

Ofwat PR14 reconciliation rulebook

Overview of this document

The PR14 reconciliation rulebook (RRB) is intended to provide clarity on how we expect to make adjustments to revenue and RCV to reflect companies' performance during 2015-20, and how we will close out remaining PR09 reconciliation adjustments.

The RRB reflects the approach set out in the PR14 final determinations and other relevant policy documents. There are also some areas where additional assumptions are needed to implement the published approach. We consulted on the options closely and the rationale for our proposed approach is set out in the associated consultation document. We also engaged consultants PwC who provided their views on key assumptions. We are publishing PwC's report alongside this rulebook.

The RRB comprises:

1. This document, which describes the operation of the PR14 reconciliation mechanisms and how the PR09 legacy mechanisms will be closed out at PR19; and
2. A series of illustrative spreadsheets, which demonstrate the practical operation of the PR14 reconciliation mechanisms and how the PR09 legacy mechanisms will be closed out at PR19. These spreadsheets are referred to throughout this document.

An overview of the sections of this document is provided in the table below. The rulebook is structured according to the broad areas where we expect to reconcile companies' performance during 2015-20.

Mechanism	Overview of section	Items covered
1. ODI reconciliation	This section sets out the proposed approach to calculating adjustments to RCV and Revenue to reflect ODI rewards/penalties arising during 2015-20.	<ul style="list-style-type: none"> • Overview of mechanism purpose and structure • Treatment of specific issues: assessing outcome performance, in-period ODIs, rounding, PR19 blind year, interactions with other mechanisms • Limitations of the illustrative spreadsheets • Description of mechanism outputs • Description of mechanism inputs and sources • Price base for mechanism calculations • Description of mechanism calculations and the order of the calculations, including aggregate ODI cap calculation
2. Totex menu reconciliation	This section sets out the proposed approach to implementing the totex menu model. It documents how adjustments to RCV and revenue are calculated based on companies' actual totex during 2015-20 compared to the totex baselines set at PR14, taking into account companies' menu choice.	<ul style="list-style-type: none"> • Overview of mechanism purpose and structure • Treatment of specific issues: components of menu totex, use of PAYG rate, PR19 blind year, interactions with other mechanisms • Description of mechanism outputs • Description of mechanism inputs and sources • Price base for mechanism calculations • Description of mechanism calculations and the order of the calculations
3. WRIFM	This section describes the WRFIM mechanism and its application through the price control period. It describes the detailed reconciliation calculations and adjustments to revenue to account for variances in wholesale revenue during 2015-20	<ul style="list-style-type: none"> • Overview of mechanism purpose and structure • Treatment of specific issues: representations on the application of the incentive, PR19 blind year • Description of mechanism outputs • Description of mechanism inputs and sources • Price base for mechanism calculations • Description of mechanism calculations and the order of the calculations

Mechanism	Overview of section	Items covered
	compared to forecast wholesale revenue.	
4. Retail reconciliation	This section sets out the proposed approach to reconciling forecast and actual customer numbers during 2015-20 and adjustments to revenue to reflect variances in revenue per customer compared to forecast revenue.	<ul style="list-style-type: none"> • Overview of mechanism purpose and structure • Treatment of specific issues: reconciliation for customer numbers and revenue per customer, PR19 blind year • Description of mechanism outputs • Description of mechanism inputs and sources • Price base for mechanism calculations • Description of mechanism calculations and the order of the calculations
5. Uncertainty mechanisms	This section describes the operation of the PR14 uncertainty mechanisms and how these interact with the other PR14 reconciliation mechanisms.	<ul style="list-style-type: none"> • Overview of mechanism purpose and structure • Treatment of specific issues: water business rates uncertainty and Thames Tideway uncertainty • Interaction with other mechanisms
6. PR09 reconciliation mechanisms	This section sets out the proposed approach to closing out the PR09 legacy adjustments at PR19. Specifically, there is an adjustment mechanism to account for variances between companies' forecast 2014-15 performance (which was used to set the final determination) and companies' actual 2014-15 performance.	<ul style="list-style-type: none"> • Overview of mechanism purpose and structure • Treatment of specific issues: assessing materiality and proportionality, Thames billing system shortfall • Description of mechanism outputs • Description of mechanism inputs and sources • Price base for mechanism calculations • Description of mechanism calculations and the order of the calculations

Mechanism	Overview of section	Items covered
7. PR09 legacy CIS model reconciliation	This section sets out the proposed adjustment at PR19 to correct an inconsistency in the PR09 CIS model. In our final determinations we stated that we would consult on this issue early in 2015-20.	<ul style="list-style-type: none">• Background and purpose• Description of outputs• Description of inputs and sources• Price base for calculations• Description of calculations and the order of calculations

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1. Outcome delivery incentives (ODI) mechanisms

1.1. Background and purpose

Annex 4 of each company's final determinations set out the outcomes and associated levels of performance (Performance Commitments PCs) that each company must deliver over the five years from 1 April 2015. Some PCs are associated with financial Outcome Delivery Incentives (ODIs), through which companies receive rewards or pay penalties according to the level of their performance.

This chapter explains the different approaches to calculating rewards and penalties based on companies' actual performance over the five years from 1 April 2015. While we expect companies to report on their performance against other (reputational) commitments, the Reconciliation Rulebook focuses on the PCs with associated financial ODIs only.

While there are a large number of ODIs across the industry, for the purposes of illustrating how the reconciliation will be performed we have categorised them based on the nature of the PCs they are associated with:

1. Numeric PCs – where performance can be quantified and compared against a numerical value.
2. Delivery PCs – where performance is dependent on the delivery of an asset/scheme.
3. Bespoke – any other PC that does not fit in the two criteria above.

For each of the three categories of PC a separate model is needed to calculate the appropriate adjustment to revenue/RCV resulting from over or under performance. These models are included in a single spreadsheet published with this rulebook.

The subsections below present the ODIs reconciliation model structure, mechanism-specific considerations and then the detail of the inputs, outputs and calculations of the ODIs reconciliation model. However, we highlight that the ODI reconciliation mechanism and supporting spreadsheets are illustrative; there will be a different calculation and/or aggregation of penalties/rewards for companies where their Final Determination requires a bespoke approach.

1.2. Mechanism structure

Companies will assess their performance for each PC on an annual basis¹. Through the ODIs, their performance will fall into one of three categories:

1. No penalty or reward to be applied (performance falls into a 'deadband' region);
2. Penalty to be applied (underperformance relative to the deadband); or
3. Reward to be applied (outperformance relative to the deadband).

Penalty/reward incentive rates are used to calculate the magnitude of the penalty/reward for the performance on an annual basis. The absolute size of the penalty is also limited by a 'Penalty Collar' (when a company underperforms) and by a 'Reward Cap' (when a company over performs). The net penalty/reward will apply to either RCV or Revenue, depending on the specific ODI mechanism.

The penalty/reward in each year will be accrued and an *aggregate* cap and collar will be applied to limit the overall penalty/reward. This aggregate cap and collar applies at the price-control unit level to non-enhanced companies only, and does not apply to the retail element. The cap and collar on total rewards/penalties is set at +/-2% of regulated equity, calculated over a term of five years. Specifically:

- All net rewards across a companies' ODIs over the 5 years are aggregated. The reward cap applies if the aggregate net rewards are greater than +2% of notional regulatory equity over the five year period.
- All net penalties across a companies' ODIs over the 5 years are aggregated. The penalty collar applies if the aggregate net penalties are greater than -2% of notional regulatory equity over the five year period.
- There is no netting-off between the rewards earned from one ODI and the penalties arising from another ODI. However, netting off between rewards and penalties is allowed between years for a given ODI. Finally there are a number of ODIs that sit outside the cap and collar, for example, those related to delivery of certain large schemes. These are specified in Annex 4 of each company's final determination.

The spreadsheets that accompany this rulebook contain two worksheets to allow for the modelling of two different sets of ODIs and the interactions between them. The number of worksheets is only indicative and will need to be updated and increased in final workbooks to reflect the full set of numeric, delivery and bespoke ODIs and their interactions between them per company. Likewise, the spreadsheets would need to be replicated across the relevant price controls (wholesale water, wholesale wastewater or household retail).

¹ For some PCs this is not necessary.

1.3. Mechanism specific considerations

Assessing outcome performance

The definition and frequency of measurement of ODIs is included in Annex 4 of companies' final determinations. Companies are required to report their annual performance on ODIs consistent with the requirements of the Regulatory Accounting Guidelines (RAGs) and the commitments they have made to their customers and other stakeholders.

In-period ODIs

We have consulted on licence changes for three companies (South West Water, Severn Trent Water and Anglian Water) which will allow them to receive ODI rewards and penalties during the price control period (so called "in-period ODIs"). If a non-enhanced company receives rewards and penalties during the price control period, the calculation of ODI rewards and penalties at the end of the period will take account of these in-period rewards/penalties. This is to ensure that the total of all rewards/penalties, whether earned in-period or not, does not exceed the aggregate cap/collar. This does not apply to South West Water as the cap/collar does not apply to enhanced companies.

The result of the in-period ODI calculation will be indexed annually using the lagged Nov-Nov RPI (consistent with the indexation used in K-setting). No time value of money adjustment will be applied to account for timing differences between the point of out/under performance and the point that the ODI adjustment will be made.

Rounding

Companies might measure and report performance using a different level of accuracy compared with their PC target. For the purposes of calculating incentive performance, no rounding will be made to the company performance values, these will be compared to the absolute values reported in Annex 4.

For example, assuming the absolute value of a PC is expressed to three decimal places as 12.345:

- A performance level of 12.3456 would exceed the PC.
- While a performance level of 12.34 would not.

The spreadsheet has the functionality to apply rounding. For the purpose of calculating the performance, this input will not be used. The spreadsheets illustrate performance displaying up to 4 decimal places and accept input of more or less than

4 decimal places. The calculations are only constrained in line with the specified input 'rounding of actual performance to number of decimal places', regardless of the number of the decimal places displayed.

Limitations

The spreadsheets accompanying this rulebook include the option to model a bespoke ODI that does not have the elements of a numeric or delivery PC. To use this module a company will need to calculate whether it has passed or failed a PC in each year of the price control period and the associated reward/penalty outside of the reconciliation model. This module is included to illustrate the reconciliation of a broad range of ODI types.

Furthermore, consistent with the principle of company business plan ownership and in order to encourage innovative approaches to ODI determinations, companies were allowed some freedom in the design of their ODIs. Therefore there could be a small number of ODIs for which ad hoc modelling may be required at PR19.

Any incentive that is expressed in units that differ to the underlying performance commitment units, will need to be converted to use units in line with the performance commitment. This is in recognition of the flexibility required to support a wide range of company specific ODIs that adopt a variety of units of measures.

Treatment of PR19 blind year

In the case of the 2019-20 regulatory year (the "PR19 blind year") companies will provide an estimate of their final year performance, and any deviation from this will be assessed at PR24. This approach is consistent with the treatment of the blind year for other mechanisms and with the treatment of the PR09 blind year.

Interaction with other mechanisms

There is an interaction between ODIs and the WRFIM. For companies with in-period ODIs, the impact of rewards or penalties in the year awarded will be reflected in both companies allowed and recovered revenues in the WRFIM. On this basis, in-period ODIs will not give rise to an additional incentive within the WRFIM calculation.

1.4. Outputs

#	Output	Description	Price base
1	In period ODI revenue adjustment	The aggregate (upward or downward) adjustment to annual Allowed Revenue during 2015-20 from the reconciliation of in-period ODIs.	12/13
2	End-of-period ODI revenue adjustments	The aggregate (upward or downward) adjustment to revenue at PR19 from the reconciliation of end-of-period ODIs.	12/13
3	End-of-period ODI adjustments	The aggregate (upward or downward) adjustment applied to RCV at PR19 from the reconciliation of performance against end-of-period ODIs.	12/13

1.5. Inputs

1.5.1. General inputs

#	Input	Description	Source	Price base
1	Company type	Either 'Enhanced' or 'Non-enhanced'. This will determine whether the aggregate cap or collar applies	N/A	N/A
2	Year average RCV	The annual year average RCV taken over the financial year	Populated final determination financial model	12/13
3	Average net debt	The annual average net debt taken over the financial year, inputted as a negative value	Populated final determination financial model	Nominal
4	Aggregate Penalty Collar/ Aggregate Reward Cap	The cap and collar on total rewards/penalties is set at +/-2% of notional regulatory equity It is equal to 2% of the	Policy chapter A2 – outcomes, Pages 89-90.	12/13

#	Input	Description	Source	Price base
		value of notional regulatory equity over the five years. Notional regulatory equity is calculated as Nominal Average RCV from the FD financial model (Row 3356, from sheets "Water Nominal" and "Waste Nominal") adjusted by average net debt from the FD financial model (Row 3353 from sheets Water Nominal and Waste Nominal), converted to 12-13 real values using the Ofwat forecast RPI series in the FD financial models		

1.5.2. Inputs – ODIs

#	Input	Description	Source	Price base
1	ODI name	Name of the defined ODI as per the final determination	Final determination – company specific Appendix, Annex 4	N/A
2	Incentive type	There are three options: 1) Numeric PCs 2) Delivery PCs 3) Bespoke	Final determination – company specific Appendix, Annex 4	N/A
3	When the reward/penalty is crystallised	There are two options: 1) Adjustment made during AMP6 (these types of ODIs are referred to as in-period). 2) Adjustment made in AMP7 or beyond (these types of ODIs are referred to as end-of-period).	Final determination – company specific Appendix, Annex 4	N/A

#	Input	Description	Source	Price base
4	How is a net reward / penalty of a specific ODI applied?	There are two options: 1) Revenue adjustment. 2) RCV adjustment.	Final determination – company specific Appendix, Annex 4	N/A
5	Is the ODI exempt from the aggregate cap and collar?	Choice of True or False.	Final determination – company specific Appendix, Annex 4	N/A

1.5.3. Inputs – numeric PCs

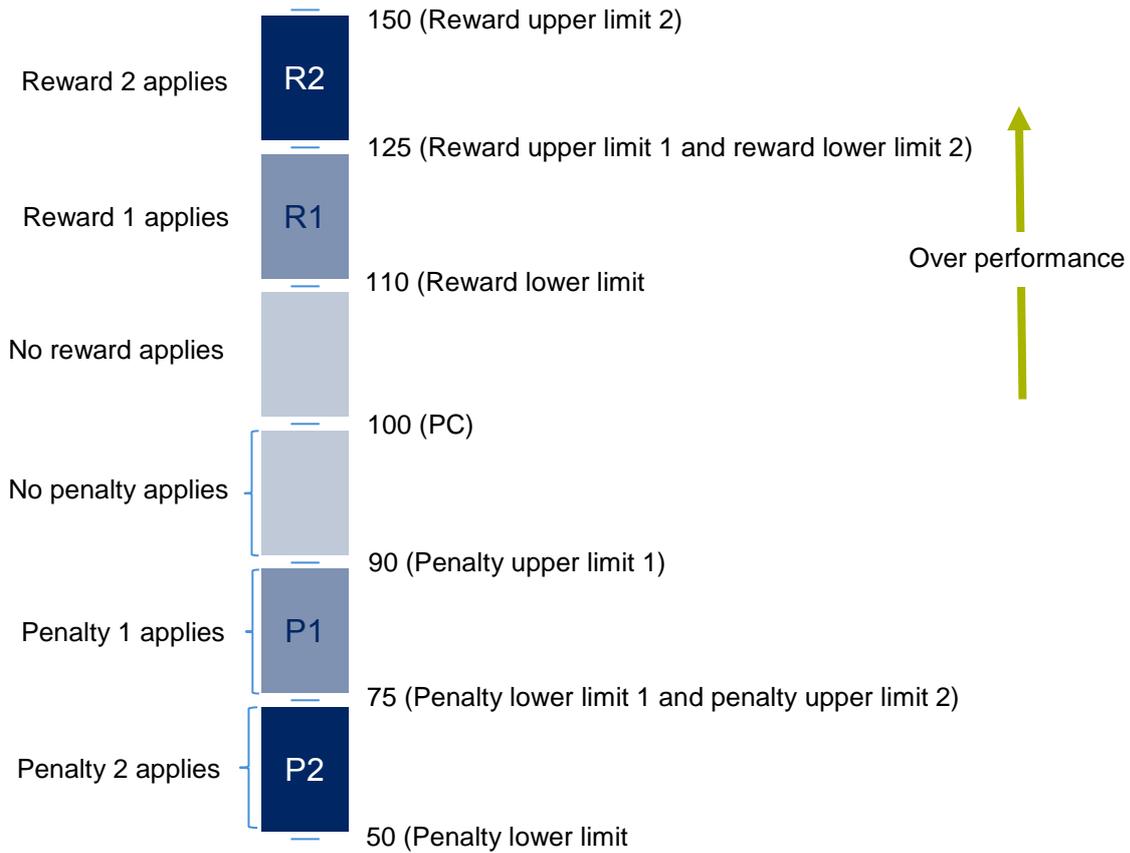
#	Input	Description	Source	Price base
1	Performance commitment ('PC'): defined PC	The absolute level of performance the company has committed to delivering.	Final determination – company specific Appendix, Annex 4	N/A
2	Actual performance	The company's performance against a particular commitment specified in the same units as the relevant PC (per Annex 4).	Company regulatory accounts	N/A
3	Rounding	Allows the user to round actual performance (not used)	N/A	N/A
4	Incentive unit	The unit of measurement associated with a particular performance commitment	Final determination – company specific Appendix, Annex 4	N/A
5	Defining the reward and penalty limits: Is performing below the PC level defined as underperformance?	Choose True or False	Final determination – company specific Appendix, Annex 4	N/A

#	Input	Description	Source	Price base
6	Penalty collar	The level of performance that limits the magnitude of a company's penalty. Underperformance that is outside this collar will not incur additional penalties under the ODI.	Final determination – company specific Appendix, Annex 4	N/A
7	Penalty deadband	A boundary of the deadband region: the lowest (or highest, depending on the orientation of the incentive) level of underperformance that will not result in a penalty.	Final determination – company specific Appendix, Annex 4	N/A
8	Penalty 1 – applies in specified year	A choice of True or False for each year. Selecting True for a particular year will mean that if underperformance occurs in that year, penalty 1 will apply.	Final determination – company specific Appendix, Annex 4	N/A
9	Penalty 1 – incentive rate	Specify the incentive rate per year for penalty 1.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice.	N/A
10	Penalty 1: Apply upper and lower performance limits	A choice of True or False. This will determine whether the upper and lower performance limits are also used in Penalty 2 (see item 13 below).	Final determination – company specific Appendix, Annex 4	N/A
11	Penalty 1 – lower limit performance level	Performance at the penalty 1 lower limit will incur the maximum penalty associated with the penalty 1 performance level range.	Final determination – company specific Appendix, Annex 4	N/A

#	Input	Description	Source	Price base
12	Penalty 1 – upper limit performance level	Performance at the penalty 1 upper limit is the starting level from which penalties within the penalty 1 performance level range are calculated. This is usually the same level as the penalty deadband.	Final determination – company specific Appendix, Annex 4	N/A
13	Penalty 2 inputs	If only one penalty incentive rate is applicable for the ODI then complete the penalty 1 section and leave the ‘Penalty 2 – applies in specified year’ flags for penalty 2 set to False. See penalty 1 inputs defined above for equivalent definitions.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice	N/A
14	Reward Deadband	A boundary of the deadband region: the highest (or lowest) level of outperformance that will not result in a reward.	Final determination – company specific Appendix, Annex 4	N/A
15	Reward Cap	The level of performance which limits the magnitude of a company’s reward. Outperformance that is above the cap will not result in additional reward.	Final determination – company specific Appendix, Annex 4	N/A
16	Reward 1 – applies in specified year	A choice of True or False for each year. Selecting True for a particular year will mean that if outperformance occurs in that year, reward 1 will apply.	Final determination – company specific Appendix, Annex 4	N/A

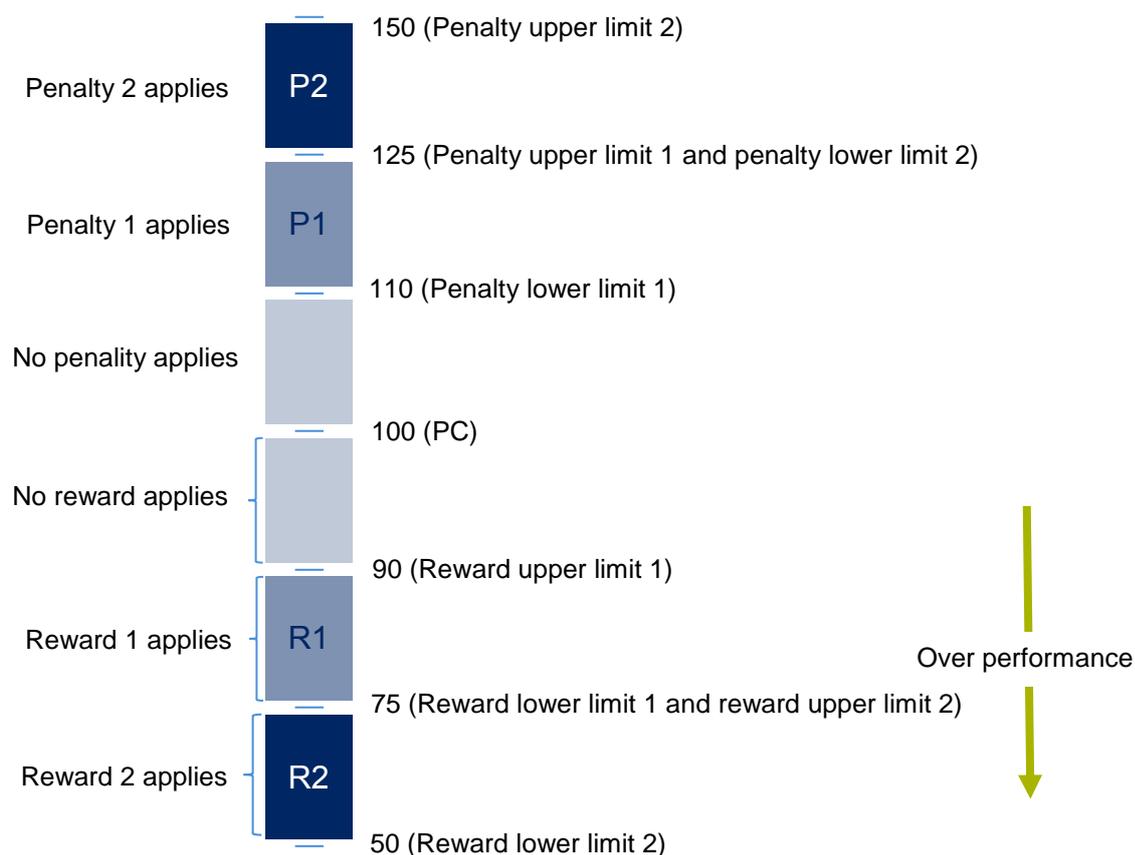
#	Input	Description	Source	Price base
17	Reward 1 – incentive rate	Specify the incentive rate per year for reward 1.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice.	N/A
18	Reward 1: Apply upper and lower performance limits	A choice of True or False. This will also determine whether the upper and lower performance limits are used in Reward 2 (see item 21 below).	Final determination – company specific Appendix, Annex 4	N/A
19	Reward 1 – lower limit performance level	This limit is the starting level from which penalties within the penalty 1 performance level range are calculated	Final determination – company specific Appendix, Annex 4	N/A
20	Reward 1 – upper limit performance level	Performance at the reward 1 upper limit will incur the maximum reward associated with the reward 1 performance level range.	Final determination – company specific Appendix, Annex 4	N/A
21	Reward 2 inputs	If only one reward is applicable for the ODI then complete the reward 1 section and leave the ‘applies in specified year’ flags for reward 2 set to False. See Reward 1 inputs defined above for equivalent definitions.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice.	N/A

The figure below shows an illustrative example where performance below the PC is deemed as underperformance.



In this case, for performance between 100 and 90, no penalty would apply. For any performance worse than the penalty upper limit 1 (set at the deadband level of 90) down to 75, penalty 1 would apply. For any performance worse than 75 down to 50 penalty 2 would apply. Similarly, for any performance between 100 and 110, no reward would apply. For performance better than 110 up to 125, reward 1 would apply. For any performance better than 125 up to 150, reward 2 would apply.

An equivalent figure when performance above the PC is deemed as underperformance is outlined below:



In this case, for performance between 100 and 110, no penalty would apply. For any performance worse than the penalty upper limit 1 (set at the deadband level of 110) up to 125, penalty 1 would apply. For any performance worse than 125 up to 150 penalty 2 would apply. Similarly, for any performance between 100 and 90, no reward would apply. For performance better than 90 down to 75, reward 1 would apply. For any performance better than 75 down to 50, reward 2 would apply.

1.5.4 Inputs – delivery PCs

#	Input	Description	Source	Price base
1	Delivery PC: delivery in specified year	Select the year in AMP6 that the company has committed to deliver the PC.	Final determination – company specific Appendix, Annex 4	N/A
2	Delivery cap – for early delivery	The earliest year that a company can receive a reward for early delivery.	Final determination – company specific Appendix, Annex 4	N/A

#	Input	Description	Source	Price base
3	Delivery collar – for delayed delivery	The latest year that a company can receive a penalty for delayed delivery.	Final determination – company specific Appendix, Annex 4	N/A
4	Actual performance: delivery occurred in specified year	The year in AMP6 in which the PC is actually delivered. If the PC is not delivered in AMP6 then it is classified as 'Undelivered'. For partial years and cases where pro-rating apply, the bespoke PCs section can be used to capture the performance and corresponding rewards/penalties.	Final determination – company specific Appendix, Annex 4	N/A
5	Penalty if delayed delivery occurs	Choice of True or False. Selecting True means that a penalty will be incurred for each year of delay.	Final determination – company specific Appendix, Annex 4	N/A
6	Penalty applied for each delayed year	The penalty applied for delayed delivery. Only applies if the 'Penalty if delayed delivery occurs' switch is set to True.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice	N/A
7	Penalty if non-delivery in AMP6 occurs	Choice of True or False. Selecting True means that a penalty will be incurred if delivery does not occur in AMP6.	Final determination – company specific Appendix, Annex 4	N/A
8	Penalty applied once for non-delivery in AMP6	If delivery does not occur in AMP6 then a penalty is applied once for the non-delivery.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice	N/A
9	If the penalty for non-delivery is	Choice of True or False. Selecting False means that if	Final determination – company specific	N/A

#	Input	Description	Source	Price base
	applied, the penalties for delays are not applied?	delivery does not occur in AMP6, a penalty for each year of a delay plus a penalty for non-delivery will apply.	Appendix, Annex 4	
10	Reward if early delivery occurs	Choice of True or False. Selecting True means that a reward will be incurred for each year of early delivery.	Final determination – company specific Appendix, Annex 4	N/A
11	Reward applied for each early-delivery year	The reward applied for early delivery Only applies if the 'Reward if early delivery occurs' switch is set to True.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice	N/A
12	Reward if overall delivery in AMP6 occurs	Choice of True or False. Selecting True means that a reward will be incurred if delivery occurs in AMP6.	Final determination – company specific Appendix, Annex 4	N/A
13	Reward applied for overall delivery in AMP6	If delivery occurs in AMP6 then a reward is applied once for this delivery.	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice	N/A
14	If early delivery rewards are applied, the reward for overall delivery is not applied?	Choice of True or False. Selecting False means that if delivery occurs in AMP6, a reward for each year of early delivery plus a reward for overall delivery will apply.	Final determination – company specific Appendix, Annex 4	N/A

1.5.5 Inputs – bespoke PCs

#	Input	Description	Source	Price base
1	Actual performance (pass / fail)	User specifies whether the PC has been achieved using a pass or fail flag	Company regulatory accounts	N/A

#	Input	Description	Source	Price base
2	Associated penalty for a 'fail'	User specifies the total penalty per year relating to a 'fail'	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice	12/13
3	Associated reward for a 'pass'	User specifies the total reward per year relating to a 'pass'	Final determination – company specific Appendix, Annex 4 and as recalibrated following company menu choice	12/13

1.6 Calculations

1.6.1. Calculations – numeric PCs

#	Calculation overview	Calculation detail
1	Is performing below the PC level defined as underperformance?	True or False flag, as defined by the user in the inputs section
2	When performing below the PC level is defined as underperformance : Are upper and lower limits defined for rewards?	True or False flag, as defined by the user in the inputs section
3	When performing below the PC level is defined as underperformance : Reward magnitude	<p>If the upper and lower limits are defined</p> <p>Then take the minimum of the Reward 1 upper limit and actual performance levels</p> <p>Less Reward 1 lower limit</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Reward 1 incentive rate and 'applies in year' flag</p> <p>Add the equivalent calculation for Reward 2</p> <p>Otherwise take the minimum of the reward cap and actual performance level</p>

#	Calculation overview	Calculation detail
		<p>Less the reward deadband</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Reward 1 incentive rate and 'applies in year' flag</p>
4	<p>When performing below the PC level is defined as underperformance:</p> <p>Are upper and lower limits defined for penalties?</p>	<p>True or False flag, as defined by the user in the inputs section</p>
5	<p>When performing below the PC level is defined as underperformance:</p> <p>Penalty magnitude</p>	<p>If the upper and lower limits are defined</p> <p>Then take the Penalty 1 upper limit</p> <p>Less the maximum of the Penalty 1 lower limit and actual performance levels</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Penalty 1 incentive rate and 'applies in year' flag</p> <p>Add the equivalent calculation for Penalty 2</p> <p>Otherwise take the Penalty deadband</p> <p>Less the maximum of the Penalty collar and actual performance</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Penalty 1 incentive rate and 'applies in year' flag</p>
6	<p>When performing above the PC level is defined as underperformance:</p> <p>Are upper and lower limits defined for rewards?</p>	<p>True or False flag, as defined by the user in the inputs section</p>
7	<p>When performing above the PC level is defined as underperformance:</p> <p>Reward magnitude</p>	<p>If the upper and lower limits are defined</p> <p>Then take the Reward 1 lower limit</p> <p>Less the maximum of the Reward 1 upper limit and actual performance levels</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Reward 1 incentive rate and 'applies in year' flag</p> <p>Add the equivalent calculation for Reward 2</p> <p>Otherwise take the reward deadband</p>

#	Calculation overview	Calculation detail
		<p>Less the maximum of the Reward cap and the actual performance level</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Reward 1 incentive rate and 'applies in year' flag</p>
8	<p>When performing above the PC level is defined as underperformance:</p> <p>Are upper and lower limits defined for penalties?</p>	<p>True or False flag, as defined by the user in the inputs section</p>
9	<p>When performing above the PC level is defined as underperformance:</p> <p>Penalty magnitude</p>	<p>If the upper and lower limits are defined</p> <p>Then take the minimum of the Penalty 1 lower limit and actual performance levels</p> <p>Less Penalty 1 upper limit</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Penalty 1 incentive rate and 'applies in year' flag</p> <p>Add the equivalent calculation for Penalty 2</p> <p>Otherwise take the minimum of the penalty collar and actual performance level</p> <p>Less the penalty deadband</p> <p>Take the maximum of this result and zero</p> <p>Multiply by the Penalty 1 incentive rate and 'applies in year' flag</p>
10	<p>Net Reward/(Penalty)</p>	<p>If performing below the PC level is defined as underperformance</p> <p>Reward magnitude (as calculated in #3)</p> <p>Less Penalty magnitude (as calculated in #5)</p> <p>If performing above the PC level is defined as underperformance, When performing above the PC level earns a reward: Reward magnitude (as calculated in #7)</p> <p>Less When performing below the PC level earns a reward: Penalty magnitude (as calculated in #9)</p>

1.6.2. Calculations – delivery PCs

#	Calculation overview	Calculation detail
1	Has early delivery been achieved?	If the PC is undelivered then false Otherwise if the year of delivery is before the PC delivery date then true
2	Number of years of early delivery	If early delivery has been achieved then PC delivery date less the actual delivery date
3	Reward for early delivery (uncapped)	Number of years of early delivery multiplied by reward rate for early delivery
4	Number of years between delivery cap and delivery PC	PC delivery date less delivery cap date
5	Reward cap for early delivery	Number of years between delivery cap and delivery PC multiplied by the reward rate for early delivery
6	Reward for early delivery – applied in year of delivery	Minimum of reward cap for early delivery and reward for early delivery (uncapped)
7	Has there been a late delivery?	If the PC is undelivered then false Else if the year of delivery is after the PC delivery date then true
8	Does a reward apply for overall delivery?	If there has been a late delivery then false Otherwise if ‘Reward if overall delivery in AMP6 occurs’ is True then True
9	Reward for overall delivery	‘Does a reward apply for overall delivery?’ flag Multiply by reward rate for overall delivery
10	Total reward	If early delivery has been achieved Then reward for overall delivery Add reward for overall delivery multiplied by ‘If early delivery rewards are applied, the reward for overall delivery is not applied?’ flag Otherwise reward for overall delivery
11	Penalties associated with delivery	Calculations are similar to those set out above for rewards
12	Net Reward/(Penalty)	Total reward less total penalty

1.6.3. Calculations – bespoke PCs

#	Calculation overview	Calculation detail
1	Total reward for years where PC was passed	'Pass' flag multiplied by reward for that pass
2	Total penalty for years where PC was failed	'Fail' flag multiplied by penalty for that fail
3	Net reward/(penalty)	Total reward less total penalty

1.6.4. Aggregation– total rewards and penalties for in-period ODIs

#	Calculation overview	Calculation detail
1	Determine whether the ODI reward/penalty crystallises during AMP6	Defined by user input
2	Net Reward/(Penalty) for specific ODI	'Crystallisation' flag multiplied by net reward/(penalty) for ODI
3	ODIs where the aggregate cap/collar applies:	<p>For each specific ODI:, calculate the net reward or penalty by adding rewards and penalties for each year Aggregate the net rewards for all ODIs Aggregate the net penalties for all ODIs If net rewards are greater than the aggregate cap, apply the aggregate cap If net penalties are less than the aggregate collar, apply the aggregate collar Calculate the adjustment to net rewards in final year if cap is applied Calculate the adjustment to net penalties in final year if collar is applied. Calculate the total revenue adjustment for each year by summing the rewards and penalties incurred in the relevant year. For year 5 also apply the adjustment to net rewards and to net penalties.</p>
4	ODIs where the aggregate cap/collar does not apply: Aggregation of net	Sum the net rewards if value is a reward and the ODI is exempt from aggregate cap

#	Calculation overview	Calculation detail
	rewards	
5	ODIs where the aggregate cap/collar does not apply: Aggregation of net penalties	Sum the net penalties if value is a penalty and the ODI is exempt from aggregate collar
6	Total reward/penalty for in-period ODIs – revenue adjustments	Sum the net rewards/(penalties) for in-period ODIs
7	Tax adjustment	N/A
8	Financing cost	N/A
9	Indexation	The reward/penalties will be indexed to nominal values This adjustment is not set out in these calculations.

1.6.5. Aggregation – total rewards and penalties for end of period ODI

#	Calculation overview	Calculation detail
1	Net Reward/(Penalty) for end-of-period ODIs	If reward or penalty crystallised in AMP7 or beyond Then Net reward / (penalty) for specific ODI Else zero
2	ODIs where the aggregate cap/collar applies: Aggregation of net rewards (uncapped)	Sum the net rewards/(penalties) if value is a reward and ODI is subject to aggregate cap
3	ODIs where the aggregate cap/collar applies: Aggregation of net penalties (uncapped)	Sum the net rewards/(penalties) if value is a penalty and ODI is subject to aggregate collar
4	ODIs where the aggregate cap/collar applies: Apply the aggregate cap to net rewards	If net rewards for ODIs subject to aggregate cap are greater than the aggregate cap with in-period net rewards considered Then apply aggregate cap Else net reward

#	Calculation overview	Calculation detail
5	ODIs where the aggregate cap/collar applies: Apply the aggregate collar to net penalties	If net penalties for ODIs subject to aggregate cap are less than the aggregate collar with in-period net penalties considered Then apply aggregate collar Else net penalty
6	ODIs where the aggregate cap/collar does not apply: Net reward / (penalty) per ODI	If ODI is exempt from the aggregate cap Then reward / (penalty) for specific ODI
7	ODIs where the aggregate cap/collar applies: Rewards allocated to revenue per ODI	If ODI has reward allocated to revenue and is subject to aggregate cap Then net reward for ODI Divided by aggregation of net rewards (uncapped) Multiplied by the aggregation of net rewards with cap applied
8	ODIs where the aggregate cap/collar applies: Penalties allocated to revenue per ODI	If ODI has penalty allocated to revenue and is subject to aggregate collar Then net penalty for ODI Divided by aggregation of net penalties (uncapped) Multiplied by the aggregation of net penalties with cap applied
9	ODIs where the aggregate cap/collar does not apply: Rewards allocated to revenue per ODI	If ODI has reward allocated to revenue and is exempt from the aggregate cap Then net reward for ODI
10	ODIs where the aggregate cap/collar does not apply: Penalties allocated to revenue per ODI	If ODI has penalty allocated to revenue and is exempt from the aggregate cap Then net penalty for ODI
11	ODIs where the aggregate cap/collar applies: Rewards allocated to RCV per ODI	If ODI has reward allocated to RCV and is subject to aggregate cap Then net reward for ODI Divided by aggregation of net rewards (uncapped) Multiplied by the aggregation of net rewards with cap applied

#	Calculation overview	Calculation detail
12	ODIs where the aggregate cap/collar applies: Penalties allocated to RCV per ODI	If ODI has penalty allocated to RCV and is subject to aggregate collar Then net penalty for ODI Divided by aggregation of net penalties (uncapped) Multiplied by the aggregation of net penalties with cap applied
13	ODIs where the aggregate cap/collar does not apply: Rewards allocated to RCV per ODI	If ODI has reward allocated to RCV and is exempt from the aggregate cap Then net reward for ODI
14	ODIs where the aggregate cap/collar does not apply: Penalties allocated to RCV per ODI	If ODI has penalty allocated to RCV and is exempt from the aggregate cap Then net penalty for ODI
15	Net reward/(penalty) applied to revenue	Sum of rewards and penalties allocated to revenue ²
16	Net reward/(penalty) applied to RCV	Sum of rewards and penalties allocated to RCV ³
17	Tax adjustment	Rewards and penalties for end-of-period ODIs revenue and RCV ODIs will receive a tax allowance in the next price control period. The tax allowance is not set out in these calculations.
18	Financing cost	There is no financing cost adjustment for this mechanism.
19	Indexation	A one-off adjustment will be applied at PR19 to convert the output of the mechanism to the PR19 price base using actual RPI. This adjustment is not set out in these calculations.

² The adjustment will be calculated separately for each price control (wholesale water, wholesale wastewater or retail)

³ The adjustment will be calculated separately for each price control (wholesale water and wholesale wastewater)

2. Totex menu reconciliation

2.1. Background and purpose

In PR14 we introduced the concept of totex. This has replaced the separate allowances for opex and capex that were used in previous price controls. We also designed a totex menu. The totex menu provides extra incentives for companies to reveal information and for some extra flexibility in setting totex baselines and cost sharing factors. The totex menu generates a reward/penalty that is dependent on a company's menu choice and its actual totex spend at the end of the 2015-2020 period. The reward/penalty is designed to give companies an incentive to deliver outcomes using totex similar or equal to Ofwat's efficient baseline and to further incentivise accurate totex forecasting.

Companies made their final menu choices on 16th January 2015 following publication of the final determinations. A company's final menu choice represents a chosen expenditure level relative to Ofwat's estimate of efficient totex baseline costs. For example, a menu choice of 80 means that the company's expenditure choice is 20% lower than Ofwat's estimate of efficient baseline totex and a menu choice of 115 represents a company expenditure choice is 15% higher. For each menu choice there is an associated level of allowed expenditure that is used to set price limits and a cost sharing rate. The cost sharing rate is used to define the amount of out or under performance that is shared between companies and customers. For example, a cost sharing rate of 60% implies that the company will retain 60% of any underspend but would incur 60% of any overspend relative to a companies' allowed expenditure.

The menus for enhanced companies are different to those for other companies in two respects:

- Enhanced menus embody greater cost sharing so these companies will retain a higher share of any cost outperformance in respect of efficiency gains.
- The enhanced menus include a narrower range of choices reflecting Ofwat's greater confidence in enhanced plans.

At PR14, companies could propose the proportion of totex that should be recovered on a 'pay as you go' (PAYG) basis, rather than being added to the regulatory capital value (RCV), to help manage bill profiles, affordability and financeability issues over time. Ofwat reviewed these proposals and intervened on some occasions to protect customers.

2.2. Mechanism structure

At PR19 we will calculate the appropriate adjustments to revenue and RCV for the next price control period, based on the totex performance of a company over the current price control period. The totex menu adjustment model allows us to do this. To calculate the adjustment we need to:

- Calculate menu totex (which is actual totex adjusted for various items to bring it in line with the baseline totex (see section 2.3)).
- Compare baseline totex and menu totex to generate a menu reward or penalty.
- Reconcile for differences between elements generated by the menu with the implied and final menu choices, such as additional income and the allowed expenditure generated by the menu.

We want to allow customers to share in an element of the financing costs/benefits that are generated from totex under/over performance in each year of a price control. To achieve this, we first subtract the additional income component earned by companies at final determinations. This step also reconciles for any difference in additional income if the final menu choice is not equal to the implied value. The residual reward / (penalty) is reprofiled and allocated a value in each year of the price control that is proportional to the value of a companies' baseline totex in that year with respect to total baseline totex. A financing cost adjustment is then applied to the reprofiled reward / (penalty) to bring it to PR19 in net present value terms. These values are added together and applied as a revenue adjustment at PR19.

In addition to the reward / (penalty), the model also calculates two non-menu adjustments that contribute only to the revenue adjustment at PR19. These are the difference between actual pension deficit recovery (PDRC) costs and the PR14 PDRC allowance and any impact of a successful business rates IDoK.

To generate the adjustment due to totex under / over performance the model calculates the difference between two items:

1. Actual totex (minus actual pension deficit recovery costs – see above) with allowed totex generated from the final menu choice inclusive of FD menu cost exclusions, less FD PDRCs. This step removes PDRCs, which are reconciled elsewhere in the model, and compares the total values of actual and allowed totex after adjusting the latter for a change in menu choice if necessary.

2. Allowed totex generated with the final menu choice and the value generated from the implied menu choice at final determinations.

The total PR19 totex adjustment is the sum of these two calculations for each of the five years of the price control, including the reward/penalty and non-menu revenue adjustments for PDRCs and a business rates IDoK.

To allocate the final totex adjustment between revenue and RCV the model uses a weighted average of the companies PAYG profile, using the proportion of baseline totex in each year to weight the companies' annual PAYG rate.

The illustrative spreadsheet calculates the revenue and RCV adjustments for the water and wastewater controls in parallel. For calculating the TTT Control adjustments (which applies to Thames Water only), the model will need to be run separately with the TTT Control inputs inserted in the sewerage input lines and the PAYG rate set to zero.

2.3. Mechanism specific considerations

Components of menu totex

Ofwat defines menu totex as:

Menu totex = Actual totex minus Total Costs excluded from the menu

The table below summarises the items included in the formula above. It sets out the separate items excluded from actual totex to generate menu totex and provides the reference of the item in the RAG 4.05. Where items are not included in RAG 4.05, further commentary is provided below the table.

Table 1: Calculation of menu totex

Item name	Reference in RAG 4.05	Comments (referenced to the notes below the table)
Menu totex	n/a	Note 1
Actual totex	4B.6	
Total costs excluded from the menu equals the sum of the items below:		
Third party services (opex)	2B.8	
Third party services (capex)	2B.13	
Pension deficit recovery costs	2B.17	
Other cash items	2B.18	
Disallowable costs	n/a	Note 2
Transition expenditure (negative)	n/a	Note 3
Legacy depreciation	n/a	Note 4

Note 1 – Disallowable costs: In setting price controls, we have used an overarching principle that costs should only feature in our totex menu for activities where it is appropriate for a company to share an over (or under) spend with their customers. We define disallowable items as costs that do not conform to this overarching principle. These include:

- costs associated with impairment of other businesses,
- costs related to financing (bond issuance fees, refinancing, takeover costs),
- fines and investigation costs,
- compensation claims, and
- any other costs where the activity driving it does not, ex ante, have a reasonable expectation of customer benefit.

To allow Ofwat to exclude disallowable costs from Actual submitted totex, companies must provide details of any such cost items incurred. Companies should include all such items in their Annual Performance Report (APR) on line 4B.4 and will be expected to include detailed commentary behind each item.

Note 2 – Transition expenditure: Refers to capital expenditure incurred in 2014-15 for the delivery of assets in the price control period 2015-20. Although incurred in 2014-15, forecast expenditure (to account for the blind year) was included in the

menu baseline. Actual totex must therefore be adjusted to incorporate the actual value of this expenditure to ensure the incentive on cost performance is retained. Transition expenditure is presented in the table as a negative value to reflect the point that it must be added to Actual totex to contribute to the menu baseline calculation. The actual value of transition expenditure is not part of the RAGs, but will be included in companies' submissions towards the blind year reconciliations. We expect companies to submit this information as part of the July 2015 annual reporting.

Note 3 – Legacy depreciation: Depreciation on any investment in retail assets before 1 April 2015 is called legacy depreciation. The value of this depreciation was included in the final determination wholesale allowance and was calculated on a historical cost basis. For 2015-16 onwards Ofwat has asked companies to report these costs using the principal use basis. Under the principal use basis, depreciation is wholly allocated to the price control unit (e.g. wholesale water, wastewater, household and non-household retail) which uses the asset the most. The company then reflects the cost of other parts of the business using the asset through recharges. Companies must report the value of recharges to other parts of the business in their APRs. However, the value of the recharge required to add back (or take away from) to Actual Totex to compare against the final determination menu baseline is not currently an explicit line item in the RAGs (see worked example below). The recharges would be included in line items 2A.6, "Recharges made from other segments for use of fixed assets" and line item "A.7 "Recharges made to other segments for use of fixed assets" in pro forma 2A.

Legacy depreciation worked example

We have included a worked example to address questions on the calculation of legacy depreciation. The example uses a company with an asset, owned since 2010, that has an asset life of 10 years and is worth £100m. The asset is used 90% by wholesale and 10% by retail.

Situation at final determinations:

- We made a policy decision that all legacy depreciation would be funded in the wholesale control. We allocated all existing RCV to wholesale.
- As a result, depreciation on the whole £100m asset was funded as part of the wholesale determination.
- There were no adjustments made to wholesale totex with regard to this.

Situation from 2014-15 to 2019-20 (due to change to principal use accounting)

We have now asked companies to report depreciation on a principle use basis. This changes the calculation of depreciation for the same asset as set out below.

- The whole of the asset is still allocated to the wholesale RCV, meaning the depreciation on the £100m asset will be funded through the wholesale control.

- However, because of the share in use of the asset, the wholesale business will charge the retail business for the use of 10% of the asset. The result is that the retail business gives the wholesale business £1m a year payment for its use of the asset. This payment will be reported as negative opex in the wholesale control.
- We did not include these recharges in our final determination menu baseline. As a result, and all things being equal, this negative opex would mean the company's actual totex would seem £1m lower than its totex allowance. It would seem as if the company had outperformed its totex allowance by £1m.
- To avoid this we need to adjust the company's actual totex for the recharges between retail and wholesale for depreciation on legacy assets.

Treatment of PR19 blind year

Companies provide an estimate of their final year performance, and any deviation from this is assessed at PR24. This is consistent with the treatment of the blind year for other mechanisms and with the treatment of the PR09 blind year.

Interaction with other mechanisms

Where adjustments arise due to uncertainty mechanisms, Ofwat will ensure the inputs to the totex menu model are adjusted accordingly.

For water business rates there is a separate uncertainty mechanism that operates as a notified item. If the notified item is activated it could qualify for an Interim Determination of K (IDoK) which allows price controls to be adjusted between periodic reviews. Ofwat has set out in each companies' Price Control Determination letter how companies' allowed totex should be allocated if an IDoK is successful. This mechanism is included as part of the totex reconciliation model and is reflected in the tables below.

We note that the totex menu reconciliation is reconciled at an aggregate level for each wholesale control (subject to the calculations outlined above) rather than at a scheme level. For clarity, where companies are subject to ODIs on the delivery of specific schemes, companies' delivery performance will be relevant within the ODI mechanism only.

Tax

Where companies' actual expenditure during the price control period are different to their FD14 allowed expenditure, there will also be a difference between the actual tax expense and the ex-ante FD14 tax allowance. The totex reconciliation mechanism

does not directly reconcile this difference in tax. However, it is appropriate to limit the degree to which tax is either compensated or borne twice – initially in the current price control period when the variance between allowed/actual expenditure arises, and then again in the next price control period when the revenue and RCV adjustment is applied. Our approach is to broadly offset the variance in tax during the price control period by providing no incremental tax allowance on the revenue adjustment at PR19.

This is illustrated with the very simple example below (which assumes no discounting and a constant tax rate). Note that the example addresses variances in PAYG only. It does not address variances in non-PAYG which would result in an RCV adjustment at PR19.

Period	1	2
Revenue requirement building blocks		
Average RCV	100.00	100.00
PAYG	100.00	100.00
RCV Run off	10.00	10.00
Return on RCV	3.70	3.70
	3.7%	
Revenue requirement - post tax	113.70	113.70
Expected PAT	3.70	3.70
Grossing up for tax	0.93	0.93
	25%	
Revenue adjustment		2.00
Total revenue requirement - pre-tax	114.63	116.63
P&L		
Actual revenue	114.63	116.63
Less Actual PAYG/Opex	102.00	100.00
Less Tax Depc'n	-10.00	-10.00
PBT	2.63	6.63
Tax	0.53	1.33
	20%	
PAT	2.10	5.30
Tax Delta	-0.40	0.40

The company spends £2.00 (2%) more than their PAYG allowance in the first period. They receive a corresponding revenue adjustment in the next period (applying a 100% cost sharing rate), but their tax allowance remains constant.

Compared to their tax allowance in each period (£0.93), the company pays £0.40 less tax in the first period and £0.40 more tax in the second period.

2.4. Outputs

#	Output	Description	Price base
1	Revenue adjustment	The net revenue adjustment at PR19 resulting from totex under/over performance during AMP6	12/13
2	RCV adjustment	The net RCV adjustment at PR19 resulting from totex under/over performance during AMP6	12/13

2.5. Inputs

#	Input	Description	Source	Price base
1	Company name	Company name	N/A	N/A
2	Company type	Select either WaSC or WOC	N/A	N/A
3	Is company enhanced?	Select either Enhanced or Non-enhanced. A different menu applies for enhanced/ non-enhanced companies	N/A	N/A
4	Financing rate	The Final Determination Weighted Average Cost of Capital	Final determination – company specific appendix	N/A
5	Implied menu choice	The implied menu choice number for water and wastewater	Final determination – company specific appendix	N/A
6	FD pension deficit recovery costs allowance	The final determinations pension deficit recovery costs allowance for water and wastewater	Final determination – company specific appendix	12/13

#	Input	Description	Source	Price base
7	Final menu choice	The submitted final menu choice for water and wastewater	Menu choice confirmation letter 16 th January 2015	N/A
8	Baseline totex	Ofwat's view of the menu cost baseline at final determinations	Companies' populated final determination menu models	12/13
9	FD allowed totex inclusive of menu cost exclusions, less PDRC allowance	The allowed expenditure in final determinations for input to PAYG	Companies' populated final determination menu models	12/13
10	Actual totex	Reported actual totex for water and wastewater	Companies' annual regulatory reporting	Outturn
11	Adjustments to Actual totex	To make adjustments to Actual totex to generate Menu totex	Company's PR19 business plan	Outturn
11a	Totex exclusions	Actual totex line items to be excluded in menu totex: third party costs, pension deficit recovery costs, other cash items, disallowables	Companies' annual regulatory reporting (see details above)	Outturn
11b	TTT Control: logging up / (down) of scope swaps	Costs associated with the reallocation of scope from the Infrastructure Provider to Thames Water that are subject to the logging up process	Company's PR19 business plan	Outturn
11c	TTT control: Land - 100:0 (customer:company) cost sharing factor	TTT control land costs are not subject to the standard menu incentives and have a customer sharing rate of 100:0 to ensure customers benefit from future land	Company's PR19 business plan	Outturn

#	Input	Description	Source	Price base
		disposals (see paragraph 1 of section 5.4)		
11d	Totex inclusions – Transition expenditure	Companies' transition expenditure in 14/15.	Companies' annual regulatory reporting (see details above)	12/13
11e	Totex inclusions – Legacy depreciation	If legacy depreciation is a recharge from the wholesale control to retail, input value into model as a negative number. If legacy depreciation is a recharge from the retail control to wholesale, input value into the model as a positive number.	Companies' annual regulatory reporting (see details above)	Outturn
12	Cost sharing rate: value at menu baseline of 100	The cost sharing rate of a menu choice of 100. Defined for enhanced and non-enhanced companies.	Policy document 'Setting price controls for 2015-20 – policy and information update', Table A3.	N/A
13	Menu range: Upper and lower bounds for the menu choice	Upper and lower bounds for the menu choice. Defined for enhanced and non-enhanced companies	Policy document 'Setting price controls for 2015-20 – policy and information update', Table A3.	N/A
14	Breakeven point: choice and outturn	These are the breakeven points at the 100 menu choice level	Policy document 'Setting price controls for 2015-20 – policy and information update', Table A3.	N/A

#	Input	Description	Source	Price base
15	Efficiency incentive: slope	The rate of change of the cost sharing rate	Policy document 'Setting price controls for 2015-20 – policy and information update', Table A3.	N/A
16	Interpolation: Ofwat baseline and company forecast	The allowed expenditure weightings between Ofwat's baseline and the company forecast	Policy document 'Setting price controls for 2015-20 – policy and information update', Table A3.	N/A
17	Menu coefficients	Model specific menu input parameters (internally derived)	Policy document 'Setting price controls for 2015-20 – policy and information update', Table A5	N/A
18	PAYG ratio	The profile of PAYG ratio allowed in final determinations	Final determination – company specific appendix	N/A
19	Business rates IDoK	Mechanism to account for the notified item on business rates. Only activated if after successful IDoK. See Annex of company FD letters and section 5.1 of this report for further details.	IDoK submissions	Outturn
20	TTT Control - items subject to logging up at 75:25 (customer:company) cost share	Mechanism to account for logging up items that are subject to the bespoke cost sharing rate of 75:25 (customer:company) (see para 5 of section	PR19 BPs	Outturn

#	Input	Description	Source	Price base
		5.4).		

2.6. Calculations

#	Calculation	Description
1.1 Actual totex		
1	Actual totex (before exclusions)	Copy of actual totex from input sheet rebased to 12/13 prices using average year RPI
2	Totex exclusions	Sum of all totex exclusions rebased to 12/13 prices using average year RPI
3	Totex inclusions – transition expenditure	Transition expenditure in 14/15 to add to actual totex in 15/16 only
4	Totex inclusions – legacy depreciation	Legacy depreciation rebased to 12/13 prices using average year RPI
5	Menu totex	Actual totex Subtract totex exclusions (third party costs, pension deficit recovery costs, other cash items, disallowables) Add totex inclusions (transition expenditure and legacy depreciation) and other adjustments.
2.1 Menu coefficients upper and lower bounds		
6	Menu coefficient upper and lower bounds	Calculate upper and lower bounds of efficiency incentive, allowed expenditure and additional income
2.2 Implied menu coefficients		
7	Coefficients for implied menu choice for water and wastewater	Company specific menu coefficients based on implied menu choice in final determinations
7a	Efficiency incentive coefficient	Efficiency incentive slope multiplied by the implied menu choice value Add Efficiency incentive constant
7b	Allowed expenditure coefficient	Allowed expenditure slope multiplied by the implied menu choice Add Allowed expenditure constant

#	Calculation	Description
7c	Additional income coefficient	Additional income 2 nd order parameter multiplied by the implied menu choice value squared Add Additional income 1 st order parameter multiplied by the implied menu choice Add Additional income constant
2.3 Final menu coefficients		
8	Coefficients for final menu for water and wastewater	Company specific menu coefficients based on final menu choice in final determinations
8a	Efficiency incentive coefficient	Efficiency incentive slope multiplied by the final menu choice value Add Efficiency incentive constant
8b	Allowed expenditure coefficient	Allowed expenditure slope multiplied by the final menu choice Add Allowed expenditure constant
8c	Additional income coefficient	Additional income 2 nd order parameter multiplied by the final menu choice value squared Add Additional income 1 st order parameter multiplied by the final menu choice Add Additional income constant
3.1 Menu performance		
9	Menu to baseline totex ratio	Sum of Menu totex in 2015-2020 period Divided by sum of baseline totex in 2015-2020 period
10	Menu totex: menu level	Menu totex to baseline totex ratio Multiplied by 100
11	Reward or penalty menu level	Allowed expenditure coefficient less final totex menu level Multiplied by efficiency incentive coefficient Add additional income coefficient
12	Reward or penalty ratio	Reward or penalty menu level Multiplied by 100
3.2 Totex menu reward / (penalty)		
13	Reward / (penalty) including additional income	Reward or penalty ratio Multiplied by sum of baseline totex (including

#	Calculation	Description
		adjustments) over 2015-2020 period
14	Additional income (applied at FD)	Calculation of additional income applied at FDs based on implied menu choice for water and wastewater.
15	Reward / (penalty) excluding additional income	Reward or penalty including additional income minus sum of additional income applied at FDs. If final menu choice equals implied, additional income will be excluded from the reward / (penalty) value. If final menu choice does not equal implied, a residual element of additional income will remain (that could be either positive or negative) that reconciles the additional income generated from the final menu with respect to the implied.
16	Reprofiled reward / (penalty)	Reward / (penalty) excluding additional income Reprofiled over 2015-2020 period proportionate to baseline totex
17	Reprofiled reward / (penalty) including financing costs	Future value of reward / (penalty) in year 'y' calculated from reward / (penalty) incurred in year 'x' Reward / (penalty) multiplied by $(1 + \text{Vanilla WACC})^{y-x}$
18	Reward / (penalty) revenue adjustment at PR19	Sum of reward / (penalty) with financing costs included to 2019/20
3.3 Non-menu revenue adjustments		
19	Pension deficit recovery costs reconciliation	Actual pension deficit recovery costs rebased to 12/13 prices using average year RPI Subtract PR14 pension deficit recovery costs allowance
20	Business rates IDoK	IDoK Business rates adjustment rebased to 12/13 prices using average year RPI
21	Non-menu revenue adjustments including financing costs	Sum of pension deficit recovery costs reconciliation and (for Water only) business rates IDoK multiplied by $(1 + \text{WACC})^{y-x}$

#	Calculation	Description
22	Non-menu revenue adjustment at PR19	Sum of non-menu revenue adjustments (with financing costs included) to 2019/20
3.4 Allowed totex reconciliation		
23	Allowed expenditure from the menu at FD	Allowed totex generated from implied menu choice at final determinations
24	FD allowed totex inclusive of menu cost exclusions, less PDRC allowance	This is sourced from final determinations and is as per Totex for input to PAYG
25	Costs excluded from the menu at FD, less PDRC allowance	Allowed expenditure from the menu at FD, less FD allowed totex inclusive of menu cost exclusions, less PDRC allowance
26	Final menu choice allowed totex	Allowed totex generated from final menu choice
27	Final menu choice allowed totex inclusive of menu cost exclusions, less PDRC allowance	Final menu choice allowed totex, less Costs excluded from the menu at FD, less PDRC allowance
28	Allowed totex reconciliation	Final menu choice allowed totex less Allowed expenditure from the menu at FD N.B Reconciles allowed totex generated by implied and final menu choices (value could be positive, negative, or if implied and final menu choices are the same, then zero).
3.5 Totex adjustment		
29	Totex under/over performance	Calculates the totex under / over performance in each year of the price control for calculation of the PR19 totex adjustment. For water totex under /over performance in each year is calculated as: Actual totex in each year minus actual PDRCs, rebased to 12/13 prices using average year RPI Less final menu choice allowed totex inclusive of menu cost exclusions, less PDRC allowance For wastewater totex under /over performance in each year is calculated as:

#	Calculation	Description
		Actual totex in each year minus actual pension deficit recovery costs, adjusted for logging up/down adjustments (TTT Control only), all rebased to 12/13 prices using average year RPI Less final menu choice allowed totex inclusive of menu cost exclusions, less PDRC allowance
30	Totex adjustment	Totex adjustment not including financing costs, calculated as: Totex under/over performance Add reprofiled reward or penalty
31	Totex adjustment including financing costs	Totex adjustment multiplied by $(1 + \text{Vanilla WACC})^{y-x}$
32	Totex adjustment at PR19	Sum of totex adjustments (with financing costs included) to 2019/20
4 PR19 Adjustments		
33	Weighted average PAYG ratio	Sumproduct of the PAYG ratio and baseline totex
34	Revenue adjustments	Total revenue adjustment equals Totex adjustment at PR19 multiplied by Weighted PAYG ratio Plus reward / (penalty) revenue adjustment at PR19 Plus non-menu revenue adjustment at PR19
35	RCV adjustment	Totex adjustment at PR19 multiplied by 1 minus Weighted PAYG ratio
Addenda		
36	Tax adjustment	The RCV adjustment will impact the tax allowance in the next price control period (depending on the tax position of the company at the time). The tax allowance is not set out in these calculations. The revenue adjustment will not impact the tax allowance in the next price control period (i.e. there is no incremental tax allowance on the revenue adjustment).
37	Indexation	A one-off adjustment will be applied at PR19 to convert the output of the mechanism to the PR19

#	Calculation	Description
		price base using actual RPI. This adjustment is not set out in these calculations.

3. WRFIM

3.1. Background and purpose

WRFIM is a new PR14 mechanism which replaces the PR09 Revenue Correction Mechanism (RCM). WRFIM has been introduced to improve companies' revenue forecasting within the new flexible wholesale revenue controls.

The purpose of the mechanism is to reduce the impact of deviations on customer bills arising from revenue forecasting deviations by:

- Incentivising companies to avoid revenue forecasting errors by applying a penalty to variations (either over-recovery or under-recovery) that fall outside the set revenue flexibility threshold; and
- Adjusting companies' allowed revenues for each year to take account of any over-recovery of actual revenues compared to projected revenues, so that the over-recovery is corrected within the price control period.

Unlike the approach for over-recovery, companies' are not required to adjust for under-recovery of revenues within the price control period. This is because companies' licences do not allow companies to aim to recover more in a year than set out in the price control. Revenues that are not recovered during the price control period will be reconciled at end of the price control period and added to allowed revenues in the next price control period.

This chapter describes the operation of an updated formula for the WRFIM, which has been updated following consultation on the draft RRB, including the detailed reconciliation calculations and how these will translate to an adjustment at the end of the price control period. These are also illustrated in the supporting spreadsheets published alongside this document.

3.2. Mechanism structure

The formula set out in 'Final price control determination notice: policy chapter A7 – risk and reward' will be used to calculate the WRFIM:

$$\text{RFIM}_t = - \left\{ (\text{RR}_{t-2} - \text{AR}_{t-2}) \times \left[1 + \left(\frac{I}{100} \right) \right] \times \left[1 + \left(\frac{I}{100} \right) \right] \right\} \times (1 + \text{RPI}_{t-1}) \times (1 + \text{RPI}_t) \\ - \left\{ \frac{PR}{100} \times |\text{RR}_{t-2} - \text{AR}_{t-2}^*| \times \left[1 + \left(\frac{I}{100} \right) \right] \right\} \times (1 + \text{RPI}_{t-1}) \times (1 + \text{RPI}_t)$$

Where:

RR_{t-2} The revenue recovered in charging year t-2, with the first year subject to the adjustment beginning in 1 April 2015

AR_{t-2} The allowed revenue in charging year t-2, with the first year subject to the adjustment beginning in 1 April 2015, and with the allowed revenue from the charging years beginning 1 April 2017 being adjusted by the RFIM for that year. From year three onwards adjusted allowed revenues will be used to take account of penalties from prior periods.

AR_{t-2}^* The baseline to calculate penalties which will be the minimum of AR_{t-2} and the allowed revenue in charging year t-2 from the PR14 FD (in outturn prices).

I The specified discount rate, which enters the above formula as an integer. The rate is in line with the company wholesale weighted average cost of capital as set out in the final determination company specific appendix.

PR The penalty rate. Denoting the forecast error $(\text{RR}_{t-2} - \text{AR}_{t-2}^*)/\text{AR}_{t-2} = x\%$, the penalty rate is: (i) 3% for all variations if $|x\%| > 3\%$; (ii) $3\% * (|x\%| - 2\%)/(3\% - 2\%)$ if $2\% < |x\%| \leq 3\%$; (iii) zero if $|x\%| \leq 2\%$. The result enters the above formula as a number. For example, for a penalty rate of 3%, PR enters the formula as number 3.

RFT the revenue flexibility threshold. Lower threshold is 2% and upper threshold is 3%. It enters formula as an integer.

RPI_t the Retail Prices Index used for wholesale price controls for year t as specified in Condition B in the licence. The licence requires wholesale revenue controls to adjust by the percentage change in the RPI between the November in the current and previous years.

t the year of WRFIM adjustment.

The details of the WRFIM mechanism were discussed in the April 2014 consultation and further in the draft determination and final determination. Here we reiterate the key information from previous publications and provide greater clarity over how the mechanism will operate in practice through the price control period 2015-20.

1. Allowed revenues in the final determination are set in 2012-13 prices. Comparisons between projected allowed revenues and actual revenues in each year will be in the prices of the year concerned.
2. At the end of each charging year in the period 2015-20, we will compare projected allowed revenues for each wholesale service in that year in the final determinations with the revenues that companies actually recovered in that year (which will be reported in July as part of their annual reporting, following external assurance).
3. Allowed revenues, set by the RPI+/-K factor in the licences are unaffected by the WRFIM and other PR14 incentives. The existing licences only allow us to adjust revenues at the next period review. Notwithstanding the licence modifications for the three companies (which provide for the adjustment to allowed revenues for ODIs rewarded or penalised within the 2015-20 period), the WRFIM will be applied to allowed revenues at the next price review **for all companies**.
4. For companies with licence modifications which enable in-period ODIs, the adjustments to allowed revenues for the ODIs are reflected in WRFIM calculation in the period concerned to reflect the licence. The WRFIM therefore does not give rise to an additional incentive for companies with licence modifications. We note in section 3.3 below that there are specific circumstances where variances may occur and how these will be addressed. For avoidance of doubt, the allowed revenues used to calculate over or under recovery of revenues when compared to actual recovered revenue include any in-period adjustments relevant to ODIs.
5. Where over or under-recover is greater than +/-3%, a penalty of 3% applies to the full revenue over or under-recovery. Between +/-2% and +/-3%, a linear sliding scale of penalty ranging from zero to 3% applies. The adjustment, including this penalty, is uplifted by two years' wholesale WACC and RPI to account for the two-year lag in reflecting financing cost and inflation. If a company's revenue forecasting deviation exceeded +/-6% in a given year it will also be required to submit more detailed variance analyses alongside the standard annual regulatory reporting requirements.
6. Where companies have previously recovered more than their allowed revenue, they will need to commit to best endeavours to correct this by collecting less revenue during the price control. This is in line with the basis of the price limits in their licences (subject to the constraints of their other existing obligations, including compliance with prevailing charging rules). Where they do not do this, companies could be subject to potential

enforcement action (and/or potential consequences in setting price limits for the following price control period).

7. However, companies are *not* required use best endeavours to recover any **prior under-recovery** where this would mean they would more revenue than set out in the price control. Again, this is in line with the basis of the price limits in their licences. Where companies have recovered less than their allowed revenue, the WRFIM ensures that the difference (including inflation and financing costs) is reconciled at PR19 and added to allowed revenues in the next price control period.
8. At the time of the price review in 2019, due to the two year time-lag set out within the mechanism, the difference between the allowed revenues and recovered revenues in the final two years of AMP6 (2018-19 and 2019-20) and any resulting penalty could be applied in 2020-21 and 2021-22, i.e. the first two years of the next price control period, though this relies on WRFIM continuing to exist in same way. To provide greater certainty, we intend to make adjustments to take account of these two years at PR19.
9. Our approach to adjustments at PR19 are set out below:
 - Overall, where companies have not fully recovered prior over or under-recoveries during the period, these (and any associated penalties) will be reconciled and added to allowed revenues in the next price control period. There will be no further changes to the incentive for financing costs or inflation as these are both accounted for within the WRFIM formula described above.
 - For the year 2018-19 we will have complete information on actual recovered revenues and RPI at the time of setting allowed revenues at PR19, therefore, we will make an adjustment to allowed revenues for the incentive calculated through the WRFIM formula for PR19. We will make adjustments for RPI and the specified discount rate recognising that only one year uplift would be appropriate, instead of two years as implied by the formula.
 - **Blind year:** For the year 2019-20 we will not have complete information on which to calculate the incentive through the WRFIM formula. For this year we intend to request updated forecasts for revenues from companies as part of the business planning process at PR19. We will then calculate the incentive based on the difference between the adjusted allowed revenues and updated forecast revenues. We will make adjustments for RPI and the specified discount rate recognising that no

uplift would be appropriate in the final year as the penalty will be in outturn prices for 2019-20 without the two year time lag. Variances in the blind year will be included in the reconciliation at PR24.

3.3. Mechanism specific considerations

Representations on the application of the incentive

Actual recovered revenues are to be reported to Ofwat in July each year as part of the annual reporting requirements. Where variances between the allowed revenues and the recovered revenues give rise to an incentive under WRFIM and where a company believes the effect of the incentive is not appropriate, companies should submit additional evidence and representations alongside their regulatory reporting. There will be a high evidential bar. We expect companies to have consulted with their customers about the reasons for the variance and their representation.

At a minimum, we expect the representations to satisfy the following conditions:

- The WRFIM calculation has given rise to an incentive payment (i.e. the variance is above the flexibility threshold)
- The primary drivers for the variance above the revenue flexibility threshold were beyond the control of the company and beyond the normal business risks compensated within the risk and reward package; and
- The company has taken reasonable steps to mitigate a variance beyond the revenue flexibility threshold.

There are specific areas that we have identified including those in the draft determination, technical appendix A6 that could give rise to variance above the revenue flexibility threshold. These are discussed in the table below.

Issue	Application
Thames Tideway Tunnel	For Thames' wastewater service, WRFIM covers all of the revenue Thames collects for its wholesale wastewater control, the separate TTT control and the revenue that passes through to the infrastructure provider (IP). Variations in wholesale revenue for the TTT control would be subject to the general WRFIM representation process.
Surface water drainage rebates	We note that the surface water drainage (SWD) rebates schemes implemented by companies in the period 2015-20 could lead to variations in revenues. Under the existing regulatory reporting framework including the

Issue	Application
	<p>regulatory accounting guidance for 2015-20, SWD rebates form part of companies' revenues, and unlike uncontrollable demand risks, the rebates are under the control of companies' management. So to the extent that other customer charges can be adjusted to take account of rebates within the overall revenue controls, they would have no impact on potential revenue forecasting errors. In addition, even if the refunds of historically mis-billed SWD services could have implication for customers' bills, their magnitudes tend to be very small compared to the total bills and so their impacts on forecasting errors are unlikely to be material. Notwithstanding this, the general WRFIM representation process would apply.</p>
<p>Connection and infrastructure charges</p>	<p>During 2015-20 actual demand for wholesale services due to number of connections could vary from the assumptions made as part of the final determination. These demand variations will affect the actual revenues that companies collect from charges covered by the wholesale revenue controls in each year and this could give rise to an incentive under WRFIM. There is no exclusion from WRFIM for these fluctuations, subject to the general WRFIM representation process.</p> <p>In addition, as set out in technical appendix A3 of the final determinations we note that if a company increased revenue by unduly reducing connection charges we may take corrective action to ensure that companies returned these monies (with financing costs) to customers. Similarly, although we have decided not to allow automatic adjustments to allowed revenues for demand variations in wholesale controls, if demand for connections is unexpectedly high then we would nevertheless consider allowing extra revenue to compensate for the loss of price control revenue on a case-by-case basis.</p>
<p>In period ODIs</p>	<p>For the three companies with licence modifications, allowed revenues can be adjusted in period for rewards / penalties relating to the applicable performance commitments in line with company licences. There may be a scenario where companies decide not to take a full reward in order to share the gain with customers. In this instance the allowed revenues and recovered revenues will have a variance which may mean that a penalty should otherwise apply under WRFIM. Ofwat will consider representations as part of WRFIM representations process, including whether these variances should be removed entirely from the WRFIM adjustment made at PR19.</p>

Tax

Where companies' actual revenues during the price control period are different to their FD14 allowed revenues, there will also be a difference between the actual tax expense and the ex-ante FD14 tax allowance. The WRFIM does not directly reconcile this difference in tax. However, it is appropriate to limit the degree to which tax is either compensated or borne twice – initially in the current price control period when the variance between allowed/actual revenue arises, and then again in the next price control period when the WRFIM adjustment is applied. Our approach is to (broadly) offset the variance in tax during the price control period by providing no incremental tax allowance on the WRFIM revenue adjustment at PR19.

This is illustrated with the very simple example below (which assumes no discounting and a constant tax rate). Note that this simple example could equally apply where there are variances in retail revenue.

Simple tax example:

Period	1	2
Revenue requirement building blocks		
Average RCV	100.00	100.00
PAYG	100.00	100.00
RCV Run off	10.00	10.00
Return on RCV	3.70	3.70
Revenue requirement - post tax	113.70	113.70
Expected PAT	3.70	3.70
Grossing up for tax	0.93	0.93
Revenue adjustment		-2.29
Total revenue requirement - pre-tax	114.63	112.33
P&L		
Actual revenue	116.92	112.33
Less Opex	-100.00	-100.00
Less Tax Depc'n	-10.00	-10.00
PBT	6.92	2.33
Tax	1.38	0.47
PAT	5.53	1.87
Tax Delta	0.46	-0.46

The company collects £2.29 (2%) more than their allowed revenue in the first period. They receive a negative revenue adjustment in the next period, but their tax allowance remains constant.

Compared to their tax allowance in each period (£0.93), the company pays £0.46 more tax in the first period and £0.46 less tax in the second period.

3.5. Outputs

#	Output	Description	Price base
1	Revenue adjustment	The total revenue adjustment resulting from over/under recovery of wholesale revenues through 2015-20. This is calculated separately for wholesale water and wastewater.	Outturn prices

3.6. Inputs

#	Input	Description	Source	Price base
1	Company name	Company name	NA	NA
2	Company type	Type – WaSC or WoC	NA	NA
3	Penalty rates	<p>The penalty rate is 3% with a linear sliding scale between 2-3% per the WRFIM formula:</p> <p>The penalty rate, taking a positive value if $RR_{t-2} > [(1 + RFT) \times AR_{t-2}]$, a negative value if $RR_{t-2} < [(1 - RFT) \times AR_{t-2}]$, or else being equal to 0. Denoting the forecast error $(RR_{t-2} - AR_{t-2}^*) / AR_{t-2}^* = x\%$, the penalty rate is: (i) 3% for all variations if $x\% > 3\%$; (ii) $3\% * (x\% - 2\%) / (3\% - 2\%)$ if $2\% < x\% \leq 3\%$; (iii) zero if $x\% \leq 2\%$. The result enters the above formula as a number.</p> <p>For example, for a penalty rate of 3%, the PR enters the formula as number 3.</p>	WRFIM formula set out in this document	NA
4	Specified discount rate	The specified discount rate is the individual companies' post tax WACC (including any company specific adjustments).	Final Determination – Company specific appendix	NA

#	Input	Description	Source	Price base
5	Threshold for additional variance analysis	The threshold that will trigger Ofwat requiring additional information to be submitted by companies as part of their regulatory reporting is 6%	Final price control determination notice: policy chapter A7 – risk and reward (A7.5)	NA
6	Annual allowed revenue (water and wastewater)	Annual allowed revenues, per the licence, (which includes any in-period ODI and IDoK adjustments) (Note: interaction between the ODI reconciliation mechanism and WRFIM) The WRFIM calculation is performed separately for water and wastewater revenue adjustments.	Company final determination letter, as adjusted for ODIs or IDoK in accordance with the licence.	2012/13
7	K	Annual K factors, per the licence.	Company final determination letter.	N/A
8	Actual revenue recovered annually and forecast for 2019-20	Annual wholesale charge revenue for water or wastewater as reported in company's regulatory reporting. In the final year of 2015-20 the recovered revenue will be based on a forecast as this information won't be available at the time of setting prices at PR19.	Company regulatory reporting. Wholesale charge revenue for water/wastewater – RAG pro forma 2I – 'Total revenue governed by wholesale price control (row 38 columns C and D)	Outturn
9	AMP5 RCM blind year adjustment for water and wastewater*	The blind year adjustment for RCM is an input to the WRFIM calculation to calculate (notional) adjusted allowed revenue Extract from the draft determination technical chapter A7 – We will complete the existing RCM reconciliation process for the 2014-15 'blind year' after final determinations, and	Legacy blind year reconciliation model for difference in revenue adjustment when comparing RCM per the published final determination model and the revenue adjustment for RCM per the updated model to take	2012/13

#	Input	Description	Source	Price base
		then consistently reflect this in adjustments to the WRFIM baseline for 2016-17 (Note: interaction with reconciling 2014-15 data and materiality)	account of 2014-15 actual performance data.	
10	November actual RPI series	Nov-Nov RPI. WRFIM is calculated in outturn prices, therefore, the November RPI series used annually will be for the November in the Prior Year and that published for the immediately preceding November.	Retail Prices Index between that published for the month of November.	N/A

*Due to the 2014-15 reconciliation taking place when the revised COPI index becomes available (as all PR09 incentive mechanisms are assessed against materiality thresholds in aggregate) there could be a delay in the adjustment for RCM in the WRFIM calculation. The model includes an input for 'blind year timing delay' so it is flexible to adjust to the time RCM is calculated. RCM will be included in the WRFIM calculation where aggregate adjustments to revenue are above the materiality threshold for PR09 incentive mechanisms.

3.7. Calculations

#	Calculation overview	Calculation detail
1	Convert Allowed Revenue into outturn price base	2015/16 Allowed revenue (14/15 outturn price base) per the company specific letter from the final determination for each company Multiplied by the licence $1+(RPI+k_i)$ relevant Nov-Nov indexation series
2	Calculate the 2014-15 RCM adjustment in outturn price base	The AMP5 RCM will be calculated in a 2012-13 price base in the PR09 legacy blind year calculations spreadsheet. The AMP5 RCM enters the WRFIM calculation in 2016-17 in an outturn price base. This is inflated using the year average indexation series

#	Calculation overview	Calculation detail
3	Calculation to reflect the main revenue adjustment and the penalty calculated in year t-2 into year t in order to adjust the allowed revenues	WRFIM calculates an adjustment in year t-2, however, the adjustment is not applied in the formula until year t. This calculation reflects the movement of the main revenue adjustments and the reward/penalty from year t-2 up to year t in the model.
4	Adjusted Allowed Revenue (AR) -	Annual adjustment to allowed revenue to take account of penalties brought forward from previous periods (t-2) and also to include the AMP5 RCM adjustment : Allowed revenue Add AMP5 RCM adjustment Add WRFIM adjustment calculated in t-2 The result of the calculation will be an adjusted allowed revenue figure (AR). This is subsequently used as the basis for the 'notional allowed revenues' in the WRFIM formula.
5	Baseline revenue for calculation of penalties (AR*)	Minimum of the adjusted allowed revenue (AR) and the allowed revenue from FD.
6	Calculate over or under recovery of revenue relative to adjusted allowed revenue	Revenue recovered (RR) Minus baseline revenue for calculation of penalties (AR*) from 5 above.
7	Calculate the main revenue adjustment	Main revenue adjustment is calculated as: $- \left\{ (RR_{t-2} - AR_{t-2}) \times \left[1 + \left(\frac{1}{100} \right) \right] \times \left[1 + \left(\frac{1}{100} \right) \right] \right\} \times (1 + RPI_{t-1}) \times (1 + RPI_t)$ This calculation is applicable for the first three years of AMP6. The remaining two year are dealt with in the calculations below.
8	Calculate and apply the penalty threshold	If the forecast error $(RR-AR^*) / AR^*$ exceeds the penalty threshold (which is 2% per the WRFIM formula outlined in the mechanism structure section above). Then calculate the penalty rate.
9	Calculate the penalty rate	If percentage of under / over recovery is greater than minimum flexibility threshold Then calculate the penalty rate using the formula set out in the mechanism structure section. The penalty rates per the WRFIM formula are:

#	Calculation overview	Calculation detail
		<p>(1) For variations greater than 3%, the penalty rate is 3%</p> <p>(2) For variations (x%) between 2% and less than or equal to 3%, the penalty rate is $3\% * (x\% - 2\%) / (3\% - 2\%)$</p> <p>(3) For variations (x%) less than or equal to 2%, the penalty rate is 0%</p>
10	Calculate the penalty	<p>Penalty adjustment is calculated as:</p> $- \left\{ \frac{PR}{100} \times RR_{t-2} - AR^*_{t-2} \times \left[1 + \left(\frac{I}{100} \right) \right] \right\} \times (1 + RPI_{t-1}) \times (1 + RPI_t)$ <p>This calculation is applicable for the first three years of AMP6. The remaining two year are dealt with in the calculations below.</p>
11	Calculate final WRFIM adjustments relating to recovered revenues from 2018-19. Apply adjustment in 2019-20.	<p>For the main revenue adjustment apply only one year of RPI and discount factor in the WRFIM adjustment relating to the recovered revenue from 2018-19:</p> $- \left\{ (RR_{t-2} - AR_{t-2}) \times \left[1 + \left(\frac{I}{100} \right) \right] \right\} \times (1 + RPI_{t-1})$ <p>For the penalty apply only one year of RPI in the WRFIM adjustment relating to the recovered revenue from 2018-19:</p> $- \left\{ \frac{PR}{100} \times RR_{t-2} - AR^*_{t-2} \times \right\} \times (1 + RPI_t)$ <p>The formula here reflects the fact that the penalty is only being applied with a 1 year time lag as opposed to 2 year as it is being calculated to adjust allowed revenues in PR19.</p>
9	Calculate final WRFIM adjustments relating to recovered revenues from 2019-20.	<p>For the main revenue adjustment apply no RPI or discount factor in the WRFIM adjustment relating to the recovered revenue from 2019-20:</p> $- \{ (RR_{t-2} - AR_{t-2}) \}$ <p>For the penalty apply no RPI in the WRFIM adjustment relating to the recovered revenue from 2019-20:</p> $- \{ RR_{t-2} - AR^*_{t-2} \}$ <p>The formula here reflects the fact that the penalty is only being applied with a 0 year time lag as opposed to 2 year</p>

#	Calculation overview	Calculation detail
		as it is being calculated to adjust allowed revenues in PR19.
10	Tax adjustment	The revenue adjustment for WRIFM in the next price control period will not impact on the tax allowance in the next price control period.

4. Household retail mechanism

4.1. Background and purpose

The household retail control for 2015-20 represents the first separate price control for customer facing household ‘retail’ services. We aim to provide regulatory protection over household retail prices by setting a total revenue control for each company, based on the efficient costs of retail activities and projected customer numbers.

As set out in the final price control determination notice: policy chapter A5 – household retail costs and revenues, there is an automatic annual modification to allowed household retail service revenues in each year of the price control to account for the difference between actual and forecast customer numbers and meter penetration. This does not constitute an adjustment to allowed revenues within the period but gives companies the opportunity to reflect variances in customer numbers in future charges.

Earlier in PR14, we also considered the need for a revenue forecasting incentive mechanism (RFIM) for retail, similar to the wholesale revenue forecasting incentive mechanism (WRFIM), but concluded not to proceed as companies already have incentives to align revenues for non-contestable retail household revenues to the allowed revenues set in the price determination in a given year. Our rationale for this is set out in the draft price control determination notice: technical appendix A6 – risk and reward.

This chapter describes how we will reconcile between forecast and actual customer numbers in a given year and how we will account for over or under recovery of “household retail revenues per customer type” in the absence of a more complex mechanism such as RFIM. This reconciliation is also illustrated in the supporting spreadsheets published alongside this document.

4.2. Mechanism structure

Reconciliation for adjustment of allowed revenues for variance in customer numbers

Total estimated allowed revenues are based on the projected number of customers and meter penetration set out in companies’ business plans. This will be assessed annually, however, if actual customer numbers differ from the projected values, then a modification will be made to allowed household retail revenues in order to account for this at the next price control.

Revenue modifications will be made using the equation:

$$\begin{aligned} & \text{Revenue modification} \\ &= \sum_{y=1}^5 \sum_{c=1}^6 (\text{actual customer numbers}_{y,c} \\ & \quad - \text{forecast customer numbers}_{y,c}) \cdot \text{modification factor}_{y,c} \end{aligned}$$

Where y=years (2015-16 to 2019-20) and c=customer type

Forecast customer numbers are set out in the final determination company specific appendix, as are the modification factors for each company. Companies are required to submit actual customer numbers to Ofwat annually as part of the regulatory reporting requirements. At the beginning of each financial year companies should reforecast customer numbers for that year and recover the associated revenues from customers.

Modification factors include an allowance for the net margin. This allowance is based on forecast nominal wholesale charges paid by retailers to provide services to household customers. These modification factors will not be updated for differences between forecast and actual wholesale charges as it would make the calculations considerably more complex and less transparent.

We will perform a reconciliation at the end of the price control period to adjust allowed revenues based on the actual number of customers in each period. Any adjustment required at the end of the period will be reflected as a revenue adjustment at PR19. Because we expect that companies will adjust their charges based on their reforecasts, the adjustment at the end of the period will be small. Companies are accountable for their own forecasting through the price control period.

To do this, we will calculate the adjusted allowed revenue based on the forecast customer numbers and the modification factor less the revenue modification adjustment. We will then compare this against the reforecast customer numbers and revenues that would have been recovered from that number of customers. The difference will be the over/under recovery of revenues that will be adjusted in PR19.

Reconciliation for over/under recovery of revenue per customer type

Through the final determinations we have placed the onus on companies to undertake a reconciliation of the allowance and actual revenue per customer type and to adjust charges in subsequent years where necessary. We will perform an additional reconciliation at the end of the price control period to make an adjustment to company revenues where companies have over/under recovered on revenues per customer type. Similarly to the adjustment for the reconciliation of customer

numbers, this adjustment will also be reflected in PR19 allowed revenues. The focus through the period will be on companies taking responsibility to accurately recover revenues from customers and adjusting charges to minimise the impact of adjustments to allowed revenues set in PR19.

PR19 blind year

For 2019-20 we will have incomplete data on customer numbers and revenue recovered, therefore, we will treat this year as the blind year. For this year we will request companies to submit a forecast for customer numbers and for revenues for the year 2019-20. A reconciliation will be performed in 2020-21 when we have the data to perform a true-up of the revenues based on actual revenue recovered and the actual number of customers for 2019-20. This revenue adjustment will be reflected in the retail allowed revenues at PR24.

4.3. Outputs

#	Output	Description	Price base
1	Net adjustment to Revenue	The total revenue adjustment for household retail due to differences in actual and forecast customer numbers and differences in revenue per customer type.	Outturn

4.4. Inputs

#	Input	Description	Source	Price base
1	Forecast customer numbers	Forecast customer numbers as set out in the final determinations	Final Determination - Company specific appendix	N/A
2	Reforecast customer numbers	Each company will submit new customer number forecasts for each customer type at the beginning of each year	Company regulatory reporting.	N/A
3	Actual customer numbers	Actual customer numbers for each customer type each	Company regulatory reporting. Number of customers –	N/A

#	Input	Description	Source	Price base
		year.	RAG Proforma 2F.	
4	Actual revenue collected	The revenue that each company actually collected per customer type.	Company regulatory reporting. Retail revenue per customer type – RAG Proforma 2F.	Outturn
5	Modification Factors	Each company has a specific modification factor for each customer type each year.	Final Determination – Company specific appendix	N/A
6	Materiality threshold	The materiality threshold.	2% of revenue expected from actual customers from AMP6.	N/A
7	Discount rate	The discount rate used to provide a financing adjustment for the time value of money of the incentive reward / penalty	Input to be defined at PR19, if required. This may be required if the materiality threshold is exceeded.	N/A

4.5. Calculations

#	Calculation overview	Calculation detail
1	Excess/shortfall of actual over forecast customer numbers	Actual customer numbers minus forecast customer numbers
2	Excess/shortfall of reforecast over forecast customer numbers	Reforecast customer numbers minus forecast customer numbers
3	Additional/ shortfall of revenue expected from actual compared to reforecast customer numbers	Excess/shortfall of actual over reforecast customer numbers. Multiplied by modification factor.

#	Calculation overview	Calculation detail
4	Revenue expected from reforecast customer numbers	Reforecast customer numbers multiplied by modification factor
5	Actual revenue collected	Actual revenue collected
6	Excess/shortfall of reforecast revenue compared to actual revenue collected	Revenue expected from reforecast customer numbers minus actual revenue collected
6	Net adjustment	<p>Additional/shortfall of revenue expected from actual compared to reforecast customers</p> <p>Plus excess/shortfall of reforecast revenue compared to actual revenue collected.</p> <p>This reflects the adjustment as a result of a difference between reforecast and actual customer numbers</p>
7	Materiality Test - Over / Under recovery	Sum of excess / (shortfall) of reforecast revenue vs actual revenue collected across the AMP
8	Materiality Test - % under / over recovered	Under / over recovered revenue as a percentage of the expected revenue from actual customer numbers (Revenue expected from reforecast customer numbers + Additional/(shortfall of) revenue expected from actual compared to reforecast customers)
9	Materiality Test - Is an adjustment required?	If the under or over recovery of actual revenue is greater than the materiality threshold then make a financing cost adjustment, else make no financing cost adjustment
10	Financing adjustment	<p>There will not be a financing cost adjustment where variances do not exceed the materiality threshold.</p> <p>Where there are material variances in companies' household revenues, we may apply a financing cost adjustment at PR19. This is applied in line with the WRFIM calculation where we will consider applying a time value of money adjustment beyond 2% of household revenue.</p>
11	Indexation adjustment	There is a one-off adjustment at PR19 to convert the output of the mechanism from outturn prices to the PR19 price base using actual RPI. This adjustment is

#	Calculation overview	Calculation detail
		not set out in these calculations. We note there is no RPI allowance in the retail price control throughout 2015-20.

5. Uncertainty mechanisms

Water business rates

5.1. Background and purpose

All companies have an uncertainty mechanism for the revaluation of business rates in 2017. The risks associated with water business rates are likely to be material and will apply across companies.

The uncertainty mechanism is designed to provide an incentive for companies to argue for reasonable treatment in the rating review on behalf of customers.

5.2. Mechanism structure

The uncertainty mechanism for water business rates operates as a notified item for PR14 and as such could qualify for an Interim Determination of K (IDoK), which allows price controls to be adjusted between periodic reviews. It can only be triggered by relevant items, the value of which, in aggregate, must exceed 10% of an appointee's turnover. Likewise, the value of a change relating to one issue must be in excess of the triviality threshold of more than 2% of the company's turnover.

The uncertainty mechanism includes a 'sharing rate' which is set out in the final determinations policy chapter A7. The sharing rate is:

- For South West Water and Sembcorp Bournemouth Water, 80%:20% customer: company
- For all other companies, 75%:25% customer: company.

The mechanism ensures that companies are compensated for 75% (or 80%) of any additional expenditure on business rates beyond the amount included in their baselines. If the Notified Item is not activated, additional expenditure on business rates will be shared with customers at the totex menu sharing rate, which could be between 44% and 54%. The calculation of the water business rates uncertainty mechanism is set out in the licence.

The mechanism interacts with the totex menu reconciliation. In the event of an IDoK, the totex reconciliation will calculate the appropriate per year adjustments to totex over/under performance to ensure companies are compensated at the correct sharing rate.

Thames Tideway Tunnel uncertainty mechanism

5.3. Background and purpose

There are a range of standard industry uncertainty mechanisms and mechanisms for managing risk that apply in respect of the Thames Tideway Tunnel (TTT) wholesale control. These include RPI indexation, five-yearly price reviews, totex sharing rates, the flexibility provided by ODIs, a mechanism for logging up and down certain costs at PR19 and the interim determination of K (IDoK) and substantial effects provisions.

The modifications we made to Thames Water's licence which enabled a separate TTT Control also incorporated a bespoke materiality threshold for the IDoK mechanism. This allows Thames Water to request the price limit for the TTT Control to be reopened in circumstances that relate to specified Notified Items and Relevant Changes of Circumstance (RCC) that exceed 10% of the RCV for the TTT Control as at 31st March in the prior year. The materiality threshold is 10% of TTT Control RCV to provide a meaningful threshold for both 2015-20 and future control periods, should the TTT Control be extended beyond 2020.

5.4. Mechanism structure

The key elements of the TTT uncertainty mechanism are set out in table AA5.1 in Thames' company specific appendix. These elements are summarised below.

1. All costs that do not fit the definition of land costs are subject to the totex menu that applies to the TTT control. Land costs (as defined on page 272 of the Thames Water Company Specific Appendix) are subject to a 100:0 cost sharing rate (customer:company) so that customers benefit in full from the proceeds of land sales on the future disposal of land. This is addressed through the totex model, whereby applicable land costs are removed from the Totex baseline and a 100:0 sharing rate applied.
2. The materiality threshold for an IDoK is defined in Thames Water's licence as 10% of the RCV in the TTT control; the triviality threshold for Notified Items or Relevant Change of Circumstances is 2% (after the menu cost-sharing rate) of 2015-20 totex. Costs exceeding the triviality threshold may be logged up (or down) at PR19 subject to the criteria set out in the final determination. The process we will adopt for logging up at PR19 is similar to the mechanism used in the change protocol included in the PR09 price controls.

3. There is a Notified Item for “scope swaps” between the Infrastructure Provider (IP) and Thames Water. This addresses only the efficient, net change in costs to Thames Water that arise from the reallocation of scope from the IP to Thames Water to secure efficient project delivery in the light of any delay to the appointment of the IP. Thames Water may ask for costs associated with scope swaps to be remunerated at an IDoK (subject to passing triviality and materiality thresholds) or request the costs to be logged up at PR19 (subject to passing the triviality threshold); under either circumstance, we expect Thames Water to provide evidence to demonstrate that such ‘scope swaps’ are efficient and in the customer interests.

Where Thames Water chooses to trigger a notified item during the period 2015-20 this will be addressed within the IDoK process and adjustments will be made to the menu baseline and FD cost threshold to reflect the changes that arise from the outcome of the IDoK process. Where Thames Water requests these costs to be logged up, the net, additional, efficient costs will be remunerated at PR19.

4. Relevant Changes of Circumstances (RCCs) applies to the TTT Control. We confirmed in the final determination that we expect that a change to the Preparatory Work Notice, or to the Project Specification Notice, including withdrawal of these documents could comprise a RCC and would be eligible for an IDoK application.
5. There is a Notified Item in the event that the IP Procurement process is unsuccessful for specified reasons outside Thames Water’s control. If the Notified Item is triggered, Thames Water may apply for an IDoK, subject to passing the triviality and materiality thresholds. Alternatively, it may request any costs that qualify under this Notified Item to be logged up at PR19 using a 75:25 sharing rate (customers:company), subject to those costs passing the triviality threshold. This mechanism reflects our expectation that Thames Water should have appropriate incentives to manage its ongoing costs up to the materiality threshold. The sharing rate provides an incentive on Thames Water to manage its costs efficiently in the event that the costs are not sufficient to pass the materiality threshold to trigger an interim determination.

Where Thames Water chooses to trigger a notified item during the period 2015-20 this will be addressed within the IDoK process and adjustments will be made to the menu baseline and FD cost threshold to reflect the changes that arise from the outcome of that process. Where Thames Water opts for logging up and logging down the eligible costs will be excluded from the menu reconciliation and these costs will be rolled into the RCV subject to a 75:25 sharing rate.

6. Reconciling 2010-15 performance: 2014-15 adjustments

6.1. Background and purpose

There were six incentive mechanisms included in PR09 which were designed to protect customers by encouraging companies to improve the quality and efficiency of their services and to manage uncertainty more effectively. Adjustments to companies' revenue and/or regulatory capital values (RCVs) were made in PR14 to reflect performance in the 2010-15 price control period. The adjustments were based on actual company data for 2010-14 and forecast data for 2014-15 (as the data for 2014-15 was not available at the time of the final determinations: this was a 'blind year').

We noted in final price control determination notice: policy chapter A4 – reconciling 2010-15 performance the following:

“To reconcile the PR09 incentive mechanisms, we have had to make forecasts of company performance and expenditure for the last year of the current price control period. A final reconciliation of the mechanisms will be undertaken in the summer of 2015 to take into account companies' actual performance and expenditure in 2014-15 (with the CIS being reconciled in 2016). In carrying out this reconciliation we will take a proportionate approach (for example, applying materiality thresholds where appropriate) to making adjustments for company's actual performance and implement these changes at the next wholesale price control review in 2019.”

This chapter describes how the 'blind year' for the PR09 incentive mechanisms will translate to an adjustment in the next wholesale price review in 2019. This is also illustrated in the supporting spreadsheets published alongside this document and described in sections 6.4-6.6 below.

In addition to the PR09 incentive mechanisms we also set out the way we will adjust the Thames Water wholesale price control at the next price review in 2019 to account for the funding included in Thames Waters PR09 final determination for a new billing system that was not implemented.

6.2. Mechanism structure

The blind year reconciliation will be performed for the following PR09 incentive mechanisms:

- Revenue Correction Mechanism (RCM);
- Capital expenditure Incentive Scheme (CIS);
- Serviceability; and
- Change Protocol including PR09 overlap (to be included in the CIS reconciliation in line with the existing CIS models).

The other PR09 incentive mechanisms – Service Incentive Mechanism (SIM) and Operating expenditure Incentive Allowance (OIA) – do not require further adjustment in the next price review in 2019. SIM was based on three year rewards/ penalties for 2011-2014 meaning that all relevant data was available at PR14. For OIA, the mechanism is dependent on whether a company has been able to outperform against its regulatory assumptions in 2013-14 only and therefore the relevant data was available at PR14.

The blind year reconciliations will be performed using the existing legacy mechanism models, as published on the Ofwat website at final determination. The reconciliations will compare: (a) the adjustments that were made to Revenue and/or RCV at PR14 as published in the company specific appendix final determination documents with; (b) the adjustments that would have been made had there been complete information for the full period, (including 2014-15) at the time of the final determination. The adjustments will be made at the next price review in 2019 where these adjustments are material. We outline our method for assessing materiality in section 6.3 ‘additional considerations’ below. A summary of the mechanisms is set out below.

Mechanism	Description	Blind year
Revenue Correction Mechanism (RCM)	<p>The purpose of RCM was to provide companies with a financial incentive to encourage customers to use water efficiently and to correct for differences between actual revenue collected and Ofwat’s assumptions for allowed revenue at the final determinations.</p> <p>The RCM deals with the differences between actual tariff basket revenue for 2010-15 and forecast tariff basket revenue at the final determination (FD) 2009.</p> <p>RCM is designed to incentivise companies through:</p> <ul style="list-style-type: none"> • Revenue true-up: it compared forecast revenue at FD09 with actual revenues. In the process, it will provide an incentive for a company 	<p>The RCM adjustment at PR14 was based on forecast data for 2014-15.</p> <p>The reconciliation of forecast and actual 2014-15 revenue will be performed at the same time as the reconciliation of all other PR09 incentive mechanisms (which is dependent on the availability of revised COPI because this is needed to reconcile the CIS – discussed below).</p> <p>The reconciliation of blind</p>

Mechanism	Description	Blind year
	<p>to promote water efficiency to metered customers. We reduced the revenue requirement for PR14 by the amount of revenue that the company over-recovered its allowed revenue for 2010-15. We increased the revenue requirement if the company under-recovered its revenue allowance.</p> <ul style="list-style-type: none"> • Billing incentive: this incentivised companies to bill all eligible properties. Companies were rewarded/penalised if they billed more/fewer properties than expected. The incentive was the difference between expected and actual number of billed properties multiplied by 42% (the efficiency billing factor) of the average bill. • Back-billing incentive: this incentivised companies to identify properties that have been charged less than they should have been due to reasons out of the company's control. The incentive took account of customer numbers lost through competition to new appointees. We reduced the revenue correction by a further 58% of the average bill for each lost property to take account of the operation of the billing incentive. 	<p>year RCM will be incorporated into the materiality calculations (discussed below). Where adjustments are material across all tools, the adjustment for RCM will be made through the WRFIM calculation in line with the published WRFIM formula.</p>
<p>Capital expenditure Incentive Scheme (CIS)</p>	<p>The purpose of the CIS was to incentivise both cost outperformance and accurate business plans for capital expenditure. A company is rewarded if it spends less than the baseline expenditure, while it is penalised if its actual capex exceeds this baseline.</p> <p>RCV adjustment: calculates the total capex that is included in the RCV. To do this, the capex allowed in the final determinations is</p>	<p>The CIS adjustments at PR14 were based on forecast data for 2014-15. The reconciliation of forecast and actual data for CIS, which includes the results of the change protocol, will be reconciled when published COPI data</p>

Mechanism	Description	Blind year
	<p>subtracted from the RCV and the actual expenditure is added back.</p> <p>CIS revenue adjustment: in addition to applying the reward or penalty due on capital expenditure performance, this reverses any return earned on capex which was over-funded by the PR09 determination or, conversely, allows additional revenue to true-up capex under-funded by the PR09 settlement.</p> <p>A company can choose to spend more than the capital expenditure allowance included in price limits. This expenditure is reflected in the RCV following the next price review, but at the cost of lower outperformance incentives and reduced returns within the price limit period. The intent of the policy was that CIS rewards/penalties provide a disincentive to incur capital investment unnecessarily.</p> <p>Four different capex values are used from start to finish in the CIS calculations of an AMP:</p> <ol style="list-style-type: none"> 1. Bid (what the company considered it needed to spend) 2. Baseline (Ofwat's view of efficient expenditure) 3. Allowance (by-product of the matrix) 4. Outturn (actuals) <p>To derive a central estimate, we adjusted expenditure forecasts to an achievable level of efficiency for a middle ranking company. The ex-ante CIS ratio is created from the bid and baseline. The CIS ratios are the key drivers of the overall CIS incentives. For example, an ex-ante CIS ratio of 120 would mean the company view of expenditure was 20% higher than the central baseline. The ex-post CIS ratio is created from outturn and the baseline. A change protocol exists to accommodate changes to scope of the CIS. The PR09 determination reflected and</p>	<p>becomes available.</p> <p>Implicit in the calculations for the financing element of CIS is the use of COPI. During PR14 we requested companies submit their forecast COPI, where firm published data was unavailable. As announced by BIS in December 2014, COPI is undergoing review and the release of the index is currently suspended. We await further details on the future of the index. Before the announcement in December, firm values for the blind year would have become available in June 2016.</p> <p>Note that section 7 of this document separately sets out our approach to adjusting company RCVs to gain greater consistency in the RPI series used for financing cost adjustments and RCV adjustments in the CIS models for PR14. The need to do this was flagged in the final determinations.</p>

Mechanism	Description	Blind year
	<p>financed 25% of the difference between the baseline and companies' final business plan forecasts in the modelling for PR09 price limits.</p>	
<p>Change Protocol including PR09 overlap</p>	<p>The Change Protocol helped to manage changes in the outputs that companies delivered during 2010-15, and to encourage long-term sustainable development. It was designed to ensure that the price controls take account of material changes in delivery.</p> <p>The purpose of the PR09 overlap programme was to allow funding of projects that were planned to overlap regulatory periods. It was designed to promote better management of investment projects and encourage companies to take a long term approach to planning investment.</p>	<p>The reconciliations will be performed at the same time as the reconciliation of CIS and of all other PR09 incentive mechanisms. Change protocol and overlap are inputs to the CIS.</p>
<p>Serviceability</p>	<p>The Serviceability mechanism was designed to recover allowed capital costs from companies (through a shortfall in the RCV) in the event that a company failed to deliver stable serviceability.</p> <p>A serviceability shortfall is a recovery of expected cost from companies where they have not maintained their asset systems and services to customers and the environment (the flow of services). The shortfall is calculated based upon the performance of the measures (the outputs and hence associated outcomes to customers) regardless of whether the companies have expended the capital investment assumed at the FD09 review.</p> <p>We identified ten companies where improvements are required in 2014-15. We stated in the final determinations that where improvements were not delivered, a shortfall adjustment could be applied through a blind year adjustment.</p>	<p>The reconciliation will follow the same methodology for calculating serviceability adjustments as was adopted in PR14 for actual/forecast years. The final year actual indicator performance will feed into the serviceability shortfall models for applicable companies.</p> <p>The reconciliations will be performed alongside the other PR09 incentive mechanisms to align the reconciliation to the anticipated timing of the CIS reconciliation and in order to assess materiality at the aggregate level.</p>

Mechanism	Description	Blind year
Thames billing system shortfall	There was funding included in Thames Waters 2009 final determination for a new billing system that was not subsequently implemented. In its representation to the PR14 draft determination, Thames Water proposed a shortfall to its wholesale water and wastewater RCV of £5.4m to adjust for this underinvestment in the 2010-15 period.	As set out in Thames Water's company specific appendix in the PR14 final determination, we will include this as an adjustment for the reconciliation of performance for 2014-15. The adjustment will be calculated on a net present value neutral basis across the water and wastewater wholesale price controls, apportioned in line with customer numbers, when we next set price limits.

6.3. Additional considerations

Materiality

In the final determinations (final price control determination notice: policy chapter A4) we stated that for the final reconciliation of the PR09 incentive mechanisms, we will take a proportionate approach (for example, applying materiality thresholds where appropriate).

We will assess the PR09 incentive mechanisms in aggregate as opposed to assessing the impact of each individual mechanism. Our focus will be on the overall materiality of an impact on revenue or RCV.

In order to assess the RCV and revenue adjustments we will apply a materiality threshold of £10,000. This will be applied to the aggregate adjustment combining the expected RCV and Revenue adjustments for both water and wastewater controls.

The mechanisms that will be aggregated to calculate the revenue adjustment will be RCM, CIS (financing costs) and Change Protocol including the overlap programme (both included in CIS models). The mechanisms that will be aggregated to calculate the RCV adjustment will be CIS and Serviceability.

RCM will be included in the calculation to determine if the overall revenue adjustment is material. However, where it is material and hence an adjustment will be made, the RCM element will be excluded from the aggregate blind year adjustment and instead adjusted through the WRFIM calculation.

Information requirement

The information that we require in order to perform the blind year reconciliations is the same as that provided as part of the business planning submissions for PR14. We expect companies to submit this information as part of the July 2015 annual reporting.

6.4. Outputs

#	Output	Description	Price base
1	RCV adjustment	The net RCV adjustment which arises because of differences in forecast and actual 2014-15 data (and hence differences in PR09 legacy adjustments). Adjustments are made where material.	2012-13
2	Revenue adjustment	The net Revenue adjustment which arises because of differences in forecast and actual 2014-15 data (and hence differences in PR09 legacy adjustments). Adjustments are made where material.	2012-13

6.5. Inputs

#	Input	Description	Source	Price base
1	RCV adjustment based on forecast 2014-15 data	The adjustment to RCV applied within the company's final determination, based on forecasts for 2014-15 for individual mechanisms.	Relevant PR09 legacy mechanism feeder models, per the values adopted in the final determination.	2012-13
2	RCV adjustment based on actual 2014-15 data	The recalculated adjustment to RCV based on outturn data for 2014-15, as calculated through the relevant PR09 mechanism	Relevant PR09 legacy mechanism feeder models. Companies' July 2015 annual return.	2012-13

#	Input	Description	Source	Price base
		feeder model for individual mechanisms.		
3	Revenue adjustment based on forecast 2014-15 data	The adjustment to revenue being applied at the end of the price control period, based on forecasts for 2014-15 for individual mechanisms.	Relevant PR09 legacy mechanism feeder models, per the values adopted in the final determination.	2012-13
4	Revenue adjustment based on actual 2014-15 data	The actual adjustment to revenue that is required based on outturn data for 2014-15.	Output of relevant PR09 legacy mechanism feeder models Companies' July 2015 annual return.	2012-13
5	Financing Rate	The Final Determination Weighted Average Cost of Capital.	Final determination company specific appendix	2012-13
6	Aggregate materiality thresholds	£10,000	N/A	2012-13

6.6. Calculations

#	Calculation overview	Calculation detail
1	Difference between actual adjustment to RCV required and adjustment based on blind year forecasts	The adjustment to RCV based on blind year forecasts is subtracted from the adjustment required based on outturn data for each mechanism
2	Difference between actual adjustment to revenue required and adjustment based on blind year forecasts	The adjustment to revenue based on blind year forecasts is subtracted from the adjustment required based on outturn data for each mechanism
3	Total RCV impact of blind year reconciliations	Calculation of all RCV impacts across the relevant PR09 incentive mechanisms
4	Total revenue impact of blind year reconciliations	Calculation of all revenue impacts across the relevant PR09 incentive mechanisms

#	Calculation overview	Calculation detail
5	Comparison of materiality thresholds to the total RCV and revenue impacts in 4 and 5 above.	<p>This calculation applies the materiality thresholds for RCV and revenue combined, for both water and waste water in aggregate to determine the blind year adjustments to be made at PR19 (excluding financing cost adjustments – see 6 below).</p> <p>This calculation where material subsequently excludes the RCM element of the revenue adjustment as this is factored into the WRFIM calculation.</p>
6	Financing costs	<p>The financing cost adjustments to RCV and revenue are calculated using the company specific post tax WACC. The output of 5 is subject to a financing cost adjustment over the full 2015-20 period.</p>
7	Tax	<p>The revenue and RCV adjustments for the next price control period will impact on the tax allowance in the next price control period.</p> <p>The tax allowance is not set out in these calculations.</p>
8	Indexation	<p>A one-off adjustment will be applied at PR19 to convert the output of the mechanism to the PR19 price base using actual RPI. This adjustment is not set out in these calculations.</p>

7. PR09 CIS reconciliation

7.1. Background and purpose

In this rulebook we outline the indexation approach taken in the CIS models for the final determinations and we set out the approach we intend to take to indexation to adjust company RCVs at PR19.

The final price control determination notice: policy chapter A4 – reconciling 2010-15 performance outlines the approach used for indexation within the CIS models for the RCV adjustment and financing cost adjustments. For the RCV adjustment, the CIS compares allowed capex indexed using the construction output price index (COPI) forecast at the time of PR09 final determinations (FD COPI) with actual capex, and deflates this difference using outturn RPI. For the financing cost adjustment, the CIS compares allowed capex indexed using FD COPI and then deflated to 2007-08 prices using RPI forecast at the time of PR09 with actual capex deflated to 2007-08 prices using outturn RPI.

We noted in Policy Chapter A4 that Severn Trent Water had raised a representation on the different approach to indexation between the RCV and revenue adjustments in the CIS model. It stated that the financing cost adjustment generated a clawback on the financing cost for the difference between the level of FD RPI forecast at PR09 and the higher outturn values in the period 2010-15.

After reviewing Severn Trent Water's submission in October and considering the results in the PwC report (Reconciling 2010-15 Performance: Technical Review) we agreed that changes could be made to the CIS methodology, in the ways suggested by Severn Trent Water, that would be favourable to the company. However, we considered that if change were required that there was **“an alternative approach which would be to base the RCV adjustment for allowed capex on the difference between COPI and RPI forecast at the time of the PR09 final determinations. This would bring the approach to indexation in the RCV adjustment in line with financing cost adjustment. This alternative approach would have resulted in lower opening RCVs across all companies in April 2015.”** At the time we did not change our approach to indexation for the final determinations as we considered that a late change of this nature would have risked creating regulatory uncertainty. We also stated that “for 2015-20, we have made our final determination in the round, taking account of the RCV adjustment that companies have received through the 2010-15 CIS true-up, and allowing investors a reasonable return (with scope for out- and underperformance) on that basis.”.

However, we noted that it would be appropriate for us to consult on how we approach adjustments to the RCV at PR19 to account for our approach to indexation at PR14. We also noted that if we considered an adjustment would be appropriate, **“there would be no need to adjust retrospectively for the revenues received in the interim. These were correctly set at PR14, based upon Ofwat’s existing approach to inflation. Any change would have a prospective effect only, and would be applied industry-wide.”**

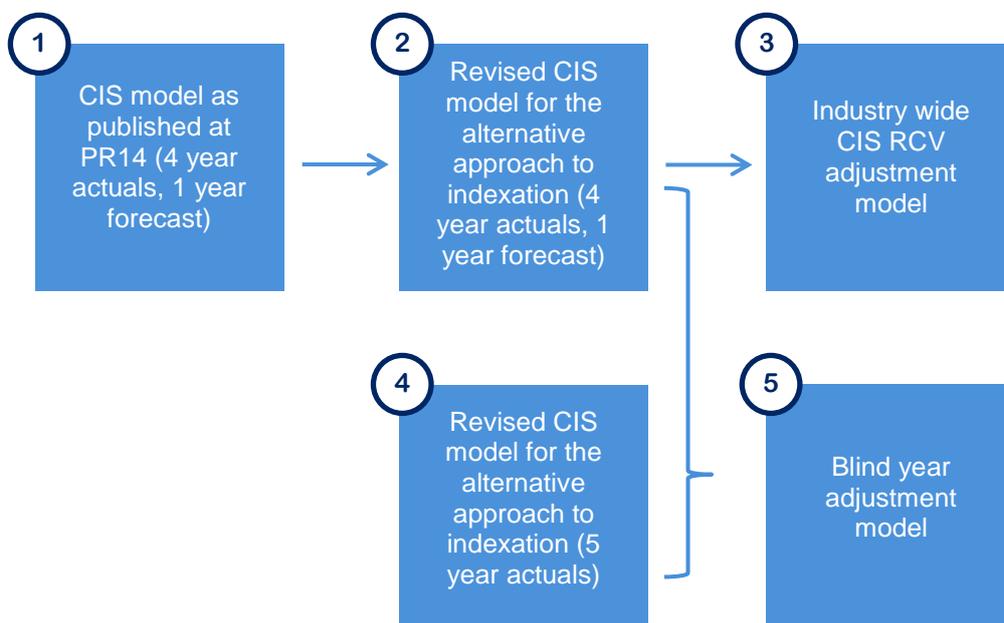
Having considered a number of approaches for the indexation of the financing cost adjustment and the RCV, we consider that it would further the customers’ interests post 2019 to recalibrate the figure for the RCV at PR19 through a RCV midnight adjustment. We set out a number of options for consideration in the accompanying consultation.

Our proposed approach is to calculate the impact on company RCVs had the alternative approach to indexation been used at PR14. The alternative approach will generate a different RCV adjustment to that generated from the CIS model at PR14. As noted above we will adjust the RCV at PR19 which will represent the opening RCV at the start of the 2015-20 period less the run off earned through 2015-20. On this basis, companies will retain the run off revenues and the return earned through 2015-20. The adjustment will impact the opening RCV at PR19 only.

7.2. Additional considerations

Process for adjusting CIS for both indexation and the blind year

The diagram below illustrates the process for CIS adjustments and the models that will be used to make the adjustments required at PR19. A description of each model is set out below the diagram.



Where:

Model 1 is the populated PR14 final determination CIS feeder model as published on the Ofwat website.

Model 2 is a revised version of model 1 which has been updated to include the calculations for the RCV adjustment under the alternative approach to indexation. The calculations from model 1 are replicated in model 2 so that the difference between the two approaches can be calculated as an input to model 3.

Model 3 takes the difference between the two approaches (from model 2) and calculates the run off over 2015-20. The output of this model is the RCV adjustment at PR19. Note: Models 1, 2 and 3 are calculated prior to having made an adjustment for 2014-15 actuals. This is because companies will not have earned revenues (run-off and return) through 2015-20 on the blind year actual position and therefore the run-off should be excluded from this calculation.

Model 4 is a copy of model 2 updated to replace forecast with actuals data for 2014-15.

Model 5 (the 'blind year adjustment model') calculates the differences between model 2 and model 4 to assess the extent of the potential blind year adjustment. This model is described in full in section 6 of this document.

We have published two supporting spreadsheets (for model 2 and model 3 in the diagram above). A revised template CIS model that adjusts the calculation of indexation within the published CIS models, in line with the alternative approach discussed above. The output of this model is the impact on opening RCV for the 2015-20 period. The inputs, outputs and calculations of this model mirror those of the CIS model published alongside the final determinations, therefore, we have not detailed each of these elements as part of this rulebook. In summary,

- a) the revised template CIS model (model 2) compares allowed capex indexed using FD COPI and then deflated to 2007-08 prices using RPI forecast at the time of PR09 with actual capex deflated to 2007-08 prices using outturn RPI. This approach is consistent with the revenue adjustment in the CIS models.
- b) the outputs from the revised template (model 2) are the RCV impact calculations. The spreadsheet for model 3 simulates the run-off on the RCV impact over 2015-20, and uses this to calculate the closing RCV impact at the end of the 2015-20 price control period. This closing RCV impact is the RCV adjustment made through the RCV midnight adjustment model.

Sections 7.3-7.5 below explain how b) operates.

7.3. Outputs

#	Output	Description	Price base
1	RCV adjustment	The total RCV adjustment to reflect the alternative approach to indexation within the CIS models for each company	2012/13

7.4. Inputs

#	Input	Description	Source	Price base
1	Impact of the change to indexation on the company RCVs for water and	This input is the impact that is calculated through the legacy CIS models. This is the difference in the RCV using the approach taken to indexation for the PR14 FDs	Legacy CIS models for each company that have been revised with the alternative approach to	2012/13

#	Input	Description	Source	Price base
	wastewater	and the 'alternative approach' described above.	indexation. This is model 2 from the diagram above.	
2	Run-off rates	The run off rates are used to determine the run-off revenues that are earned by companies through the period 2015-20. The run off rates will reduce the RCV over the five year period.	Company specific appendix from the final determinations	N/A
3	Nature of depreciation for each company	Depreciation policy for each company i.e. straight line or reducing balance	PR14 financial model for each company as published on the Ofwat website	N/A

7.5. Calculations

#	Calculation overview	Calculation detail
1	RCV Run-off calculations	<p>Calculate the run-off through the period 2015-20 to determine the adjustment to the RCV at the end of the period to feed into the RCV midnight adjustment model.</p> <p>This calculation is performed by reducing the RCV annually by the run off rate for each year (2015-20).</p> <p>For example, in year 1 (2015) the 'impact' input (input number 1) is multiplied by 1-the run off rate for 2015.</p> <p>In year 2 (2016) the result from the year 1 calculation above is multiplied by 1-the run off rate for 2016.</p> <p>This calculation continues to year 5 to determine the RCV at the end of the period.</p>
2	Sum of the run off through the period	This is equal to the RCV in year 5 less the RCV in year 0 i.e. the impact input.
3	Calculation of the company adjustments to RCV	This is an addition of the RCV in year 5 (after run off has been calculated) for water and wastewater expressed as a negative value as it reflects an adjustment out of the RCV.

8. Water trading incentives

8.1. Background and purpose

At PR14 we introduced water trading incentives to encourage companies to trade water where it is beneficial to do so. Analysis by other stakeholders, our own research and consultation with stakeholders identified that there are significant barriers to water trading and that these barriers mean that companies do not always trade water where it would be beneficial for them, customers and the environment to do so. While the move to totex at PR14 should help encourage water trading we consider that the barriers to water trading will not be fully addressed by other changes we are making to the price control framework and that targeted water trading incentives are required.

In the medium term, the upstream provisions of the Water Act 2014 should encourage the development of markets in water resources and enable new entry. In the meantime, the targeted incentives to encourage water trading should help realise some of the benefits of increased water trading more quickly. An increase in water trading should also help improve the resilience of companies' water supplies by increasing interconnections between their networks.

We have used export incentives as part of price reviewd in the past, for example at PR04. However, we revised its operation following analysis of how the previous incentive worked and consultation with stakeholders.

The import incentive was new for PR14. Our analysis identified that existing cultural and behavioural biases mean that companies are likely to continue to retain a preference for ownership and direct control of water resource assets rather than importing water from other companies. Water companies also have limited experience in designing and using effective contracts for water trading, so there may be additional costs associated with them establishing appropriate processes to manage trading. For these reasons we introduced a targeted incentive for imports for 2015-20.

However, we consider the barriers to importing, and the associated costs, are likely to reduce over time as companies gain experience of water trading. So, we consider that the main purpose of an import incentive is to act as a stimulus to change cultural and behavioural biases and, therefore, once those biases have been addressed there may no longer be a strong case for an import incentive.

We will keep our use of targeted water trading incentives under review as new evidence emerges and longer-term reforms are implemented.

8.2. Mechanism structure

Export incentive

For all new qualifying exports that start during 2015-20, we will allow exporters to retain 50% of the lifetime economic profits (that is, the profits over and above the normal return on capital invested). New agreements will be defined in a company's Trading and Procurement Code. Companies will receive an export incentive payment at PR19 equal to 50% of the full discounted economic profit for the forecast life of the export with a cap of 100% of the economic profit for the years the export operates in 2015-20. Any amount beyond the cap will be rolled forward to the next price control.

Import incentive

Qualifying imports will benefit from an import incentive payment of 5% of the costs of water imported under new agreements. New agreements will be defined in a company's Trading and Procurement Code. Import incentive payments will be subject to a cap of 0.1% of the importer's water activity turnover in any year of the control period. The import incentive payments are accrued annually during 2015-20 with the cap applying in each year.

New appointees

Our water trading incentives will apply only to price regulated water companies and not to new appointees. This is to avoid the water trading incentives distorting the choice of new developers between new appointees and a price regulated water company.

8.3. Mechanism specific considerations

We will make export and import incentive payments retrospectively at PR19.

To qualify for water trading incentives, a company must comply an Ofwat-approved Trading and Procurement Code. These contain simple obligations in respect of definitions of trades, non-discriminatory procurement, and, economic and environmentally rational trading. A company will have to show that its export and/or import complies with an Ofwat-approved Trading and Procurement Code before an export and/or import incentive payment will be made at PR19.

The conditions that must be included in a Trading and Procurement Code and our advice on additional principles are set out in appendix 3 to the PR14 Methodology Statement⁴.

8.4. Outputs

#	Output	Description	Price base
1	Export incentive payment	For each export: 1) the export incentive payment to be paid at PR19 2) the export incentive payment to be made after PR19	2012/13
2	Import incentive payment	The total aggregate import incentive payment for all imports	PR19 real price base

8.5. Inputs

#	Input	Description	Source	Price base
1	Has the company produced a trading and procurement code?	True/False flag.	Company	N/A
2	Has Ofwat approved the company's trading and procurement code?	True/False flag.	Ofwat	N/A
3	Real cost of capital	Company specific wholesale cost of capital	Ofwat Final Determinations	N/A
4	Year for discounting purposes	Years for calculating time value of money	Ofwat	N/A
5	Has the company provided evidence that this is a new export and complies with its	True/False flag.	Company	N/A

⁴ Appendix 3: Trading and procurement codes – requirements and advice on principles to be included (July 2013) http://www.ofwat.gov.uk/pricereview/pr14/pap_pos201307finalapproachapp3.pdf

#	Input	Description	Source	Price base
	Ofwat-approved trading and procurement code?			
6	Forecast revenue from export 1	Forecast of expected revenue from the export	Company	2012/13
7	Forecast cost (inclusive of return on capital) of export 1	Forecast of cost of export, inclusive of cost of capital.	Company	2012/13
8	First year to include in cap calculation for export profits	Financial year of first year used in cap calculation	Ofwat	N/A
9	Last year to include in cap calculation for export profits	Financial year of last year used in cap calculation	Ofwat	N/A
10	Has the company provided evidence that this is a new import and complies with its Ofwat-approved trading and procurement code?	True/False flag.	Company	N/A
11	Cost of water imported under new import	Forecast of cost of water under the new import	Company	2012/13
12	Import incentive rate (%)	Import incentive rate applied to cost of imported water	Ofwat	N/A
13	Company's water activity turnover	Company's expected wholesale water turnover for each financial year	Ofwat	N/A
14	Cap rate (%)	Cap on incentive payments as a proportion of Company's water activity turnover	Ofwat	N/A
15	Year average RPI indices	Calculated using RPI data from ONS	Ofwat	N/A

8.6. Calculations

#	Calculation overview	Calculation detail
1	Discount factor for year	Calculates discount factors to be applied each year using the real cost of capital and the years for discounting purposes
2	Net revenue/(cost) for export	Deducts forecast cost (inclusive of return on capital) of export from forecast revenue from export
3	Discounted net revenue/(cost) for export	Discounts net revenue/(cost) for export by discount factor for year
4	NPV of economic profit (profits above the normal return on capital) for export	Sums discounted net revenue/(cost) for export to establish net present value
5	Include in cap calculation for export	Calculates which financial years to include in the cap calculation. Generates a true/false flag
6	Discounted net revenue/(cost) for cap for export	Multiplies the Discounted net revenue/(cost) for export for each year by the true/false flag from the Include in cap calculation for export item.
7	Sum of discounted net revenue/(cost) for cap for export	Sums the discounted net revenue/(cost) for cap for export values
8	Export incentive payment for export 1 to be paid at PR19	Chooses the minimum of the Sum of discounted net revenue/(cost) for cap for export and 50% of the NPV of economic profit (profits above the normal return on capital) for export
9	Balance of export incentive payment to be paid after PR19 for export	Calculates the remaining balance of any export incentive payment. This is the maximum of: <ul style="list-style-type: none"> a) zero b) 50% of the NPV of economic profit for export minus Export incentive payment for export 1 to be paid at PR19
10	Import incentive payment before application of the cap	Sums the costs of the water imports under the different import schemes and then multiplies these by the import incentive rate
11	Monetary value of cap	Calculates the monetary value of the cap by multiplying the Company's water activity turnover by the Cap rate (%)

#	Calculation overview	Calculation detail
12	Import incentive payment after application of the cap	Chooses the minimum of: a) Import incentive payment before application of the cap b) Monetary value of cap
13	RPI adjustment factor	Calculates an adjustment factor to adjust the import incentive into the price base for PR19.
14	Time value of money factor	Calculates a time value of money factor using the real cost of capital and the Years for time value of money
15	Value of import incentive at PR19 price base	Multiplies the import incentive payment after application of the cap by the RPI adjustment factor and the time value of money factor
16	Total value of import incentive at PR19 price base	Sums the Value of import incentive at PR19 price base to give a single adjustment

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