

Appendix 16c: Water Resources RCV Allocation

Yorkshire Water Water Resources RCV Allocation Submission - updated September 2018

3 September 2018

It's part of our
Blueprint for Yorkshire



YorkshireWater

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1. Addendum – September update for the PR19 business plan

1.1. Assurance and Board Assurance Statement

As part of original submission in January 2018, we provided full evidence of our assurance process including the assurance statement and findings report from our 3rd party external auditor, Jacobs (formerly CH2M and Halcrow) additionally we provided a separate board assurance statement relating to that submission.

We have ensured that the data and output, including the proposed RCV allocation, has also been assured by Jacobs as part of our updated water RCV inclusion in our PR19 business plan submission. This is the same assurance provider who undertook the assurance as part of our January submission.

The outcome of our assurance that relates to our water resources RCV allocation is provided in figure 1.1. Additionally, because the proposed allocation method is Gross MEAV, the data used to develop that allocation method has been subject to external assurance as part of other data tables.

Figure 1.1. Summary of audit findings for Ws12 and 12a from Jacobs

SUMMARY OF AUDIT FINDINGS

WS12 WS12a all lines

PREPARED BY: Andy McConkey

DATE: 21/06/2018

1. Key Findings

PR19 Table Criteria	RAG	Assessment
Independent Review of Performance and Reporting	Green	Performance good. Reporting process well managed
Methodology	Green	Methodology consistent with current process, control points identified and understood
Assumptions	Green	Assumptions reasonable and appropriately applied
Source Data	Green	Source data is clearly identified, complete beyond material concern, well managed through to accurate systems input
Clarity of Audit Trails	Green	Detailed and comprehensive audit trail to all numbers available
Overall Confidence	Green	Confidence grade appropriate and rationale clearly documented
Governance	Green	Responsibilities for integrity of data and commentary clearly defined. Good evidence of engagement and of final sign-off.

PC Criteria	RAG	Assessment
PC Performance Data	Green	Performance figures are accurately carried forward to the Performance Commitment and correctly calculated in accordance with Ofwat's final PR19 methodology

PR19 Data Table Findings Summary	
Lines deemed Satisfactory (line refs)	all
Lines deemed Unsatisfactory (line refs)	None
Lines not in Scope (line refs)	NA

- This table reflects a submission made to Ofwat in January 2018 regarding the Wholesale Water Resources RCV allocation.
- No changes were required by Ofwat following the RCV submission, other than inflating to 2017/18 price base
- There were additional changes made by YWS relating to how OPEX is split between wholesale water resources and water network plus. These changes are fully explained and documented in the accompanying methodology from YWS.

Our Board have provided a Board assurance statement for our PR19 plan. In that assurance statement it includes that:

“...elements of the plan including data are subject to the Board’s robust assurance process. In summary, the Board confirms that:

- *assurance has followed the three levels of assurance as set out in its published Assurance Plan,*
- *the assurance process includes audit checks and challenges by data providers, data managers, senior managers, directors and its independent technical auditors (Halcrow/Jacobs) and financial auditors (Deloitte). Findings from these assurance processes have been fully reviewed and actions to address any concerns have been implemented,*
- *the Board Audit Committee has received and challenged the findings from the assurance reviews, and*
- *the Board has received assurance that the plan implements the strategy and direction set by the Board.*

The Board’s assurance process has extended to the preparation, production and publication of the data that underpins the plan. The Board confirms that it considers that it has prepared a plan founded on high quality data.

The Board’s assurance process has ensured that all relevant audit information and risks have been exposed to its independent assurers.”¹

These statements apply to our proposed RCV allocation(s) and the data and process that has been undertaken in developing this proposal.

¹ Board assurance statement, Yorkshire Water, page 1 to 2

1.2. Executive summary

We have not departed from our proposed allocation method that was proposed in January 2018. We are still proposing an RCV allocation based on a **Gross MEAV method**. We have re-run the data that supports this methodology, which has been assured, including assurance of the data tables WS12 and 12a.

The output of re-running our method of allocation is shown in table 1.2. In the same table we compare what the allocation would have been based on a Net MEAV allocation using the Net MEAV at 31 March 2015.

Additionally, in table 1.2.1 we provide the difference in our proposed allocation as part of our business plan and that which we submitted in January 2018. This is in percentage terms only as the RCV value we have been asked to express the allocation in has been adjusted from January to September. We have provided a full detailed reconciliation of this change in section 1.4 of this document, including both allocation changes and inflationary impacts of adjusting for a change in price base.

Table 1.2. Proposed Valuation and RCV allocation

Information requirement	Proposed Allocation figure (Using Gross MEAV at 31 March 2020)	Net MEAV Allocation figure (Using Net MEAV at 31 March 2015)
Total water RCV (at 31 March 2020)	£2,750.019 million or 100.00%	£2,750.019 million or 100.00%
Water resources RCV allocation	£551.883 million or 20.07%	£588.783 million or 21.41%
Water network plus RCV allocation	£2,198.136 million or 79.93%	£2,161.236 million or 78.59%

Table 1.2.1 Variation between September 2018 proposed allocation and January 2018 allocation
(percentage only)

Information requirement	Proposed Allocation figure (Using Gross MEAV at 31 March 2020) – September 2018	Proposed Allocation figure (Using Gross MEAV at 31 March 2020) - January 2018	Difference (from January to September 2018)
Total water RCV (at 31 March 2020)	100.00%	100.00%	0.00%
Water resources RCV allocation	20.07%	20.18%	-0.11%
Water network plus RCV allocation	79.93%	79.82%	+0.11%

1.3. Purpose of the document

The purpose of this document is to set out our formal submission of our water RCV allocation as part of our PR19 business plan. Within the document we will set out any changes in allocation, documenting the reason for the changes from January 2018 to September 2018.

Additionally, we will demonstrate how we have addressed the challenges that were set out in the feedback to companies on their initial Water resource RCV allocations². Having reviewed this document we note that our initial proposal did not draw any specific comments or challenges. Table 1.2 of the feedback document² sets our company specific feedback as well as general feedback to all companies.

Because we have not received any company specific feedback which, if received would have prompted us to fully revise our initial proposal, our starting point for resubmission in September was that the most appropriate allocation method for water resources RCV was still Gross MEAV.

Therefore, in this document we aim to set out how we have considered and addressed the general feedback to all companies which is set out below in table 1.3.1.

Table 1.3.1 Feedback to companies (all companies only)³

Company	Concern/issue	Feedback
All companies	There has been a significant variation in the level of independent assurance provided by companies in support of their RCV allocations.	<p>We wanted companies' to take ownership of their RCV allocations, so we left it to companies to decide to what extent they should obtain additional assurance over and above Board assurance for their January RCV submissions.</p> <p>We expect companies to provide evidence of independent assurance undertaken to support their RCV allocations in the business plans where they have chosen an allocation method which:</p> <p>is not based on data for which independent assurance has been provided to us either as part of this submission or previous regulatory returns; and / or</p> <p>includes significant new assumptions.</p>
All companies	Information companies have provided in their initial submissions has helped us to	We are removing the requirement for companies to provide revenue and volume information on tables WS12b

² Initial proposals on water resource RCV allocations - feedback to companies, April 2018, Ofwat

³ Initial proposals on water resource RCV allocations - feedback to companies, April 2018, Ofwat, pg5-8

	<p>have confidence that the proposed RCV allocation will not have a significant impact on most customer bills. Only particular groups of customers are at potential risk. The information we requested is not of a granular enough level to help identify the bill impacts for these customers. In addition, in reviewing the information we have identified that there is a large area of judgement for companies for how they allocate depreciation charges. Ultimately the approach companies took in the past will not impact bills post 2020. Rather it is the approach companies take to RCV run off for each control at PR19.</p>	<p>and WWS12a. Instead we expect companies to explain how they have identified if the bills of any customer are at potential risk of significant impact from the allocation of the RCV. As part of this companies should also consider any other change in the balance of costs between water resources and network plus revealed in its business plan. It should also consider the consequent impact of new information on its charging structures. For any customer groups identified as being at potential risk the company should set out how it will manage the bill impacts and what they expect the resulting impact for these customers to be.</p>
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1.4. RCV Allocation Approach

As stated in section 1.3, we received no company specific feedback on our method of allocation submitted in January so our working assumption was that Gross MEAV was still the most appropriate method of allocation.

Therefore, we started our process of resubmission by re-running our allocation method for Gross MEAV. There was a need to re-run our allocation of several reason which were:

- **Price base:** to be compliant with the regulatory guidance for PR19 data tables WS12 and 12a we needed to ensure that all information is provided in 2017/18 FYE (RPI) unless specifically stated otherwise.
- **Actualised data:** From the point of submission of data in January 2018 until the point of resubmission of data in September 2018 we have had an additional year of actualised information due to completion on financial year 2017/18.
- **Forecast data:** Additionally, we needed to revisit our forecast assumptions to assess whether the forecasts we utilised in January 2018 still hold, or whether we need to revise these due to the latest business planning information.
- **Impact on charges:** based on whether the changes set out above drive a material change in allocation, revisit our detailed impact analysis as set out in section 7.4 (6.4 of our January submission) and appendix 2 of this document.

1.4.1. Price base

To update our Gross Allocation to the price base that has been used for PR19 we have used the following RPI values in table 1.4.1.

Table 1.4.1 RPI values used

Year	RPI index change	RPI percentage change
2015/16	257.1 – 261.1	1.6%
2016/17	261.1 – 269.3	3.1%
2017/18	269.3 – 278.3	3.3%

It should be noted that simply rebasing prices will not have an allocative change between our RCV allocation in January 2018 and that which we are proposing as part of our business plan. This is because proportionally, inflating all elements by the same inflation adjustment number will not change the portions of a total.

It will alter the overall value change in £m terms, but the percentages will not be affected. We have used this assumption in assessing the impact of price base changes in data table WS12a. We have demonstrated this table 1.4.2. We have used the same allocation percentage as proposed in January to isolate the inflation impact.

Table 1.4.2 inflation impact due to price base adjustment on water RCV

	Water Resources	Water Network plus	Total
RCV allocation January	20.18%	79.82%	100.00%
RCV - March 2017	£536.975m	£2,124.110m	£2,661.085m
RCV - March 2018	£554.921m	£2,195.098m	£2,750.019m
Inflation impact	£-17.946m	£-70.988m	£-88.934m

1.4.2. Actualised data

We have ensured that our submission is consistent with the reported information for the additional years data (2017/18). Whilst this is still contained in the roll forward section it is now actual additions. Our external assurance partners Jacobs and Deloitte have audited this information as part of the APR and PR19 data tables WS12 and 12a. We have summarised the impact of this change as well as the change in forecast data in table 1.4.3 of the next section.

1.4.3. Forecast data

For consistency we have used the capex figures in the PR19 WS1 table. Because our investment categories are mapped to a price control this has enabled identification of capital expenditure in relation to either water resources or water networks plus as per our PR19 plan and supporting data tables. Additionally we have ensured the mapping of investment drivers to price controls is consistent with other regulatory reporting, e.g. the Annual Performance Report, and all investment drivers are directly mapped to a specific price control.

In addition, an apportionment of management and general expenditure is made to both water resources and water network plus additions, using Full-Time Equivalent employee numbers as a cost driver.

For the years 2018-20, much of the capital programme has not yet been allocated to individual capital projects. However, forecast completion dates and expenditure have been used for some specific high-value projects.

Where a project is subject to a regulatory compliance date, this is used to determine which year the asset additions are forecast, and as the start date for depreciation. Where there is no such regulatory compliance date, the current forecast project completion date is used.

In addition, the value of work-in-progress held on capital projects has been included in the year in which that project is forecast to be completed, for the relevant price controls.

All of this has meant that the forecasts additions we used as part of our January 2018 submission, and within the Gross MEAV allocation method we proposed, have been updated to ensure that our PR19 submission is consistent with our data tables and business plan now.

An additional effect of changing our addition profiles is that our depreciation in the roll forward section changes. In summary the changes in the roll forward forecasts (for both additions and depreciation) have had the following effect on our proposed allocation as shown in table 1.4.3.

Table 1.4.3 Roll forward changes impact on water RCV allocation

	Water Resources	Water Network plus	Total
January allocation proportions	20.18%	79.82%	100.00%
September allocation proportions	20.07%	79.93%	100.00%
Difference (from September to January)	0.11%	-0.11%	0.00%
Expenditure impact	£3.039m	-£3.039m	£0.000m

As we have shown in section 1.4.1 there is no impact on the proposed RCV allocation from changing the price base between January 2018 and September 2018 submissions. This has increased the overall amount of RCV being allocated, but proportionally there is no impact.

However, this change in expenditure for actualised as well as forecast data has changed our proposed RCV allocation on a proportional basis. As can be seen from the table 1.4.3 there is a shift of 0.11% of RCV being allocated to water networks plus from water resources. This will have a balancing change, in that should expenditure increased in one price control between January and September relative to the other, it will impact the proportions to the extent that the RCV will shift from one price control to another. However, the change will be proportional in that one value will be the negative of the other value based on the direction of shift.

To be clear we have expressed this in counter intuitive signs, i.e. a movement to and an increase is expressed as a negative. This is to be consistent with how the data is shown in WS12 and 12a where September values have been subtracted from January numbers.

1.4.4. Impact on customers

In our original submission (January) we provided extensive analysis on the impact on customers of allocating the RCV under the various methods tested as part of the submission. This is set out in section 7.4 of this document (and 6.4 of our original submission).

As part of that analysis we identified that there was one customer type which was potentially impacted by the choice of allocation method. This was our 'medium to large non-household users (>50 Ml/yr)'. We evidenced that there was no material impact on allocating using Gross MEAV because our charges are justified on the same basis, including the differential for this customer type. We assessed materiality is based on a greater than 1% impact

We are satisfied that the potentially impacted customer group will not be impacted by the update to our water RCV allocation as part of our business plan submission because we are proposing to allocate on a Gross MEAV basis, and because there is no material change in allocation (+/-0.11%) between January 2018 and September 2018. This is because we have seen no evidence to suggest that the conclusions and analysis we undertook in January will have changed based on the business plan information.

1.5. Proposed RCV allocation

Based on the feedback regarding our January 2018 submission; as well as the assessment of the impact that subsequent data changes have had on our allocation proposal, we are proposing that we allocated the RCV for water resources based on a Gross MEAV allocation method (consistent with our proposal in January 2018). As the method is the same, the ultimate percentage allocation has marginally changed with 0.11% less of the 2020 water RCV being allocated to water resources. The final proposal in percentage and RCV terms is shown in table 1.5 based on an RCV of £2,750.019m.

Table 1.5. Proposed Valuation and RCV allocation

Information requirement	Proposed Allocation figure (Using Gross MEAV at 31 March 2020)	Net MEAV Allocation figure (Using Net MEAV at 31 March 2015)
Total water RCV (at 31 March 2020)	£2,750.019 million or 100.00%	£2,750.019 million or 100.00%
Water resources RCV allocation	£551.883 million or 20.07%	£588.783 million or 21.41%
Water network plus RCV allocation	£2198.136 million or 79.93%	£2,161.236 million or 78.59%

As stated in section 1.4.4 because the change in allocation proportion is non-material there is no additional impact assessment required as our thorough analysis undertaken in January 2018 evidenced that the impact on our customers by customer type (both household and non-household, additionally by size) as non-material. Further information is provided in section 7.4 of this document (and 6.4 of our original submission) as well as further information in appendix 2.

As well as the information set out in section 1.1 of this document, proposing to retain our approach to allocate on a Gross MEAV basis, the information is based on data for which independent assurance has been provided to us either as part of this submission or previous regulatory returns; and it does not include significant new assumptions.

2. Water resources RCV allocation – Board Assurance Statement *

Our aim is to produce all regulatory submissions in line with the guidance provided.

We believe that good assurance needs to be provided at the right time, proportionate to the level of risk identified, asks the right questions and produces good evidence to support the statements made within the submission. Our assurance approach is risk based and uses a method called ‘three lines of assurance’. This is best practice and is described in more detail in our Assurance Plan.

To satisfy ourselves that the information is accurate and accessible, all elements of the report are subject to an appropriate assurance process. In particular, we have noted and confirm that:

- Our assurance processes follow ‘three levels of assurance’ as set out in our published Assurance Plan. This is best practice and externally verified;
- The assurance process includes audit checks and challenges by data providers, data managers, senior managers and directors and our external auditors, Halcrow (ch2m). Findings from these assurance processes have been fully reviewed and actions to address any concerns have been implemented;
- The Board Audit Committee has received the findings from the completed assurance reviews.

The Board of Yorkshire Water understands that it is accountable for the quality and transparency of the information provided within this submission. The Board has read the report, reviewed the content and is supportive of the information that is presented. The Board has obtained comfort from the Audit Committee that there are appropriate controls and assurance processes in place regarding the information contained within the report.

In particular, the Board note that:

- The data tables and supporting information has been collated through our data assurance processes. This follows ‘three levels of assurance’ as set out in our published Assurance Plan. This is best practice and externally verified;
- Any material assumptions and limitations in the data have been detailed within the submission and have been exposed; and
- The approach taken reflects the guidance provided by Ofwat.

The Board can confirm its support of the valuation approach and proposed RCV allocation. In addition, the Board notes that the cross checks have been completed and the Board is satisfied that the RCV allocation will not have an adverse impact on customer bills, is consistent with charging rules and is consistent with competition law.

So far as the Directors are aware, there is no relevant audit information of which the company’s independent technical and financial auditors are unaware. The Directors have taken all the steps that they ought to have taken as Directors in order to make themselves aware of any relevant audit information and to establish that the company’s independent auditors are aware of the information.

Signed by Yorkshire Water Services Limited Board of Directors

Anthony Rabin
Chairman



Richard Flint
Chief Executive



Liz Barber
Director of Finance, Regulation & Markets



Pamela Doherty
Director of Service Delivery



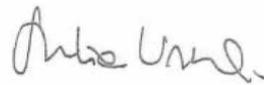
Nevil Muncaster
Director of Asset Management



Ray O'Toole
Senior Non-Executive Director



Teresa Robson-Capps
Non-Executive Director



Julia Unwin
Non-Executive Director



Mark Amsden
Company Secretary



Andrew Wyllie
Non-Executive Director



Michael Osborne
Director



Scott Auty
Director



Andrew Dench
Director

* Board Assurance Statement as published in January 2018. The entire Yorkshire Water PR19 plan has been assured by the Yorkshire Water Services Limited Board.

3. Executive summary

The 2019 Price Review (PR19) will see the introduction of a new separate binding price control on revenues from water resources.

Each water company has a single legacy Regulatory Capital Value (RCV) for its water assets, including its water resource assets. To determine the level of revenue that a company can recover as part of the new water resources price control, companies need to provide Ofwat with a proposed assessment of how much of the legacy RCV to allocate to water resources.

Companies are to take ownership and accountability for the method of allocating the existing legacy RCV to water resources. Companies should allocate using a method appropriate to their own circumstances.

3.1. Summary of the approach and results

Yorkshire Water (YW) has, in consideration of Ofwat technical guidance^{4,5}, allocated its water related Regulatory Capital Value (RCV) to the water resources and water network plus price controls using an unfocused allocation method, with Gross modern equivalent asset value (MEAV) being chosen as the most appropriate allocator.

- This document describes our approach to assessing the potential RCV allocation methods; how we assessed the impact of allocating by various methods; and which is our proposed RCV allocation method.
- We have completed analytical cross checks to determine that the RCV allocation method chosen will not have an adverse impact on customers' bills, and is consistent with charging rules and competition law.
- The evaluation and allocation exercise has been assured, including external independent assurance, and undergone scrutiny by the Board Audit Committee. A signed Board Assurance Statement is provided in section 1., confirming Board approval.

The summary RCV outcome is set out in the table 2.1:

Table 2.1. Valuation and RCV allocation analysis.

Information requirement	Proposed Allocation figure (Using Gross MEAV at 31 March 2020)	Net MEAV Allocation figure (Using Net MEAV at 31 March 2015)
Total water RCV (at 31 March 2020)	£2,661.085 million or 100.000%	£2,661.085 million or 100.000%
Water resources RCV allocation	£536.975 million or 20.179%	£569.742 million or 21.410%
Water network plus RCV allocation	£2,124.110 million or 79.821%	£2,091.343 million or 78.590%

⁴ Ofwat - Water resources pre-2020 legacy RCV allocation at PR19 – technical guidance, 31 January 2017

⁵ Ofwat - Delivering Water 2020: consultation on PR19 methodology Appendix 8 – Water resources legacy RCV allocation: initial submission, 11 July 2017

As the table 2.1 shows, the proposed allocation differs to the Net MEAV allocation at 31 March 2015 as a proportion, as the proposed allocation method is Gross MEAV.

3.2. Key assumptions

We have made key assumptions in undertaking this submission, these are provided below;

- We have rolled forward our asset valuations ensuring that this has been done under the appropriate accountancy practices. This is consistent with the guidance and applies to both Gross and Net MEAV data. We have not undertaken a full revaluation of our asset base.
- Our boundary categorisations for expenditure and asset value allocations, as well as the data contained in the data tables, are based on guidelines RAG 4.06 as required by the technical guidance⁶. We are aware that this has been superseded by RAG 4.07. We are currently reviewing our reporting procedures and will ensure that these are fit for purpose and consistent with the latest RAGs for the Annual Performance Report due later in 2018.
- Other assumptions have been made to specific data items and these can be found detailed in the relevant sections of this document.

3.3. Sensitivity assessment

Within section 6 of this document, outlining our approach to allocating the RCV, we have undertaken sensitivity assessments. In deriving our allocation method of Gross MEAV, we have undertaken a specific sensitivity assessment against what the allocation would have been should we have chosen a Net MEAV method using data at 31 March 2020. We have undertaken this to evidence that allocating based on a Net MEAV approach would not make a material change to the allocation of legacy RCV to the water resources price control under either MEAV approach. This is set out in table 2.2.

Table 2.2. Valuation and RCV allocation analysis.

RCV allocation	Sensitivity Assessment		
	Gross MEAV 31 March 2020	Net MEAV 31 March 2020	Difference
Water resources (£m)	536.975	584.332	+/- 47.357
Water resources (%)	20.179%	21.958%	+/- 1.78%

⁶ Ofwat - Water resources pre-2020 legacy RCV allocation at PR19 – technical guidance, 31 January 2017, pg 7

We have favoured an allocation based on Gross MEAV for the following reasons;

- **It has regulatory precedence:** Allocation of the RCV on a Gross MEAV basis has been used in competition determinations.
- **Assets are treated on equivalent terms:** Under regulatory accounting Net MEAV, infrastructure assets are not depreciated, whereas non-infrastructure assets are depreciated. In using a Gross MEAV on an unfocused basis (proportion approach), infrastructure and non-infrastructure assets are valued under the same terms. Therefore, it is a stronger method for allocating on an unfocused basis where the split is by proportion of value in each part of the value chain.
- **Wholesale and bulk supply tariff impact:** We have outlined in section 6.4 of this document that our current tariffing structures are justified through a Ramsey Pricing method, which can be supported by a Gross MEAV approach. Therefore, allocating on a Gross MEAV basis has no impact on our existing wholesale and bulk supply tariffing structures. While there is a non-material impact under a Net MEAV allocation (less than 1%) we have favoured Gross MEAV to maintain protection to all our customers.
- **Cost of capital and PAYG impact (lines 7,8 and 9 block B table WS12b):** There are no cost of capital and PAYG impacts as our allocation methods are the same, namely gross MEAV between the two periods as defined by the data table lines 7, 8 and 9, block B, table WS12b. This is because our tariffs (and by extension revenues) are supported by an implicit allocation of the RCV by Gross MEAV.

3.4. Key finding from external auditors

The external independent auditors, Halcrow (ch2m), have provided a detailed report (attached within Appendix 1). The key findings are summarised as follows:

- In completing the data tables, Halcrow (ch2m) considers that YW has followed the Ofwat guidance. Where the guidance is ambiguous, the YW submission commentary and data table commentary explain the adopted approach.
- The reviewed submission tables reflect the submission commentary and data table commentary.
- Amber or blue concerns identified during the audit process have been satisfactorily rectified or addressed for the final submission.
- No Red or Amber scores, which would otherwise highlight material or minor concerns over the validity of the submission, have been identified in the observations made in the final report.
- Halcrow (ch2m) consider that the submission data tables presented, together with the submission commentary, meet the Ofwat reporting requirements for the submission.

4. Purpose of this document

The 2019 Price Review (PR19) will see the introduction of a separate binding five-year price control on revenues from water resources. This will require a separation of water resources from the remaining water assets to create a price control for water resources and a price control for the remaining water operation, which will be known as ‘water network plus’. Like the separation of bioresources, we will publish information for water resources which will aid the development of market solutions within this part of the water value chain.

Each water company currently has a single legacy Regulatory Capital Value (RCV) for its water assets, including its water resource assets. The definition of what is classified as a water resource asset for the purposes of creating a separate price control has been developed by Ofwat, in consultation with the industry, and set out in version 4.06 of the ‘Regulatory Accounting Guidelines’, commonly known as RAGs. To determine the level of revenue that a company can recover as part of the new water resources price control, companies need to provide Ofwat with information and a proposed assessment of how much of the single legacy RCV to allocate to water resources.

For allocating the existing legacy RCV to water resources, companies are to take ownership and accountability for that method of allocation. The method of allocation should be applied on an ‘unfocused’ basis, in that the split is on a basis, where an unfocused approach is defined as;

“an unfocused approach, where RCV allocation is based on the proportion of the assets employed in the business relative to the total assets of the business.”⁷

Companies should allocate using a method that is appropriate to their own circumstances, but in assessing and choosing the most appropriate method we must consider the impact on customers, the water resources market and related aspects of the business.

This document contains commentary to support the submission to Ofwat of information and data as part of our proposed method of RCV allocation for the water resources price control, within PR19 planning. The aim of this document is to aid the understanding of our chosen method of RCV allocation and how we arrived at the conclusion that the chosen method is the most appropriate. It will also allow for proportionate scrutiny of the data provided to undertake the RCV allocation.

Detailed commentary on individual data tables is provided in a separate document as part of the submission.

We recognise the importance of this data submission and have therefore implemented quality assurance processes aligned with our regulatory reporting assurance process. This follows a ‘three lines of defence’ approach and consists of both internal and external assurance. The external element was provided by our technical assurance provider, Halcrow (ch2m). This is outlined in more detail in the assurance section of this document (section 4).

⁷ Ofwat - Water resources pre-2020 legacy RCV allocation at PR19 – technical guidance, 31 January 2017, pg 3

5. Assurance

In line with our regulatory reporting assurance processes, YW has implemented a programme of assurance to support the preparation of the information. It has been based on our existing 'three lines of assurance' approach. We have two main assurance processes:

- A data assurance process to ensure that the data we produce is accurate.
- A wider assurance process to make sure that the overall publication meets any guidance and that the publication is accessible and easy to understand.

Further information on our assurance processes is detailed within our published Assurance Plan. In summary, the activities in place to deliver this submission were as follows:

Level 1 Assurance:

- For our data assurance processes, data providers and data managers were identified to compile the information required. These roles are accountable for providing information in line with the guidance. In addition, these roles ensure that a procedure for obtaining the information is developed to document the process and methodology for obtaining the information, ensuring that the information can be collected again consistently in the future.
- For our wider assurance processes, a submission manager was identified to ensure that the overall submission meets the requirements and is delivered within the necessary timescales.
- A formal sign off document has been completed and signed by responsible data managers.

Level 2 Assurance:

- For our data assurance processes, senior managers have reviewed and approved the information within the publication, ensuring the data provided meets the requirements of the submission. In addition, regulatory oversight of the full information obtained has been completed.
- For our wider assurance processes, senior managers have reviewed the submission to confirm it meets the necessary guidance, whether the overall impact and implications have been appropriately and transparently explained and whether the submission meets the standards expected. This will specifically include a review on whether the RCV allocation method is appropriate, will not have an adverse impact on customer bills, is consistent with charging rules and is consistent with competition law.
- A formal sign off document is completed and signed by responsible senior managers following a formal peer review or challenge session.

Level 3 Assurance:

- Halcrow Management Sciences Limited (also known as ch2m) were appointed to provide independent assurance. As a company within a targeted assurance status, Halcrow (ch2m) has provided an extensive review on the following areas: Assurance that data tables and supporting information is accurate. This was completed through ensuring consistency with source data and ensuring supporting information accurately explains the process of populating the tables.
- Assurance that material assumptions have been exposed, including any weaknesses or uncertainty in the data and how this will be rectified. This was completed through a review of any assumptions and limitations declared and using the review of data tables (as above) to identify whether any other assumptions or limitations should be stated.
- Assurance that the approach taken reflects the guidance provided by Ofwat. This was completed through a review of the data tables and commentary for alignment against the Ofwat guidance.
- Assurance on the source of costing and supporting information used to support the calculation of economic value. This was completed through a review of the source data supporting the data tables to assure the process of determining the Gross and Net MEAVs, and the quality of the source data.
- Assurance on the asset data appropriate to the source. This was completed through a review of the source data supporting the data tables to evaluate the reliability of information extracted from source systems, including underlying accounting records.
- Assurance that the RCV allocation method is appropriate. This was completed through a review of the data tables, accompanying commentary and source data.

A summary of the report from Halcrow (ch2m) is attached within Appendix 1 of this submission document.

Role of the Board Audit Committee

The production of the Water Resources RCV allocation submission has been subject to detailed review and challenge by the Board Audit Committee (BAC). The BAC has:

- reviewed the processes and controls in place for managing this submission,
- reviewed the output of the valuation and allocation analysis, and
- reviewed the audit findings and received a report from the independent auditor, Halcrow (ch2m).

Board approval and assurance

The Board has received:

- confirmation from management that the information meets Ofwat's guidelines,
- confirmation that material assumptions and weaknesses have been exposed,
- feedback from the third line of assurance that Ofwat's guidelines have been followed, and,
- assurance from the BAC that appropriate governance and controls have been put in place.

The Board Assurance Statement is attached at the beginning of this document (section 1).

6. Water resources strategy

Our priority is to ensure that we continue to provide our customers with what they consistently tell us is most important to them – a reliable supply of good quality drinking water. We need to do this without damaging the environment, and while continuing to keep our bills low. In order to achieve this, our long-term strategy for water resources is focussed on a number of key areas:

- Protecting and enhancing Yorkshire's water resource resilience, and playing our part in contributing to national resilience.
- Taking a markets approach to water resources, both internally through how we optimise our water supply operations, and externally through the way that we interact with the market and play our part in water trading.
- Promoting demand management solutions ahead of increasing supply, and making best use of the water that we abstract.

6.1. Our draft Water Resources Management Plan 2019

Our 25-year strategy for water resources is informed by our draft Water Resources Management Plan 2019. The plan identified that, if we do nothing further to manage demand or increase supply, we could expect to be in supply demand deficit by the mid-2030s. This deficit is mainly caused by a decrease in the available supply, due to climate change, and an increase in demand through population growth. We also know that we will need to continue to investigate how our abstractions affect the environment, and how this could result in future reductions in supply. We will continue to work with others to ensure that the quality of our raw water supplies remains protected.

In our draft Water Resources Management Plan 2019, we presented our preferred option to reduce leakage by 15% through AMP7 (the period 2020-2025). This reduction in leakage is sufficient to move our deficit risk beyond the 25-year planning period. And we also noted that we are considering plans for a greater reduction in leakage. We have subsequently announced more ambitious plans for leakage reduction which will help to create additional water surplus within our region, allowing for greater resilience, and an opportunity to support the national water resources position.

6.2. Our role in resilience

Yorkshire Water already has one of the most resilient water resource systems in the country. There are a number of reasons for this. Firstly, our grid network allows us to move water around Yorkshire to help balance supply with local demand. Secondly, we take our water from a variety of different places, balancing across reservoirs, rivers and groundwater sources. And thirdly, we plan for extreme droughts that go well beyond even those that we have experienced in our historical record.

However, despite our current high level of resilience, we cannot afford to be complacent at a time where the world around us is changing. With an increasing population and uncertainty about our future climate, and with our customers rightly expecting more from us, we need to continue to evolve and enhance our plans.

We intend to reduce leakage by 40% by the end of AMP7 (March 2025). This will further protect the resilience for Yorkshire's water supplies, and create other benefits and opportunities.

For example, in relation to the wider national water resources agenda, we have taken the lead in setting up the Water Resources North group. This group will provide a forum for all water companies in the north of England to share their water resources positions, and will help to inform future water trading and market opportunities to support national resilience.

6.3. A markets approach

We will be taking a markets approach to the way in which we implement our long-term water resources strategy. Our leakage and demand reduction plans will allow us to consider how we can sell into the market. This could include trading with neighbouring water companies, or with other industries, to ensure that water resource that may not be required at that time in Yorkshire can be considered for beneficial use elsewhere. We aim to move from being an importer to an exporter of water. This secures efficient supplies for our customers in Yorkshire, protects the environment from over abstraction; and supports the national supply demand balance.

Our ambitious plans to reduce leakage will include significant engagement with the market to drive the use of new approaches to leakage identification, quantification, mitigation and repair.

Further, by considering an 'internal' water resources market, and taking into account water availability (and environmental impact), water quality, treatment and pumping costs, we are already managing the use of our raw water resources to ensure that we use the supplies that are most economically and environmentally sustainable.

6.4. Reducing demand

As well as continuing to reduce leakage, over the next 25 years, we will also drive forward other activity to decrease demand. We will ensure that the number of our customers on metered supplies will continue to increase, because we know that, on a per person average, customers with meters use less water than those without.

We are also exploring ambitious options for reducing the demand for drinking quality water. These include supplying some of our major industrial customers with non-potable supplies, including effluent reuse from our wastewater treatment works. Implementing such approaches will further contribute to reducing the demands on our supply system.

Reduced demand will give us greater flexibility to select between our water sources. This is beneficial as it allows us to choose to abstract from sources that cost less to treat and put into supply. This benefits customers by keeping bills low and reduces the impact on the environment. In addition, it will give us a greater ability to ensure that we can maintain high quality supplies to our customers even if we have periods when some of our sources of water have reduced quality.

We recognise that we have a role to play in supporting the economic development of the region that we serve. By creating additional headroom within our water resources supply demand balance, we can help to ensure that we will have enough water to support future population, housing, and economic growth.

7. RCV allocation approach

7.1. Summary

For the water resources RCV allocation Ofwat has not set a defined process for delivering the output of an RCV split between the water resources and water network plus price controls. This differs from the bioresources RCV allocation process, where companies were asked to follow the process set out in the technical guidance provided by Ofwat.

For water resources, Ofwat expects that “each company will have ownership and responsibility for how its legacy pre-2020 RCV is allocated between water resources and water network plus, consistent with an unfocused approach”⁸. In order to meet this expectation, we have defined a process for assessing and choosing the allocation method that is most appropriate for Yorkshire Water and our customers, as shown in figure 6.1. The details of the five stages within our process are discussed later in this chapter.

In developing our preferred method of RCV allocation, we have considered all the potential approaches as set out in the technical guidance published by Ofwat on 31 January 2017. Table 6.2 appraises each of the allocation approaches in turn; indicates where we have tested the allocation under that approach; and why we haven’t assessed the allocation under the remaining approaches. All allocation methods have been applied on an ‘unfocused’ basis. This is consistent with Ofwat’s expectation for the RCV allocation as expressed in the technical guidance and reaffirmed in its draft PR19 methodology from July 2017.⁹

For all the approaches that we tested, we assessed the impact of the allocation against wholesale tariffs. This is outlined in stage 3 below. We have also considered the interactions between the allocation methods and our draft Water Resource Management Plan (dWRMP) and against water bulk supplies where we are setting the price.

Figure 6.1. Our approach to RCV allocation



⁸ Ofwat - Water resources pre-2020 legacy RCV allocation – technical guidance, 31 January 2017, pg. 4

⁹ Ofwat – Delivering Water 2020: consultation on PR19 methodology Appendix 8 – Water resources legacy RCV allocation: initial submission, 11 July 2017

7.2. Stage 1: Assessment of allocation methods

We have considered all the allocation methods set out in the technical guidance¹⁰. Initially we assessed methods on a desktop basis. This involved considering the methods under 2 broad headings;

- Practical; and
- Methodological considerations.

Under the practical heading we considered;

- Is the required data available?
- Can we make assumptions in the absence of data, and what confidence do we have in these assumptions?

For methodological considerations;

- Can we fulfil all the method requirements?
- Is there strong economic rationale for the method?

Where there are material concerns under practical and/or methodological considerations we have not taken those methods to full assessment.

Table 6.2 outlines each of the methods and the practical and methodological considerations present. Additionally, it states where we have undertaken a full assessment or justifies why a full assessment was not undertaken.

Table 6.2 Allocation methods

Approaches/ cross checks	Considerations		Taken forward for detailed assessment
	Practical	Methodological	
Net MEAV approach to RCV allocation.	<p>Whilst not required to report MEAV in regulatory accounts, we have continued to collect the data.</p> <p>We can recreate the regulatory tables from the last two years of actual data for 31 March 2017.</p> <p>We can assume our additions up to 31 March 2020.</p> <p>We are not proposing a full revaluation, instead we will roll forward values from PR09.</p>	<p>We can deliver the full methodology.</p> <p>MEAV would represent an allocation based on asset value approach, traditionally used by the industry.</p> <p>Therefore RCV, the capital value discount and its return would be based on PR09 asset valuations.</p> <p>Artificial construct (combining Net and Gross MEAV datasets).</p>	

¹⁰ Ofwat - Water resources pre-2020 legacy RCV allocation – technical guidance, 31 January 2017, pg. 5-6

Approaches/ cross checks	Considerations		Taken forward for detailed assessment
	Practical	Methodological	
Gross MEAV approach to RCV allocation.	<p>Whilst not required to report MEAV in regulatory accounts, we have continued to collect the data.</p> <p>We can recreate the regulatory tables from the last two years of actual data for 31 March 2017.</p> <p>We can assume our disposals up to 31 March 2020.</p> <p>We are not proposing a full revaluation; we will roll forward values from PR09.</p>	<p>We can deliver the full methodology.</p> <p>MEAV would represent an allocation based on asset value approach, traditionally used by the industry.</p> <p>Therefore RCV, the capital value discount and its return would be based on PR09 asset valuations.</p>	✓
Splitting pre-privatisation assets at a discount to the RCV and post privatisation assets at full value.	<p>Data at the detail required to do the allocation is not available.</p> <p>Expenditure data pre-1990 (and not by accounting separation categories) is available.</p> <p>Assumptions would be required to gather the required information.</p>	<p>Due to a lack of availability of key data, we would be unable to fulfil the methodology without assumptions.</p> <p>Amount of assumptions required would limit the appropriateness of this as an allocation method.</p> <p>No precedence.</p>	✗
Historic expenditure – e.g. proportion of past expenditure, or operating costs and accounting charges, incurred on water resources.	<p>Accounting separation data available for the period 2011 - 2017 based on actuals.</p> <p>Boundary changes have been retrospectively applied to historic data for cost assessment data submission.</p>	<p>We can fulfil the methodology.</p> <p>Operating costs and expenditure can be directly attributed to the accounting separation categories, and therefore used to allocate attributable value (RCV).</p>	✓
Projected expenditure – e.g. proportion of future expenditure expected on water resources.	<p>Data that extends for 25 years is not in a form that can be applied to the current boundary definitions as set out in RAG 4.06.</p> <p>Significant assumptions would have to be made to appropriate these into a useable form for the purposes of this allocation exercise</p> <p>Uncertainty around information increases the further ahead the date is projected or forecast.</p>	<p>We are unable to fulfil the methodology in full without significant assumptions.</p> <p>One view could be that future expenditure aligns more closely to RCV growth post-2020.</p> <p>The split of RCV at 31/3/20 should represent the position of the business at that point in time.</p>	✗

Approaches/ cross checks	Considerations		Taken forward for detailed assessment
	Practical	Methodological	
Economic value.	Data may not be run long enough. Material assumptions would have to be made about markets, and the form access pricing would take.	Potential circularity issues. Value in use method. Significant uncertainty around surplus and market form and function post-2020.	X
Averaged or hybrid approaches.	Data will be available from methods tested.	We can fulfil the methodology. Could be used to reconcile any significant impacts identified. Used to alleviate over- reliance on one method. No correct method of allocation.	✓

Therefore, the methods we have taken forward to stage 2 of our assessment are;

- Gross MEAV;
- Net MEAV;
- Historic expenditure; and,
- Hybrid approaches (if necessary). This would only be used and assessed where a single allocator was not able to avoid disproportional or material impacts occurring.

7.3. Stage 2: Allocation of RCV by allocators

From our stage one assessment we have taken the following methods through to full assessment;

- Net MEAV
- Gross MEAV
- Historic expenditure
 - capex (capital expenditure)
 - opex (operating expenditure)
 - totex (total expenditure)
- Hybrid approach (if applicable)

The following section sets out the data we used to allocate the RCV based on the methods above. Any considerations that arise from allocating using these methods, and the resulting RCV allocated to water resources under each method. For completeness, we will include the allocation to water network plus. It should be noted at this stage we are not assessing any impacts of the allocation as this follows in stage 3 of our process.

All allocations have been undertaken on an unfocused basis as set out in the technical guidance.

7.3.1. Net MEAV

To allocate using Net MEAV we have used data from 31 March 2020. This data is consistent with the data tables for this submission, namely WS12, table B, lines 16 and 17. We have chosen not to reevaluate our assets consistent with the technical guidance. The data is based on our last valuation exercise which was undertaken at PR09. The valuations have been 'rolled forward' since this point by the appropriate accounting treatment.

We have ensured that our asset records are compliant with the RAG 4.06, notably the categorisation of assets by price control. As part of the cost assessment data submission of 2016 and earlier, we updated our asset inventory (AI2) to reflect the latest boundary definitions.

The MEAV used is based on the approach companies undertook historically when they were required to report this in regulatory accounts. Within the net value under this approach, infrastructure assets including reservoirs are not depreciated; consistent with historical approaches to reporting these values.

Following adoption of new accounting standards (FRS102) by the company in April 2015, infrastructure assets are depreciated on a straight-line basis in the statutory accounts. We are aware that the treatment of the depreciation with regards to infrastructure assets (including reservoirs) has changed. We are compliant in our annual accounts with these changes, but for the purposes of this regulatory submission we have used the values and the process that have been reported historically in our regulatory accounting submissions.

To allocate the RCV at 31 March 2020, we have assessed the sensitivity of using actuals up to 31 March 2017 and what the MEAV would be (forecast) at 31 March 2020. This is summarised below in table 6.3 and 6.4.

Table 6.3 Net MEAV allocation at 31 March 2017 and 31 March 2020

Year: 31 March 2017			
	Water Resources	Network Plus	Total
Net MEAV (£m)	4758.540	16850.723	21609.263
RCV allocation (%)	22.021%	77.979%	100.000%
RCV allocation (£m)	585.993	2075.092	2661.085

Year: 31 March 2020			
	Water Resources	Network Plus	Total
Net MEAV (£m)	4826.442	17153.481	21979.923
RCV allocation (%)	21.958%	78.042%	100.000%
RCV allocation (£m)	584.332	2076.753	2661.085

KEY

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As shown there is a difference in allocation based on observed information (31 March 2017) and forecast (31 March 2020). The sensitivity is summarised in table 6.4. The difference between allocating by MEAV at 31 March 2017 and 31 March 2020 is plus or minus 0.062% or £1.651m.

Table 6.4 Net MEAV Sensitivity assessment

RCV allocation	Sensitivity Assessment		
	31 March 2017	31 March 2020	Difference
Water resources (£m)	585.993	584.332	+/- 1.661
Water resources (%)	22.021%	21.958%	+/- 0.062%

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Due to the non-material difference between the two values, we have chosen to use 31 March 2020 MEAV data as this corresponds to the date at which the RCV is to be allocated.

7.3.2. Gross MEAV

To allocate on a Gross MEAV basis we have used the same information that was the basis for the net MEAV allocation. To allocate on a gross basis we have made no adjustment for depreciation, as the allocation is done on full MEAV. In forecasting Gross MEAV up to 31 March 2020 we have assumed no disposals during this period for either water resource or water network plus assets. We have tested the sensitivity of this assumption in table 6.7.

The resulting allocations using Gross MEAV are presented in table 6.5. As with Net MEAV, we have assessed allocating at 31 March 2017 (actuals) and 31 March 2020 (forecast). The sensitivity assessment of using either of these values is provided in tables 6.6 and 6.7.

Table 6.5 Gross MEAV allocation at 31 March 2017 and 31 March 2020

	Year: 31 March 2017		
	Water Resources	Network Plus	Total
Gross MEAV (£m)	4,844.487	18,945.942	23,790.429
RCV allocation (%)	20.363%	79.637%	100.000%
RCV allocation (£m)	541.881	2,119.204	2661.085

	Year: 31 March 2020		
	Water Resources	Network Plus	Total
Gross MEAV (£m)	4,922.676	19,472.595	24,395.271
RCV allocation (%)	20.179%	79.821%	100.000%
RCV allocation (£m)	536.975	2,124.110	2,661.085

KEY

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Table 6.6 Gross MEAV Sensitivity assessment – Year used

RCV allocation	Sensitivity Assessment		
	31 March 2017	31 March 2020	Difference
Water resources (£m)	541.881	536.975	+/- 4.906
Water resources (%)	20.363%	20.179%	+/- 0.184%

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As is shown in the sensitivity assessment table 6.6, the difference between allocating by MEAV at 31 March 2017 or 31 March 2020 is plus or minus 0.184% or £4.906m.

Table 6.7 Gross MEAV Sensitivity assessment – Level of assumed Disposals

RCV allocation	Sensitivity Assessment		
	Zero disposals	Average disposals	Difference
Water resources (£m)	536.975	536.242	+/- 0.734
Water resources (%)	20.179%	20.151%	+/- 0.028%

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We have also undertaken further analysis to assess the sensitivity surrounding the assumed levels of disposals. This is shown in table 6.7. As stated we have assumed a zero level of disposals.

Average disposals over period 2013/14 to 16/17 for water resources is £2.2m, and £66.7m for water network plus. This has been applied to each year between 31 March 2017 and 31 March 2020 to develop the allocation with average disposal levels.

The sensitivity between zero disposals and historical disposals is 0.028% or £0.734m.

We have chosen to use 31 March 2020 due to the immaterial variance between 31 March 2017 allocation and 31 March 2020 and as this data reflects the date of formal allocation of RCV to water resources, additionally we have assumed a zero level of disposals over the period due to uncertainty around what this will be and with it having an immaterial impact on the allocation as shown in table 6.7.

7.3.3. Historic expenditure

We have also assessed the allocation of RCV to water resources using various forms of expenditure data as the method of allocation. We have used data from the period of 2011/12 to 2016/17. The data used is that submitted to Ofwat as part of the cost assessment data submission in July 2017. This data has been assured by our external auditors as part of that submission process. The data is consistent with the boundary changes set out in RAG 4.06. The data for the full period (2011/12 to 2016/17) is on a consistent basis, and reflects the objectives that we are undertaking in splitting the current water RCV into the two new price controls.

In using this data, we have averaged the expenditure across the full period to smooth any expenditure cycle effects. If we used a single 'spot year' there could be a risk that the year was not representative of normal levels of spend related to water resources and water network plus. Averaging the data across the dataset will minimise the effects of any abnormal spikes or lows in expenditure. We have assessed the sensitivity of allocating using the maximum and minimum 'spot years', where the maximum reflects the biggest allocation to water resources and the minimum reflects the lowest allocation to water resources from a single year from the data. This is shown in tables 6.8, 6.10 and 6.12 for Opex, Capex and Totex respectively.

In tables 6.8, 6.10 and 6.12 below, we show the RCV allocation by capital expenditure (Capex), operating expenditure (Opex) and total expenditure (Totex) respectively.

7.3.3.1. Capex

Table 6.8 Capex expenditure, average over period 2011/12 to 2016/17

	Total capital expenditure								
	unit	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Average	RCV allocation (£m)
Water resources	£m	16.754	9.975	7.677	8.498	10.459	14.477	11.307	224.210
Water network plus	£m	178.433	132.824	85.852	92.894	103.694	143.643	122.890	2436.875
Water Total	£m	195.187	142.799	93.529	101.392	114.153	158.120	134.197	2661.085

Water resources	%	8.583%	6.986%	8.208%	8.381%	9.163%	9.156%	8.426%	8.426%
Water network plus	%	91.417%	93.014%	91.792%	91.619%	90.837%	90.844%	91.574%	91.574%
Water Total	%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

KEY

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The allocation based on an average level of Capex would be 8.426% or £224.210m shown in table 6.8.

As can be observed in table 6.9, this could be between £243.826m and £185.892m should the maximum or minimum Capex be used to allocate. This is the equivalent of 9.163% or 6.986% of the RCV being allocated to water resources respectively.

Table 6.9 Capex sensitivity assessment

RCV allocation	Sensitivity Assessment		
	Maximum	Minimum	Difference
Water resources (£m)	243.826	185.892	+/- 57.934
Water resources (%)	9.163%	6.986%	+/- 2.177%

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7.3.3.2. Opex

Table 6.10 Opex expenditure, average over period 2011/12 to 2016/17

	Total operating expenditure								
	unit	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Average	RCV allocation (£m)
Water resources	£m	27.469	23.574	24.226	24.157	26.897	25.844	25.361	399.754
Water network plus	£m	136.427	127.870	138.888	145.043	153.175	159.375	143.463	2261.331
Water Total	£m	163.897	151.444	163.114	169.200	180.072	185.219	168.824	2661.085

Water resources	%	16.760%	15.566%	14.852%	14.277%	14.937%	13.953%	15.022%	15.022%
Water network plus	%	83.240%	84.434%	85.148%	85.723%	85.063%	86.047%	84.978%	84.978%
Water Total	%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

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The allocation based on an average level of Opex would be 15.022% or £399.754m shown in table 6.10.

As can be observed in table 6.11, this could be between £446.001m and £371.307m should the maximum or minimum Opex be used to allocate. This is the equivalent of 16.760% or 13.953% of the RCV being allocated to water resources respectively.

Table 6.11 Opex sensitivity assessment

RCV allocation	Sensitivity Assessment		
	Maximum	Minimum	Difference
Water resources (£m)	446.001	371.307	+/- 74.695
Water resources (%)	16.760%	13.953%	+/- 2.807%

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7.3.3.3. Totex

Table 6.12 Totex expenditure, average over period 2011/12 to 2016/17

	Total expenditure								
	unit	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Average	RCV allocation (£m)
Water resources	£m	44.214	33.535	31.894	32.639	37.308	40.329	36.653	333.544
Water network plus	£m	300.998	253.865	217.497	226.982	246.716	288.588	255.775	2327.541
Water Total	£m	345.212	287.400	249.392	259.621	284.024	328.918	292.428	2661.085

Water resources	%	12.808%	11.669%	12.789%	12.572%	13.135%	12.261%	12.534%	12.534%
Water network plus	%	87.192%	88.331%	87.211%	87.428%	86.865%	87.739%	87.466%	87.466%
Water Total	%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

The allocation based on an average level of Totex would be 12.534% or £333.544m shown in table 6.12.

As can be observed in table 6.13, this could be between £349.546m and £310.509m should the maximum or minimum Totex be used to allocate. This is the equivalent of 13.135% or 11.669% of the RCV being allocated to water resources respectively.

Table 6.13 Totex sensitivity assessment

RCV allocation	Sensitivity Assessment		
	Maximum	Minimum	Difference
Water resources (£m)	349.546	310.509	+/- 39.037
Water resources (%)	13.135%	11.669%	+/- 1.467%

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7.3.4. Hybrid approach (if applicable)

A hybrid approach has not been required. This type of approach would only be required to manage any disproportional impacts that could not be managed through the choice of a single allocation method.

Therefore, due to our proposed method of allocation summarised in section 7 of this document, we have not assessed a hybrid approach.

7.3.5. Summary

We have summarised the allocations under the various methods below in table 6.14 and 6.15. Table 6.14 shows the allocation of existing water RCV to water resources and water network plus in monetary values (£m). Table 6.15 summarises the allocation by the percentage of total water RCV allocated to water resources and water network plus.

The range based on all allocation methods is between £583.864m (21.941%) and £224.210m (8.426%). This represents a sizeable difference in allocation under the maximum and minimum allocation methods.

In stages 3 and 4 of our assessment process set out in the following sections we have understood the impact of allocating by these maximum and minimum values. This has allowed us in stage 5 to select an appropriate method for our company.

At stage 2, we do not favour one method of allocation over others.

Table 6.14 Summary of RCV allocation (£m) by allocation method

		RCV Allocation Summary		
Allocation method	Units	Water Resources	Network Plus	Total
Net MEAV	£m	584.332	2076.753	2661.085
Gross MEAV	£m	536.975	2124.110	2661.085
Historic Opex	£m	399.754	2261.331	2661.085
Historic Capex	£m	224.210	2436.875	2661.085
Historic Totex	£m	333.544	2327.541	2661.085

KEY

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Table 6.15 Summary of RCV allocation (%) by allocation method

Allocation method	Units	RCV Allocation Summary		
		Water Resources	Network Plus	Total
Net MEAV	%	21.958%	78.042%	100.000%
Gross MEAV	%	20.179%	79.821%	100.000%
Historic Opex	%	15.022%	84.978%	100.000%
Historic Capex	%	8.426%	91.574%	100.000%
Historic Totex	%	12.534%	87.466%	100.000%

KEY

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7.4. Stage 3: Analysis of wholesale tariff and bulk supply impacts

We have assessed the impact of the RCV allocation on wholesale tariffs and by extension our bulk supply tariffs.

In evaluating what the impact of RCV allocation would be on wholesale and bulk supply tariffs we undertook a two-stage process;

1. An assessment on a theoretical basis; would there be an impact from RCV allocation based on tariff justification and design?
2. Full assessment; if there could be an impact based on theory, what would the impact be?

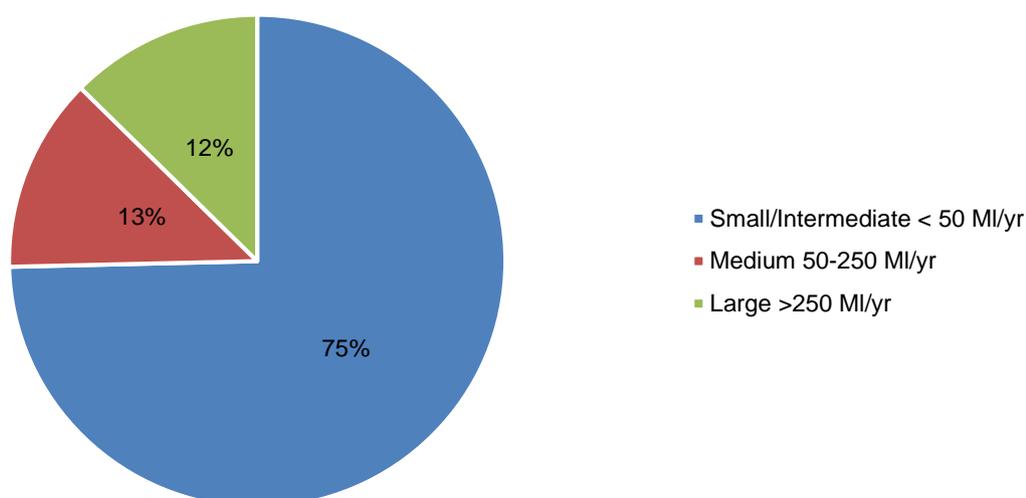
Further detail is provided in appendix 2, although we have set out below the high-level output of the assessment and the resulting impacts or sensitivities in this section.

7.4.1. Background and tariff justification

Our tariffs are developed using Ramsey pricing with marginal costs and demand elasticities informing the differentials between our tariffs that apply for measured household and non-household customers. Our wholesale and retail tariffs are established and maintained via these tariffing differentials. This approach ensures our compliance with Licence Condition E.

Currently, small to intermediate non-household customers provide the greatest proportion of non-household revenues, as shown in figure 6.16.

Figure 6.16 Non-Household Customer Class Revenues (APR, 2017)



We are aware that charging schemes rule 15¹¹ has provided explicit conditions on how non-household tariff differentials can be cost justified. The rule states that;

“Differences between charges for services provided to large users of water and charges for services provided to smaller users of water must only be based on cost differences associated with differential uses of network assets, differential peaking characteristics, different service levels and/or different service measurement accuracy”¹².

To comply with this rule our non-household tariff can also be supported through a position on the network basis with an adjustment leakage service using a Gross MEAV allocation.

¹¹ Ofwat - <https://www.ofwat.gov.uk/publication/charges-scheme-rules/>

¹² Ofwat - <https://www.ofwat.gov.uk/publication/charges-scheme-rules/>

This is based on our largest non-household customers not being situated on our local distribution network and therefore their wholesale tariffs reflect this.

We do not want the RCV allocation to affect our current measured “household to non-household” charging relationship.

Our methodology evaluation takes this into account. The impact assessment considers whether, and how, possible changes to the allocation of water RCV across the water supply value chain could impact on these headline non-household tariff differentials.

7.4.1.1. Tariffing Differentials

The key tariffing differential is our non-households in relation to our household customer classification. The key differentials for the year 2017-18 are;

- Small to intermediate users (0-50MI/yr) – c.10%
- Medium to large users (>50MI/yr) – c.45%

These are of a consistent level and further information for 2015-16 is provided in appendix 2.

Some of the tariff differentials (and by extension tariff levels) do not depend on an allocation of the RCV across the water service value chain. We provide detail of this in table 6.17. The associated tariff relationships will therefore not be impacted at all by the water resource RCV allocation method selected.

However, the RCV allocation method selected could have an indirect impact on non-household wholesale (and associated retail) tariffs, where the tariff justification requires the RCV to be allocated to part, or parts of the water value chain; for example, medium to large users (>50MI/yr). We have therefore focused our tariff impact assessment on this charging area. Below, we set the rationale for why there is no impact on the other customer classifications.

Table 6.17 Theoretical assessment of tariff impact

Customer Group	Impact	Comments
Household	No impact	Due to the revenues and size of this customer group for a material impact to occur there would have to be a significant shift in differential due to RCV allocation. No impact assumed on this basis.
Small to intermediate user (0-50 MI/yr)	No impact	Justified based on differential leakage costs, differential meter/communication pipe replacement costs, as well as free supply pipe leakage and costs of retail competition. No impact due to RCV allocation as the justification doesn't require the RCV to be allocated. Current differential = c.10%

Customer Group	Impact	Comments
Medium to large user (>50 MI/yr)	Potential impact	Evidence that a position on the network is justification for a differential of 45% can be applied with an adjustment for leakage on a Gross MEAV basis. RCV allocation different to this would impact if the allocation was not on a Gross MEAV basis. Current differential = c.45%
Bulk supply tariffs	No impact	Bulk supply prices set via “household wholesale minus” with minus being established by long run avoidable costs. No impact due to RCV allocation, assuming no impact on household.

Further detail on our customer classification impact assessment is set out in appendix 2.

We have assessed the impact on wholesale tariffs based on the various approaches below, starting with Net MEAV. As Gross MEAV allocation with an adjustment for leakage supports our tariff justification, this is our counterfactual and allocation of the RCV on this basis has no impact on wholesale and bulk supply tariffs.

7.4.1.2. Net MEAV

On a Net MEAV approach the proportion would result in a slightly higher RCV allocation to the local distribution network, around 50.5% than Gross MEAV. Applying this Net MEAV approach to the allocation of RCV, the inferred large user tariff differential is slightly higher i.e. at 45.9% as compared to 45.4% for Gross MEAV.

The inference is that the decision to use Gross or Net MEAV to allocate the RCV to water resources would have no material impact on the costs allocated to the local water distribution activity and possible associated large user tariff differentials. Assuming a materiality threshold of greater than 1% being a material impact.

Requisition charges and associated developer contributions

The technical guidance refers to the “impact of requisition charges on a MEAV approach”¹³. It states that;

“If companies draw on MEAV estimates we would expect them to take account of the likelihood that, for network plus activities (principally treated water distribution) a significant element of the estimated MEAV may have already been funded through connection charges, requisition charges and infrastructure charge” ...”This may suggest that if an MEAV approach is used for an unfocused allocation, the allocation to water resources should be greater than would be implied by a simple pro rata allocation between water resources and network plus”¹⁴.

This is another potential adjustment to the Gross MEAV approach.

¹³ Ofwat - Water resources pre-2020 legacy RCV allocation – technical guidance, 31 January 2017, pg. 10

¹⁴ Ibid.

We have estimated the amount to adjust Gross MEAV at c.£450m. The Gross MEAV attributed to local distribution network would correspondingly fall by circa 1.5%, from 47.5% to circa 46%. However, this downward adjustment is not enough to impact on associated Gross MEAV supported large user tariff differential of 45%.

Both Net MEAV and Requisition charges and associated developer contributions

Adjusting Gross MEAV allocation for both accumulated depreciation on non-infrastructure assets (Net MEAV) and capital contributions from developers to infrastructure assets would be broadly self-cancelling and would again lead to the current average large user tariff differential of 45% as supported by Gross MEAV.

This would infer that the selection of any approach to MEAV whether it is Gross, Net, and/or adjusted by developer contributions through requisition charges¹⁵, does not materially impact on our large user tariff level/structure.

7.4.1.3. Accounting approach

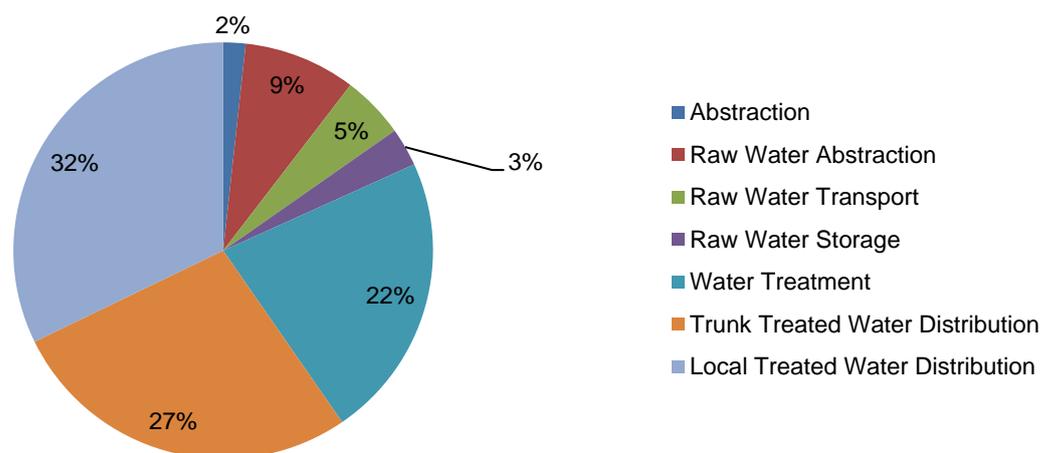
In contrast if we switch to other operating, capital or total cost RCV allocators we can see a material impact on the household to large user tariff differential.

Selecting operating costs as an alternative RCV allocator, the associated large user tariff differential falls from 45.4% to 42.3%. This is a material change in the large user differential and would mean that the large user volumetric rates (in p/m³) would have to increase accordingly. Household volumetric rates would clearly fall, albeit marginally when this is applied across the larger customer volumes.

Water treatment is one reason for the impact difference – as between MEAV approaches and the operating cost approach water treatment accounts for 22% of Opex, but only 4% of the Gross MEAV.

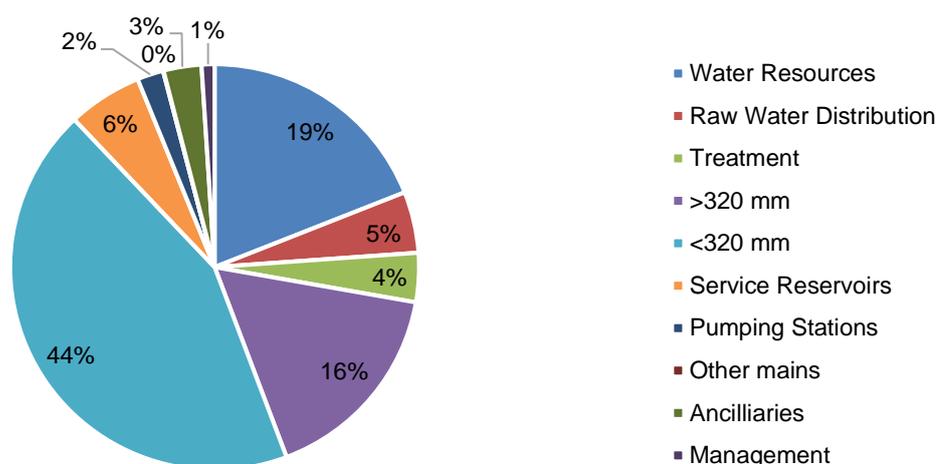
On a proportional basis, this comparative cost feature of the water treatment activity (high Opex versus low Capex) drives Opex away from the local distribution network activity and results in lower tariff differentials from its associated non-use. This is shown in figures 6.18 and 6.19.

Figure 6.18 Detailed Operating Expenditure Cost Breakdown (Accounting Separation Project, 2014-15)



¹⁵ Ibid.

Figure 6.19 Detailed Breakdown of Gross MEAV (PR09 asset inventory)



7.4.2. Summary

Our assessment and evidence set out in this section and appendix 2, shows that the method used for allocation of RCV to water resources could have an impact on wholesale tariffs, but only for our very largest non-household users and under certain methods of allocation.

Table 6.20 summarises the impact assessment for each of our customer groups and, where 'no material impact' is deemed, why this is the case as set out above and in appendix 2 in further detail.

A material impact is deemed to be a change of **greater than 1%**.

Table 6.20 Summary of wholesale tariff and bulk supply impacts

Allocation method	Differential for Medium to Large Users Current differential = c.45%	Impact	Reason
Gross MEAV	45.4%	No material impact	This represents our counterfactual as this supports our current tariffs with respect to our compliance with charging rule 15.
Net MEAV	45.9%	No material impact	No material impact based on allocating the RCV using Net MEAV.
Net MEAV (with a Requisition charge adjustment)	46.0%	No material impact	No material impact based on allocating the RCV using Net MEAV with an adjustment considering the impact of requisition charges.
Accounting	42.3%	Impact	Material impact on large user differential to manage the current balance of tariffs the large user tariff would have to increase accordingly. Household volumetric rates would fall, albeit marginally.

7.5. Stage 4: Links to dWRMP

For all the allocation methods tested we believe that there are limited links to our draft Water Resource Management Plan for PR19 (dWRMP). We accept the link set out in the guidance and data tables is present in that;

“AICs should affect future average water resource costs and wholesale tariff structures and so will be relevant to testing the impact of the proposed RCV allocation.”¹⁶

This has been shown in the data tables WS12b, block C.

None of the methods we have assessed are concerned with forward looking information. The dWRMP is concerned with the period beyond 2020 and as such a link between that and historical cost information and asset values isn't present.

Our solutions for the dWRMP are built on a bottom up basis, and as such do not rely on historic information. If we had assessed an allocation using an economic valuation approach, then the future incremental solution cost would become relevant. Due to the reasons set out in table 6.2 we do not think such an approach is appropriate for Yorkshire Water.

7.6. Stage 5: Review and decision on allocation method

Maintaining tariff, and associated bill, stability is important to all our stakeholders. Therefore, we have viewed this as one of the key considerations with regards to the method of legacy RCV allocation chosen. Additionally, considerations with regards to markets and links to wider regulatory mechanisms have been considered carefully. **Based on these considerations, we are proposing an allocation using Gross MEAV, as at 31 March 2020.**

The reason for allocating using a Gross MEAV method are;

- **It has regulatory precedence:** Allocation of the RCV on a Gross MEAV basis has been used in casework as well as in tariff development and justification.
- **Assets are treated on equivalent terms:** Under regulatory accounting Net MEAV, infrastructure assets are not depreciated, however non-infrastructure assets are depreciated. In using a Gross MEAV on an unfocused basis (proportion approach), infrastructure and non-infrastructure assets are valued under the same terms. It is therefore a stronger method for allocating on an unfocused basis, where the split is by proportion of value in each part of the value chain.
- **Wholesale and bulk supply tariff impact:** We have outlined in section 6.4 of this document that our current tariffing structures are justified through a Ramsey Pricing method which can be supported by a Gross MEAV approach. Therefore allocating on a Gross MEAV basis has no impact on our existing wholesale and bulk supply tariffing structures. Whilst there is a non-material impact under a Net MEAV allocation (less than 1%), we have favoured Gross MEAV to maintain protection to all our customers.
- **Cost of capital and PAYG impact (lines 7,8 and 9 block B table WS12b):** There are no cost of capital and PAYG impacts as our allocation methods are the same, namely gross MEAV between the two periods as defined by the data table lines 7, 8

¹⁶ Ofwat - Water resources pre-2020 legacy RCV allocation – technical guidance, 31 January 2017, pg. 8

and 9, block B, table WS12b. This is because our tariffs (and by extension revenues) are supported by an implicit allocation of the RCV by Gross MEAV.

8. Proposed RCV allocation

We are proposing to allocate based on a Gross MEAV basis. This would allocate £536.975m (20.179%) of our water RCV to Water resources at 31 March 2020 as shown in table 7.1.

Table 7.1 Outcome of the valuation and RCV allocation by Gross MEAV at 31 March 2020

Information requirement	Proposed Allocation figure (Using Gross MEAV at 31 March 2020)	Net MEAV Allocation figure (Using Net MEAV at 31 March 2015)
Total water RCV (at 31 March 2020)	£2,661.085 million or 100.000%	£2,661.085 million or 100.000%
Water resources RCV allocation	£536.975 million or 20.179%	£569.742 million or 21.410%
Water network plus RCV allocation	£2,124.110 million or 79.821%	£2,091.343 million or 78.590%

9. Contact

For any contacts about this RCV allocation submission document or the supporting information, please contact:

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Appendix 1 – Auditors report, Water resources RCV allocation

FINAL REPORT: SUMMARY OF AUDIT FINDINGS

PREPARED BY: Alex Lane, Andy McConkey

DATE: 15 January 2018

This Summary of Audit Findings (SAF) Report describes the assurance by Halcrow Management Sciences Limited (HMS) of Yorkshire Water Services (YWS) Water Resources regulatory capital value (RCV) Allocation. It summarises the finding of three audit Summary Audit reports submitted to YWS for audits completed on 13 December 2017, 20 December 2017 and 9 January 2018.

1. Key findings

Key findings from the assurance of the Water Resources RCV Allocation are as follows:

- In completing the data tables, HMS considers that YWS has followed the Ofwat guidance. Where the guidance is ambiguous, the YWS Submission Commentary explains and justifies the adopted approach.
- The overarching Submission Commentary “Water Resources RCV Allocation Submission” describes the approach, methodology adopted, and assumptions applied. Amber or blue issues identified during the audit process have been rectified or addressed for the draft final submission table and submission document.
- The reviewed submission tables (PR19-draft-methodology-Jan-180RCV_Master copy_V0.2 11_01_18) reflect the Submission Commentary;
- No Red or Amber scores which would otherwise highlight material or minor concerns over the validity of the submission have been identified in the observations made.
- We consider that the submission tables presented, together with the Submission Commentary, meet the Ofwat reporting requirements for the submission.

2. Background and scope

In May 2016, Ofwat published ‘Water 2020: our regulatory approach for water and wastewater services in England and Wales’. This included a decision to introduce a binding separate price control for Water Resources at the 2019 price review (PR19) using an explicit RCV allocation. This decision is also reflected in in the draft and final PR19 methodology.

Currently, the water and sewerage companies (WaSCs) have a single value for water RCV that is the capital value of its water assets, including water resources assets, for regulatory purposes. To allocate part of the water RCV to the new water resources price control, Ofwat has decided that WaSCs will take an ‘unfocused’ approach, with the RCV to be split on a percentage basis. An unfocused approach is defined as;

“an unfocused approach, where RCV allocation is based on the proportion of the assets employed in the business relative to the total assets of the business.”¹⁷

¹⁷ Ofwat - Water resources pre-2020 legacy RCV allocation at PR19 – technical guidance, 31 January 2017, pg 3.

Companies should allocate using a method that is appropriate to their own circumstances, but in assessing and choosing the most appropriate method, YWS must consider the impact on customers, the water resources market and related aspects of the business.

Ofwat has published Microsoft Excel tables to be used to present the Water Resources RCV allocation. Ofwat has also maintained a forum through which WaSCs can raise queries related to the submission, and through which revised tables have been made available.

HMS has been engaged by YWS to provide the assurance tasks outlined in Table 2-1. The project has been delivered through a series of face-to-face meetings at YWS head office, telephone calls and WebEx workshops to review specific items of the submission, and through an offline review of data.

A risk based approach has been taken to the assurance of source data.

Table 2-1: Scope of Assurance

Item	Assurance Tasks Completed by HMS, and key findings
Review of methodologies and approach (1-day workshop) against Ofwat guidance	HMS undertook an assurance visit to Western House to discuss and review the strategy and approach for allocating the RCV on 13 December 2017. During, and immediately after this meeting, HMS made recommendations about what detailed information should be provided in support of the submission, and how the allocative methodology should be justified in the narrative.
Review of allocation methods and key decision points in approach to confirming preferred allocation method	This has been assured in two assurance meetings, 20 December 2017, and 9 January 2018. Any improvements or concerns were notified during the meeting, with a formal SAF being submitted within 24 hours of the meeting. YWS has assessed the impact of the proposed RCV methodology on tariffs and revenue, and has demonstrated how a gross MEAV allocation is consistent with latest guidance on tariffs and charging.
Technical assurance of data tables (consideration of remote working) WS12 - RCV allocation in the wholesale water service WS12b - Wholesale water charges impact assessment	<ul style="list-style-type: none"> HMS has assured the data tables during three separate meetings to conclude the following: The correct version of the tables has been used The table is consistent with the narrative document The numbers are supported by data collected from corporate data systems, or from previous submissions to Ofwat.
Review of the narrative document	HMS has assured the Narrative document during assurance calls on 20 December 2017, 9 January 2018, and finally on 15 January 2018. HMS conclude that the narrative provides a well-structured, clear and justified narrative for the Gross MEAV allocation methodology that YWS has selected.
Consistency check with WRMP (Not expected to be material) to confirm YW can make the statement that	<ul style="list-style-type: none"> There was a minor inconsistency between the WRMP report and WRMP tables which has now been corrected and revised tables sent to the EA. The Water Resources RCV is now consistent with the amended WRMP tables and the WRMP report.

Item	Assurance Tasks Completed by HMS, and key findings
Assurance that assumptions and any limitations in data used for the analysis have been exposed and are communicated	<ul style="list-style-type: none"> Data limitations have been assured during successive audit meetings, HMS has sought supporting data where it additional data is needed to support the calculations in the submission table. A sensitivity analysis of the gross MEAV RCV allocative methodology has been undertaken and the impact of this, and the impact of different allocative methodologies, have been exposed and are documented.

3. Summary of audit checks

HMS has conducted the following audit checks to prepare this report:

- Pre-audit review meeting 30 November 2017.
- Audit of proposed approach to assessing allocation methodologies – 13 December 2017.
- Audit teleconference and WebEx held with YWS data providers and data managers on 20 December 2017, 9 January 2018 and 15 January 2018 (teleconference) to review the following tables and methodologies:
 - Submission table - PR19-draft-methodology-Jan-180RCV_Master copy_V0.2 11_01_18.xlsx.
 - Water Resources RCV Allocation Submission document.
 - Table commentaries/procedures in support of Water Resources RCV Allocation Submission.
 - Offline review of the above documents pre-and post-audit meetings.

4. Issues log

The definitions of the RAG scores applied during the assurance are presented in Table 4-1.

Table 4-1: Confidence Grades

RAG Score	Description
Green	No material exceptions and compliant with the requirements.
Blue	Content with reported information but supporting data needs completion or noting of future improvements required.
Amber	Minor concerns over reported data or concerns over supporting documentation.
Red	Material concerns over the validity of the submission.

Table 4-2 summarises the final RAG scoring of issues identified during the assurance process. No Red or Amber scores which would otherwise highlight material or minor concerns over the validity of the submission have been identified in the observations made.

During the process of the audits a total of four amber and 10 blue observations were made. No red issues were identified. All the amber issues have been rectified, and all of the blue observations have been responded to and actioned in the final submission document and spreadsheet.

Table 4-2: Summary of final RAG Scores

Table	R	A	B	G	Total Audited
Table12	0	0	0	23	23
Table12b	0	0	0	20	20
	0	0	0	43	43

Appendix 2 – Impact on Yorkshire Water customers of the water resources RCV allocation

1. Introduction

1.1 Policy context

On 11 July 2017 (Delivering Water 2020: consultation on PR19 methodology Appendix 8 – Water resources legacy RCV allocation: initial submission) Ofwat stated:

“It may simply be sufficient to test the impact of the RCV allocation on their current charges structures, particularly where companies intend to base their RCV allocation proposals on rolling forward past Modern Equivalent Asset Value (MEAV) valuations”.

The Ofwat guidance directs companies to provide an explanation to justify the proposed allocation of RCV to the water resources price control, including “An explanation to justify the proposed RCV allocation, that includes how the company has considered the impact on charges including any sensitivity testing on wholesale tariffs and bulk supply charges.”

Within this appendix Yorkshire Water addresses this requirement.

1.2 Consideration of the current charging regime

Our wholesale and retail tariffs are established and maintained using a set of differentials. These differentials help to ensure compliance with Licence Condition E, which prohibits undue preference to, or undue discrimination against, any class of customer for standard charges.

Many of our tariff differentials are not dependent on an allocation of the RCV across the water supply value chain. The relationships between most of our tariffs will not be impacted by the water resource RCV allocation method selected.

The water resources RCV allocation method selected may have an indirect impact on non-household wholesale (and the associated retail) tariff differentials. By association both non-household and household tariffs may be affected to some degree. We have therefore focused our tariff impact assessment on this particular charging area.

Ofwat, through recent charges scheme charging rules, has provided explicit boundary conditions on how non-household tariff differentials can be cost justified.

In the Ofwat charges scheme rules¹⁸, rule 15 states that:

“Differences between charges for services provided to large users of water and charges for services provided to smaller users of water must only be based on cost differences associated with differential uses of network assets, differential peaking characteristics, different service levels and/or different service measurement accuracy.”

¹⁸ Ofwat - Charges Scheme Rules Issued under sections 143(6A) and 143B of the Water Industry Act 1991, December 2016

Non-household charges based on “differential uses of network assets” and “differential peaking characteristics” may require an allocation of the RCV, particularly to the smaller diameter parts of the local distribution network that are potentially avoided by such larger users.

Network positioning cost justifications for non-household tariffs do not require the RCV to be allocated to the remaining parts of the water supply chain, including for example water resources. This particular accountancy approach to scaling the non-household tariff differential simply requires the RCV to be allocated across the water distribution network.

As we explain elsewhere net MEAV is not currently available for infrastructure assets so the regulator’s default allocation methodology is, by definition, a hybrid between net and gross MEAV.

2 High level tariff impact assessment

Maintaining tariff stability is extremely important to all our stakeholders.

There are a number of different approaches to the proposed RCV allocation to water resources. Given the need to provide for ongoing bill stability a water resource RCV allocation methodology that maintains our current non-household tariff framework is a key decision criteria.

2.1 Bulk supply pricing

Our approach to bulk supply pricing (for companies with New Appointments and Variations - NAVs) is currently based on a “retail minus” approach where the reference “retail” price is the measured household retail price and the “minus” is based on a combination of our measured household retail price control and an assessment of long run avoidable wholesale operating costs.

These retail and wholesale operating costs will not be impacted by alternative approaches to water resources RCV allocation. Our avoidable wholesale operating costs are forward-looking, and not historic, so do not rely on an allocation of the legacy RCV.

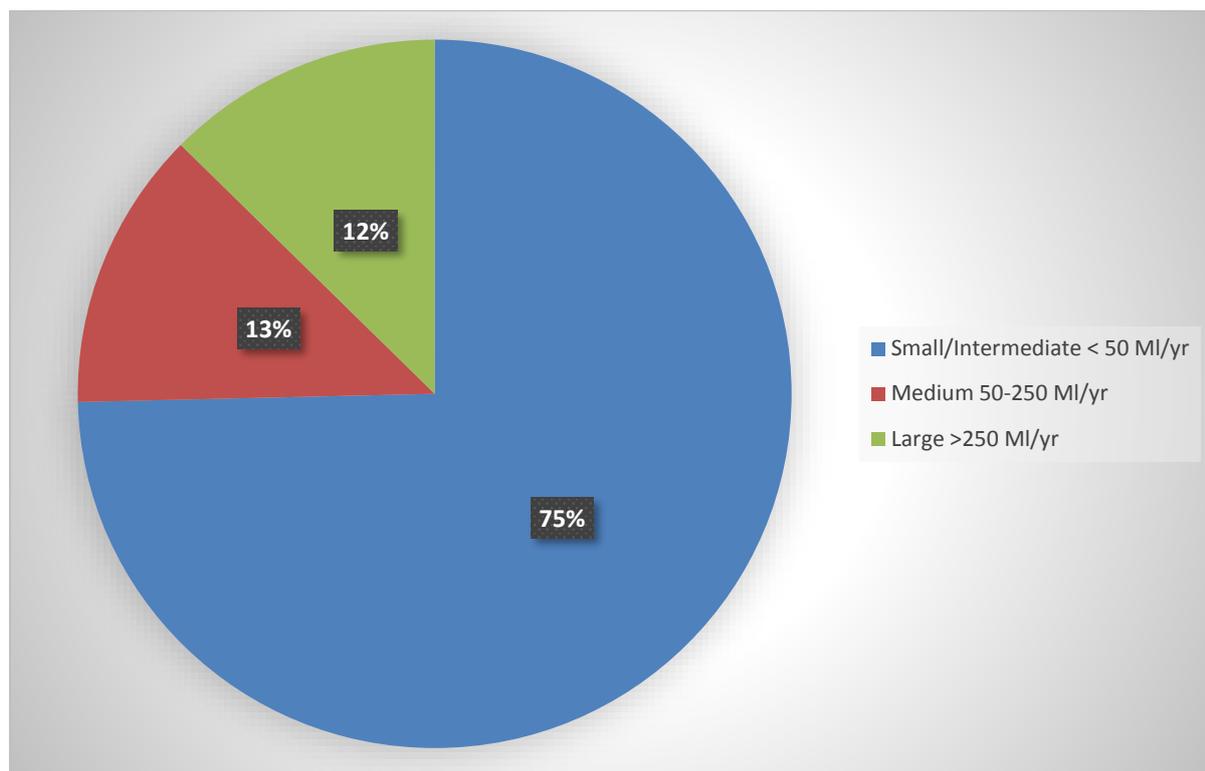
In our assessment, bulk supply prices only have the potential to be impacted indirectly, through the influence of possible movements in non-household retail prices on associated measured household retail prices. The measured household retail price will only be materially impacted if there is a substantial cost and revenue transfer between our household and our largest non-household customer class as a result of the water resource RCV allocation.

A summary of our current non-household customer class revenues is provided in figure A2-1. below.

Small (0-20 Ml/yr) and intermediate (20-50 Ml/yr) users predominate the non-household revenue profile, both in terms of customer numbers and revenues.

The key non-household customer class, in terms of material transferrable revenues, is therefore our small-intermediate tariffs. As the small-intermediate tariff will also not be materially impacted by the allocation of the RCV (see next section 2.2 for our rationale) we can safely say that our bulk supply price offer will not be materially impacted by the water resource RCV allocation method selected. No further detailed bulk supply price impact assessment is required.

Figure A2-1. Non-Household Customer Class Revenues (APR, 2017)



2.2 Non-household tariffs

Non-household tariff differentials are presented as a % difference in unit prices between measured non-households and measured households.

The profile of our 2015-16 and 2017-18 non-household wholesale tariff differential is shown in figure A2-2a and figure A2-2b respectively. Below 50 MI/yr the non-household wholesale tariff differential for water supply is currently set at 10% for all customers. The medium-large user tariff differential for water supply increases from 10% at the 50 MI/yr threshold, to 50% above 2,000 MI/yr.

The average large user (>250 MI/yr) wholesale tariff differential is around 45%. And the average medium user (50-250 MI/yr) wholesale differential is around 35%. These non-household differential relationships have remained consistent for a number of years (see table A2-1 for the equivalent retail volumetric rate differential).

Table A2-1. Household to Medium-Large User Retail Volumetric Rate Differentials

	100 MI/y Customer	250 MI/yr Customer	500 MI/yr Customer
2014-15	19%	30%	39%
2013-14	19%	30%	39%
2012-13	19%	30%	39%
2011-12	19%	30%	39%

Figure A2-2a. Wholesale Non-Household Tariff Differential in 2015-16

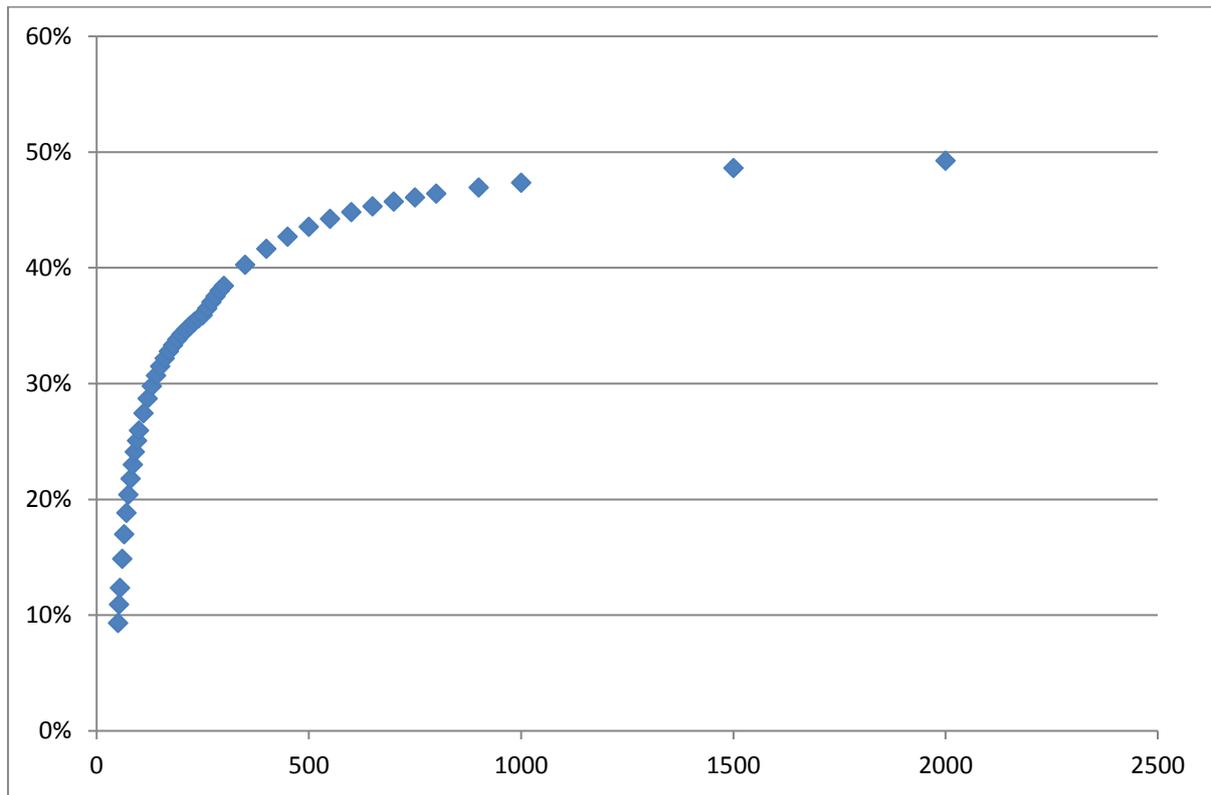
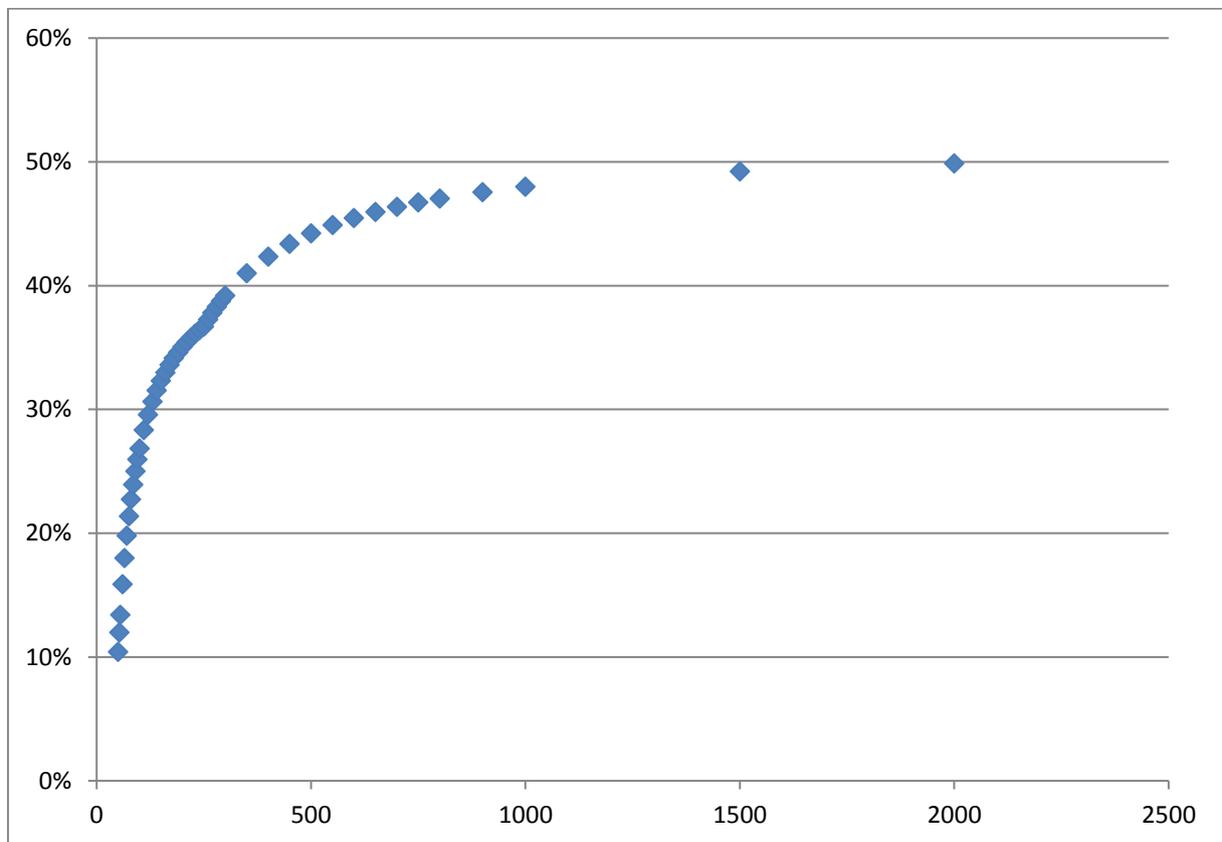


Figure A2-2b. Wholesale Non-Household User Tariff Differential in 2017-18



The impact assessment considers whether, and how, possible changes to the allocation of water RCV across the water supply value chain could impact on these headline non-household tariff differentials.

Our non-household tariffs, and the associated tariff differentials, were originally established in 1999 and were based on Ramsey Pricing concepts. This economic approach to establishing the relative scale of our household to non-household differentials has been maintained. The household to non-household tariff differential does not require an allocation of the RCV across the water supply value chain, and as a result will not be impacted by the RCV allocation method.

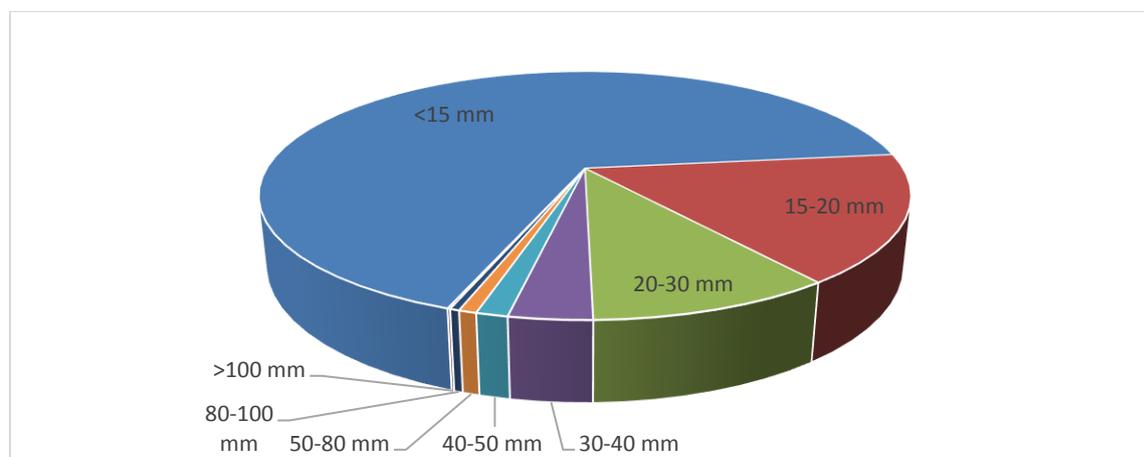
2.2.1 Small-intermediate user tariffs (<50MI/a)

Our current small (<20 MI/a) and intermediate (20-50 MI/a) tariff differential of 10% is also supported by differences in:

- relative measurement (meter replacement) costs;
- relative property connection (communication pipe replacement) costs; and
- associated per property communication pipe leakage adjustments.

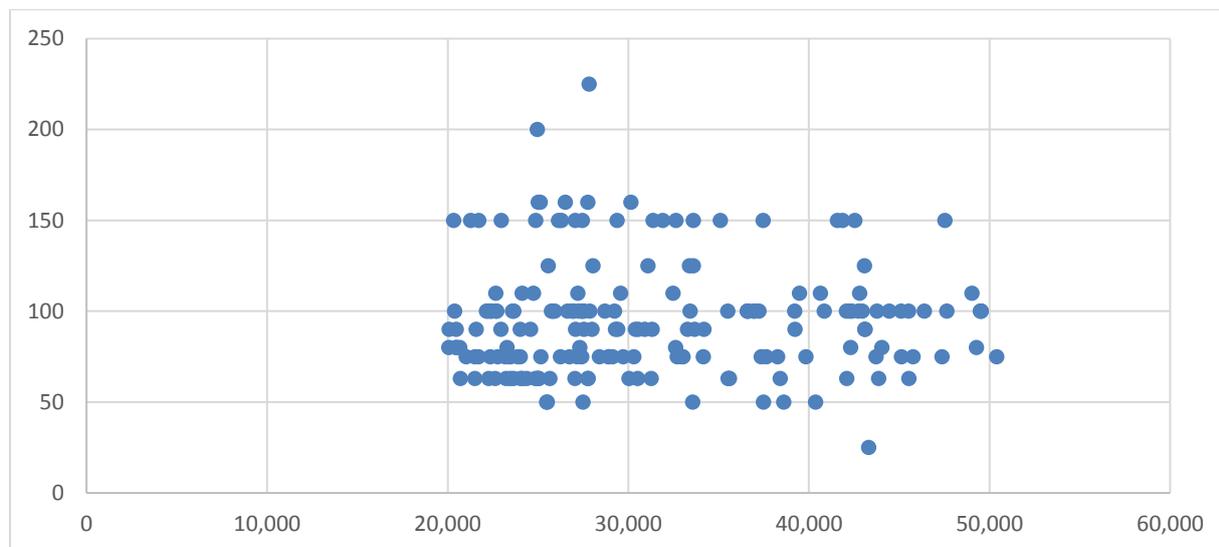
These “last mile” water network costs are predominantly driven by the number of properties served (as opposed to water volumes delivered). It is evident that most small non-households are served by 15/20 mm meters (see figure A2-3a) and are located on similar sized communication pipes. This is same as for measured household properties.

Figure A2-3a. Meter Size Distribution – All Small/Intermediate Non-Household Properties



A few intermediate non-household customers are served by larger meters and associated communication pipes (see figure A2-3b), typically ranging from 50-150 mm. But the impact on per property communication/meter replacement costs are constrained by the predominance of civil engineering costs.

Figure A2-3b. Diameter of Communication Pipes – Intermediate Non-household Properties (20-50 MI/a)



Wholesale volumetric rate differentials will then largely be driven by differences in the average per property consumption in each customer class.

These three “last mile” network cost drivers are not materially affected by the allocation of the RCV across the water supply value chain.

In addition, under any accounting cost assessment of tariff differentials, we also recognise:

- the free supply pipe replacement service for households (i.e. a differential service offer between households and small-intermediate non-households); and
- the wholesale operating costs of non-household retail competition (i.e. market-related costs that should not be allocated to households who do not directly benefit).

However, these two operational costs are broadly equivalent in scale and are therefore self-cancelling.

We have also reviewed the relative network position and the demand characteristics of our small-intermediate users. They do not generally exhibit differential use of our water network assets or have differential peaking characteristics (when compared to our reference measured household customer class). This position mirrors that of Ofwat (in 2003) where the regulator stated “intermediate user tariffs can rarely be justified on the basis that these customers typically receive water through larger pipes, thereby reducing average distribution costs. Evidence from a number of companies shows that these customers (consuming less than 50 MI/a) use all but the very smallest parts of the local distribution system” (RD15/01).

For Yorkshire Water, these avoidable network cost justifications are not therefore relevant to establishing tariff differentials for our small-intermediate non-household customer class.

Hence the approach to water resource RCV allocation will not directly impact on our current household to small-intermediate non-household tariff differential of 10%. No detailed small/intermediate non-household wholesale tariff impact assessment is required.

2.2.2 Medium-large user tariffs (>50 MI/a)

Our medium-large user tariffs are justified on Ramsey Pricing principles. As discussed above the allocation of the RCV across the water supply value chain would not then impact on the associated household to non-household tariff differentials.

In 1999, we reviewed the network position of our non-households. At this time, unlike our small-intermediate user customer class, our medium-large users did exhibit some differential use of network assets (see table A2-2).

Table A2-2. Historic Network Positioning Arguments

Customer Class	Water Network Positioning
Small/Intermediate < 50 MI/a	< 150 mm
Medium 50-250 MI/a	151-300 mm
Large 250-2999 MI/a	301-600 mm
Super Large >3,000 MI/a	> 600 mm

Source: YKY Regulatory Submissions from 1999

This is the one charging area where the approach to water resource RCV allocation may materially impact on non-household wholesale medium-large tariffs – i.e. those that apply to medium and large users (>50-250 MI/yr and >250 MI/yr).

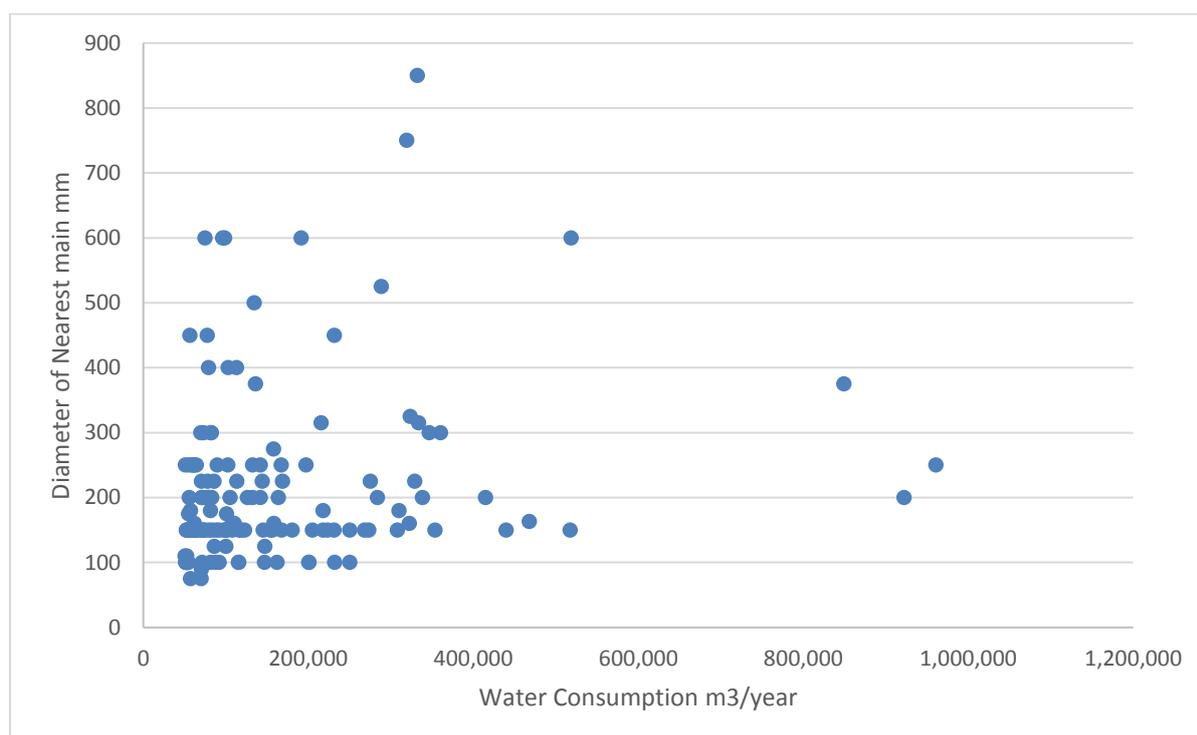
But only if average accounting cost approaches to establishing tariff differentials are preferred to economic ones.

We have recently updated this non-household customer positional analysis for our medium/large users (figure A2-4).

It is evident that many of our largest customers (>250 MI/a) do still generally sit on our bulk supply network (300 mm and above). However, some large customers appear to sit on our 150/200 mm feeder main network. So, the above historical positional relationships (see table A2-2) are only indicative. The relationship between customer size and network position becomes even less clear cut for our medium sized non-household customers (50-250 MI/a). Some medium customers sit on the bulk supply system whereas others are located on much smaller 100 mm mains and are within our DMAs. Most medium customers sit on our feeder network (150-300 mm).

The possibility that the allocation of the RCV could impact on large user tariff differentials therefore needs a more detailed impact assessment.

Figure A2-4. Network Position of Medium/Large Users – Sample of over 300 customers



3 Detailed tariff impact assessment

In this section 3, we have considered the impact of the water resources RCV allocation methodology if our household to large user tariff differential was based on relative network positioning.

3.1 Accounting separation 2014-15

We published a detailed operating cost break-down of the water supply value chain, including the split between bulk and local distribution activities in 2014-15, under Ofwat's pilot accounting separation project.

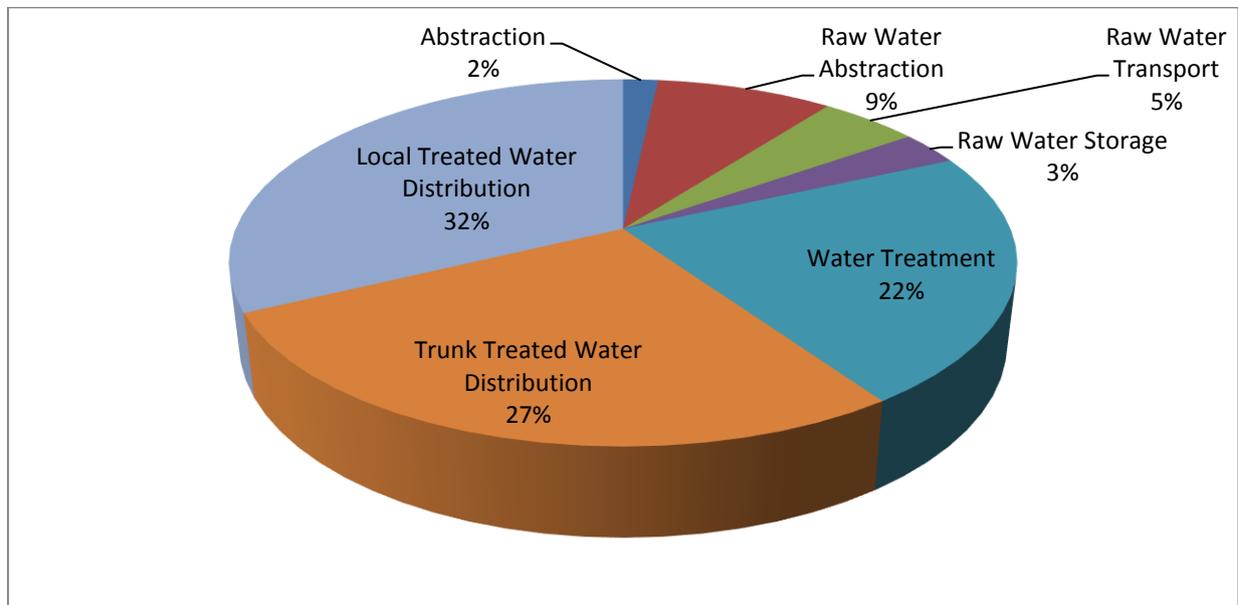
This published table (see figure A2-5) provides an audited set of disaggregated operating cost data to scale the equivalent network position justified non-household tariff differential and then assess the potential impact on large user tariff differentials of allocating the water RCV in different ways.

Our water distribution network 2014-15 operating costs were split between "trunk" distribution and "local distribution", according to Ofwat definitions.

Trunk treated water transport included activities related to transporting treated water from the treatment works to local distribution areas. Local treated water distribution included the activities related to distributing treated water to customers within our DMAs. Service reservoirs were wholly allocated to our trunk treated water distribution activity whereas pumping stations were allocated according to their relative network position. "Main Treated" assets were classified as trunk (distribution) assets and "Distribution Management Area" mains were classified as local distribution assets.

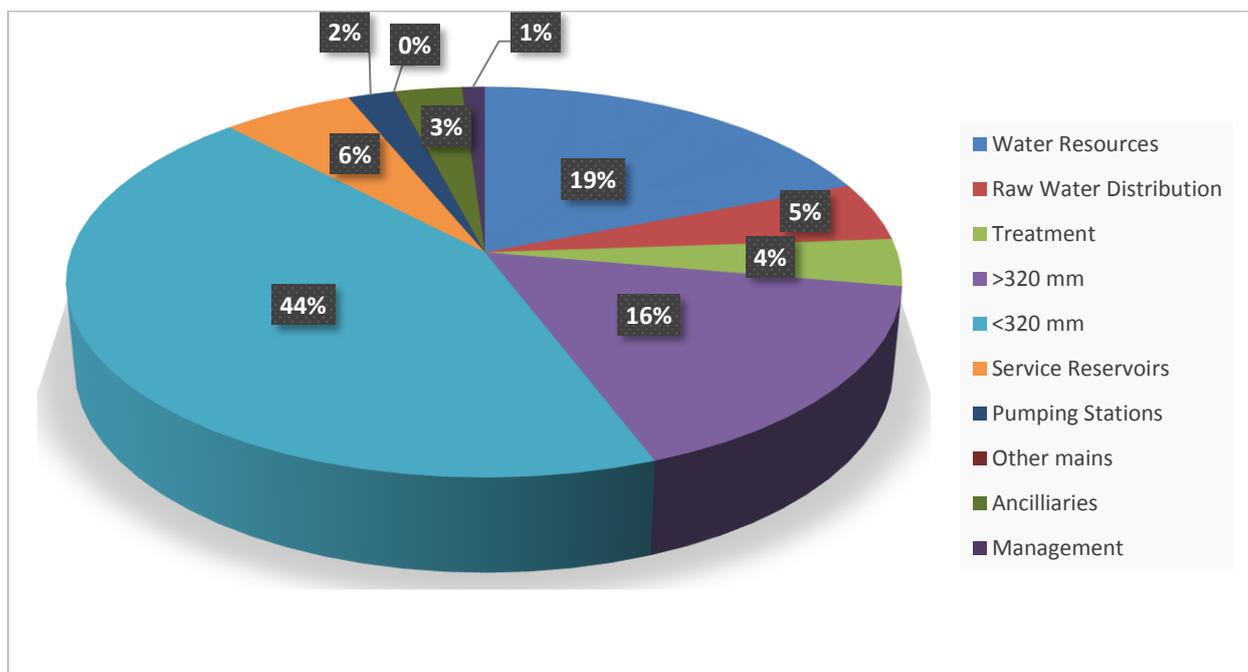
The published operating cost break-down indicated that around 32% of operating costs can be allocated to the local treated water distribution activity.

Figure A2-5. Detailed Operating Expenditure Cost Breakdown (Accounting Separation Project, 2014-15)



From the PR09 asset inventory we also have a detailed breakdown of our gross MEAV (figure A2-6). This indicates that on a gross MEAV basis around 47.5% of the RCV (or the CCA profit) would be allocated to the local water distribution activity (including communication pipes and some booster pumping stations).

Figure A2-6. Detailed Breakdown of Gross MEAV (PR09 asset inventory)



Allocating CCA profit by gross MEAV and combining this with the above operating breakdown we estimate that local distribution costs account for around 38% of the total water supply cost envelope.

However, we also need to account for lost water via leakage and the fact that most leakage occurs on the local distribution network. To this end, we make the following local distribution cost adjustment to account for lost product: $1 - (1-X)*(1-L)$, where X is the proportion of the total cost envelope accounted for by the local distribution activity and Y is the estimate of leakage over the local distribution network.

Making the above adjustment for leakage the inferred local distribution cost differential is around 45%. This is the same as our current average large user tariff differential.

Assuming our largest customers do not generally sit within our DMAs, then our current large user tariff differential would be supported by a trunk network only positioning rationale. Thus, a gross MEAV based RCV allocation (of 47.5% allocated to the local treated water distribution) supports the current Ramsey Price justified average large user differential of 45%.

We then tested the impact of different water RCV allocation assumptions under a network positioning large user tariff differential justification.

3.2 Large user tariff – impacts of alternative RCV allocation approaches

For our largest user tariff (>250 MI/yr) we have explored what the impact would be of changing the approach RCV allocation. To ensure consistency and to restrict “flare off”, the associated impact will be replicated in the 50-250 MI/yr customer class.

We considered two generic approaches: i) variants of the gross MEAV (i.e. full asset replacement on a modern equivalent basis) approach, and ii) other operating-capital cost constructs.

MEAV based RCV allocation: Gross MEAV can be adjusted to reflect real world accountancy adjustments such as: i) accumulated depreciation on non-infrastructure assets (a hybrid gross-net MEAV approach); and/or ii) capital contributions to the water network from developers.

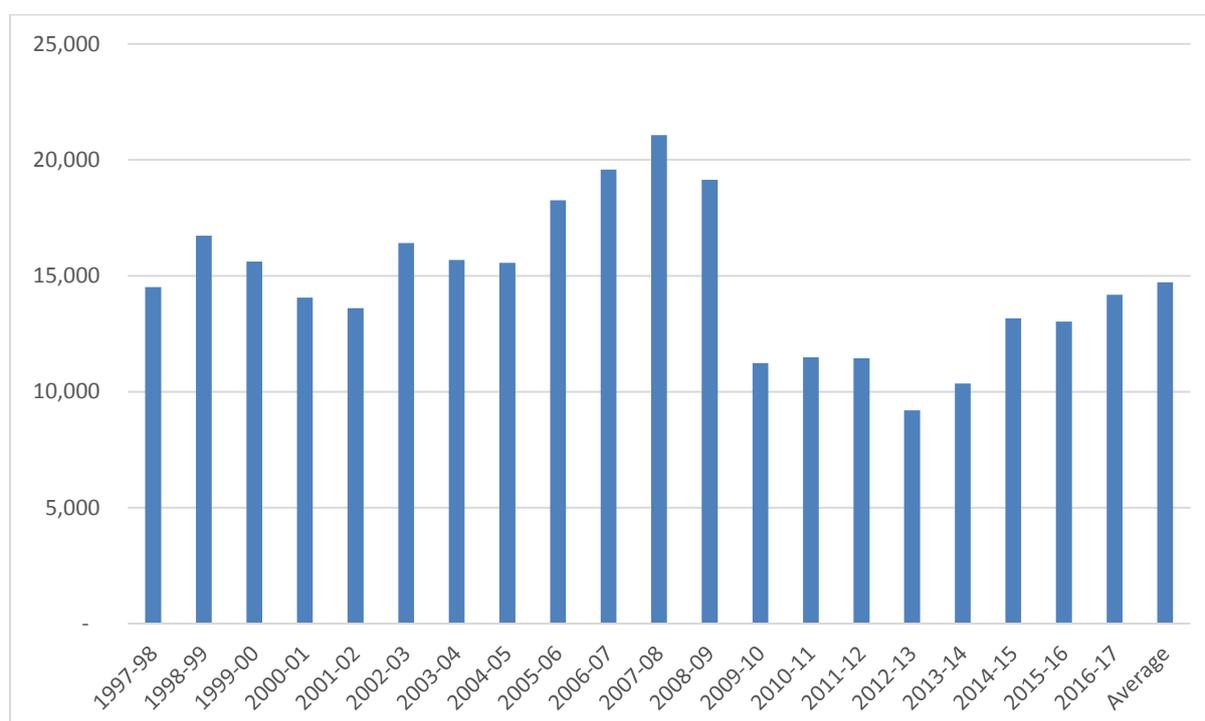
On a hybrid gross-net MEAV approach the proportion would result in a slightly higher RCV allocation to the local distribution network, around 50.5%. Applying this net MEAV approach to the allocation of RCV the inferred large user tariff differential is slightly higher i.e. at 45.9% as compared to 45.4%. The inference is that the decision to use gross or hybrid gross-net MEAV would have no material impact on the costs allocated to the local water distribution activity and possible associated large user tariff differentials.

High level guidance from the regulator on the “impact of requisition charges on a MEAV approach” states that “If companies draw on MEAV estimates we would expect them to take account of the likelihood that, for network plus activities (principally treated water distribution) a significant element of the estimated MEAV may have already been funded through connection charges, requisition charges and infrastructure charge”...“This may suggest that if an MEAV approach is used for an unfocused allocation, the allocation to water resources should be greater than would be implied by a simple pro rata allocation between water resources and network plus”.

This is another potential adjustment to the gross MEAV approach – one that attempts to reflect another aspect of regulatory accounting, namely that developers have paid capital contributions to extend/reinforce the network, since (and before) privatization.

To gauge the scale of this issue we have estimated the number of new properties connected since 1989. We have (see graphic showing how this has shifted with recent economic cycles figure A2-7) used an average of 15,000 per year to estimate that over 30 years (1989-00 to 2019-00) around 450,000 new properties will have been connected. Connection and associated onsite assets paid for prior to 1989 would have been embedded in assets purchased at privatization and should, in our view, be excluded from the possible capital contribution gross MEAV adjustment.

Figure A2-7. Historic Picture of New Water Properties Connected



We estimate the current replacement value of these connection/onsite assets to be no more than £1,000 per property. This would amount to a gross MEAV adjustment of around £450m. The gross MEAV attributed to local distribution network would then fall by around 1.5%, from 47.5% to around 46%.

However, this downward adjustment is not enough to materially impact on associated gross MEAV supported large user tariff differential of 45%.

Adjusting gross MEAV allocation for both accumulated depreciation on non-infrastructure assets and capital contributions from developers to infrastructure assets would be broadly self-cancelling and would again lead to the current average large user tariff differential of 45%.

This would infer that the selection of any particular approach to MEAV – gross, net, or capital contribution adjusted - does not materially impact on our large user tariff level/structure.

Other cost RCV allocations: In contrast, if we switch to other operating/capital cost RCV allocation methods, we can see a material impact on the household to large user tariff differential.

Selecting operating costs (around 32% in figure A2-5) as an alternative RCV allocator, the associated large user tariff differential falls from 45.4% to 42.3%. This is approaching a material change in the large user differential (i.e. 5-10% reduction) and could mean that large user volumetric rates (in p/m³) would have to increase accordingly. Household volumetric rates would clearly fall, albeit marginally.

Water treatment is one reason for the impact difference – as between MEAV approaches and the operating cost approach.

Comparing figure A2-5 and figure A2-6 it is evident that water treatment accounts for 22% of opex, but only 4% of the gross MEAV. On a proportional basis, this comparative cost feature of the water treatment activity (high opex vs low capex) drives opex away from the local distribution network activity and results in lower tariff differentials from its associated non-use.

Appendix 3 – Glossary of terms

AI2 – Asset Inventory

AIC – Average Incremental Cost

APR - Annual Performance Report

Capex – Capital Expenditure

dWRMP – draft Water Resource Management Plan

EA – Environment Agency

MEAV – Modern Equivalent Asset Value

NAV – New Appointment Variation

Opex – Operational Expenditure

RAG – Regulatory Accounting Guidelines

RCV – Regulatory Capital Value

RPI – Retail Price Index

Totex – Total Expenditure

YW – Yorkshire Water

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