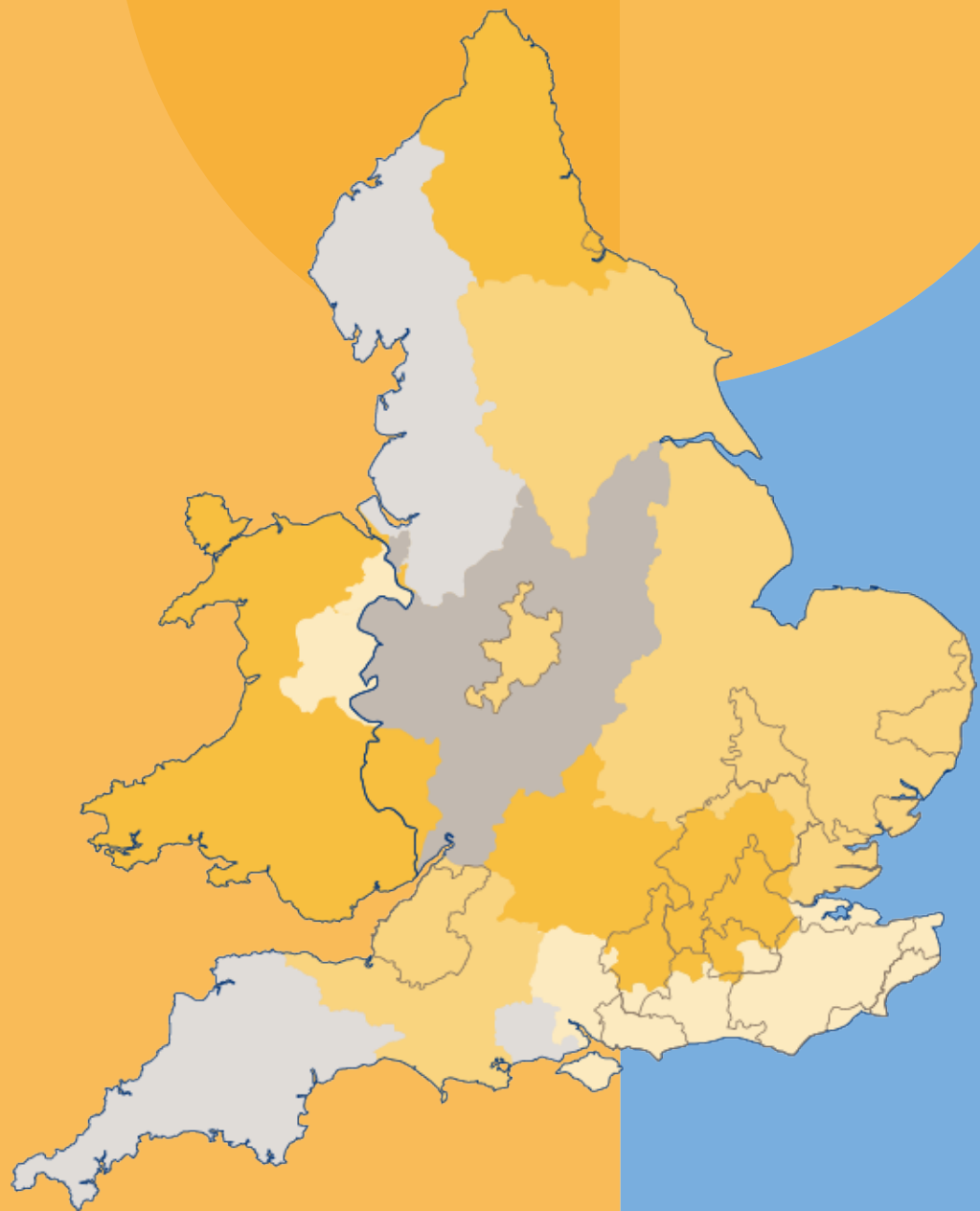


PR19 draft determinations

Notification of the PR19 draft determination of Price Controls for Thames Water



1 Notification of the draft determination of price controls for Thames Water Utilities Limited

1.1 About this document

Every five years we set the price, service and incentive package for monopoly water companies. This document sets out for consultation the draft determination of the formal price controls for Thames Water Utilities Limited (**Thames Water**) which will apply over the 2020 to 2025 period.

This first section provides an introduction to how the price controls will operate. The rest of the document is structured as follows:

- our proposed approach to the designation of activities to be included in the water resources, bioresources and retail controls;
- the draft price controls for water network plus activities and wastewater network plus activities;
- the draft price control for water resources activities;
- the draft price control for bioresources activities;
- the draft price control for residential retail activities;
- the proposed assumptions on notified items and land sales;
- the proposed performance commitments that could lead to changes in the price controls during the 2020 to 2025 period to reflect the water company's performance; and
- the proposed revenue forecasting incentive (RFI) formula that we intend to apply, subject to a proposed licence modification.

This document has been published on our website. We are also publishing information on our general approach and the reasons for our draft decisions. For all other documents relating to the Thames Water draft determination please see the [draft determinations webpage](#).

1.2 Background

The 2019 price review (PR19) will set out the price, service and incentive package that will apply to monopoly water companies for the 2020 to 2025 period. In the PR19 methodology we consulted on our approach to setting price controls, building on the work that we had undertaken as part of the Water2020 programme. Our approach to setting price controls as part of PR19 reflects a number of changes from the approach taken at the 2014 price review (PR14). These include:

- determining separate wholesale controls for water resources, network plus water, network plus wastewater and bioresources activities;

- the change in the measure of inflation used to index controls, replacing the retail price index (RPI) with the consumer price index including owner occupiers' housing costs (CPIH);
- a move to more in-period rather than end of period outcome delivery incentives (ODIs); and
- replacing the Wholesale Revenue Forecasting Incentive Mechanism (WRFIM) with the RFI.

We summarise our general approach to the key elements below.

1.2.1 Designation of activities

We need to designate the activities that are included in the new water resources and bioresources price controls. Our designation of activities follows the approach we set out in the PR19 Methodology. Where appropriate, we cross-refer to updated definitions in our Regulatory Accounting Guidelines (RAGs) that we provide to companies.

We are not proposing any change to the designation of retail activities. The definition of these activities would therefore remain the same as it was for PR14.

1.2.2 Form of control

In our PR19 methodology we set out the form that each control would take. In the formal price controls below we have included in-period adjustments¹ which would apply automatically. We have excluded in-period adjustments made through in-period determinations i.e. in-period ODIs.

Below, we set out the some of the specific considerations for each control.

Network plus activities: For network plus activities the form of control is determined in licence condition B (Charges). Allowed revenue changes each year in line with inflation, CPIH, and a factor we determine, 'K'. Due to the constraints of the condition, further potential adjustments to the level of these controls (e.g. to accommodate the RFI and blind year adjustments) are addressed separately.

Sewerage services for the Thames Tideway Tunnel project: Licence condition B provides for a separate price control for Thames Water's wastewater services

¹ End-of-period adjustments are not included because, by definition, allowed revenues would be adjusted at the end of the price control period.

interfacing activities for the Thames Tideway Tunnel project. It also provides that the form of control will be the same as for the controls for network plus activities.

Water resources: We have structured the control in the same way as for network plus activities. In our PR19 methodology we set out the adjustment mechanism for changes to water companies' allowed revenue once the bilateral market opens. Adjustments will be based on the difference between forecast and actual bilateral market entry, but will only be made if a company invests in new water resource capacity after 1 April 2020. Our control allows for possibility that the bilateral market will open in the 2022-23 charging year. We envisage that the in-period adjustment for bilateral entry will have a two-year timing delay between the charging year when any entry occurs and the charging year allowed revenues could change. This is because any difference between forecast and actual bilateral entry will not be reported by water companies until after the relevant charging year when it occurs; and it would be only practical for any adjustment to allowed revenues to take effect the year after this report.

Bioresources: This is an average revenue control, with allowed revenue adjusted to reflect the difference between forecast and actual sludge volumes based on the variable cost of sludge. There is also a revenue adjustment mechanism to account for any imbalance between allowed revenues and revenues actually recovered – this is applied with a two year lag due to reporting reasons. We are maintaining the same approach as our Final Methodology but we have reformulated this control since the Fast Track Draft Determination for simplicity.

Residential retail: The residential retail control is an average revenue control. Allowed revenue is adjusted to reflect the difference between actual and forecast customer numbers. Our control does not distinguish between classes of customer, reflecting our assessment of companies' costs.

Revenue forecasting incentive: In our PR19 methodology document we said that we would introduce the RFI to apply a revenue correction adjustment and a financial incentive to each charging year's recovered revenue for the network plus and water resources controls. The draft RFI formula is set out in Appendix 3. We are proposing a licence modification to make sure that such in-period adjustments are allowed during the 2020 to 2025 period and future price control periods. This will be equivalent to the licence modification we made for most companies in 2016 to implement the WRFIM in the current price control period.

1.2.3 Outcomes

We can change the level of price controls during the 2020 to 2025 period to reflect performance commitments, provided those performance commitments are notified to the company by 31 December 2019.

The PR19 methodology encourages companies to make more of their performance commitments subject to in-period assessment of ODIs rather than end-of-period. In Appendix 2 we set out for consultation the company's performance commitments which have in-period financial ODIs along with the price controls to which they apply.

We said in the PR19 methodology that we expect companies to propose approaches to protecting customers in case their ODI payments turn out to be much higher than expected. We explained in the initial assessment of business plans [Technical appendix 1: Delivering outcomes for customers \(January 2019\)](#) that we are asking all companies to commit to put in place additional protections for customers, where we consider protections are not adequate to protect customers from high outperformance payments.

The company has proposed an alternative sharing mechanism where the 50% sharing with customers applies to outperformance above 3% of Return on Regulatory Equity (RoRE) over the whole 2020-25 period instead of each year. We are intervening to impose our standard outperformance sharing mechanism so that sharing will apply each year. We are undertaking further work on the detail of the mechanism and the process for annual reconciliation. We will publish our final decisions on these aspects of the mechanism (including how it will affect the in-period assessment of ODIs) as part of the final determinations in December 2019.

As well as the performance commitments set out in Appendix 2, we also propose to include in our final notification the company's existing performance commitments that cover 2019-20 and have financial ODIs. This will allow us to adjust price controls during the 2020 to 2025 period (instead of waiting until the 2024 price review) to reflect any differences between the assumptions about 2019-20 performance we use when setting the 2020 to 2025 price controls and actual 2019-20 performance. We are not publishing these performance commitments at the draft determination stage because they have already been published as part of the PR14 final determinations and will not be changing. Because any such adjustments would relate to performance in the current (2015 to 2020) price control period, they will not be covered by the above mechanism to protect customers from higher than expected outperformance payments in relation to the 2020 to 2025 period.

2 Notification by the Water Services Regulation Authority of the draft determination of Price Controls for Thames Water Utilities Limited

This document sets out for consultation the draft determination by the Water Services Regulation Authority (“Ofwat”) of the Price Controls for Retail Activities, Network Plus Water Activities, Network Plus Wastewater Activities, Sewerage Services for the Thames Tideway Tunnel Project, Water Resources Activities and Bioresources Activities.

The final determination of the Price Controls will be made by Ofwat in December 2019 in accordance with Part III of Condition B (Charges) of your Appointment as a water and sewerage undertaker:

- after having had regard to all the circumstances which are relevant in the light of the principles which apply by virtue of Part I of the Water Industry Act 1991 in relation to Ofwat’s determinations, including, without limitation, any change in circumstance which has occurred since the last Periodic Review or which is to occur; and
- in accordance with the statement setting out strategic priorities and objectives for Ofwat published by the Secretary of State for Environment, Food and Rural Affairs.

The Price Controls, when they take effect, will all apply for the five consecutive Charging Years starting on 1 April 2020.

Unless the contrary intention appears, words and expressions used in this document shall have the same meaning as in the Conditions of the Appointment. Common terms used in the formulae in this document are defined in the Glossary set out in Appendix 4.

2.1 Designation of activities

The sets of activities that Ofwat proposes will be covered by the relevant Price Controls are set out below.

2.1.1 Network Plus Activities

All activities carried out by the Appointee in performance of its functions as a water undertaker that are not designated as Water Resources Activities or Retail Activities will be Network Plus Water Activities.

All activities carried out by the Appointee in performance of its functions as a sewerage undertaker that are not designated as Bioresources Activities or Retail Activities will be Network Plus Wastewater Activities.

2.1.2 Water Resources Activities

Ofwat proposes to designate as Water Resources Activities under sub-paragraph 9.9 of Condition B the activities carried out as part of the Appointed Business that fall within the definitions of the following services in [RAG 4.08 – Guideline for the table definitions in the annual performance report](#) (March 2019)²:

- Water resources – Abstraction licences; and
- Water resources – Raw water abstraction.

2.1.3 Bioresources Activities

Ofwat proposes to designate as Bioresources Activities under sub-paragraph 9.9 of Condition B the activities carried out as part of the Appointed Business that fall within the definitions of the following services in [RAG 4.08 – Guideline for the table definitions in the annual performance report](#) (March 2019)³:

- Sludge transport;
- Sludge treatment; and
- Sludge disposal.

² Condition B sets the envelope of what activities can be designated as Water Resources Activities by reference to RAG 4.06, but Ofwat intends to actually designate Water Resources Activities in December 2019 by reference to the most recent version.

³ Condition B sets the envelope of what activities can be designated as Bioresources Activities by reference to RAG 4.06, but Ofwat intends to actually designate Bioresources Activities in December 2019 by reference to the most recent version.

2.1.4 Retail Activities

Ofwat does not propose to change the activities that are currently designated as Retail Activities.

2.1.5 Wholesale activities not covered by wholesale price controls

The Price Controls in respect of Water Resources Activities, Bioresources Activities, Network Plus Water Activities and Network Plus Wastewater Activities will not apply to those activities for which there are Excluded Charges. Excluded Charges (as defined in Condition B) include:

- charges for a supply of water in bulk to another water undertaker;
- amounts payable in respect of an unmeasured supply of water by means of stand-pipes or water tanks and in respect of the erection or maintenance of stand-pipes or water tanks;
- charges for a supply of water provided by the Appointee under section 59 (Supplies for other public purposes) of the Water Industry Act 1991;
- charges for the reception and disposal by the Appointee, or other person specified by the Appointee or, as the case may be, the Water Authority, of matter delivered to the Appointee or such other person by a collection authority in pursuance of section 14(9) of the Control of Pollution Act 1974;
- charges for unmeasured supplies of water to cattle troughs;
- charges for unmeasured building water supplies;
- amounts payable in respect of an unmeasured supply of water by means of bowsers or water tankers;
- charges for unmeasured supplies of water to farm taps and other agricultural water points; and
- amounts payable under any such agreement as is described in section 20(1)(b) of the Water Resources Act 1991 (including any such agreement entered into by the Water Authority under section 81 of the Water Resources Act 1963 with respect to any of the matters referred to in sections 81(1)(b) and 81(1)(d) of that Act as, by virtue of paragraph 29(1) of Schedule 26, has effect on and after the transfer date as a thing done by the Appointee); and
- charges payable under any agreement for any unmeasured supply of water or unmeasured sewerage services which are calculated by reference to the rateable value of hereditaments, occupied by the person to whom the supply or services are provided, fixed in accordance with section 32, 33 or, as the case may be, 34 of the General Rate Act 1967 or, as the case may be, fixed in accordance with section 54 of the Local Government Finance Act 1988.

As part of the draft determination we are also consulting on whether the list of Excluded Charges for the purposes of Condition B should include amounts payable in relation to diversions other than those required by section 185 of the Water Industry Act 1991. This change would require agreement between Ofwat and the Appointee for the purposes of the definition of “Excluded Charges” in paragraph 2 of Condition B. In its response to the draft determination, the Appointee should therefore indicate whether or not it would be prepared to agree to this and whether it has any comments on the following proposed definition:

“In relation to the period from 1 April 2020 to 31 March 2025, amounts payable in relation to the alteration or removal of any relevant pipe (as defined in section 158 of the Water Industry Act 1991) or other apparatus that the Appointee is required to carry out under the New Roads and Streets Works Act 1991 or any other statutory provision except section 185 of the Water Industry Act 1991.”

2.2 Price Controls for Network Plus Activities

In respect of the Appointed Business’s Network Plus Activities, except those activities for which there are Excluded Charges, there will be:

- one single Price Control in respect of the Appointed Business’s Network Plus Water Activities; and
- one single Price Control in respect of the Appointed Business’s Network Plus Wastewater Activities other than Sewerage Services for the Thames Tideway Tunnel Project.

Each such Price Control will consist of in each Charging Year:

- the percentage change (expressed, in the case of an increase, as a positive number, in the case of a decrease, as a negative number, and, in the case of no change, as zero) in the Consumer Prices Index (H) between that published for the month of November in the Prior Year and that published for the immediately preceding November; and
- a number, “**K**”, which may be a positive number or a negative number or zero

which together shall be expressed as a percentage, and which shall limit the change in the revenue allowed to the Appointed Business in each Charging Year in respect of the Network Plus Activities concerned.

For each Charging Year starting on or after 1 April 2021 the revenue allowed to the Appointed Business in respect of the Network Plus Activities concerned will be the product of the following formula:

$$R_t = R_{t-1} \times \left(1 + \frac{(CPIH_t + K_t)}{100}\right)$$

For the Charging Year starting on 1 April 2020 the revenue allowed to the Appointed Business in respect of the Network Plus Activities concerned is the product of the same formula except that R_{t-1} = the relevant revenue allowance (as set out below). This is because (as the form of Price Controls has since changed) at the last Periodic Review no revenue allowance in respect of Network Plus Activities was set for the Charging Year that started on 1 April 2019.

In respect of the Appointed Business's Network Plus Water Activities, the starting point for the calculation of the change in the revenue allowed to the Appointed Business in the Charging Year starting on 1 April 2020 (the revenue allowance for Network Plus Water Activities) is **£705.876** million, which shall constitute the value of R_{t-1} in respect of that Charging Year.

The "K" numbers for each Charging Year are set out in Table 1.

Table 1: Price Control for Network Plus Water Activities "K" numbers

Charging Year beginning 1 April	2020-21	2021-22	2022-23	2023-24	2024-25
K number	0.00	7.17	3.77	2.28	1.07

In respect of the Appointed Business's Network Plus Wastewater Activities other than Sewerage Services for the Thames Tideway Tunnel Project, the starting point for the calculation of the change in the revenue allowed to the Appointed Business in the Charging Year starting on 1 April 2020 (the revenue allowance for Network Plus Wastewater Activities other than Sewerage Services for the Thames Tideway Tunnel Project) is **£743.923** million, which shall constitute the value of R_{t-1} in respect of that Charging Year.

The "K" numbers for each Charging Year are set out in Table 2.

Table 2: Price Control for Network Plus Wastewater Activities other than Sewerage Services for the Thames Tideway Tunnel Project "K" numbers

Charging Year beginning 1 April	2020-21	2021-22	2022-23	2023-24	2024-25
K number	0.00	0.60	-0.27	1.52	1.92

2.3 Price Control for Sewerage Services for the Thames Tideway Tunnel Project

In respect of the Appointed Business’s Sewerage Services for the Thames Tideway Tunnel Project, there shall be one single Price Control consisting of in each Charging Year:

- the percentage change (expressed, in the case of an increase, as a positive number, in the case of a decrease, as a negative number, and, in the case of no change, as zero) in the Consumer Prices Index (H) between that published for the month of November in the Prior Year and that published for the immediately preceding November; and
- a number, “**K_t**”, which may be a positive number or a negative number or zero

which together shall be expressed as a percentage, and which shall limit the change in the revenue allowed to the Appointed Business in each Charging Year in respect of the activities concerned.

For each Charging Year starting on or after 1 April 2020 the revenue allowed to the Appointed Business in respect of the activities concerned will be the product of the following formula:

$$R_t = R_{t-1} \times \left(1 + \frac{(CPIH_t + K_t)}{100}\right)$$

The “**K_t**” numbers for each Charging Year are set out in Table 2A.

Table 2A: Price Control for Sewerage Services for the Thames Tideway Tunnel Project “K_t” numbers

Charging Year beginning 1 April	2020-21	2021-22	2022-23	2023-24	2024-25
K number	-11.91	6.84	4.05	-3.02	-9.79

2.4 Price Control for Water Resources Activities

The Price Control shall consist of, in each Charging Year:

- the percentage change (expressed, in the case of an increase, as a positive number, in the case of a decrease, as a negative number, and, in the case of no change, as zero) in the Consumer Prices Index (H) between that published

for the month of November in the Prior Year and that published for the immediately preceding November; and

- a number, “**K**”, which may be a positive number or a negative number or zero

which together shall be expressed as a percentage, and which shall limit the change in the revenue allowed to the Appointed Business in each Charging Year.

For each Charging Year starting on or after 1 April 2021 the revenue allowed to the Appointed Business in respect of the Water Resources Activities concerned will be the product of the following formula:

$$R_t = R_{t-1} \times \left[1 + \frac{CPIH_t + K_t}{100} \right]$$

For the Charging Year starting on 1 April 2020 the revenue allowed to the Appointed Business in respect of Water Resources Activities is the product of the same formula except that R_{t-1} = the relevant revenue allowance (as set out below). This is because (as the form of Price Controls has since changed) at the last Periodic Review no revenue allowance in respect of Water Resources Activities was set for the Charging Year that started on 1 April 2019.

In respect of the Appointed Business’s Water Resources Activities, the starting point for the calculation of the change in the revenue allowed to the Appointed Business in the Charging Year starting on 1 April 2020 (the revenue allowance for Water Resources Activities) is **£87.219** million, which shall constitute the value of R_{t-1} in respect of that Charging Year.

The “**K**” numbers for each Charging Year are set out in Table 3.

Table 3: Price Control for Water Resources Activities “K” numbers

Charging Year beginning 1 April	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
K number	0.00	6.61	0.00	1.41	7.05

2.4.1 In-period adjustment to the Price Control for Water Resources Activities to account for bilateral entry

For each Charging Year starting two or more years after the beginning of the Charging Year in which a new section 66B(1) is inserted into, or substituted for the existing section 66B(1) of, the Water Industry Act 1991 by paragraph 1 of Schedule 2

to the Water Act 2014 (“Bilateral Market Opening”) the revenue allowed to the Appointed Business in respect of the Water Resources Activities concerned will be calculated in accordance with the following formula:

$$R_t = R_{t-1} \times \left[1 + \frac{CPIH_t + K_t}{100} \right] + \left[BEA_{t-2} \times (CPIH \text{ adjustment factor}_t) \times \left(1 + \frac{D}{100} \right)^2 \right]$$

Where:

$$BEA_t = ICC_t \times AUC_t \times BEF_t$$

$$BEF_t = \left(\frac{TCC_t}{ICC_t + BCCa_t} \right) - 1$$

$$TCC_t = ICC_t + BCCf_t$$

BEA_t Bilateral entry adjustment. The bilateral entry adjustment is expressed in 2017-18 FYA CPIH deflated prices. This value can be a negative number or zero but cannot be higher than zero (and any positive number shall therefore be considered as zero for the purposes of calculating the revenue allowed to the Appointed Business in respect of the Water Resources Activities concerned).

WRZ Water resource zone. This is the water resource zone (“WRZ”) used for the basis of the calculation in the relevant Charging Year, as listed in Table 4 below. The WRZ must have the same geographical boundaries as that WRZ has for the purposes of the draft water resources management plan published by the Appointee in 2018 in accordance with section 37B(2) of the Water Industry Act 1991⁴.

ICC_t Incumbent cumulative capacity. The Appointee’s cumulative post-2020 forecast capacity (MI/d), as set out in Table 4 below.

AUC_t Annualised unit cost. The Appointee’s annualised unit cost of cumulative post-2020 capacity (£/ MI/d) expressed in 2017-18 FYA CPIH deflated prices, as set out in Table 4 below.

BEF_t Bilateral entry forecast factor. The bilateral entry forecast factor is:

⁴ Although this text refers to draft water resources management plans, where appropriate it will be updated to refer to final water resources management plans that are published before our final determinations.

- (i) the difference between actual bilateral entry capacity (BCC_{at}) compared to that forecast (BCC_{ft}), as a proportion of total forecast post-2020 capacity (TCC_t); and
- (ii) a negative number or is zero.

TCC_t Total cumulative capacity. The total forecast cumulative post-2020 capacity for the relevant year (t) as set out in Table 4 below.

BCC_{at} Bilateral cumulative capacity - actual. The actual post-2020 third party bilateral capacity in the water resource zone in year t for the dry year annual average (DYAA) planning period, as measured using water resources yield. For these purposes:

- “actual post-2020 third party bilateral capacity” means the actual capacity available because of agreements that permit the introduction of water into the Appointee’s supply system in accordance with section 66B or section 66C of the Water Industry Act 1991; and
- water resources yield for the DYAA planning period must be calculated:
 - (i) in accordance with Appendix 2 (Water resources further guidance) to RAG 4.08 (as published by Ofwat in March 2019)⁵; and
 - (ii) in a manner consistent with the calculation of water resources yield for the DYAA planning period for the purposes of the draft water resources management plan published by the Appointee in 2018 in accordance with section 37B(2) of the Water Industry Act 1991.

BCC_{ft} Bilateral cumulative capacity - forecast. The forecasted cumulative post-2020 third-party bilateral capacity provided for the DYAA planning period, as used for WRMP19 and as measured using water resources yield in the water resource zone and as set out in Table 4 below.

⁵ RAG 4.08 Appendix 2 (Water resources further guidance) can be found at <https://www.ofwat.gov.uk/wp-content/uploads/2019/01/RAG-4.08-Appendix-2-post-condoc-v1.pdf>

Table 4: Price Control for Water Resources Activities bilateral entry adjustment numbers *

Charging Year beginning 1 April	2020-21	2021-22	2022-23	2023-24	2024-25
Water resource zone: London (LON)					
AUC (£/ MI/d, 17-18 prices)	N/A	N/A	£71,560	£71,560	£124,634
ICC	N/A	N/A	21.00	21.00	34.00
BCCf	N/A	N/A	0.00	0.00	0.00
TCC	N/A	N/A	21.00	21.00	34.00

* for final determination we will adjust these tables to reflect any efficiency challenges of schemes that contribute to new water resources capacity.

2.5 Price Control for Bioresources Activities

The Price Control shall consist of, in each Charging Year:

- a total amount of revenue which is modified to reflect differences between outturn sludge production and forecast sludge production;
- an adjustment to reflect any over- or under-recovery of revenue in previous Charging Years; and
- an adjustment to reflect any profit made by the Appointed Business where assets belonging to the Appointed Business are used by any other person (or by any business or activity of the Appointee other than the Appointed Business)

and shall limit the revenue allowed to the Appointed Business in each Charging Year starting on or after 1 April 2020. The Price Control shall be calculated by the following formula:

$$R_t = MR_t - ABR_t - \left[T_{t-2} \times \left(1 + \frac{CPIH_{t-1}}{100} \right) \times \left(1 + \frac{CPIH_t}{100} \right) \right]$$

Where:

$$MR_t = \left[UR_t + (ATDS_t - FTDS_t) \times VR \right] \times CPIH \text{ adjustment factor}_t$$

$$ABR_t = (RR_{t-2} - R_{t-2}) \times \left(1 + \frac{D}{100} \right)^2 \times \left(1 + \frac{CPIH_{t-1}}{100} \right) \times \left(1 + \frac{CPIH_t}{100} \right)$$

UR_t Unadjusted revenue. This is the total revenue allowed to the Appointed Business in each Charging Year starting on or after 1 April 2020 based on the forecast amount of sludge produced. It is set out in Table 5 below.

MR_t Modified revenue. This is the unadjusted revenue allowed to the Appointed Business which is modified to reflect differences between outturn sludge production and forecast sludge production.

ABR_t Bioresources revenue adjustment. This is the difference between the Appointee's allowed revenue and the revenue actually recovered in a Charging Year two years before Charging Year t in respect of Bioresources Activities. Inflation and financing adjustments for two years is applied to this difference. In the Charging Years starting 1 April 2020 and 1 April 2021, this term shall have the value of zero.

T_{t-2} Profit from bioresources trading expressed in outturn prices in £ millions in year t-2. When appointed assets are used for sludge imports (non-appointed activities), the company will determine a transfer price. This should include at least the incremental cost of treating the imported sludge plus a proportion of the margin from the trade. Companies should act consistent with the [Regulatory accounting guidelines \(RAG\) 5.07](#) when setting their transfer price. The T_{t-2} profits from bioresources trading will be the margin element of the transfer prices earned for trades that occur in year t-2. In the Charging Years starting 1 April 2020 and 1 April 2021, this term shall have the value of zero.

ATDS_t Actual volume of sludge (TDS). This is the total amount of sludge produced (TDS) during the Charging Year produced by the whole service. This will be known after the end of the Charging Year. When setting charges for the Charging Year, companies should use the best available estimate of what **ATDS_t** would be.

FTDS_t Forecast volume of sludge (TDS) produced in year t as set out in Table 5 below.

VR Variable revenue. The adjustment to allowed revenue reflecting differences between outturn sludge production and forecast sludge production. It is expressed in £ per Tonnes of Dried Solid sludge (TDS) as set out in Table 5.

Table 5: Price Control for Bioresources Activities numbers

Charging year beginning 1 April	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
Unadjusted revenue, UR_t (£ million, 2017-18 FYA CPIH deflated prices)	176.646	178.736	179.686	180.639	181.589	897.296
Forecast volume of sludge, FTDS_t (TDS)	396,330	401,020	403,150	405,290	407,420	2,013,210
Variable revenue, VR (£/TDS, 2017-18 FYA CPIH deflated prices)	N/A	N/A	N/A	N/A	N/A	75.622

2.6 Price Control for Residential Retail Activities

In respect of the Appointed Businesses' Retail Activities, Ofwat proposes to set one single Price Control for the Appointed Business's Retail Activities relating to the supply of water and the provision of sewerage services to household premises (as defined in section 17C of the Water Industry Act 1991) ("**Residential Retail Activities**").

The Price Control for Residential Retail Activities:

- shall consist of a limit on the total revenue allowed to the Appointed Business in each Charging Year in respect of the Retail Activities concerned; and
- is set for a period of five consecutive Charging Years starting on 1 April 2020.

The total unadjusted revenue, **TR**, allowed to the Appointed Business in each Charging Year in respect of Residential Retail Activities shall be the relevant amount set out in Table 6 as modified in accordance with the following formula:

$$R_t = TR_t + (AC_t - FC_t) \times M_t \times 1000$$

Where:

TR_t Total Revenue The total unadjusted allowed revenue expressed in outturn prices as set out in table 6;

AC_t Actual Customers Actual customer numbers (meaning the average number of individual household premises (as defined in section 17C of the Water Industry Act 1991) supplied or served by the Appointed Business in a Charging Year) expressed in thousands;

FC_t Forecast Customers. Forecast customer numbers set out in table 6;

M_t Modification Factor. The modification factors expressed in outturn prices set out in table 6.

Table 6: Price Control for Residential Retail Activities numbers

Charging year beginning 1 April	2020-21	2021-22	2022-23	2023-24	2024-25	2020-25
TR (£million, outturn)	143.988	143.693	143.120	142.395	141.612	-
M (£, outturn)	25.978	25.605	25.208	24.786	24.409	-
FC (thousands)	5,573.043	5,646.059	5,714.291	5,783.692	5,841.948	-

2.7 Demonstrating Compliance with the Price Controls

The Appointee shall provide such information as Ofwat may reasonably require in relation to annual regulatory reporting to demonstrate how the Appointee is complying, or has complied, with its obligation to levy charges in a way best calculated to comply with each Price Control applicable to it.

Appendix 1: Notified Items and Land Sales

Notified Items

Ofwat does not currently propose to notify the Appointee of any item that has not been allowed for (either in full or at all) when making the final determination of Price Controls, but we are consulting on the possibility of setting out one or more Notified Items to cover circumstances where a specific scheme being developed through a direct procurement for customers process reverts to a traditional in-house procurement process because that has become better value for money.

Land sales

When making the final determination of Price Controls Ofwat proposes to give notice that for each of the five consecutive Charging Years starting on or after 1 April 2020:

- the value attributable to Relevant Disposals of Land allowed for in making the determination is zero; and
- variations in value received or expected to be received from Relevant Disposals of Land shall constitute a Relevant Change of Circumstance.

Appendix 2: In-period Outcome Delivery Incentives (ODIs)

Ofwat proposes to notify the Appointee in accordance with Part 3A of Condition B that the Price Controls to be determined in respect of the Appointee's Retail Activities, Water Resources Activities, Bioresources Activities, Network Plus Water Activities, Network Plus Wastewater Activities and Sewerage Services for the Thames Tideway Tunnel Project may be adjusted to reflect the Appointee's performance in relation to the following Performance Commitments:

Table A2.1: In-period financial performance commitments - Common PCs

Name of Common Performance Commitment	Type of Outcome Delivery Incentive (ODI)	Price controls ODIs will apply to
Water quality compliance (CRI) [PR19TMS_BW06a]	Financial - Under; In-period	Water resources; Water network plus
Water supply interruptions [PR19TMS_BW03]	Financial - Out & under; In-period	Water network plus
Leakage [PR19TMS_BW04]	Financial - Out & under; In-period	Water network plus
Per capita consumption [PR19TMS_BW05]	Financial - Out & under; In-period	Water network plus
Mains repairs [PR19TMS_BW01]	Financial - Out & under; In-period	Water network plus
Unplanned outage [PR19TMS_BW02]	Financial - Under; In-period	Water resources; Water network plus
Internal sewer flooding [PR19TMS_CS03]	Financial - Out & under; In-period	Wastewater network plus
Pollution incidents [PR19TMS_ES01]	Financial - Under; In-period	Wastewater network plus
Sewer collapses [PR19TMS_CS02]	Financial - Out & under; In-period	Wastewater network plus
Treatment works compliance [PR19TMS_CS01]	Financial - Under; In-period	Wastewater network plus
C-Mex: Customer measure of experience [PR19TMS_AR01]	Financial - Out & under; In-period	Residential retail
D-Mex: Developer services measure of experience [PR19TMS_AWS01]	Financial - Out & under; In-period	Water network plus; Wastewater network plus

Table A2.2: In-period financial performance commitments - Bespoke PCs

Name of Bespoke Performance Commitment	Type of Outcome Delivery Incentive (ODI)	Price controls ODIs will apply to
Properties at risk of receiving low pressure [PR19TMS_BW07]	Financial - Under; In-period	Water resources; Water network plus
Acceptability of water to consumers [PR19TMS_BW08]	Financial - Under; In-period	Water resources; Water network plus
Water quality events [PR19TMS_BW09]	Financial - Under; In-period	Water network plus
Reducing risk of lead [PR19TMS_BW10]	Financial - Out & under; In-period	Water network plus
Improving system resilience of North East London water supply [PR19TMS_BW12]	Financial - Under; In-period	Water network plus
Clearance of blockages [PR19TMS_CS04]	Financial - Out & under; In-period	Wastewater network plus
Sewage pumping station availability [PR19TMS_CS05]	Financial - Under; In-period	Wastewater network plus
Security of supply index SoSI [PR19TMS_DW02]	Financial - Under; In-period	Water resources; Water network plus
Unregistered Household Properties [PR19TMS_ER01]	Financial - Under; In-period	Residential retail
Empty household properties [PR19TMS_ER02]	Financial - Out & Under; In-period	Residential retail
Environmental measures delivered [PR19TMS_ES02]	Financial - Under; In-period	Water resources; Water network plus; Wastewater network plus
Sludge treated before disposal [PR19TMS_ES03]	Financial - Under; In-period	Bioresources
Readiness to receive tunnel flow at Beckton STW [PR19TMS_ET01]	Financial - Under; In-period	Thames Tideway Tunnel
Critical asset readiness for the London Tideway Tunnels [PR19TMS_ET04]	Financial - Under; In-period	Wastewater network plus; Thames Tideway Tunnel
Abstraction Incentive Mechanism (AIM) [PR19TMS_EW01]	Financial - Out & under; In-period	Water resources
Smarter Water Catchment Initiatives [PR19TMS_EWS02]	Financial - Under; In-period	Wastewater network plus
Renewable energy produced [PR19TMS_EWS03]	Financial - Out & under; In-period	Wastewater network plus; Bioresources
Empty business properties [PR19TMS_EWS08]	Financial - Out; In-period	Water network plus; Wastewater network plus

Appendix 3: Revenue Forecasting Incentive formula

On the assumption that an appropriate modification is made to Condition B (Charges) before December 2019, Ofwat proposes to notify the Appointee that subparagraph 9.1 of Condition B will not prevent the Appointee from levying charges to recover a Relevant Shortfall in the Charging Years beginning 1 April 2021, 1 April 2022, 1 April 2023 and 1 April 2024 (each of which will be a “Relevant Charging Year” for these purposes) where the “Relevant Shortfall” means any positive amount calculated for a Relevant Charging Year in accordance with the following formula:

Revenue Forecasting Incentive: wastewater network-plus

The RFI for wastewater network plus activities will be determined according to the following formula:

$$\begin{aligned} \mathbf{RFI}_t = & - (\mathbf{RR}_{t-2} - \mathbf{AR}_{t-2}) \times \left(\mathbf{1} + \frac{\mathbf{D}}{100} \right)^2 \times (\mathbf{1} + \mathbf{CPIH}_{t-1}) \times (\mathbf{1} + \mathbf{CPIH}_t) \\ & - \frac{\mathbf{PR}}{100} \times | \mathbf{RR}_{t-2} - \mathbf{AR}_{t-2} | \times \left(\mathbf{1} + \frac{\mathbf{D}}{100} \right) \times (\mathbf{1} + \mathbf{CPIH}_{t-1}) \times (\mathbf{1} + \mathbf{CPIH}_t) \end{aligned}$$

The RFI for wastewater network plus activities, \mathbf{RFI}_t is added to allowed revenues for wastewater network plus activities, \mathbf{R}_t , to calculate adjusted allowed revenues for wastewater network plus activities, according to the following formula:

$$\mathbf{AR}_t = \mathbf{R}_t + \mathbf{BYA}_t + \mathbf{RFI}_t$$

Revenue Forecasting Incentive: Water network-plus

The RFI for water network plus activities will be determined according to the following formula:

$$\begin{aligned} \mathbf{RFI}_t = & - (\mathbf{RR}_{t-2} - \mathbf{AR}_{t-2}) \times \left(\mathbf{1} + \frac{\mathbf{D}}{100} \right)^2 \times (\mathbf{1} + \mathbf{CPIH}_{t-1}) \times (\mathbf{1} + \mathbf{CPIH}_t) \\ & - \mathbf{PS}_{i,t} \times \frac{\mathbf{PR}}{100} \times | \mathbf{RR}_{t-2}^* - \mathbf{AR}_{t-2}^* | \times \left(\mathbf{1} + \frac{\mathbf{D}}{100} \right) \times (\mathbf{1} + \mathbf{CPIH}_{t-1}) \times (\mathbf{1} + \mathbf{CPIH}_t) \end{aligned}$$

The RFI for water network plus activities, **RFI_t** is added to allowed revenues for water network plus activities, **R_t**, to calculate adjusted allowed revenues for water network plus activities, according to the following formula:

$$AR_t = R_t + BYA_t + RFI_t$$

Revenue Forecasting Incentive: Water resources

The RFI for water resources activities will be determined according to the following formula:

$$RFI_t = - (RR_{t-2} - AR_{t-2}) \times \left(1 + \frac{D}{100}\right)^2 \times (1 + CPIH_{t-1}) \times (1 + CPIH_t) \\ - PS_{i,t} \times \frac{PR}{100} \times |RR_{t-2}^* - AR_{t-2}^*| \times \left(1 + \frac{D}{100}\right) \times (1 + CPIH_{t-1}) \times (1 + CPIH_t)$$

The RFI for water resources, **RFI_t** is added to allowed revenues for water resources, **R_t**, to calculate adjusted allowed revenues for water resources, according to the following formula:

$$AR_t = R_t + BYA_t + RFI_t$$

Where for each of controls to which the RFI relates:

$$BYA_t = TBYA \times Y_t \times \left(1 + \frac{D}{100}\right)^{T-2019} \times \text{CPIH adjustment factor}_t$$

AR_{t-2} The adjusted allowed revenue stated in £ millions in charging year t-2 with the first year starting on 1 April 2020.

RR_{t-2}* This has the same meaning as **RR_{t-2}**, except in this case the relevant controls this applies to are the sum of both the water network-plus and water resource controls.

AR_{t-2}* This has the same meaning as **AR_{t-2}**, except in this case the relevant controls this applies to are the sum of both the water network-plus and water resource controls.

PR The penalty rate. Denoting the forecast error $(RR^{*t-2} - AR^{*t-2}) / AR^{*t-2} = x\%$, the penalty rate is:

- 3% for all variations if $|x\%| > 3\%$;
- $3\% * (|x\%| - 2\%) / (3\% - 2\%)$ if $2\% < |x\%| \leq 3\%$;
- 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.

PS_{i,t} is the share of the penalty that the Appointee chooses to allocate to the control in charging year t,

- where i = water network-plus or water resources control; and
- the **PS_i** values must sum to one⁶ for each charging year.

BYA_t The blind-year adjustment, stated in £ millions, to the allowed revenue of the relevant network plus control⁷ in each year over the charging years 2021/22 to 2024/25, inclusive.

TBYA = Blind year adjustment stated by Ofwat in 2017/18 year average prices. Any such adjustment would be made by a future determination.

Y_t is the percentage of the blind year adjustment that the company has elected to receive in period t of the AMP. This allows the company to spread the impact of the blind year adjustment over the relevant years. The Y_t values must

- sum to one, if the blind year adjustment is negative;
- sum to one or less, if the blind year adjustment is positive; and
- be greater than or equal to zero.

⁶ That is, **PS_{water resources} + PS_{water network plus} = 1**

⁷ The blind-year adjustments will be made to the relevant network-plus control; it cannot be allocated to the water resources control.

T = the year in which the relevant charging year begins – for example

- for the charging year 2022-23 then $T = 2022$;
- for the charging year 2023-24 then $T = 2023$; and
- for the charging year 2024-25 then $T = 2024$.

Appendix 4: Glossary

Common terms used in formulae in this document are defined below.

Term	Where used	Definition
t	All	A suffix added to a term to indicate the Charging Year. For example, R_t refers to the relevant Charging Year.
t-1	All	A suffix added to a term to indicate the Prior Year. For example, R_{t-1} refers to the Charging Year starting one year before the start of relevant Charging Year.
t-2	All	A suffix added to a term to indicate the Charging Year commencing on 1 April immediately prior to the Prior Year. For example, R_{t-2} refers to the Charging Year starting two years before the start of the relevant Charging Year.
R_t	Network-plus, water resources, bioresources	Revenue stated in £ millions allowed to the Appointed Business in a Charging Year by a Price Control in respect of the activities concerned
RR_t	Bioresources, RFI	The revenue stated in £ millions recovered by the Appointed Business in a Charging Year in outturn prices. In both the RFI and Price Control for Bioresources Activities, the first year, t, starts on 1 April 2022 so that year t -2 starts on 1 April 2020.
$CPIH_t$	Network-plus, water resources, bioresources, RFI	The percentage change (expressed, in the case of an increase, as a positive number, in the case of a decrease, as a negative number, and, in the case of no change, as zero) in the Consumer Prices Index (H) between that published for the month of November in the Prior Year and that published for the immediately preceding November.
FYA CPIH	Water resources, bioresources	The percentage change (expressed, in the case of an increase, as a positive number, in the case of a decrease, as a negative number, and, in the case of no change, as zero) in the average level of the Consumer Prices Index (H) across the twelve months of the Charging Year compared to the average level of the Consumer Price Index (H) across the twelve months of the Prior Year.
K_t	Network-plus, water resources	A specified number for the relevant Charging Year which may be a positive number or a negative number or zero.
D	Water resources, RFI	The specified discount rate of [<i>to be set at the final determination</i>], which enters the relevant formula as an integer. We will use the Weighted Average Cost of Capital (WACC) that we use to set Price Controls in the final determination and apply this constantly over the period.

CPIH adjustment factor_t	Water resources, Bioresources, RFI	One plus the percentage change in the Consumer Prices Index (H) between that published for the month of November in the Prior Year and that published for November 2016.
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Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales. Our vision is to be a trusted and respected regulator, working at the leading edge, challenging ourselves and others to build trust and confidence in water.

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