.
- Restating of our previous year’s numbers for WB7/SB6 - Compliance with advice notes (with or without derogation).

In our letter to you dated 31 May we said:

*“In 2018 we carried out a strategic review of our SEMD programme. This showed that the scope and complexity of work required to secure the 591 outputs we had planned originally was too extensive and too complex to be delivered in a single AMP period (AMP6) or for the expected cost. Our updated target is to deliver 326 outputs, which we still consider to be challenging.*

*In our PR19 April Plan, we suggested a temporary approach to measuring our performance against WB7 and SB6, which involved comparing the amount of forecast expenditure on our SEMD programme with what was allowed by the FD. This approach would have required us to submit a corrigendum ahead of our annual performance reporting requirements for 2018-19.*

### **Latest developments**

*Following the April 2019 submission, we have discussed our AMP6 programme with Defra and propose to amend our original PR14 forecast of outputs to be delivered from 591 to 326. This is more reflective of the efficient number of outputs that can be secured, taking account of the*

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time and money available. Overall, the changes retain our commitment to comply with Advice Notes.

We intend to report performance for commitments WB7 and SB6 against the amended scope of 326 outputs. In the interest of transparency, we will also disclose what our performance would be against the 591 outputs originally agreed with Defra.

We have discussed this approach with Defra. In light of this discussion, we consider that adjusting the level of outputs required to deliver on our SEMD commitments is a more appropriate and consistent approach than changing the basis of the performance commitment.

Consequently, we do not consider we need to submit a corrigendum, as the number of outputs to be delivered is not formally specified in the PR14 FD, nor published elsewhere and there are no changes required to the FD description of WB7 and SB6.”

This results in outputs as follows:

### Water against new outputs<sup>8</sup>

2018/19	2017/18	2016/17	2015/16
42%	39%	6%	1%

### Waste against new outputs<sup>8</sup>

2018/19	2017/18	2016/17	2015/16
45%	42%	32%	10%

For 2019/20 we intend to:

- Make one change to the methodology for SC4 - Water bodies improved or protected from deterioration as a result of TW activities. The change is to revise our measure from measuring phosphorus concentrations in the river to measuring phosphorus concentrations entering the river and has been ratified by our CCG on 14 June 2019.

Our measure is currently based on evidencing changes in river concentrations of phosphorous which our investigations are showing can take five to 10 years to evidence. Innovative methods to improve benefits detection are now being deployed but we are proposing change to the methodology for 2019/20 to allow waterbodies to be claimed as meeting the performance commitment where it can be demonstrated that phosphorus inputs to the watercourse in question have been reduced as result of the actions taken. This does not have any financial impact on customers and does not change the scope of work we are intending to complete as excellent work already been delivered to:

- Assess, characterise and prioritise actions in the study catchment (the Evenlode), including baseline monitoring;

<sup>8</sup> The results against old outputs for Water and Waste are as follows:

### Water against old outputs

2018/19	2017/18	2016/17	2015/16
23%	21%	3%	1%

### Waste against old outputs

2018/19	2017/18	2016/17	2015/16
28%	26%	20%	6%

- Engage with farmers and develop a viable proposition for phosphorus control;
- Achieve high rates of scheme uptake, with particularly high coverage in the highest risk areas and continuing scheme delivery across the whole catchment; and
- Have multiple approaches for controlling phosphorus under test, ranging from specialist advice, to “no-till” trials and implementing capital interventions such as improving farm tracks, building fencing to prevent livestock entering the streams and rivers and creating hard standings to reduce sediment being mobilised and entering the watercourses.

We are planning to continue our catchment work in this area into AMP7 and will continue to monitor the longer-term benefits of the work delivered to control phosphorus in AMP6.

The proposed change does not change the forecast that we put in our April PR19 submission.

- Consult our CCG on a potential methodology change for our T3 – Thames Water will engage with its customers to build understanding of the Thames Tideway Tunnel project. This may or may not result in a change.

### 2.6 Target Changes

During 2018/19 we have updated the targets for the greenhouse gas emissions performance commitments (WC1 and SC1) to reflect the actual UK emissions factors, confirmed annually by Defra. These were confirmed by Ofwat in the corrigenda which was published in May 2019. Future performance commitment levels will be updated each year to account for changes to Defra’s grid electricity emissions factors.

On 3 August 2018 Ofwat formally signed the S.19 WIA91 undertaking for leakage which formally removed the under-performance payment caps on the leakage targets for 2018/19 and 2019/20. This does not change any historically reported numbers as we had already taken account of this in our historic reporting.

On 18 May 2018 Ofwat published the corrigenda for SC9 - Reduce the amount of phosphorus entering rivers to help improve aquatic plant and wildlife, which we restated during the 2016/17 financial year in line with the expectations of NEP5 as confirmed by the Environment Agency.

### 2.7 Individual performance measures

In this section we set out how the individual performance forecasts are produced, how any under- or over-performance payments are calculated and our delivery plans for 2019/20.

#### **WA1: Improve handling of written complaints by increasing 1<sup>st</sup> time resolution – water (Non-financial PC)**

We are committed to both reducing complaints about our services and improving the volume of these that we resolve at the first point of our complaints procedure. We have submitted an action plan to Ofwat on how we intend to achieve these improvements (see document reference *TW-PD-A6 Response to action TMS.PD.B5&B6 – Accounting for past delivery: handling complaints performance*).

Our complaints performance improved in the latter part of AMP5 and that improvement was sustained through to the early part of AMP6. However, there then followed a number of major incidents which impacted our ability to provide a consistent and comprehensive level of service across all our customer work streams. The balancing of resources to manage high volumes of reactive customer work and

redirection of resources to manage a succession of customer impacting incidents, significant in scale, meant that business as usual (BAU) activity was impacted and managed in recovery phases. Towards the end of the AMP the combined impact of the freeze thaw incident and the subsequent hot dry summer in close succession meant that we had not fully recovered from one incident before another was upon us. Thus, outstanding work volumes continued to increase, and customer complaints rose accordingly. As we approach the end of this AMP we are confident that we have significantly improved our operational insight and resilience, meaning our service to customers is managed more effectively.

The challenges of this AMP have presented us with valuable learning and insights, and whilst the cause of the service disruption has differed, our areas of focus and response to mitigate the impact to customers have had common themes. These themes are; the use of data to provide insight to take corrective action, investment in customer communication channels and transparency of updates and frequency, our customer promises and implementing best practice in terms of our service delivery model. Through our experiences we have strengthened our capability in these areas and created feedback loops to identify and act on feedback from our customers and our teams.

The exceptional experience of the AMP has given us the opportunity to put in a place a continuous improvement culture. This is best demonstrated by the scope, scale and insight from our customer engagement programme for PR19 which is now embedded as the way we work and in our action-orientated response to the learnings from the freeze thaw of 2018<sup>9</sup>.

We have critical change programmes well underway, including the transitioning of our customers to our new billing engine and Customer Relationship Management system (Spring). This major investment will deliver a step change in the provision of billing services to our customers.

Our focus and vision are very clear in being here for our customers. We have strengthened our senior leadership team, implemented a new service delivery operating model designed around our customers and drawing in best practice, and made transformational investment in our technical infrastructure and architecture, as well as capability and digital interfaces. Our strengthened governance framework provides clear accountability. It is on these foundations and in this context that we are confident we will make the step change in complaints performance that our customers understandably expect.

The delivery of the plan provided to Ofwat TMS.PD.B5 and B6 Accounting for Past Delivery: Handling Complaints, is expected to enable us to achieve our performance target of 95% first stage resolution in 2019/20 and set the foundations for continued improved performance through AMP7.

### **WA2: Number of written complaints per 10,000 connected properties - water (Non-financial PC)**

The delivery of the complaints action plan (referenced in performance commitment WA1 above) will help improve performance and we are forecasting an outturn of 14.88 in 2019/20 which equates to a 20% improvement from 2018/19.

### **WA3: Customer satisfaction surveys – water (internal CSAT monitor) (Non-financial PC)**

The freeze/thaw and supply/demand events in 2018/19 resulted in higher volumes of calls and complaints. Early indications are that performance in 2019/20 should improve and we are forecasting

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<sup>9</sup> Our document TW-PD-A5 Incidents performance and customer communication and support performance, May 2019 provides greater detail on our incident management.

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an outturn of 4.48 at this stage which is an improvement on previous years. The delivery of the complaints action plan (referenced in performance commitment WA1 above) will help deliver improved performance in this area.

### WA4: Reduced water consumption from issuing water efficiency devices to customers (Penalty only ODI)

Table 2 - WA4: Reduced water consumption from issuing water efficiency devices to customers

Forecast year	2019/20
Performance commitment level	15.45 MI/d
Forecast performance level	30.21 MI/d (1.96 MI/d in year)
Performance commitment level met	Yes
Underperformance penalty deadband	15.45
Underperformance penalty rate	0.885 per MI/d
Underperformance penalty	= 15.45 MI/d (deadband) – 15.45 MI/d (forecast performance) = 0 (within deadband) * £0.885m = £0m

This measure has an end of AMP target. The unit for this measure is cumulative so the 2019/20 forecast is reported as a cumulative value from the beginning of the AMP.

Due to an increase in demand for customer water efficiency visits from customers, by the end of 2018/19 we have delivered 83% more than our end of AMP target of 15.45 ml/d. Our current forecast for 2019/20 is derived using the water efficiency savings calculation which applies Ofwat's "assumed savings" methodology (from its Chapter 1 reporting requirements for JR11).

Our current plan for 2019/20 assumes:

- 20,000 smarter home visits;
- 2,000 jobs resulting from smarter to fix internal plumbing issues, thus reducing wastage at customers' properties; and
- 4,500 visits to local authority and housing association properties.

### WA5: Provide a free repair service for customers with a customer side leak outside of the property (Non-financial PC)

During 2019/20 we are forecasting to offer customers 6,000 free repairs which is significantly more than the target of 890 properties (over a 10,000-property threshold). This is slightly lower than our actual performance of 7,957 in 2018/19 but this performance commitment is one of a number of components which are included in our assumed delivery plan to achieve our 2019/20 regulatory leakage target of 606 MI/d.

### WB3: Compliance with drinking water quality standards – Ofwat/DWI KPI (Penalty only ODI)

**Table 3 – WB3: Compliance with drinking water quality standards**

Forecast year	2019/20
Performance commitment level	100%
Forecast performance level	99.96%
Performance commitment level met	No
Underperformance penalty deadband	99.95%
Underperformance penalty rate	£3.915m per percentage point compliance
Underperformance penalty	= 99.95% (deadband) – 99.96% (forecast performance) = 0 (within deadband) * £3.915m = £0m

Since the change in the lead standard in 2013 we have consistently achieved a performance level of 99.96% and our forecast for 2019/20 is in line with our historic performance. Our performance for the first four months of 2019 has been 99.98% and whilst we always strive to improve, this measure is extremely sensitive to individual sample exceedances, many of which are due to the condition of customer plumbing, such as lead or nickel. During 2019/20 we are continuing with our lead replacement programme and targeting mains flushing to address iron accumulation.

### WB4/WB1.4: Properties experiencing chronic low pressure (DG2) (Non-financial PC)

The forecast for 2019/20 is seven properties, which are those on our register at the end of March 2019 and are allowable exclusions for resolution under Section 65 of the Water Industry Act 1991. This is a change from the six properties included in our April submission as it takes account of the audited 2018/19 figure.

### WB5: Average hours lost supply per property served, due to interruptions >4 hours (Penalty and reward ODI)

**Table 4 – WB5: Average hours lost supply per property served, due to interruptions >4 hours**

Forecast year	2019/20
Performance commitment level	0.13
Forecast performance level	0.13
Performance commitment level met	Yes
Outperformance payment deadband	n/a
Outperformance payment incentive rate	£3.125m per 0.01 hours per property served
Outperformance payment	= 0 * £3.125m = £0m
Underperformance penalty deadband	n/a
Underperformance penalty rate	£5.335m per 0.01 hours per property served

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Forecast year	2019/20
Underperformance penalty	= 0 * £5.335m = £0m

During this AMP our performance against this measure has been impacted by the weather. For years 1 and 2 of the AMP we earned a small out performance payment and in years 3 and 4 we incurred an under-performance payment due to the freeze/thaw event in 2018/19 and the exceptional dry weather in July and early August 2018. The forecast for 2019/20 is in line with our committed performance level and unchanged from our April submission.

We continue to work hard to improve our supply interruption performance through a number of operational improvements and initiatives which include:

- Recruitment of 24 additional network service technicians and a new trunk main rapid response team;
- Implementation of a supply interruptions dashboard to give management focus on performance;
- Increased investment in monitoring of our network which helps us identify how many customers may be experiencing an interruption to supply;
- Proactive contact with vulnerable customers to support them with alternative water supplies; and
- Increasing the size of pumps that our technicians carry so that live repairs can be carried out on the network and checking and installing new valves in the highest risk areas.

As a result of this work we are starting to see that the number of hours that customers are affected is reducing. Our cumulative performance in April and May 2019 is just under 44,000 property hours compared with 122,826 property hours in April and May 2018. Our year-end target is 500,000 property hours (or 0.13 hours per connected property).

### WB6: Security of Supply Index - Ofwat KPI (Penalty only ODI)

Table 5 – WB6: Security of Supply Index

Forecast year	2019/20
Performance commitment level	100
Forecast performance level	100
Performance commitment level met	Yes
Underperformance penalty deadband	n/a
Underperformance penalty rate	£2.265m per index point
Underperformance penalty	0 * £2.265m = £0m

The forecast SoSI position of 100 across all of our water resource zones for 2019/20 is challenging but achievable. The key to achieving this measure is dependent on a number of activities. These include:

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- Reducing demand by delivering our leakage programme and achieving end of AMP6 target described under WC2. Also continuing our WA4 water efficiency programme and Customer Side Leakage (WA5) reductions;
- Managing our outages throughout the year, looking for improvement wherever possible;
- Reviewing a number of our methodologies this year to assure quality of data. This included target headroom. We will continue to do this work during 2019/20, with an expectation to review outage and effluent returns datasets; and
- Continuing to pursue potential reductions in exports to other companies, such as Affinity and Essex & Suffolk.

### WB7/SB6: Compliance with SEMD advice notes (with or without derogation) (Penalty only ODI)

Table 6a – WB7: Compliance with SEMD advice notes (with or without derogation)

Forecast year	2019/20
Performance commitment level	100%
Forecast performance level	100%
Performance commitment level met	No
Underperformance penalty deadband	n/a
Underperformance penalty collar	0%
Underperformance penalty incentive rate	40.94% of annualised costs saved through scope reduction
Underperformance penalty	£0m

Table 6b – SB6: Compliance with SEMD advice notes (with or without derogation)

Forecast year	2019/20
Performance commitment level	100%
Forecast performance level	100%
Performance commitment level met	No
Underperformance penalty deadband	Not applicable
Underperformance penalty collar	0%
Underperformance penalty incentive rate	40.94% of annualised costs saved through scope reduction
Underperformance penalty	£0m

Our performance is reported cumulatively from the beginning of the AMP.

During 2019/20 our forecast is to bring 39 water and 7 waste sites into compliance with SEMD by installing physical and electronic security measures to deter, detect and delay an attack e.g. security doors, intruder detection (burglar alarms) and CCTV. In addition, we will be updating legacy electronic systems on a further 100 water sites and 7 waste sites removing obsolescence and ensuring that they operate efficiently, and can be maintained, in the future. Finally, we intend to increase our disaster recovery capability to cover all of the above systems.

We have engaged with an external SEMD delivery specialist to review the programme and identify areas for improvement.

### WB8: MI/d of sites made resilient to future extreme rainfall events (Penalty and reward ODI)

**Table 7 – WB8: MI/d of sites made resilient to future extreme rainfall events**

Forecast year	2019/20
Performance commitment level	1,015
Forecast performance level	944
Performance commitment level met	Yes
Outperformance payment deadband	Not applicable
Outperformance payment cap	1,218
Outperformance payment incentive rate	£0.005m/MI/d cumulative
Outperformance payment	£0.000m
Underperformance penalty deadband	Not applicable
Underperformance penalty collar	812
Underperformance penalty incentive rate	£0.005m/MI/d cumulative
Underperformance penalty	-£0.355m

The unit for this measure is cumulative so we are reporting on a cumulative basis from the beginning of the AMP for the all years.

By the end of 2018/19 we delivered protection to five sites (747 MI/d) and are intending to install protection to a further 15 sites (944 MI/d), which covers the vast majority of the target set out in our PR14 plan for this commitment. For the remaining seven sites the solution to the flooding is very complex and high cost and therefore we are expecting to incur a small underperformance penalty of £0.355m.

### WC1: Greenhouse gas emissions from water operations (Non-financial PC)

The greenhouse gas forecast for 2019/20 is calculated from an annual model which takes into account historic performance, current and future electricity consumption. We remain on track to meet our performance commitment for 2019/20.

### WC2: Leakage (Penalty and reward ODI)

**Table 8 – WC2: Leakage**

Forecast year	2019/20
Performance commitment level	606 MI/d
Forecast performance level	636 MI/d
Performance commitment level met	No
Outperformance payment deadband	594 MI/d
Outperformance payment incentive rate	£0.270m per MI/d
Outperformance payment	= 0 * £0.270m = £0m
Underperformance penalty deadband	n/a

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Forecast year	2019/20
Underperformance penalty rate	£0.450m per MI/d
Underperformance penalty	= 30 MI/d * £0.450m = £13.5m

We remain committed to delivering a reduction in leakage across our network and achieving our 2019/20 annual average target of 606 MI/d by 31 March 2020. Despite the challenges of last year we have held a slightly improved performance in 2018/19 of 690 MI/d, compared to our last forecast of 708 MI/d. This will result in us returning £35.1m (£35.1m is 2012/13 prices, £40.6 in 2018/19 prices) to our customers for our leakage performance this year.

Thames Water's Board and Executive team remain committed to doing all we can to hit our target of 606 MI/d and our internal reporting uses 606 MI/d as our target performance.

As a result of the material impact we know weather can have on our plans, we have developed a central plan and budget for 2019/20 that allows for one weather event (either a hotter than average summer or a colder than average winter). Our plan includes the necessary work volumes and work mix to deliver a monthly profile to achieve our 606 MI/d annual average target.

As shared with Ofwat in March 2019, we believe the interventions we have made over the past 24 months have had a clear and positive effect on improving our leakage management processes. We can evidence an improvement in asset availability, volume of activity and speed of planning and repair. For example, we have increased our repair team numbers during 2018/19 by approximately 25 teams (which is around 14% higher than our start position for 2018/19). This has enabled us to complete more repairs than we originally planned.

These improvements provide the necessary foundations for ongoing leakage reduction. We recognise that there is still work to be done. However, we believe we have a leakage 'machine' that is capable of not just addressing the significant natural rate of increase in leakage across our region but is also capable of driving leakage towards our 2019/20 target.

In recognition that many variables can impact leakage reduction we have adjusted our forecast for 2019/20. As previously included in our 1 April 2019 business plan, we have a risk adjusted forecast of 636 MI/d for 2019/20. This is in light of the higher start point for 2019/20, and the inherent challenge in reducing leakage below our all-time lowest level and keeping it there.

### WC3: Abstraction Incentive Mechanism (AIM) (Non-financial PC)

The forecast for 2019/20 is 0 MI/d which is based on our historic reporting of achieving the target since reporting began in 2016/17. It is difficult to predict a more accurate number than this as it is dependent on low river flows and therefore weather.

### WC4/SC6: We will educate our existing and future customers (Non-financial PC)

Since the beginning of the AMP we have consistently engaged more students than our target, which is driven by a higher demand for various elements of our education programme. Our forecast for 2019/20 is in line with historic performance over the last three years and the assumption is that we will continue to perform at this improved level rather than our original performance commitment target.

## WC5: Deliver 100% of agreed measures to meet new environmental regulations (Penalty only ODI)

**Table 9 – WC5: Deliver 100% of agreed measures to meet new environmental regulations**

Forecast year	2019/20
Performance commitment level	100%
Forecast performance level	100%
Performance commitment level met	Yes
Underperformance penalty deadband	Not applicable
Underperformance penalty collar	0%
Underperformance penalty incentive rate	40.94% of 2015-20 costs reduced through scope reductions
Underperformance payment	£0.0000m

This is a five-year measure with a 100% target at the end of the AMP and delivery is agreed through the Environment Agency. In previous years we have reported in-year actuals as ‘not available’ as the performance commitment was not designed to be reported mid-AMP. Calculating the number of sites delivered to date as a percentage is meaningless when deliverables are of different sizes and complexities and the delivery profile is not straight lined. However, for years 1-4 of this AMP, the Environment Agency have reported us as meeting 100% of cumulative agreed measures to date in their Environmental Performance Assessment report.

Table 10 shows that, at the end of 2018/19, we were on track with our planned programme.

**Table 10 – WC5: AMP6 performance**

AMP6 PC Measure	2015/16	2016/17	2017/18	2018/19	2019/20
Number of measures targeted (cumulative)	0	16	17	33	67 <sup>10</sup>
Actual / forecast number delivered (cumulative)	0	17	18	40	79

In order to deliver the 100% by the end of the AMP our activities in 2019/20 are to:

- **Deliver eight river restorations** for the Amwell Magna, River Og, the River Wye, the Letcombe Brook, the Oxford Watercourses, The River Cray, the Sulham Brook and the River Wandle.

Amwell Magna whilst completed in 2018/19, will be counted as delivered in 2019/20 as we were awaiting sign off by the Environment Agency.

One river is due for completion in the summer, three in the autumn and one in winter. For the Oxford Watercourses installation is due for autumn but the archaeology and weather may present a risk to completion which would mean rescheduling with the Environment Agency’s agreement to July – October 2020.

<sup>10</sup> The NEP includes 16 measures to meet requirements related to eels, each with a completion date of March 2021 – as such these are not included in the “measures targeted” line. However we have delivered this obligation already by installing screens at five sites and by other means at two other sites already and are forecasting to deliver a further three screens in 2019/20 with a further two obligations discharged by other means. This leaves four of the 16 to deliver in 2020/21, with three of these achieved through installing screens. Additionally, the Goatbridge river restoration scheme initially planned for 2019/20 has been agreed to be delivered in 2020/21 (see note below).

For the River Wandle, Goatbridge – The design is well advanced but access to deliver the solution by March 2020 is not available due to constraints on site that will not be resolved by the landowner this year. This has been raised with the Environment Agency who agree we have done all we can to deliver the project and we are awaiting their decision as to whether they agree that we have delivered the output by completing all work possible or alternatively whether this output should be removed from the NEP as it is not possible to deliver it within this regulatory period. We will continue with ongoing applications and designs so that we can deliver the project early in AMP7;

- **Complete works to enable two abstraction reductions.** We have completed the design and stakeholder liaison for the closure of Childrey Warren groundwater pumping station ready for construction to commence in the summer of 2019. Commissioning is due to start in December/January ready for completion by March 2020. The Pann Mill PS licence reduction on the River Wye is a licence transfer only and the application will be submitted to the Environment Agency in the autumn;
- **Implement oxygenation capability for Mogden STW** (one output). We have completed the design work and will **implement** the solution in the autumn;
- **Complete two options appraisals** to mitigate our abstractions at Hawridge on the River Chess and Bexley on the River Cray. Our report for the river Cray has been submitted to the Environment Agency for review and our report for the River Chess is currently being drafted ready for submission to the Environment Agency in July;
- **Deliver our works to improve the habitat at our Heavily Modified Waterbodies (HMWBs)** in the Lee Valley (one output). Installation of floating islands on our reservoirs which is due to be completed in August. Habitat improvement on the island at East Warwick reservoir is due for completion in the autumn;
- **Complete our Drought Permit baseline monitoring** (one output) which is due to complete in autumn 2019;
- **Complete River Lee New Gauge Monitoring** (one output) – due for completion in the autumn;
- **Install 13 monitors at WTWs** to measure discharge flow volumes; and
- **Complete AMP6 requirements relating to drinking water protected areas** (five outputs) all relating to DWI undertakings for catchment management schemes.

### WD1: Energy imported less energy exported (Non-financial PC)

Our previous forecasts were based upon average year customer demand, average weather, and planned plant outages. Weather in the first two months of the current financial year has been significantly drier than average, which is resulting in us needing to abstract, treat, and supply water from a more energy intensive combination of sources.

As a result, we are forecasting adverse to this target; acknowledging the risks that further exceptional weather, higher summer demand, and unplanned operational outages pose to any recovery.

### SA1: Improve handling of written complaints by increasing first time resolution – waste (Non-financial PC)

The delivery of the complaints action plan (referenced in performance commitment WA1 above) will help improve performance and we are expecting this to enable us to deliver our performance target of 95% in 2019/20.

### SA2: Number of written complaints per 10,000 connected properties – waste (Non-financial PC)

Despite the increase in complaints in 2018/19, our year end performance of 5.34 did achieve our target. With the support of the complaints action plan (referenced in performance commitment WA1 above), we expect to continue to achieve our target for 2019/20 with a forecast of 4.27.

### SA3: Customer satisfaction surveys – waste (internal CSAT monitor) (Non-financial PC)

During the two water supply events in 2018/19 resources were diverted to manage the situation and this meant that performance in our waste business was affected. Performance improved through the autumn and winter and we expect to continue to improve customer satisfaction in this area as we implement our complaints action plan (referenced in performance commitment WA1 above). Our forecast for 2019/20 is for this to improve to 4.65.

### SB4: Number of internal flooding incidents, excluding those due to overloaded sewers (SFOC) (Penalty and reward ODI)

Table 11 – SB4: Number of internal flooding incidents, excluding those due to overloaded sewers

Forecast year	2019/20
Performance commitment level	1,085
Forecast performance level	1,040
Performance commitment level met	Yes
Outperformance payment deadband	1,085
Outperformance payment incentive rate	£0.055m per sewer flooding other cause incident
Underperformance penalty deadband	1,085
Underperformance penalty incentive rate	£0.090m per sewer flooding other cause incident
Outperformance payment	= 1,085 (deadband) – 1,040 (forecast performance) = 45 * 0.055 = £2.475m

Our projected forecast is 1,040 for 2019/20. This forecast is in line with the submitted AMP7 start performance level for sewer flooding other cause incidents (SFOCs) (1,040) and in line with the agreed budget for AMP6. Although the measure is sensitive to weather conditions the assumption has been made that this level of performance is achievable with blockage prevention measures including additional sewer cleaning and continued customer education to raise awareness of the impact of sewer abuse. In addition, our recently expanded network protection team will continue to deliver new

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interventions targeting food establishments in high risk areas to reduce the influence of sewer abuse on our network performance.

The forecast amount to be claimed for this ODI is equal to the outperformance payments calculated in the table above.

### SB5: Contributing area disconnected from combined sewers by retrofitting sustainable drainage (Penalty and reward ODI)

Table 12 – SB5: Contributing area disconnected from combined sewers by retrofitting sustainable drainage

Forecast year	2019/20
Performance commitment level	20 hectares
Forecast performance level	20 hectares
Performance commitment level met	Yes
Penalty collar	10 hectares
Reward cap	50 hectares
Outperformance payment incentive rate	£0.475 per hectare (cumulative)
Underperformance penalty rate	£0.515 per hectare (cumulative)
Outperformance payment/ underperformance penalty	= 20 (PCL) - 20 (forecast performance) = 0

The measure is hectares cumulative therefore the forecast for 2019/20 is cumulative since the beginning of the AMP. Our forecasts are in line with our delivery plans. We have high confidence in the delivery of the 20 hectares target by the end of Year 5, with the majority of the outputs being linked to our Nine Elms project which will deliver 14.355 Ha plus 2.76 Ha from an extension to the original Nine Elms project, therefore totalling 17.115 Ha. A major component of the project is a surface water pumping station which is substantially complete and serves approximately 68% of the area.

The rest of the target is built up from the following projects:

- Field Road – 0.05 Ha, the solution is complete and sign off by the Independent Advisory Group is due in June 2019;
- Coleman Road – 0.843 Ha, the solution is complete and being reviewed by our Independent Advisory Group;
- White City – 1.5 Ha, public consultation has been completed and implementation on site is due to start in July 2019; and
- Australia Road – 0.5 Ha, implementation on site is due to start on site in August 2019.

### SB7: Population equivalent of sites made resilient to future extreme rainfall events (Penalty only ODI)

Table 13 – SB7: Population equivalent of sites made resilient to future extreme rainfall events

Forecast year	2019/20
Performance commitment level	1,700,000
Forecast performance level	1,601,709
Performance commitment level met	No
Underperformance penalty deadband	Applicable
Underperformance penalty collar	1,360,000
Underperformance penalty incentive rate	0.72 £/PE cumulative
Underperformance penalty	£0.0708m

This is a five-year performance measure, which is reported cumulatively from the beginning of the AMP.

We have installed flood protection measures at 4 sites and are installing protection at 5 sites during 2019/20, which covers the vast majority of the target set out in our PR14 plan for this commitment. For the remaining 15 small sites we are currently reviewing the screening process that we used to identify flood risk sites and the assets that would be impacted if a flood were to occur. This review may lead to changes to the programme and the types of solutions deployed, such as fewer assets protected, the use of mobile flood barriers and other operational solutions, utilising the skills and experience that we have developed over the last few years in our Logistics Management Centre. Until we have concluded this review, we are maintaining our forecast at the current level of delivery, which will result in a small underperformance payment. All of our sites will be re-assessed when either new climate change data is released or following major rainfall events

### SB8: Lee Tunnel including Shaft G (Penalty only ODI)

Table 14 – SB8: Lee Tunnel including Shaft G

Forecast year	2019/20
Performance commitment level	None
Forecast performance level	n/a
Performance commitment level met	Scheme delivered in 2015/16
Underperformance penalty	£0.0000m

The performance commitment was delivered in 2015/16 so there is no forecast for 2019/20 and no underperformance penalty applies.

### SB9: Deephams Wastewater Treatment Works (Penalty only ODI)

Table 15 – SB9: Deephams Wastewater Treatment Works

Forecast year	2019/20
Performance commitment level	None
Forecast performance level	n/a
Performance commitment level met	Scheme delivered in 2016/17
Underperformance penalty	£0.0000m

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The performance commitment was delivered in 2016/17 so there is no forecast for 2019/20 and no underperformance payment applies.

### SC1: Greenhouse gas emissions from wastewater operations (Non-financial PC)

The greenhouse gas forecast for 2019/20 is calculated from an annual model which takes into account historic performance, current and future electricity consumption. We remain on track to meet our performance commitment for 2019/20.

### SC2: Total category 1-3 pollution incidents from sewage related premises (Penalty and reward ODI)

Table 16 – SC2: Total category 1-3 pollution incidents from sewage related premises

Forecast year	2019/20
Performance commitment level	340
Forecast performance level	292
Performance commitment level met	Yes
Forecast any category 1 or 2 incidents (negates any reward if “yes”)	Yes
Outperformance payment deadband	263
Outperformance payment cap	229
Outperformance payment incentive rate	£0.130m per pollution incident
Outperformance payment	No reward due to being in reward deadband and forecast of category 1 or 2 pollution incident occurring
Underperformance penalty deadband	400
Underperformance penalty collar	465
Penalty rate	£0.130m per pollution incident
Underperformance penalty	£0.000

Our performance in 2018/19 puts us on track to achieving well below our target of 340 in 2019/2020. The forecast was calculated by using the average for the AMP so far and follows the same method used in previous years. This methodology takes into account previous and current performance, and factors in any benefits we may see in-year; for example, from the sewer cleaning programme.

Greater scrutiny is being placed on STW pollution incidents for all categories, with a Senior Management review and actions being rolled out across all sites. Some examples are:

- Depth monitors are being installed in storm tanks at 212 sites following increases discharges from storm tanks;
- Site operating manuals are being updated to ensure all knowledge of sites is documented and not in people’s heads;
- All temporary back-up generators are now being tested on full load every three months;
- Power spikes and outage is being analysed and tracked;

- Following a serious pollution incident at Marsh Gibbon STW caused by overgrown vegetation on the filter beds preventing filter arm rotation, a project has been created to investigate the best method to ensure filter beds remain clear;
- Increased weather planning to ensure sites have advanced notice of named storms and can put in place preventative action to ensure all assets are in service and the site monitored during the storm; and
- Increased communication between network and site teams to ensure blockage clearance/cleaning in the network does not cause problems at the site. In some cases, the cleaning may be deferred until the risk at the sewage treatment works is low.

### SC3: Sewage treatment works discharge compliance (Penalty only ODI)

Table 17 – SC3: Sewage treatment works discharge compliance

Forecast year	2019/20
Performance commitment level	100%
Forecast performance level	99.15%
Performance commitment level met	No
Underperformance penalty deadband	98.88%
Penalty rate	£3.845m/pp. compliance/year
Underperformance penalty	£0.000m

We are forecasting that the total number of sewage treatment works will increase to 354 by the end of this AMP; a slight reduction from previous forecasts which is due to delays in adopting new sites.

Reviewing our levels of historic performance and the event learning measures we have implemented from previous failures, such as process specialists approving taking assets out of service, we are forecasting three failures to occur in the final year of this regulatory period giving a performance level of 99.15% against this commitment.

### SC4: Water bodies improved or protected from deterioration as a result of Thames Water's activities (Non-financial PC)

The forecast for 2019/20 is in line with current delivery plans. Excellent progress has and continues to be made on our pioneering catchment management trial to control phosphorus in all 13 waterbodies featured in our Evenlode catchment project. However, we now believe our aspiration to evidence the resulting river phosphorus concentration change across all the water bodies is unlikely to be achieved before the end of the AMP6 period. Since commencing this project, evidence has emerged from the Defra Demonstration Test Catchments programme that within the first five years of catchment management, changes in pollutant concentrations are only likely to be detectable at the field, or small sub-catchment scale. The large background of variability of phosphorus concentrations and loads, both within and between years, is a significant factor that hinders clear demonstration of improvements arising from interventions.

Our revised forecast is that we anticipate we will be able to demonstrate the change in the three pilot waterbodies where we commenced this trial and have set up a detailed monitoring system. Despite having a highly successful engagement process well underway in the remaining 10 water bodies, it is unlikely that there is sufficient time remaining in AMP6 for the system to respond, in terms of

demonstrable change in water quality, to the catchment management interventions which will be underway.

This change in forecast does not represent the technical success of the project and it should not be inferred that catchment management of phosphorus is not a viable option. Rather it reflects an ambitious target set for an experimental project. Using alternative measures of success now commonly used in the early stages of a catchment management trial (the first five years) we can clearly demonstrate excellent progress. Examples include farms covering over 70% of the pilot catchment area comprehensively engaging in the trial, and 80% of those farms implementing measures through our catchment fund.

We are proposing to continue this trial into AMP7 as part of our PR19 business plan to ensure that the benefits from this approach are not undervalued and to understand the length of time it takes for the full benefit to be realised. We are also in discussion with our CCG regarding the merits of expanding the measure of success to include evidence of reducing inputs to riverine phosphorus (as well as in-river concentrations). If this approach is accepted and the trial is a success, this may enable a higher number of waterbodies to be recorded as protected or improved under this performance commitment.

### SC5: Satisfactory sludge disposal compliance (Non-Financial PC)

We are forecasting that we will continue to maintain 100% compliance against this commitment which is in line with the previous performance during the AMP. We will do this by ensuring that we have sufficient headroom in our treatment capacity to deal with planned and unplanned outages. Keeping our assets in a serviceable condition is fundamental in achieving this. We will also continue to review and improve the management control and reporting associated with our sludge operations to help us identify issues early and rectify them before they impact on our performance.

### SC7: Modelled reduction in properties affected by odour (Penalty and reward ODI)

Table 18 – SC7: Modelled reduction in properties affected by odour

Forecast year	2019/20
Performance commitment level	6593 properties
Forecast performance level	8931 properties
Performance commitment level met	Yes
Outperformance payment deadband	n/a
Outperformance payment incentive rate	£220 /modelled reduction in properties/year
Outperformance payment	6593 (CPL) - 8931 (forecast performance) = 2338 = 2338 * £220 = £0.5144m
Underperformance penalty deadband	n/a
Underperformance penalty collar	£3m over the AMP
Underperformance penalty rate	£270 /modelled reduction in properties/year
Underperformance penalty	£0.0000m

Table 19 – SC7: Modelled reduction in properties affected by odour – AMP6 cumulative ODI

	2015/16	2016/17	2017/18	2018/19	2019/20	Total
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Cumulative actual/forecast	0	1298	1980	8931	8931	
Cumulative target	0	793	1771	6593	6593	
ODI in year @220 per property (applies for every year)		0.1111	0.0460	0.5144	0.5144	1.1858

This performance commitment is a cumulative reduction in properties affected by odour with annual targets. Our forecast was to achieve our end of AMP target of 6,593 properties by the end of 2018/19 and have since met this and surpassed this target. Since this forecast was produced, we have recognised the delivery of additional odour benefits at both Deephams and Camberley STWs, which has now been verified by our specialist odour consultants. We have also included the odour benefits from changing our working practices at Bicester sewage works where we have started to address some of the emerging odour impacts from the site. We have no further identified odour reduction opportunities and therefore our focus is to ensure that we maintain the level of reduction that we have already delivered for our customers.

### SC8: Deliver 100% of agreed measures to meet new environmental regulations (Penalty only ODI)

Table 20 – SC8: Deliver 100% of agreed measures to meet new environmental regulations

Forecast year	2019/20
Performance commitment level	100%
Forecast performance level	100%
Performance commitment level met	Yes
Underperformance penalty deadband	Not applicable
Underperformance penalty collar	Do not deliver NEP5
Underperformance penalty incentive rate	40.4% of cost saved through scope reduction
Underperformance penalty	£0.0000m

This is a five-year measure with a 100% target at the end of the AMP and delivery is agreed through the Environment Agency. In previous years we have reported in-year actuals as ‘not available’ as the performance commitment was not designed to be reported mid-AMP. Calculating the number of sites delivered to date as a percentage is meaningless when deliverables are of different sizes and complexities and the delivery profile is not straight lined. However, for years 1-4 of this AMP, the Environment Agency have reported us as meeting 100% of cumulative agreed measures to date in their Environmental Performance Assessment report.

The table below shows that at the end of 2018/19 we were on track with our planned programme.

Table 21 – SC8: Deliver 100% of agreed measures to meet new environmental regulations - AMP6 performance

AMP6 PC Measure	2015/16	2016/17	2017/18	2018/19	2019/20
Number of measures targeted (cumulative)	54	184	428	626	827
Actual / forecast number delivered (cumulative)	55	184	429	627	827 <sup>11</sup>

<sup>11</sup> 617 of these are Event Duration Monitors – of which to date 101 have met their regulatory obligation through surrendering the associated permit and where necessary decommissioning the associated outlet.

Our forecasts are based on our delivery programme tracker and the latest agreed NEP and the NEP tracker. We are on track to deliver all agreed schemes.

In 2019/20 we will deliver:

- The final report for the Highworth technology trial. This is complete and was submitted the Environment Agency at the end of May;
- Flow monitoring at 18 STWs. These are currently in the design phase with construction work scheduled to deliver in advance of the deadline of 31 March 2020;
- Upgrades at eight STWs to meet tighter ammonia and/or BOD permits. The sites are Brentwood, Cholsey, Highworth, Waddesdon, Watlington, Faringdon, Hogsmill Valley 'A' and Hogsmill Valley 'B'. Two of these sites are programmed and on track for completion before the end of 2019, with the remainder by March 2020;
- Report the data for 28 sites as part of the Chemicals Investigation Programme with the sampling work currently underway and going to plan; and
- Event Duration Monitors at the remaining 144 sites. At the time of writing six of these already have monitors installed, 50 have reached design completion stage and progressing to construction with the remainder in the process of being reviewed and/or going through design work.

### SC9: Reduce the amount of phosphorus entering rivers to help improve aquatic plant and wildlife (Penalty and reward ODI)

Table 22 – SC9: Reduce the amount of phosphorus entering rivers to help improve aquatic plant and wildlife

Forecast year	2019/20
Performance commitment level	59.3kg/day
Forecast performance level	59.3kg/day
Performance commitment level met	Yes
Underperformance penalty deadband	Not applicable
Underperformance penalty collar	0
Outperformance payment cap	199
Underperformance or outperformance payment incentive rate	Determined by reference to actual costs and benefits on completion of the price control period as the penalty rate will be a function of our actual performance against the restated performance commitment reflecting the costs and benefits foregone of any units (kg/d) not delivered.
Underperformance penalty	£0.0000m

The forecasts for 2019/20 are in line with current delivery plans which are on track for full delivery by end of the AMP.

The work to deliver this comprises upgrading 24 STWs and diverting the flows from one STW to another which already has phosphorus treatment technology installed. Nine of these sites have completed construction work and are already in the final stages of testing and commissioning, with all but one of the remaining sites currently forecast to enter final testing and commissioning before the end of the calendar year. The final scheme is scheduled for completion in January 2020.

### SD1: Energy imported less energy exported (Non-financial PC)

We are not forecasting to deliver our committed performance levels for 2019/20. At the time we set our performance commitment (2013) we set a challenging baseline which we did not meet. This optimistic baseline combined with our failure to deliver energy efficiencies at the rate we had aspired to, has slowed our progress in this area.

To achieve our current forecast, which is above the committed performance level, the main focus of our efforts for the remainder of AMP6 will be:

- Ramping-up the THP plants at Crossness, Basingstoke and Oxford;
- Pursuing energy efficiency opportunities where they are economic, and where they support our process compliance or resilience;
- Continuing to target opportunities to eliminate wasted energy (energy consumption exceeding plant design); and
- Completing the CHP replacement at Maple Lodge STW.

We forecast a grid import reduction of over 50 GWh in the next financial year. However, our higher baseline means that despite achieving more than committed to over the course of the five-year period, our grid import will remain above target with a net import of around 350 GWh and will not reach our target of 295 GWh.

### T1A: Successful procurement of the Infrastructure Provider (IP) (Non-financial PC)

The performance commitment was delivered in 2015/16 so there is no forecast for 2019/20.

### T1B: Thames Water will fulfil its land related commitments in line with the TTT programme requirements (Non-financial PC)

T1B is a performance commitment for us to provide access for Tideway to their construction sites. The forecast is based on the construction programme, which can change each month. The forecast for 2019/20 is seven and includes five sites which were deferred from 2018/19 to 2019/20.

### T1C: Completion of category 2 and 3 construction works and timely availability of sites to the IP (Penalty only ODI)

Table 23 – T1C: Completion of category 2 and 3 construction works and timely availability of sites to the IP

Forecast year	2019/20
Performance commitment level	23
Forecast performance level	23
Performance commitment level met	Yes
Underperformance deadband	penalty 23
Underperformance incentive rate	penalty £3.4 million per site, a year

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Forecast year	2019/20
Underperformance penalty	= 23 (deadband) - 23 (forecast performance) = 0 * £3.4m = £0m

This is a five-year performance measure, which is reported cumulatively from the beginning of the AMP. T1C site completions forecast for 2019/20 are two sites which forms completion of the AMP obligation in respect of the Performance Commitment without penalty. The two remaining sites Beckton and Bokesbourne Street are forecast for completion in the last quarter of the AMP. This information is consistent with the progress presented to the Liaison Committee which provides oversight to the compliance with requirements of the Thames Tideway project and is independently assessed by the Independent Technical Assessor.

### **T2: Thames Water will engage effectively with the IP, and other stakeholders, both in terms of integration and assurance (Non-financial PC)**

Our measure is a survey of relevant stakeholders on the Liaison committee associated with the Thames Tideway Tunnel. Effective engagement is based on achieving a score of 3.5 or higher. Our forecast for 2019/20 of “yes we will achieve effective engagement” is based on us having met this target for the last 4 years. During 2019/20 we will continue to engage the stakeholders (DEFRA, ITA, EA, CC Water and Tideway) by having regular one on one meetings to understand their concerns. We will answer any questions driven out of the one on one meetings and any scheduled meetings Tideway have to control the project and report to Government.

### **T3: Thames Water will engage with its customers to build understanding of the TTT project. Thames Water will liaise with the IP on its surveys of local communities impacted by construction (Non-financial PC)**

Surveys of a representative sample of our customers were conducted to measure the awareness and understanding of the Thames Tideway Tunnel project and its benefits.

The following scores were received during 2018/19:

- Household awareness: 41%
- Household composite understanding: 35%
- Non-household awareness: 37%
- Non-household composite understanding: 29%

When compiled and assessed against previous AMP6 scores these equate to an ‘Improving trend’ to date within AMP6. Our forecast of “yes” (improving trend) is based on the year 5 prediction of the trendline for our performance so far within the AMP (see Figure 1 below). This forecast has changed since our April 2019 submission due to having now received the results of the 2018/19 household survey, which changed the AMP6 trend from ‘declining’ to ‘improving’.

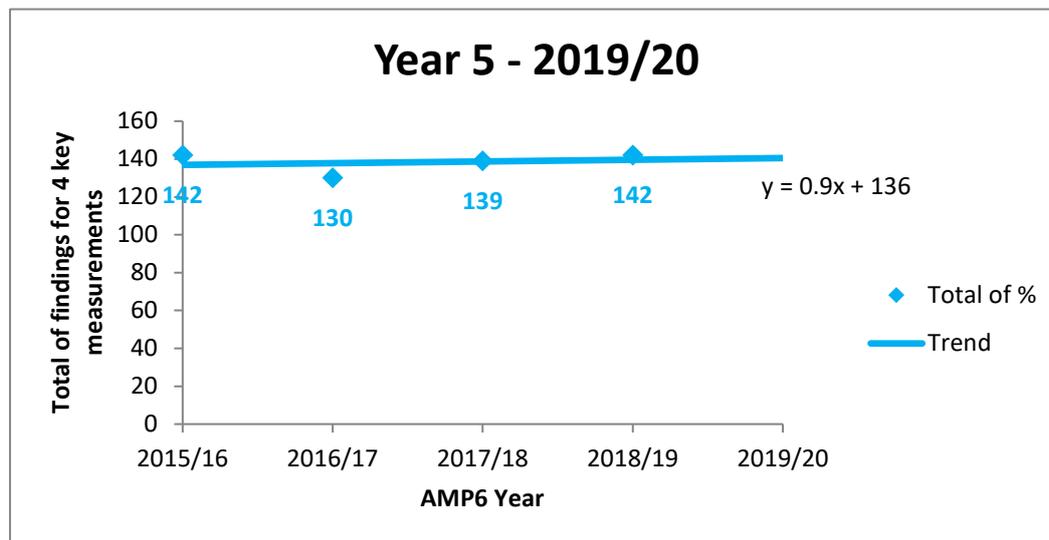
In 2019/20, if we receive a combined percentage score of 137 or above, we will meet the committed performance level of an ‘Improving trend’ for the AMP. A combined score of 136 or below will mean either a flat or declining trend and therefore we will not meet committed performance level for the AMP.

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These possible outcomes were discussed with the CCG on 26 June. During 2019/20 we will continue to build understanding of the Thames Tideway Tunnel project through information in our billing leaflets, on our website, via our education programme and taking advantage of any free media opportunities to continue to meet the target of an ‘improving trend’.

Figure 1 – T3 Thames Water will engage with its customers to build understanding of the TTT project



### RA1: Minimise the number of written complaints received from customers - charging and billing (Non-financial PC)

Our complaints action plan (referenced in performance commitment WA1 above) is intended to reverse the increase during 2018/19 and we are forecasting to achieve our target for 2019/20 with an outturn of 14.

### RA2: Improve handling of written complaints by increasing first time resolution - charging and billing (Non-financial PC)

The complaints action plan (referenced in performance commitment WA1 above) that we will deliver during 2019/20 will improve performance and we are forecasting to achieve our target of 95%.

### RA3: Improve customer satisfaction of retail customers - charging and billing (Non-financial PC)

Although resources were diverted to handle the additional contacts driven by the two water supply events, performance did remain consistent across the reporting year 2018/19. Customer satisfaction at the start of the 2019/20 reporting year has not been as high as expected and our forecasted outturn at this stage is 4.53.

### RA4: Improve customer satisfaction of retail customers - operations contact centre (Non-financial PC)

The freeze/thaw and supply/demand events resulted in higher volumes of calls and complaints with most of these being received within our Wholesale Service Centre. While our agents endeavoured to manage customer expectations at the time undoubtedly customers were not receiving the level of

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service that they expect or that we would normally be able to provide. Performance has started to recover and the early indications for the 2019/20 reporting year are promising. Our forecast is for customer satisfaction in this area to improve to 4.59.

### RA5: Increase the number of bills based on actual meter reads (in cycle) (Non-financial PC)

Our 2018/19 year-end performance of 99% has been achieved through new daily reconciliations and improving processes to drive more actual reads and more bills and working more closely with the wider business. The 2019/20 reporting year will pose some new challenges as we include fixed network meters and accounts that have migrated to our new billing system into our reporting. With this in mind we are cautiously reporting a year end forecast for 2019/20 of 98%.

### RA6: Service incentive mechanism (SIM) (Non-financial PC)

For commentary on our SIM performance please see section below on table R10.

### RB1: Implement new online account management for customers supported by web-chat (Penalty only ODI)

Table 24 – RB1: Implement new online account management for customers supported by web-chat

Forecast year	2019/20
Performance commitment level	Online self-service channel
Forecast performance level	Online self-service channel
Performance commitment level met	Yes
Underperformance penalty deadband	CRMB billing system does not 'go live'
Underperformance penalty incentive rate	£6.5m Additional £20.5m applicable in Year 5 (total 2015-20 allowed costs in ACTS adjustment plus premium)
Underperformance penalty	No penalty

In September 2014 we launched our Online Account Management (OAM) service allowing customers to sign up and use services on our website, such as online billing. Since then we have been enhancing OAM giving customers access to services such as direct debit set up and meter read usage trends online.

In January 2018 we launched our WebChat PopUps which are now live across 22 pages of our website.

Our experienced team is driving the delivery of the full Customer Relationship Management and Billing system. Based on the programme's current approach, its plans and the progress that we have made to date, notwithstanding that there are still risks which have mitigating action in place, we expect to go live within both the timescales and scope set out in the RB1 definition. Therefore, our forecast states that we will not incur a penalty.

### **RC1: Increase the number of customers on payment plans (excluding Thames Tideway Tunnel) (Non-financial PC)**

During 2018/19 we repatriated around 75,000 customers who were previously billed by local authority housing associations. This activity was not expected at the time the targets were drawn up and consequently this repatriation has impacted our performance against this measure. Thus, our forecast for 2019/20 is 59% against a target of 60%.

### **RC2: Increase cash collection rates (excluding Thames Tideway Tunnel) (Non-financial PC)**

We committed to increase our cash collection rates, measured as the percentage of cash collected from the billing in that year. Our cash collection assumption was based on a combined household and non-household collection rate. Following the transition of the billing and collection from non-household customers during 2016/17 to an independent retailer, we experienced a dip in the overall collection rates.

For the cash collection rate for the last two years of the AMP, which is household performance only, we were adverse to target on our performance commitment in 2018/19 (87.9%) and forecast to improve but to be slightly adverse in 2019/20 to 89.2%. In order to provide industry leading support to our most vulnerable customers in AMP7, we will be investing significantly in engagement with the Local Authority/Housing Association customer segment. We are predicting that this will improve our cash collection rates although not quite achieving our target in the final year of this AMP.

### 3 APP6: Asset Health Performance Commitments

#### Asset health assessment – water and wastewater

The method for calculating asset health is set out in our “[AMP6 Outcomes Reporting Policy – Annex 1](#)” which is published on our company website. For each measure we have defined a:

- Reference level – this is the target level for the sub-measure as defined in the PR14 determination;
- Control limit – this provides a deadband for performance for the sub-measure, similar to the use of upper control limits for serviceability in AMP5; and
- Failure threshold – in line with our PR14 business plan proposals, where we stated that a “significant failure of one sub-measure would result in a movement from stable to marginal status”, we have set this threshold to identify a significant failure for each sub-measure.

The control limits and failure thresholds are set out in our “[AMP6 Outcomes Reporting Policy – Annex 2](#)” which is published on our company website. The composite Asset Health assessments are based on:

- The position of post-mitigation performance for each sub-measure compared to the reference level, control limit and failure threshold; and
- The number of measures with post-mitigation performance in each position.

#### Asset health – water sub-measures

One sub-measure will not be included in the annual assessment:

- Water Quality complaints (WB2) for hardness, which is a monitoring only sub-measure, is not included in the annual assessment of Asset Health.

Figure 2 - Asset Health assessment matrix (water infrastructure and non-infrastructure)

		Number of sub-measures above Failure Threshold						
		0	1	2	3	4	5	6
Number of sub-measures above Control Limit, below Failure Threshold	0	Stable	Marginal	Marginal	Deteriorating			
	1	Stable	Marginal	Deteriorating				
	2	Marginal	Deteriorating					
	3	Marginal	Deteriorating					
	4	Deteriorating						
	5	Deteriorating						
	6	Deteriorating						

#### WB1: Asset health water infrastructure (Penalty only ODI)

Our performance of marginal has been triggered by our interruptions to supply performance.

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**Table 25 - WB1: Asset health water infrastructure**

Forecast year	2019/20
Performance commitment level	Stable
Forecast performance level	Marginal
Performance commitment level met	No
Underperformance penalty deadband	Marginal
Underperformance penalty rate	£4.675m for each status decrement
Underperformance penalty	Stable decrement to Marginal equates to £4.675m

The forecast 2019/20 is in line with historic performance. The Marginal assessment is due to unplanned interruptions to supply of greater than 12 hours. Our approach has been to take the average (mean) of the last 10 years and assume that this is our forecast for 2019/20. This gives 6704 properties on average and is higher than our asset health sub-measure failure threshold of 4756 properties. As it is higher than the failure threshold, this automatically triggers Marginal asset health and an ODI underperformance payment of £4.675m for the final year of AMP6.

We have reported performance higher than the failure threshold in each year of AMP6 to date and so have already incurred a penalty of £4.675m in each of the first four years for this measure. Notwithstanding efforts to improve our incident response, the current view is that this level of performance for supply interruptions is likely to continue in the final year of AMP6 so our forecast remains at Marginal.

The APP6 commentary below gives further detail relating to the other sub-measures associated with this performance commitment.

**Table 26 - WB1: Asset health water infrastructure – sub-measure performance**

Sub-measure	Below or = to reference level	Below or = to control limit	Below or = to failure threshold	Above failure threshold
Total bursts		✓		
Interruptions to supply > 12 hours				✓
Iron mean zonal compliance	✓			
Inadequate pressure	✓			
Planned network rehabilitation	✓			
Customer complaints discolouration/white water	✓			

### WB1.1: Total bursts

The forecast for 2019/20 of 9,585 is unchanged from our April submission and reflects the higher than average active leakage control activity due to our leakage recovery plan and assumes another hot, dry summer this year.

### WB1.5: Planned network rehabilitation (kilometres)

We are forecasting to achieve the end of AMP target of 650km having already delivered 485km in the first four years of the AMP.

### WB2: Asset health water non-infrastructure (Penalty only ODI)

The forecast for 2019/20 is in line with historic performance and target level performance.

**Table 27 – WB2: Asset health water non-infrastructure**

Forecast year	2019/20
Performance commitment level	Stable
Forecast performance level	Stable
Performance commitment level met	Yes
Underperformance penalty deadband	Marginal
Underperformance penalty rate	£4.675m for each status decrement
Underperformance penalty	None – we are meeting the performance commitment level

**Table 28 – WB2: Asset health water non-infrastructure – sub-measure performance**

Sub-measure	Below or = to reference level	Below or = to control limit	Below or = to failure threshold	Above failure threshold
Disinfection index (DWI) (%)	✓			
Service reservoir coliform non-compliance (%)	✓			
DWQ compliance measures - turbidity (nr of sites)	✓			
Process control index (%)	✓			
DWQ compliance measures - Enforcement actions (nr)		✓		
Water quality complaints for chlorine (nr per 1,000 population)	✓			

All measures are forecasting at or below the reference level in line with historic performance, except for enforcement actions.

### WB2.5: DWQ compliance measures – enforcement actions

At the end of 2018 this sub-measure remained on target. During 2019 we have received a prosecution regarding an event. However, there are other events for which we are undergoing assessment by the DWI which could potentially lead to an enforcement order or prosecution, although this is not currently anticipated. This sub-measure is therefore forecast to be '1' at the end of 2019 compared with a target of '0'.

### WB2.6: Water quality complaints for chlorine (nr per 1,000 population)

This has been reported to 2 decimal places in line with the reference level for this performance commitment.

## WB2.7: Water quality complaints for hardness (nr per 1,000 population)

This has been reported to 2 decimal places in line with sub-measure WB2.6. This sub-measure is monitored only.

## Asset health – Wastewater sub-measures

### SB1: Asset health wastewater non-infrastructure (Penalty only ODI)

Figure 3 - Asset Health assessment matrix (wastewater non-infrastructure)

		Number of sub-measures above Failure Threshold			
		0	1	2	3
Number of sub-measures above Control Limit, below Failure Threshold	0	Stable	Marginal	Deteriorating	Deteriorating
	1	Stable	Marginal	Deteriorating	
	2	Marginal	Deteriorating		
	3	Deteriorating			

Table 29 – SB1: Asset health wastewater non-infrastructure

Forecast year	2019
Performance commitment level	Stable
Forecast performance level	Stable
Performance commitment level met	Yes
Underperformance penalty deadband	Marginal
Underperformance penalty rate	£4.535m for each status decrement
Underperformance penalty	None – we are meeting the performance commitment level

Table 30 – SB1: Asset health wastewater non-infrastructure – sub-measure performance

Sub-measure	Below or = to reference level	Below or = to control limit	Below or = to failure threshold	Above failure threshold
STW discharges failing numeric consents (%)		✓		
Total population equivalent served by STW failing look up table consents (%)	✓			
Unconsented pollution incidents from STW, storm tanks, pumping stations and other sewage-related premises (water incidents)	✓			

Our forecast for asset health is stable for the remainder of the AMP.

## SB1.1 – Unconsented pollutions incidents (cat 1, 2, 3) sewage treatment works (STWs), storm tanks, pumping station and other

This is a calendar year measure as all sub measures are reported on a calendar year basis. The forecast for 2019 is in line with historic performance. This is based on our forecast to meet our target of 27 unconsented pollutions.

We did see deterioration in performance in 2018 compared to 2017, however we remained within the performance commitment boundary. The increase in pollution incidents of this source type is largely attributed to an increase of incidents from STWs, which are now investigated and reviewed by senior management. These reviews have led to an increase in learning and actions that are rolled out across the business to prevent a reoccurrence of the incident at the site in question, or any other site across the entire Thames Water area. The lessons learned from in depth investigations completed in 2018 for serious pollutions have been compiled into a booklet entitled 'Protecting our environment – Learning lessons from our failures', which will be distributed to the business in 2019. This not only looks at where things have gone wrong, but also highlights incidents where a potential pollution or compliance failure has been avoided following interventions identified in previous incidents.

Moving forward in 2019, STW incidents will receive increased focus to ensure all learning and root cause data is extracted, and actions taken to improve performance and reach the forecasted figure

## SB1.2 – Sewage treatment works discharges failing numeric consents %

We are now forecasting that the number of sewage treatment works will increase to 354 by the end of this AMP which is a slight reduction from previous forecasts, this is due to delays in adopting new sites. Reviewing our levels of historic performance against this commitment and the event learning measures we have implemented from previous failures, such as process specialists approving taking assets out of service. We are forecasting three failures to occur in the final year of this regulatory period giving a performance level of 0.85% against this commitment.

## SB2: Asset health wastewater infrastructure (Penalty only ODI)

Figure 4 – Asset Health assessment matrix (wastewater infrastructure)

		Number of sub-measures above Failure Threshold				
		0	1	2	3	4
Number of sub-measures above Control Limit, below Failure Threshold	0	Stable	Marginal	Deteriorating		
	1	Stable	Marginal	Deteriorating		
	2	Marginal	Deteriorating			
	3	Deteriorating				
	4	Deteriorating				

All measures are below the control limit and therefore the performance is stable.

**Table 31 – SB2: Asset health wastewater infrastructure**

Forecast year	2019/20
Performance commitment level	Stable
Forecast performance level	Stable
Performance commitment level met	Yes
Underperformance penalty deadband	Marginal
Underperformance payment penalty rate	£4.535m for each status decrement
Underperformance penalty	None – we are meeting the performance commitment level

The forecast for 2019/20 is in line with historic performance. Please refer to the App6 commentary below in relation to the sub-measures associated with this performance commitment.

**Table 32 – SB2: Asset health wastewater infrastructure – sub-measure performance**

Sub-measure	Below or = to reference level	Below or = to control limit	Below or = to failure threshold	Above failure threshold
Properties internally flooded due to SFOC (nr)	✓			
Unconsented pollution incidents from foul sewers, combined sewer overflows and rising mains (category 1 to 3 water incidents)		✓		
Number of sewer blockages (nr)	✓			
Number of sewer collapses (nr)	✓			

### SB2.1 - Number of sewer collapses

The forecast for 2019/20 is in line with current performance and is indicative of future investment and expected performance.

### SB2.2 - Number of sewer blockages

The forecast for 2019/20 is in line with current performance and is indicative of future investment and expected performance.

### SB2.3 - Pollution incidents (cat 1-3)

SB2.3 has seen improved performance in 2018, outperforming the target by two pollutions. Our forecast for 2019/20 of 220 is based on the average of our historical performance and is slightly above our target of 206. The first few months performance for 2019 are slightly higher than we would like, and we are hopeful that we will continue to reduce the number of pollutions using the 1000 depth monitors that were installed in 2018. These monitors give an indication of where blockages are in the network and allow us to act before a pollution can occur, and deployment will continue during 2019 to increase the network coverage, increasing the number of blockages identified. This intervention is one of several employed to target network pollutions.

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Other measures include increasing network cleaning and CCTV surveys, with over 600km of sewer completed in 2018 and due to be increased in 2019 and creating a new piece of software capable of comparing all available pollution, blockage, and flooding data to predict where potential hotspot areas are. This has allowed for further positive interventions and contributed to a reduction in pollution incidents from the network in 2018.

### **SB2.4 - Properties internally flooded**

The forecast for 2019/20 is in line with the most recent reporting and the assumption is that this is the best available evidence by which to assess future performance.

### 4 App23: Inflation Measures

RPI and CPIH indices in App23 are derived as follows:

- Actual monthly indices up to April 2019, as published by the Office for National Statistics; and
- Indices from May 2019 to March 2020 are a simple arithmetic average of the monthly forecasts provided by four financial institutions: Barclays plc, HSBC Bank plc, NatWest and Morgan Stanley.

### 5 WS15, WWS15, DMMY10: wholesale totex outperformance sharing

We have updated our 2018/19 and 2019/20 numbers in each WS15, WWS15 and Dmmy10 to reflect the actual numbers as reported in our 2018/19 APR for year 4 and our latest internal budget in year 5. Therefore, there are some variances between these tables and the tables we previously submitted in April 2019.

2018/19 actual totex for each Water and Waste have moved immaterially since our forecast in April as numbers have been finalised. 2018/19 actual totex for the Dmmy price control has reduced by c. £8m as a result of re-profiling Exceptional Hardship Payments for Land compensation and re-profiling of sewer access costs and system works.

2019/20 actual totex presented in each WS15, WWS15 and Dmmy10 is lower than in our April submission. This is driven by a refinement of our internal budget, including a reduction in capex, and a better reflection of the results anticipated through the cost transformation programme.

In our April submission, our pension deficit recovery costs for 2018/19 were forecast to be paid within the financial year. However these were actually paid post 31 March 2019 and hence pension deficit recovery costs for 2018/19 in each WS15 and WWS15 are £nil in our PR14 reconciliation tables. We expect that 2019/20 pension deficit repair costs will be paid in 2020/21. There are no pension deficit recovery costs associated with the Dmmy price control.

Please note that in line with the prior year adjustment noted in the APR we have adjusted the 2015/16 actual totex (cell I18) and TTT control: Land - 100:0 (customer: company) cost sharing factor (cell I27) in Dmmy10.

Note that in line 4 of WWS15 (Sewerage: Implied menu choice) we have adjusted the pre-populated data, so it now uses an unrounded number, equal to that published in the 2014 Final Determination. This does not change the value shown to 1 decimal place, but ensures the table is consistent with the unrounded data used in the PR14 totex menu reconciliation models.

#### Leakage adjustment (WS15)

In line with our business plan, we make a further £46m<sup>12</sup> downward reduction to AMP7 revenues to ensure that customers do not bear additional cost from our inefficient AMP6 leakage spend. We have made this adjustment through the Revenue adjustments feeder model, which therefore affects line 26 of table WS15. Without this adjustment, row 26 would be +£43.537m, instead of the -£5.118m shown in the data table, a reduction of £48.654m.

#### Counters Creek (WWS15)

As discussed in our business plan, our alternative approach to protecting properties in the Counters Creek area from flooding due to rainfall will save a considerable amount of money. In line with our business plan we take the following approach, to return 100% of this saving to customers:

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<sup>12</sup> The £46m reflects the difference between efficient and inefficient performance in outturn prices. The £48.654m impact on line 26 of WS15 is in 2017/18 CPIH prices.

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- Make no adjustments to the totex menu. The underspend associated with Counters Creek therefore automatically returns 49.6% (i.e. 1 minus 50.4%, the wastewater totex sharing rate) of the saving to customers;
- Make a downward adjustment to the RCV to return the remaining 50.4% of the underspend to customers.

We have included a tab, 'Counters Creek', in the RCV adjustments feeder model which shows the adjustment required. This also includes revised forecasts for Counters Creek totex, as shown in the table below.

**Table 33 – Counters Creek Totex (Outturn prices, £m)**

<b>1 April 2019 business plan</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>Total</b>
Counters Creek opex forecast	0.0	0.2	0.2	0.3	0.5	<b>1.2</b>
Counters Creek capex forecast	15.7	19.0	9.5	23.1	49.3	<b>116.7</b>
Counters Creek totex forecast	15.7	19.2	9.8	23.4	49.8	<b>117.9</b>

<b>July 2019 submission</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>Total</b>
Counters Creek opex forecast	0.0	0.1	0.1	0.1	0.2	<b>0.4</b>
Counters Creek capex forecast	15.7	19.0	9.5	23.4	45.0	<b>112.7</b>
Counters Creek totex forecast	15.7	19.0	9.6	23.5	45.2	<b>113.1</b>

<b>Delta</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>Total</b>
Counters Creek opex forecast	0.0	(0.2)	(0.2)	(0.2)	(0.3)	<b>(0.8)</b>
Counters Creek capex forecast	0.0	0.0	0.0	0.4	(4.3)	<b>(4.0)</b>
Counters Creek totex forecast	0.0	(0.2)	(0.2)	0.2	(4.6)	<b>(4.8)</b>

Note that we have revised the opex associated with Counters Creek, including for historic years (i.e. 2015/16, 2016/17 and 2017/18). Counters Creek opex reflects the cost of operational maintenance for installed FLIPs. The unit costs of operational maintenance per FLIP in the previous forecast were based on an engineering judgement, whereas the current data is based on actual historical unit costs for FLIPs.

### Totex menu PR14 reconciliation model

We include the following Totex menu reconciliation models:

- [Totex-Menu-2016-05-17-change-log-removed TMS 11.xlsx]: This calculates the adjustments associated with the Water and Wastewater price controls (used to populate WS15 and WWS15).
- [Totex-Menu-2016-05-17-change-log-removed TTT 9.xlsx]: This calculates the adjustments associated with the TTT price control (used to populate Dmmy10).

### 6 WS17: PR14 water trading incentive reconciliation

There have been no changes to the non-financial numbers in this table since the April PR19 business plan submission. The financial numbers have changed due to an updated agreement with RWE NPower which allows the utilisation of part of the Didcot abstraction licence in AMP6 and into AMP7, and some minor changes to inflation.

The validation flags in table WS17 do not appear to be working correctly.

### 7 R9: household retail revenue

Block B (Reforecast customer numbers): The figures in this block in the PR19 Business Plan resubmission of 1 April 2019 comprised the forecast 2019/20 customer numbers as per those used in our tariff modelling when setting 2019/20 charges. As the customer numbers used in our tariff modelling were locked down in advance of the 2019/20 charges being published at the start of February 2019, no changes have been made to the 2019/20 reforecast customer numbers in block B.

Block C (Customer numbers): Actuals updated for 2018/19. Reforecast of 2019/20.

Block D (Revenue): Actuals updated for 2018/19. 2019/20 per Budget.

Block I (Total reward/penalty at end of AMP6). To compare figures per April submission with our submission now:

Line 45: Was £-0.64m; now £+0.954m

Line 46. Was £-0.611m; now £+0.911m

Changes due to updated output from Household reconciliation and Revenue feeder model due to changes in blocks A-G data.

### 8 R10: Service incentive mechanism

Table R10 has been updated with final audited 2018/19 year-end actuals and the forecast revenue adjustment in line 9 has been updated accordingly to reflect latest assumptions on inflation.

SIM is a financial incentive only for Thames Water which is based on performance in the first four years of AMP6 with any performance in 2019-20 not being pertinent to the financial incentive. As we do not operate SIM as a reputational measure we will not be forecasting or reporting on this in the last year of the AMP. This approach is consistent with Ofwat's recently published draft "Guidance for shadow year" for C-MeX which provides proxy calculation for SIM in 2019-20 specifically for those companies that have reputational incentives for SIM. This causes a validation flag to occur in table R10.

### 9 WS13, WWS13, DMMY11: wholesale revenue forecast incentive mechanism

We have provided two wholesale revenue forecasting incentive mechanism (WRFIM) PR14 reconciliation models:

- [WRFIM - Full AMP (excl TTT) v8d 180619.xlsx]: This calculates the adjustments associated with the Water and Wastewater price controls (used to populate WS13 and WWS13).
- [WRFIM - Full AMP TTT only v8d 180619.xlsx]: This calculates the adjustments associated with the TTT price control (used to populate Dmmy11).

In the 15 July 2019 version of our company specific PR14 reconciliation data tables Ofwat split out TTT from wholesale waste. In doing so we note that the K factors on WWS13 have been incorrectly calculated as a weighted average hybrid K factor, incorporating both wholesale waste and TTT combined. As a result of the K factor being populated incorrectly, the allowed revenue on WWS13 is also incorrect.

We have amended the wholesale wastewater K factors on WWS13 so that both the K factor and the allowed revenue are accurately shown. Dmmy11 did not require any changes in respect of this, as it is correctly showing the TTT only K factors and consequently the correct TTT only allowed revenue.

Also, as for our previous PR14 Reconciliation submission, in order to ensure internal consistency, we have used a blind year profile of 0:0:0 in the TTT WRFIM model which is consistent with both the 'F\_Inputs' tab and table Dmmy11.

#### WRFIM commentary

This section provides a commentary on the WRFIM model published on 15 July 2019. The WRFIM model is one component of the PR14 Reconciliation submission which sits within the wider PR19 Business Plan which was resubmitted on 1 April 2019.

The WRFIM model monitors the wholesale revenue recovered through our primary charges to both household and non-household customers (the latter via the non-household market retailers) as well as wholesale charges made to developers connecting to our network. It compares this to the revenue allowed in the PR14 Final Determination (FD) and any over or under-recoveries against the allowed revenue are adjusted for in the revenue allowance in subsequent years.

It is designed to ensure that, across the five year price control period 2015-2020, water companies recover from customers only what they were allowed in the FD. This is deemed to reflect the revenue levels needed to run the business.

The WRFIM model also incentivises water companies to forecast as accurately as possible by applying a penalty where the difference between what is recovered and what was allowed is greater than 2%.

#### Population of the WRFIM model

The inputs into the WRFIM model comprise:

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- the initial allowed wholesale revenues and K factors as published by Ofwat in the PR14 FD;
- inflation (RPI as at November each year) as published by the Office for National Statistics;
- the profile to be applied to the blind year adjustment from the price control period 2010-2015; and
- the actual revenue recovered in each financial year as disclosed in our APR.

For the first four financial years of the 2015-2020 price control period (AMP6), namely 2015/16, 2016/17, 2017/18 and 2018/19, our inputs into the WRFIM model have been as originally intended and as per the list above.

This has resulted in the relevant over or under-recoveries against our allowed revenue being adjusted for with a two year lag to ensure that our customers are not paying any more or less than the amount permitted in the PR14 FD.

The comparison of our actual revenue recovered to the allowed revenue for each price control and for each of the first four years of AMP6 can be seen in table 2I of the APR, which has been summarised in Table 34.

**Table 34 – Comparison of allowed revenue to actual revenue recovered: 2015/16 to 2018/19**

Wholesale revenue category	Revenue (outturn prices)			
	2015/16 £m	2016/17 £m	2017/18 £m	2018/19 £m
Allowed revenue – water	850.734	864.007	882.960	919.228
Revenue recovered – water	851.750	861.621	889.583	869.223
<b>Over/(under)-recovery – water</b>	<b>1.016</b>	<b>-2.386</b>	<b>6.623</b>	<b>-50.005</b>
Allowed revenue – wastewater	966.690	978.195	967.002	1,015.661
Revenue recovered – wastewater	990.209	978.672	963.601	973.577
<b>Over/(under)-recovery – wastewater</b>	<b>23.519</b>	<b>0.477</b>	<b>-3.401</b>	<b>-42.084</b>
Allowed revenue – TTT	45.317	50.778	54.445	58.976
Revenue recovered – TTT	45.506	50.775	54.352	57.496
<b>Over/(under)-recovery – TTT</b>	<b>0.189</b>	<b>-0.003</b>	<b>-0.094</b>	<b>-1.480</b>

The inputs to the WRFIM model for the one remaining forecast year (2019/20) are as per those for the four years' of actual data, however for 2019/20 we are required to forecast our actual revenue recovered. This has been done using the revenue budgets set for 2019/20.

### Application of the WRFIM model

For the final two years of AMP6 (2018/19 and 2019/20), our application of the WRFIM model moves away from the standard approach used in the first three years.

During AMP6, water companies have a number of Outcome Delivery Incentives (ODIs) that either give rewards or penalties for performance against a set of criteria known as PCs. Some companies have ODI rewards and penalties that are applied during the price review period but we have both ODI rewards and penalties that were agreed at PR14 to apply wholly at the end of the price review period and thus would be adjusted for at PR19.

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However, in 2018/19 and 2019/20 we returned a number of our ODI penalties to customers earlier than required. These adjustments, which deviate from the original 'end of AMP' format of the performance commitment, are discussed in greater detail below.

### Revenue attenuation in 2018/19 for ODI penalties

Our 2018/19 tariffs were set on a revised level of allowed revenue that factored in a number of ODI penalties incurred on wholesale water and wholesale wastewater. After assessing the overall increase in customer bills anticipated in 2018/19 as well as our performance in providing our core services to customers over the first two years of AMP6, we concluded it was suitable to return money to customers early rather than according to the end of AMP target initially established in the FD. This attenuation of revenue ensured customer bills increased by less than five per cent year-on-year.

The ODI penalties returned early in 2018/19 and the calculations that adjusted our 2018/19 allowed revenue are summarised in Table 35.

Table 35 – Calculation of revenue attenuation in 2018/19 due to ODI penalties

ODI reference and description	Penalty value (12/13 prices)			Adjustment (18/19 prices)
	2015/16	2016/17	Total	2018/19
	£m	£m	£m	£m
WB1: Asset Health Water Infrastructure	4.675	4.675	9.350	10.881
WC2: Leakage		8.550	8.550	9.950
WB6: Security of Supply Index (SoSI)		2.265	2.265	2.636
<b>Total penalties – water</b>	<b>4.675</b>	<b>15.490</b>	<b>20.165</b>	<b>23.466</b>
SB4: Sewer Flooding – Other Causes	11.700	0.450	12.150	14.139
SC3: STW discharge compliance		2.307	2.307	2.685
<b>Total penalties – wastewater</b>	<b>11.700</b>	<b>2.757</b>	<b>14.457</b>	<b>16.824</b>

A financial year average RPI inflation factor was used to restate the ODI penalties from 2012/13 prices to 2018/19 prices. On this basis the factor used was 1.164.

### Revenue rebates in 2019/20 for ODI penalties

As a part of the settlement relating to the Ofwat investigation into our leakage performance, we have adjusted customer bills in 2019/20 to reflect the ODI penalties for leakage and the security of supply index (SoSI) incurred in 2017/18. This means that £23.7m is being given back to customers for these ODI penalties as well as an additional £7m penalty. This money is being returned to customers by way of a rebate on their 2019/20 bill.

The ODI penalties that are to be returned early in 2019/20 and the calculation of the total impact on our 2019/20 revenue are summarised in Table 36.

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**Table 36 – Calculation of total revenue to be rebated in 2019/20 due to ODI penalties**

ODI reference and description	Penalty value	Adjustment
	(2012/13 prices)	(2019/20 prices)
	2017/18	2019/20
	£m	£m
WC2: Leakage	13.050	15.556
WB6: Security of Supply Index (SoSI)	6.795	8.100
Additional punitive penalty	n/a	7.000
<b>Total penalties – water</b>	<b>19.845</b>	<b>30.655</b>

A financial year average RPI inflation factor was used to restate the ODI penalties from 2012/13 prices to 2019/20 prices. On this basis the factor used was 1.192.

### Revenue deferral in 2019/20

As mentioned in our Statement of Assurance for 2019/20 wholesale charges schedules published on 11 January 2019, we chose to defer almost £16m of allowed wholesale revenue in order to address issues of bill instability and to ensure tariffs do not increase by more than 5%. Of this figure, £0.5m relates to wholesale water and £15.3m relates to wholesale wastewater.

This deferral of revenue set 2019/20 prices below the level allowed in the PR14 FD so will have the same effect on the WRFIM penalty calculation as ODI penalties being returned early.

### Adjustments to WRFIM penalty calculations in 2018/19 and 2019/20

The WRFIM model applies revenue penalties if the actual revenue recovered in any year is more than 2% away from the allowed revenue for that year. This means that we would incur additional revenue penalties under WRFIM in 2018/19 and 2019/20 due to the ODI penalties that we are returning to customers early and the revenue being deferred. The value of the revenue penalties generated by WRFIM in 2018/19 and 2019/20 if we do not adjust for the ODI penalties being returned early and the revenue deferral are set out in the table below. Note the figures for wholesale wastewater include the adjustment for the TTT TWUL price control.

**Table 37 – WRFIM revenue penalties with no adjustment for revenue returned or deferred in 2018/19 and 2019/20**

Price control	WRFIM revenue penalties (outturn prices)	
	2018/19	2019/20
	£m	£m
Wholesale water	1.548	0.911
Wholesale wastewater	1.326	0.043

As the WRFIM revenue penalties are only intended to penalise companies for forecasting errors in the underlying assumptions used when setting tariffs, it is necessary for us to make adjustments for the early application of specific ODI penalties and revenue deferral, as described above.

Therefore, in agreement with Ofwat, our published WRFIM models have been adjusted to factor the ODI penalties returned to customers early and the revenue deferral into the allowed revenue used in the WRFIM penalty calculation.

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This has been done by amending the formulae for the 'Forecast error' percentage on row 52 and the 'Penalty adjustment' on row 56 of the 'WRFIM – Water' and 'WRFIM – Waste' tabs. The calculations of the forecast error and penalty adjustment both before and after the change are set out below.

### WRFIM penalty calculation: 'Forecast error' formula before adjustment

$$[\text{Revenue recovered} - \text{Allowed revenue}] / \text{Allowed revenue}$$

### WRFIM penalty calculation: 'Forecast error' formula after adjustment

$$[\text{Revenue recovered} - (\text{Allowed revenue} - \text{revenue adjustment})] / (\text{Allowed revenue} - \text{revenue adjustment})$$

### WRFIM penalty calculation: 'Penalty adjustment' formula before adjustment

$$\text{Penalty rate} \times |\text{Revenue recovered} - \text{Allowed revenue}|$$

### WRFIM penalty calculation: 'Penalty adjustment' formula after adjustment

$$\text{Penalty rate} \times |\text{Revenue recovered} - (\text{Allowed revenue} - \text{revenue adjustment})|$$

In the formulae above the following lines of the WRFIM model are referred to:

- "Revenue recovered" = Revenue Recovered (RR) on row 41
- "Allowed revenue" = Baseline revenue for calculation of penalties (AR\*) on row 39
- "Penalty rate" = Penalty rate magnitude on row 54

The values of the "revenue adjustment" in the post-change formulae are those derived in tables 2 and 3 above for the ODI penalties being returned early and as set out in the section entitled "Revenue deferral in 2019/20" for the revenue deferral. They have been added to blank cells towards the right of each tab for use in the calculation.

As a result of making this change, the forecast error percentage and the magnitude of the under-recovery are reduced. This in turn reduces the size of the WRFIM penalties. The penalties that are therefore built in to the WRFIM adjustment at the end of AMP6 are set out in the table below. Note the figures for wholesale wastewater include the adjustment for the TTT TWUL price control.

**Table 38 – WRFIM revenue penalties following adjustment for revenue returned or deferred in 2018/19 and 2019/20**

Price control	WRFIM revenue penalties (outturn prices)	
	2018/19	2019/20
	£m	£m
Wholesale water	0.791	-
Wholesale wastewater	0.437	-

### Commentary on 2018/19 actual revenue

The commentary below is taken from that which accompanies Table 2I of our APR 2018/19.

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Wholesale revenue for 2018/19 of £1,900.3m is £93.6m (4.7%) lower than the amount allowed in Ofwat's PR14 Final Determination (FD).

Excluding the Outcome Delivery Incentive (ODI) penalties returned to customers early, our wholesale revenue for 2018/19 is £53.3m (2.7%) lower than the amended allowed revenue.

### Wholesale Water

Wholesale water revenue is £50.0m (5.4%) lower than the FD, driven by:

- core tariff revenue lower than forecast due to lower property numbers and lower consumption by metered customers; and
- prices being set at a level £23.5m lower than the FD to reflect ODI penalties being passed back to customers early during AMP6 in recognition of our recent performance, resulting in lower bills.

Excluding the ODI penalties that the Company chose to return to customers early, our wholesale water revenue is £26.5m (3.0%) lower than the amended allowed revenue.

### Wholesale Wastewater

Wholesale wastewater revenue (including the Company's delivered element of the Thames Tideway Tunnel) is £43.6m (4.1%) lower than the FD, driven by:

- core tariff revenue lower than forecast due to lower property numbers and lower consumption by metered customers;
- prices being set at a level £16.8m lower than the FD to reflect ODI penalties being passed back to customers early during AMP6 in recognition of our recent performance, resulting in lower bills; and
- lower than forecast capital contributions from connection and infrastructure charge revenue due to growth being slower than expected.

Excluding the ODI penalties that the Company chose to return to customers early, our wholesale wastewater revenue is £26.7m (2.5%) lower than the amended allowed revenue.

The variance between actual revenue and allowed revenue in the wholesale water and wastewater price controls will be adjusted by Ofwat through the PR19 process for setting revenue allowances for the period 2020 – 2025 (known as AMP7).

The unrecovered revenue in 2018/19 attributable to variances in our customer base between outturn and the forecasts used when tariffs were set will be recovered from customers across the five years of AMP7. The unrecovered revenue in 2018/19 attributable to ODI penalties that have been returned to customers early will not be added to our revenue allowances in AMP7.

### Changes to 2019/20 forecast revenue

In the PR19 Business Plan resubmission of 1 April 2019, the forecast for 2019/20 revenue was taken from our Tariff model that was used to set our primary charges. These figures have since been

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superseded by the 2019/20 revenue budgets that were not available at the time that the Business Plan resubmission was being finalised.

The table below shows the movements between the view of 2019/20 revenue used in the PR19 Business Plan resubmission and this PR14 Reconciliation submission.

**Table 39 – Change in 2019/20 wholesale revenue from PR19 Business Plan resubmission**

Wholesale revenue category	Revenue for 2019/20 (outturn prices)		
	PR19 Business Plan resubmission	PR14 Reconciliation submission	Movement
	£m	£m	£m
Household – water	678.421	678.384	-0.037
Non-household – water	206.983	207.420	0.437
Developer services – water	27.653	28.023	0.370
<b>Total wholesale water</b>	<b>913.057</b>	<b>913.828</b>	<b>0.770</b>
Household – wastewater	810.187	804.938	-5.249
Non-household – wastewater	188.181	186.441	-1.740
Developer services – wastewater	16.025	16.991	0.966
<b>Total wholesale wastewater</b>	<b>1,014.392</b>	<b>1,008.370</b>	<b>-6.022</b>
Household – TTT	50.653	50.325	-0.328
Non-household – TTT	11.765	11.656	-0.109
Developer services – TTT	0.000	0.000	0.000
<b>Total wholesale TTT</b>	<b>62.418</b>	<b>61.981</b>	<b>-0.437</b>

The most significant movement seen in the table above is within ‘Household – wastewater’. The movement in the forecast for this category combined with that of ‘Household – TTT’ (a total of £5.6m), is attributable to the revenue collected from customers of other water companies (OWC’s) to whom we provide wastewater services. The revenue budget ultimately provided to us for these customers was £5.5m lower than the figure generated by our Tariff model.

The combined reduction of £1.8m in the ‘Non-household – wastewater’ and ‘Non-household – TTT’ categories is attributable to our budgeted view of Trade Effluent (TE) revenue. The figure for TE revenue seen in our Tariff model was reduced by £1.8m when our budgets were set due to the recent trend of decreasing volumes of TE being discharged.

### 10 RCV adjustments feeder model

We include the following RCV adjustments feeder model:

- [PR19 RCV adjustments feeder model 01s – July 2018 update TMS 11.xlsm].

#### Counters Creek

As discussed in the commentary for WWS15, we are proposing to return 100% of any totex outperformance associated with Counters Creek to customers. We have included a tab, 'Counters Creek', in the RCV adjustments feeder model which shows the adjustment required.

We have included the adjustment within "Wastewater ~ Other adjustment to wholesale RCV" in the RCV adjustments feeder model.

#### SC9 corrigenda adjustment

The SC9 corrigenda indicates that due to a scope change there should be an RCV reduction of £7.269m in 2012/13 prices (£8.268m in March 2018 prices). In line with our business plan, we have included this within "Wastewater ~ Other adjustment to wholesale RCV" in the RCV adjustments feeder model.

#### TTT blind year

In line with our business plan, we have included an RCV adjustment associated with the TTT of £23.068m in 2012/13 prices.

# 11 Revenue adjustments feeder model

## Rebates associated with 2018/19 and 2019/20 leakage and SOSI penalties

As documented in an email from Sally Irgin (Director of Enforcement at Ofwat) to Nick Fincham (1 June 2018) we are proposing that the ODI penalties that we incur (both automatic and over and above the collar) for leakage and SOSI in 2018/19 (and also 2019/20 should any penalties obtain) would be returned to customers through a new mechanism (which was not contemplated under PR14). Under this mechanism, one-off rebates would be applied to bills in 2019/20 (and again in 2020/21 and 2021/22). This mechanism will allow the rebate to be made explicit.

In order to keep the rebates associated with the 2018/19 and 2019/20 leakage and SOSI penalties separate from the remainder of the other revenue adjustments, we have provided four versions of the revenue adjustments feeder model as follows:

- 'PR19PD011-Revenue-adjustments-feeder-model-011-for-publication TMS 14.1.xlsm'
  - Includes all the revenue adjustments except those associated with the forecast 2018/19 and 2019/20 leakage and SOSI penalties
  - These revenue adjustments follow profile selection '2', being a constant annual adjustment after taking account the time value of money
- 'PR19PD011-Revenue-adjustments-feeder-model-011-for-publication TMS 14.2.xlsm'
  - Just includes the revenue adjustment (i.e. the rebate) associated with the forecast 2018/19 leakage and SOSI penalties
  - This revenue adjustment follows profile selection '0', being the full rebate applying in 2020/21
- 'PR19PD011-Revenue-adjustments-feeder-model-011-for-publication TMS 14.3.xlsm'
  - Just includes the revenue adjustment (i.e. the rebate) associated with the forecast 2019/20 leakage penalty
  - This revenue adjustment is applied in 2021/22. To calculate this profile '0' is selected, to generate the implied revenue adjustment in 2020/21. This is inflated by another year's time value of money, to generate the required revenue adjustment in 2021/22. The calculation is done in 'Summary\_Output' rows 103 – 106.
- 'PR19PD011-Revenue-adjustments-feeder-model-011-for-publication TMS 14.0.xlsm'
  - Includes all revenue adjustments, including those associated with forecast 2018/19 and 2019/20 leakage and SOSI penalties.
  - This file is provided for reference, as it corresponds to the total value shown in App27. However, it does not correspond to the implied revenue profile arising from the revenue adjustments. The total revenue adjustment applied is therefore the sum of the revenue adjustments from the feeder models versions 14.1, 14.2 and 14.3 above.

## Checks in the models

The following models include a check flag:

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- 'PR19PD011-Revenue-adjustments-feeder-model-01I-for-publication TMS 14.1.xlsm' in FM Proportion Calc row 63 and row 90
- 'PR19PD011-Revenue-adjustments-feeder-model-01I-for-publication TMS 14.0.xlsm' in FM Proportion Calc row 90

These issues appear to be due to calculation rounding issues within Excel, and as such, we have not considered the issue further.

### Ex-gratia rebate

As part of our August 2018 undertakings for the purpose of section 19 of the Water Industry Act 1991, related to our AMP6 leakage performance, we apply an additional rebate to customers' bills in 2019/20 to reflect an ex-gratia payment of £7m.

As this reduces our 2019/20 revenue, the effect of the WRFIM is to generate a corresponding upward adjustment to AMP7 revenue. We remove this effect by adjusting the inputs to the Revenue feeder model, as shown in the table below:

**Table 40 – Ex-gratia adjustment to revenue feeder model inputs**

	(£m)
Output of WRFIM model	83.032
Reduce to reflect ex-gratia rebate	(7.000)
Input to Revenue feeder model (Inputs F98)	76.032

### £46m adjustment due to inefficient leakage totex

As discussed in the commentary for WS15, and in line with our business plan, we have included an additional £46m revenue reduction in AMP7 to ensure that customers do not bear any additional cost associated with inefficient AMP6 leakage expenditure.

Our proposal (as published in paragraph 5.44 of the "Notice of Ofwat's proposal to impose a penalty on Thames Water Utilities Limited") is that the revenue adjustment would be the greater of £46m, or an updated calculation of the actual inefficient expenditure, using the same methodology. A revised calculation (using the same methodology), would generate an adjustment of £42m, rather than the £46m originally estimated. Therefore, we have maintained an adjustment of £46m, as the greater number.

The £46m reflects the difference between efficient and inefficient performance in outturn prices. We have therefore converted this into 2012/13 prices (£42.5m), in order to enter into the revenue adjustments feeder model. This is added as an adjustment to the "Water: revenue adjustment from totex menu model" input by adjusting cell F95 of the Inputs worksheet.