

# **A WATER RESOURCE MARKET IN YORKSHIRE**

**PROPOSED WATER  
RESOURCES RCV ALLOCATION**

April 2018

# Contents

<b>01. Introduction</b>	<b>03</b>
About this document	04
Our valuation proposals:	05
<b>02. Water resources strategy</b>	<b>06</b>
Our draft Water Resources Management Plan 2019	06
Our role in resilience	07
A markets approach	07
Reducing demand	07
<b>03. RCV allocation approach</b>	<b>08</b>
Summary of our approach	08
Stage 1: Assessment of allocation methods	09
Stage 2: Allocation of RCV by methods	10
Net MEAV	10
Gross MEAV	11
Historic expenditure	12
Hybrid approach	13
Summary	13
Stage 3: Analysis of wholesale tariff and bulk supply impacts	14
Stage 4: Links to draft WRMP	15
Stage 5: Review and decision on allocation method	16
<b>04. Next Steps</b>	<b>17</b>
<b>05. Appendix</b>	<b>18</b>

# 01. Introduction

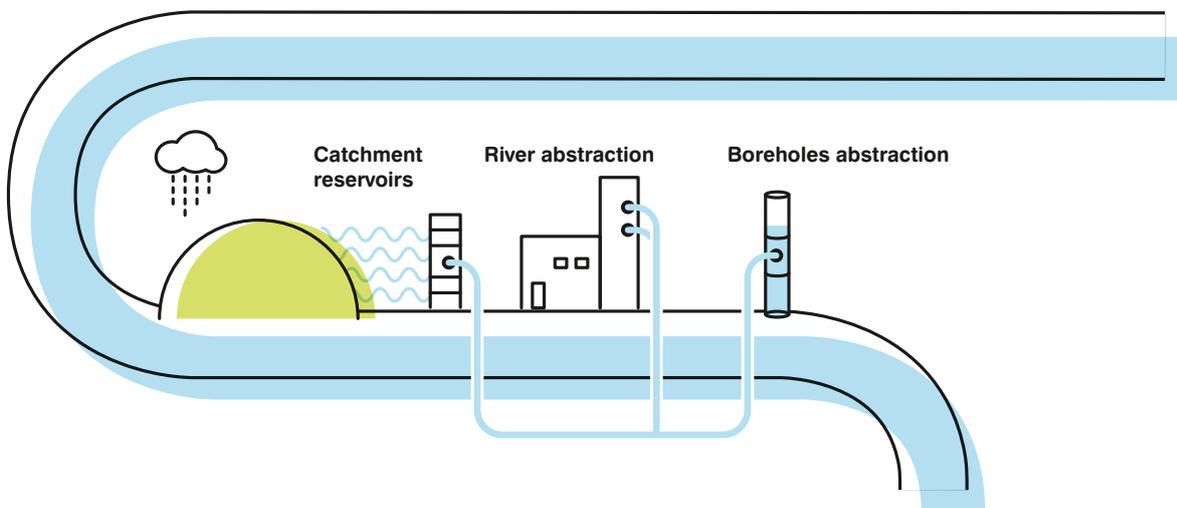
This document is intended to inform key stakeholders about how we have approached creating our water resources price control and the allocation of our historic regulatory capital value. We aim to be fully transparent about how we have done this. As such this document is technical by nature.

If you would like any of this information explaining in more detail or would like to discuss our water resources strategy, please contact us at [publicaffairs@yorkshirewater.com](mailto:publicaffairs@yorkshirewater.com)

## What are water resources?

We provide 1.24 billion litres of clean water per day across the Yorkshire region. In order to do this we have to collect, treat and distribute water from the environment.

In Yorkshire we do this by collecting water from the catchment in reservoirs, abstract water from rivers and pump water from underground boreholes and aquifers. It is this collection element of the process and the associated assets we own and operate to do this that will form the water resources price control.



# About this document

The 2019 Price Review (PR19) will see the introduction of a separate binding five-year price control on revenues related to water resources. This requires us to separate water resources assets from our other treatment and network assets to create a price control for 'water resources' and a price control for the remaining water operation, which is known as 'water network plus'.

Each water company currently has a single legacy regulatory capital value (RCV) for its clean 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 and is set out in its 'Regulatory Accounting Guidelines', commonly known as RAGs.

To determine the level of revenue that we can recover as part of the new water resources price control, we need to assess how much of the single legacy RCV to allocate to the water resources price control.

Ofwat requires water companies to undertake an assessment of the methods that could be used to undertake such an allocation, and state the method proposed to apply. The method of allocation applied has to be carried out using an 'unfocused' basis. This is where the RCV allocation is based on the proportion of the assets used in the water resources price control relative to the total assets of the water business.

We are required to allocate using a method that is appropriate to our own circumstances, but in assessing and choosing the most appropriate method we have to consider the impact on our customers, the water resources market and other related aspects of our business.

This document is a summary of the information that we have provided to Ofwat in support of our proposed method of RCV allocation for the water resources price control. This summary will provide an explanation of our chosen method of RCV allocation and how we have selected the chosen method as the most appropriate for our business.

We recognise the importance of the information we publish and have followed a quality assurance process aligned with our regulatory reporting assurance process. This applies a 'three levels of assurance' approach and consists of both internal and external assurance. The external element was provided by our technical assurance provider, Halcrow (ch2m). This approach is considered "best practice" and is described in more detail in our Assurance Plan.

The Board of Yorkshire Water support the valuation approach and proposed RCV allocation. Our Board is satisfied that the RCV allocation will not have an adverse impact on customer bills, and is consistent with charging rules and competition law.

# Our valuation proposals



**Total water RCV  
(at 31 March 2020)  
£2,661.085 million**



**Water resources  
RCV allocation  
£536.975 million (20.179%)**



**Water network plus  
RCV allocation  
£2,124.110 million (79.821%)**

# 02.

# Water resources strategy

## 2.1. Introduction

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, while continuing to keep customer 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.

## 2.2. Our draft Water Resources Management Plan 2019

Our 25-year strategy for water resources is informed by our draft Water Resource Management Plan (dWRMP) 2019, which was published in March 2018. 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.

Our preferred option to make sure that we can provide a resilient supply of water to our customers in Yorkshire is to further reduce leakage in the period 2020-2025. This reduction in leakage will be sufficient to move our deficit risk beyond the 25-year planning period. Leakage reduction will help to create a water surplus within our region, allowing for greater resilience, and an opportunity to support the national water resources position.

## 2.3. Our role in resilience

We already have one of the most resilient water resource systems in the country. There are a number of reasons for this:

- Our grid network allows us to move water around Yorkshire to help balance supply with local demand;
- We take our water from a variety of different places, balancing across reservoirs, rivers and groundwater sources; and
- We plan for extreme droughts that go well beyond even those that we have experienced in the past.

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.

## 2.4. A markets approach

We are taking a markets approach to the way in which we implement our long-term water resources strategy. This could include trading water with neighbouring water companies, or with industry allowing for water that is not required in Yorkshire, be considered for use elsewhere. Our aim is to move from being an importer of water to an exporter of water. This secures cost efficient supplies for our customers in Yorkshire and supports the national supply demand balance.

We also apply a markets approach internally to our water resources. We already manage the use of our raw water resources to ensure that we use the supplies that are most economically and environmentally sustainable.

## 2.5. Reducing demand

Reducing the demand for water forms part of our long term strategy. We will make sure that the number of customers on metered supplies continues to increase, this is because we know that, on a per person average, customers with meters use less water than those without.

Reducing 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 will help to keep customer's bills low and reduces the impact on the environment. In addition, it will ensure that we can maintain high quality supplies to our customers even if we have periods when some of our sources of water have a reduced quality.

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

# 03. RCV allocation approach

## 3.1. Summary of our approach

Ofwat did not set a defined process for delivering the split between the water resources RCV and the water network plus price control.

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”.

In order to meet this expectation, we defined a process for assessing and choosing the allocation method that is most appropriate for Yorkshire Water and our customers, as shown in figure 1.

In developing our proposed method of RCV allocation, we considered all the approaches as set out in the technical guidance published by Ofwat on 31 January 2017. In line with this guidance all allocation methods were applied on an ‘unfocused’ basis.

For all the approaches that we tested, we assessed the impact of the allocation against wholesale tariffs. We also considered the interactions between the allocation methods and our dWRMP and against water bulk supplies, where we are setting the price.

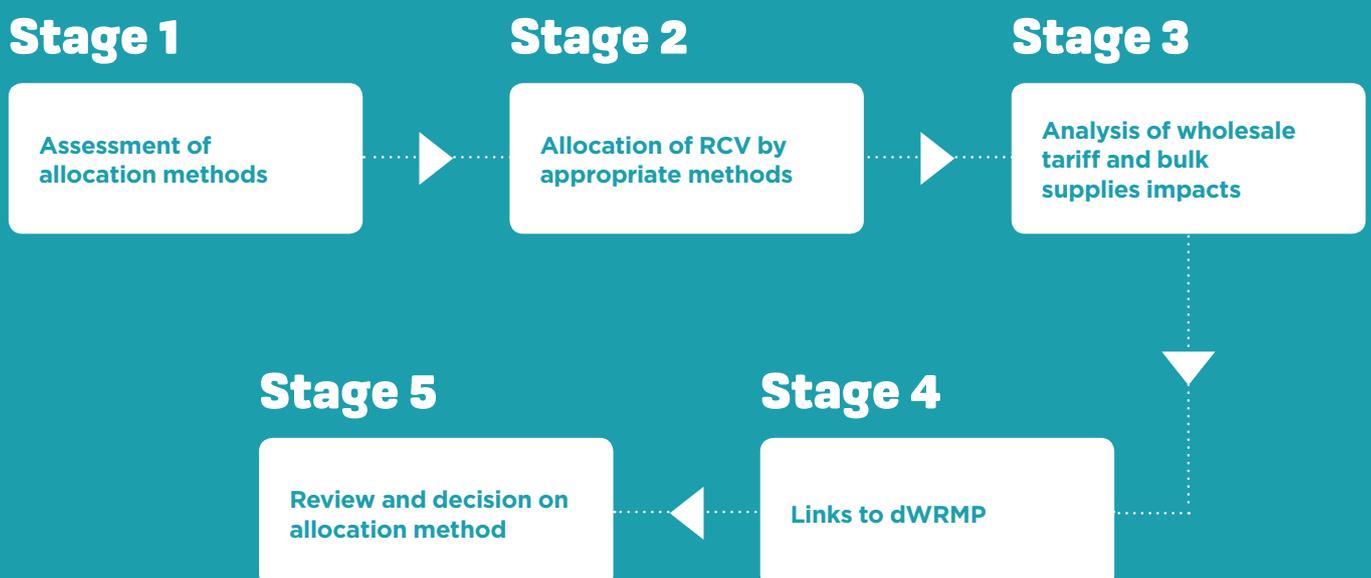


Figure 1 Our approach to RCV allocation.

## 3.2. Stage 1: Assessment of allocation methods

The first stage was to assess the allocation methods as set out in Ofwat's technical guidance (Water resources pre-2020 legacy RCV allocation). We carried out this assessment as a desk top exercise. This involved considering the methods under 2 broad headings:

### 1. Practicality.

### 2. Methodological considerations.

Under the practicality 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 justification for the method?

We have identified the following approaches to RCV allocation:

- Net Modern Equivalent Asset Value (MEAV).
- Gross MEAV.
- Splitting pre-privatisation assets at a discount to the RCV and post privatisation assets at full value.
- Historic expenditure – e.g. proportion of past expenditure, or operating costs and accounting charges, incurred on water resources.
- Projected expenditure – e.g. proportion of future expenditure expected on water resources.
- Economic value.
- 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.

In appendix 1 we have outlined each of the approaches along with our practical and methodological considerations. We have stated where we undertook a full assessment or justified why this was not undertaken. We did not carry out a detailed assessment where there were material concerns under practical and/or methodological considerations.

Based on our initial assessment we concluded that the methods that would have a full assessment were:

- Net Modern Equivalent Asset Value (MEAV).
- Gross MEAV.
- Historic expenditure:
  - Capex (capital expenditure).
  - Opex (operating expenditure).
  - Totex (total expenditure).
- 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.

### **3.3. Stage 2: Allocation of RCV by methods**

The following section sets out the data we used to allocate the RCV based on the methods above (stage 1). For completeness, we include the allocation to water network plus price control. The impacts of assessing via these different methods is covered in stage 3.

#### **3.3.1. Net MEAV**

In determining the net MEAV we did not re-evaluate our assets, this was consistent with Ofwat's technical guidance.

The data was based on our last valuation exercise which was undertaken at the 2009 Price Review (PR09). The valuations were 'rolled forward' from this point using the appropriate accounting methods.

Our asset records are in line with Ofwat's Regulatory Accounting Guidance.

The MEAV used was based on our historical approach. In the past we were required to report this data in our regulatory accounts.

The depreciation to infrastructure assets (including reservoirs) has changed and we were aware of that. Our annual accounts comply with these changes. For the purposes of this regulatory submission we used the values that have been reported historically in our regulatory accounting submissions.

To allocate the RCV at 31 March 2020, we assessed the sensitivity of using actual information up to 31 March 2017 and what the MEAV would be forecast at 31 March 2020. The outputs of this assessment are shown in table 1.

	31 March 2017			31 March 2020		
	Water Resource	Network Plus	Total	Water Resource	Network Plus	Total
Net MEAV (£m)	4758.54	16850.72	21609.26	4826.44	17153.48	21979.92
RCV Allocation (£m)	585.99	2075.09	2661.08	584.33	2076.75	2661.08

Table 1 Net MEAV allocation at 31 March 2017 and 31 March 2020.

There is a difference in allocation based on actual information (31 March 2017) and forecast (31 March 2020). The difference between allocating by MEAV at 31 March 2017 and 31 March 2020 was plus or minus 0.062% or £1.651m.

This difference between the two values is not material, therefore we chose to use 31 March 2020 MEAV data, as this corresponds to the date at which the RCV is to be allocated.

### 3.3.2. gross MEAV

To allocate on a gross MEAV basis we used the same base information used in the net MEAV allocation. However, to allocate on a gross basis we made no adjustment for depreciation. This is because the allocation was carried out on the full MEAV.

As with net MEAV, we assessed the sensitivity using actual information up to the 31 March 2017 and what the MEAV would be forecast at 31 March 2020.

In forecasting gross MEAV up to 31 March 2020 we assumed no disposal of either our water resource or water network plus assets.

The outputs of this assessment are in table 2.

	31 March 2017			31 March 2020		
	Water Resource	Network Plus	Total	Water Resource	Network Plus	Total
Net MEAV (£m)	4844.48	18945.94	23790.42	4922.67	19472.59	24395.26
RCV Allocation (£m)	541.88	2119.2	2661.08	536.97	2124.11	2661.08

Table 2 Gross MEAV allocation at 31 March 2017 and 31 March 2020.

There is a difference in allocation based on actual information (31 March 2017) and forecast (31 March 2020). The difference between allocating by MEAV at 31 March 2017 and 31 March 2020 was plus or minus 0.18% or £4.906m.

We also undertook analysis to assess the sensitivity surrounding the assumed levels of disposals. This was £0.73m.

As the difference between the two values is not material, along with the fact that the data reflects the date of the formal allocation of RCV to water resources we chose to use 31 March 2020 MEAV data.

### 3.3.3. Historic expenditure

We assessed the allocation of RCV to water resources using various forms of expenditure data.

The data is consistent with the boundary changes set out in Ofwat's Regulatory Accounting Guidance. We used data from the period of 2011/12 to 2016/17. This data was submitted to Ofwat as part of our cost assessment data submission in July 2017.

We averaged the expenditure across the full period to smooth any expenditure cycle effects. Averaging the data across the dataset minimised the effects of any abnormal spikes or lows in expenditure.

We assessed the sensitivity of this allocation method using the maximum and minimum 'spot years', where the maximum reflected the largest allocation to water resources and the minimum reflected the lowest allocation to water resources from a single year from the data.

This is shown in tables below for Capex , Opex and Totex respectively.

#### CAPEX

	Water Resource	Network Plus	Total
<b>Average 2011 -2017(£m)</b>	11.3	122.89	134.19
<b>RCV Allocation (£m)</b>	224.21	2436.87	2661.08

Table 3 Capex expenditure, average over period 2011/12 to 2016/17

The allocation based on an average level of Capex was 8.426% or £224.210m.

#### OPEX

	Water Resource	Network Plus	Total
<b>Average 2011 -2017(£m)</b>	25.36	143.46	168.82
<b>RCV Allocation (£m)</b>	399.75	2261.33	2661.08

Table 4 Opex expenditure, average over period 2011/12 to 2016/17

The allocation based on an average level of Opex was 15.022% or £399.75m.

#### TOTEX

	Water Resource	Network Plus	Total
<b>Average 2011 -2017(£m)</b>	36.65	255.77	292.42
<b>RCV Allocation (£m)</b>	333.54	2327.54	2661.08

Table 5 Totex expenditure, average over period 2011/12 to 2016/17

The allocation based on an average level of Totex was 12.534% or £333.544m.

### 3.3.4. Hybrid approach

There were no disproportional impacts that could not be managed through the choice of a single allocation method, therefore we did not assess based on the hybrid approach.

### 3.3.5. Summary

We have summarised the allocations under the various methods in the table below.

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

Table 6 Summary of RCV allocation (£m) by allocation method

The range based on all allocation methods is between £584.332m (21.958%) and £224.210m (8.426%). This represents a sizeable difference in allocation under the maximum and minimum allocation methods.

At the end of this stage we did not favour a method of allocation.

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

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

In evaluating what the impact of RCV allocation would be on wholesale and bulk supply tariffs, we carried out a two-stage process:

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

#### 3.4.1. Background and tariff justification

Our tariffs are justified using a well-established pricing rule. In addition, we ensure that our tariffs are compliant with our license conditions through the use of tariffing differentials.

Currently, small to intermediate business customers provide the greatest proportion of the business retail revenues, as shown in figure 2.

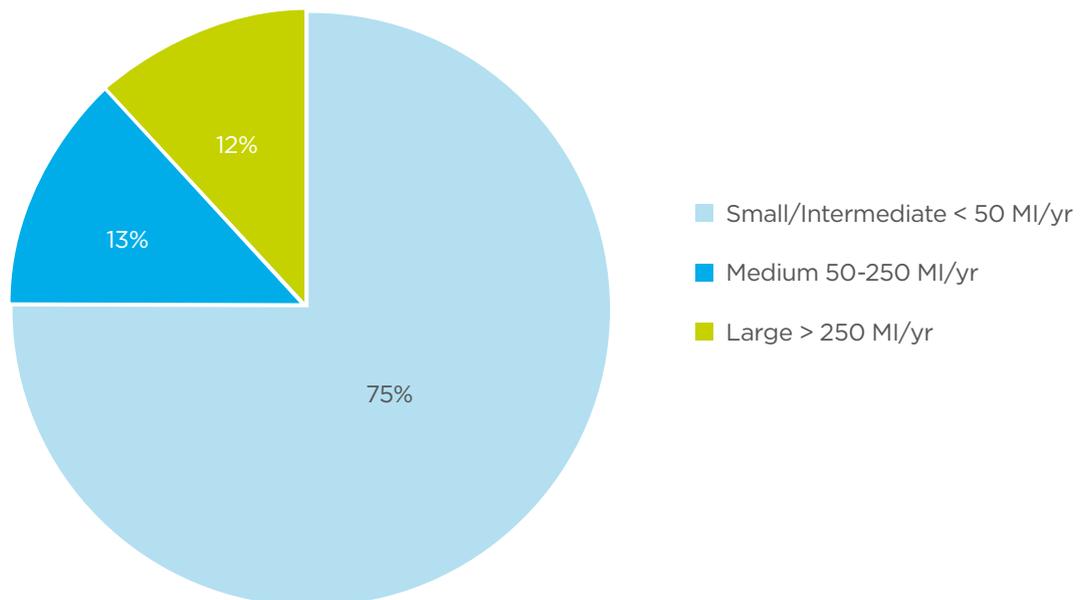


Figure 2 Retail Business Customer Revenues (YW Annual Performance Report (APR, 2017).

## 3.4.2. Tariffing Differentials

The key tariffing differential is our business retail customer in relation to our metered residential customer classification.

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. Where this is the case the associated tariff relationships are not impacted by the RCV allocation method selected.

The RCV allocation method could have an indirect impact on business 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.

We assessed this and under the proposed method of allocation there is no tariffing impact.

## 3.4.3. Conclusion

Our assessment concludes that the method used for allocation of RCV to water resources could have an impact on wholesale tariffs, but only for our very largest business retail users and only under certain methods of allocation.

Our assessment indicates our proposed approach to the RCV allocation will not have a material impact on our customer's bills.

## 3.5. Stage 4: Links to draft WRMP

For all the allocation methods tested, we believe there is potential for limited links to our draft WRMP.

We accept the link set out in the Ofwat guidance and data tables is present in that:

“Average Incremental Cost (AIC) 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.”

None of the methods we assessed are based on the use of future cost information.

The draft WRMP is concerned with the period beyond 2020 and as such a link between that and historical cost information and asset values does not exist.

Our solutions for the draft WRMP have been built on a bottom up basis, and do not rely on historic information.

## 3.6. Stage 5: Review and decision on allocation method

Tariff and bill stability are important to all our stakeholders. We viewed this as one of the key considerations with regards to the method of RCV allocation chosen. In addition, we carefully considered the role of water markets and links to wider regulatory mechanisms.

**Based on these considerations and the reasons set out below, we are proposing an allocation using a Gross MEAV method, at 31 March 2020.**

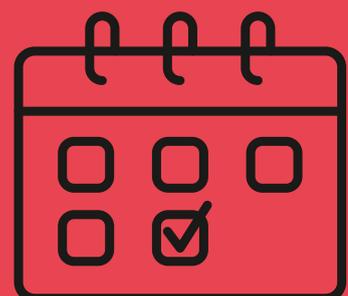
The reason for allocating using a gross MEAV method are;

- **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 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:** Our current tariffing structures can be supported by a gross MEAV approach. 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.

# 04. Next Steps

The water resources RCV allocation submission to Ofwat forms part of our business plan submission in September 2018. The business plan covers the period 2020 – 2025. The industry PR19 business plan timetable is outlined below.

<b>31 January 2018</b>	We submitted our water resources valuation, RCV allocation and assurance summary.
<b>End of April 2018</b>	Ofwat will provide feedback on our valuation and proposed RCV allocation.
<b>December 2019</b>	Ofwat confirms the allocation of the RCV to the Water Resources price control as part of the business plan final determination.



# 05. Appendix

## 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>	✓
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>	✗

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

**[yorkshirewater.com](http://yorkshirewater.com)**

Yorkshire Water Services Limited, Western House, Halifax Road,  
Bradford, BD6 2SZ. Registered in England and Wales No.2366682

