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Appendix 5.2

REVIEW OF BIORESOURCES RCV ALLOCATION

April 2018

REVIEW OF BIORESOURCES RCV ALLOCATION

An assurance report for Northumbrian Water

Legally privileged and commercially confidential | April 2018

Economic Insight

At PR19 companies are required to allocate a proportion of the March 31 2020 RCV to bioresourcess, in order to facilitate the setting of a separate price control for that element of the value chain. In developing its methodology for PR19, Ofwat has issued a range of guidance to the industry as to how the allocations should be arrived at. This includes providing feedback to companies on their draft allocations, as submitted in September 2017. To help ensure that its RCV allocation is compliant with Ofwat's methodology and is as robust as possible, Northumbrian Water commissioned Economic Insight to quality assure its approach. This short report sets out our findings and recommendations. In summary, we consider the company to have adopted robust methodologies, which are consistent with the regulator's requirements and which have been implemented accurately. We therefore do not think any revisions to its allocation are required for the purpose of finalising its Plan. We do, however, identify some minor areas where, in the interests of having the strongest submission possible, the company could further enhance its evidence base.

1. Introduction

At PR19, Ofwat has introduced separate price controls for 'bioresources' and 'wastewater network plus'. Accordingly, to enable the regulator to set price limits in these areas, companies are required to allocate a proportion of their regulatory capital value (RCV) - as of 31 March 2020 - across the bioresources and wastewater network plus parts of the value chain.

As part of their Plan submissions, companies must populate various data tables relating to the above - including:

- ***WWS12 RCV allocation in the wastewater service:*** this table requires companies to submit detailed information on their final proposed RCV allocation to bioresources, including setting out any changes from the September 2017 submission. This further includes, for example, setting out any changes to: the allocation of assets; sludge assets in existence; the gross hypothetical cost of new assets; the economic life of existing assets; and land valuations.

- ***WWS12a Wholesale wastewater charges impact assessment:*** this table requires companies to provide data showing the average cost and unit revenue impacts arising from their RCV allocations.

Also of relevance, Ofwat's Initial Assessment of Plans (IAP) includes criteria relating to the RCV allocations. Here, Ofwat has stated that, for a plan to be considered high quality: *"the company should include transparent, well evidenced and acceptable* *proposals on pre-2020 RCV allocation."*[1] More broadly, and cutting across all areas of company plans, Ofwat has emphasised the need for strong assurance – and in particular, Board Assurance. This, in turn, requires that companies have high quality evidence for all aspects of their plans.

In the above context, Northumbrian Water (Northumbrian) commissioned Economic Insight to undertake a review of, and provide assurance around, its bioresources RCV allocation at PR19. The scope of our work including reviewing:

- The company's written documentation concerning its proposed RCV allocation (as set out in *'Economic asset valuation for the bioresources RCV allocation at PR19')*.

- The company's associated data, contained in an Excel file (*'NES Bioresources RCV allocation tables – FINAL.xls'*).

This report sets out the findings from our review, and is structured as follows:

  - we summarise Ofwat's published guidance on bioresources RCV allocation;
  - we then set out our review, addressing both the written documentation and the company's data;
  - finally, set out our overall findings and recommendations.

2. Ofwat's guidance on bioresources RCV allocation

Ofwat has issued a range of guidance regarding the methodology it wishes companies to adopt in arriving at their RCV allocations for bioresources. In assuring Northumbrian's approach, we have therefore reviewed the relevant publications by the regulator, so that we can provide views as to the consistency of the company's approach with the requirements. Accordingly, in the following we summarise the key features of Ofwat's guidance in chronological order.

OFWAT REQUIRES RCV ALLOCATIONS TO BE BASED ON ECONOMIC VALUE.

2.1 Ofwat's consultation on approaches to RCV allocation (March 2017)

In March 2017, Ofwat issued a consultation on the approach to RCV allocation for bioresources.[2] Here, key features of Ofwat's proposals were as follows:

- That the RCV allocation to bioresources will be on a 'focused' basis – and, consistent with this, companies should complete a valuation based on *the future economic value* of bioresources assets, as at 31 March 2020.

- Companies should undertake cross checks to provide assurance that the RCV allocation based on economic value is appropriate and protects customer interests. Ofwat further stated that this should include: (i) testing impacts on customer bills; and (ii) testing impacts on companies' ability to set charges in line with both charging rules and competition law.

- If the cross checks reveal an issue arising from the proposed allocation of RCV, the company should propose an alternative allocation of the RCV.

[1] *'Delivering Water 2020: Our methodology for the 2019 price review Appendix 13: Initial assessment of business plans.' Ofwat (December 2017)*
[2] *'Consultation on economic asset valuation for the bioresources RCV allocation at PR19.' Ofwat (March 2017)*

- Ofwat further stated that collecting bioresources asset economic valuation information at site level will allow companies to make best use of the most relevant information available to them.

In addition to the above methodological points, the March 2017 consultation also set out Ofwat's intended *process* for finalising RCV allocations – as follows:

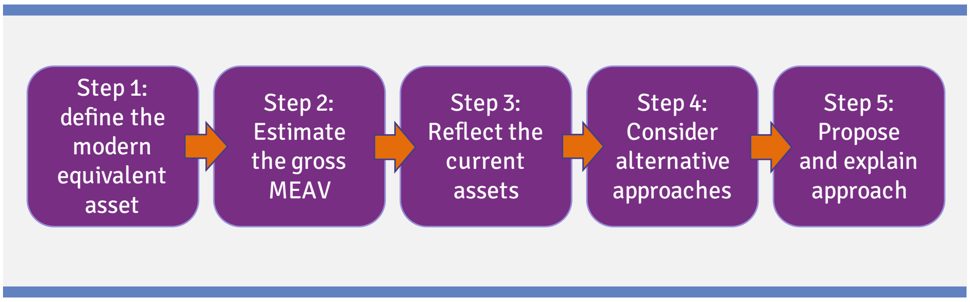
- in September 2017 companies were required to submit draft RCV allocations with supporting data in a format stipulated by Ofwat;
- that Ofwat would then subsequently publish feedback on those submissions (see later); and
- that Ofwat itself would set the final allocations as part of the PR19 Final Determinations.

2.2 Ofwat's Decision on the approach to Bioresources RCV allocation (April 2017)

Following the above consultation, in April 2017 Ofwat published a decision document, setting out its finalised approach.[3] Ofwat's position was largely consistent with that it consulted on in March – although the regulator did publish further information regarding the details of its preferred approach.

In particular, Ofwat set out a '5-step' process that it requires WaSCs to follow in order to arrive at their allocations. This is summarised in the figure below and briefly expanded on in the remainder of this section.

Figure 1: Ofwat's 5-step approach to RCV allocation



Source: Ofwat

2.2.1 Defining the modern equivalent

THE DEFINITION OF THE MODERN EQUIVALENT ASSET SHOULD: REFLECT SERVICES PROVIDED IN THE SAME LOCATION; REFLECT THE CAPACITY OF ACTUAL ASSETS; BE CONSISTENT WITH COMPANIES' STRATEGIES; AND INCLUDE LAND VALUE.

Here Ofwat's guidance is that each WaSC should clearly set out "how" they have defined the modern equivalent asset. Ofwat's guidance further stipulates that:

- This should be set with reference to the assets that they believe a hypothetically efficient entrant would build at the same location in order to provide the same service.

- That the assumed capacity should be that of actual assets, as of 31 March 2020.

- That WaSCs should identify their assumptions in the context of their strategy for bioresources (this should include their expectation of market prices and the potential for energy production).

[3] *'Economic asset valuation for the bioresources RCV allocation at PR19.' Ofwat (April 2017).*

- WaSCs <u>must</u> estimate the cost of building the assets on a new build basis (where Ofwat is referring to the overall site).

- That land values should be included in the valuation (and where land is used for a mix of purposes, WaSCs should allocate land for the relevant use and keep records of how the allocations were developed).

2.2.2 Establishing the gross MEAV

Reflecting the fact that companies may have made investments in bioresources assets at differing points in time, in step 2, Ofwat requires WaSCs to estimate the MEAV of the relevant assets. Here, key requirements set out by the regulator include:

- Companies should be clear about the data and evidence used to underpin their view of MEAV and submit this to Ofwat.

- As companies need to provide MEAVs as of 31 March 2020, if they rely on the existing value (e.g. as of 2017) they need to roll these forward to 31 March 2020, considering forecast expenditure and depreciation.

- That, given the wide range of sludge assets across companies, and the potential for companies to adopt differing strategies, there may be scope for variation in the valuation methodologies across WaSCs. Ofwat therefore indicated that it will review company methodologies: (i) relating to their draft September 2017 submissions (see below); and (ii) in their Business Plans.

- Companies should consider the economic value separately for: (i) energy generation and renewable energy incentives; (ii) bioresoruces end product value (e.g. fertiliser); and (iii) transport and treatment of sludge for disposal – including third party waste.

- For the purpose of the valuation exercise, Ofwat expects companies to estimate the economic value for all STCs (allocating revenue streams etc to these, and then making adjustments to reflect the actual assets). WaSCs therefore also need to include the value of other assets that contribute to sludge treatment, transport and disposal (such as: assets at satellite centres; vehicles and other plants used; a share of management and other general assets; and a share of other assets that the sludge business relies upon, but where the principal use is in another business unit).

2.2.3 Reflecting the current assets

ADJUSTMENTS MAY BE REQUIRED TO REFLECT DIFFERENCES BETWEEN THE MODERN EQUIVALENT AND ACTUAL ASSETS – SUCH AS ADJUSTING FOR ASSET AGE.

Under Ofwat's third step, companies are required to adjust the gross value of sludge assets to reflect the economic value of the current assets that will be owned as of 31 March 2020. Ofwat explains that the reasons for such adjustments include:

- the existing assets will have different age profiles and remaining lives to the new build assets;
- where assumptions have been made on the maintenance and operating costs of the new build asset, adjustments may be needed to reflect what existing assets are already delivering;

- where WaSCs identify what revenues would be generated from the hypothetical new build assets, adjustments are needed to the net value to reflect the revenue generation of actual assets.

Regarding the above, Ofwat also indicates that companies should be proportionate regarding how / where adjustments are made: *"we expect companies to take a proportionate approach. Where a company considers that here are no material differences between the modern equivalent and actual assets then the only adjustment that may need to make is to adjust for the difference in asset age."* [4]

Ofwat's guidance also includes examples of the calculation steps required to adjust for differences in asset age.

2.2.4 Considering alternative approaches

Ofwat's fourth steps indicates that companies may not wish to rely on a single approach to deriving the economic value; but, rather, may wish to blend a range of approaches. Within this step, Ofwat also provided guidance as to what 'cross checks' it might expect companies to undertake. These include, for example:

- Comparison of estimated economic values against a roll-forward of the revaluations undertaken for PR09.
- Cross checking of economic values against the post privatisation expenditure and depreciation on sludge assets.
- Comparison of projected future maintenance expenditure could be checked against the proposed net value and remining life of the assets as a cross check.
- Using 'averaged' or hybrid approaches as a further cross-check.

2.2.5 Propose and explain approach

Ofwat's fifth and final step relates to how companies arrive at, and report, their finalised RCV allocations. Here, Ofwat's main requirement is that companies provide: *"a comprehensive narrative which will aid our understanding and allow for scrutiny of each WaSC submission."*

Ofwat further set out a (non-exhaustive) list of the key elements it expected companies to provide, which included:

- a clear explanation of the approach taken to the valuation;
- a rationale of the valuation approach and how it satisfies the guidance;
- a clear explanation of how the economic value of the assets has been assessed (both the definition of the hypothetical asset and adjustments made to reflect the life and differences in economic value from actual assets);
- an explanation of the sources of assets cost, asset life, operating cost and revenue information;
- an overview of the sludge assets should be provided (a description of them, site and capacity information);
- land values should be recorded and reported separately;
- an overview of the sludge processes for each site;

[4] *'Economic asset valuation for the bioresources RCV allocation at PR19.' Ofwat (April 2017); page 27*

- where application, an explanation of "on-costs";
- an explanation of the assurance procedures undertaken;
- a description of the cross-checks that the WaSC has considered and undertaken; and, finally
- an explanation of the proposed RCV allocation, taking the above into account.

2.3 Ofwat's PR19 Final Methodology (December 2017)

Ofwat's Final Methodology for PR19, published in December 2017, contained the following guidance relevant to bioresources RCV allocation.[5]

- Companies should adopt a 'focused' approach to RCV allocation.

- Further, the focused approach should reflect the forward-looking economic value of the assets.

- Ofwat itself will ultimately determine the RCV allocations as part of the PR19 Final Determinations, building on its approach outlined in April 2017.

Ofwat's Final Methodology further stated that: *"we are asking companies to submit updated summary RCV information in the business plan tables, together with a reconciliation to the information they provided in September 2017 and information to check any potential impact on customer bills. We are limiting the information we are requesting for business plans on the basis that we expect to have confidence that companies are able to adequately address any points we make in our feedback and that company business plans will give us confidence they have done so."*[6]

2.4 Ofwat's feedback to companies on provisional RCV allocations (February 2018)

In February 2018, Ofwat published its feedback on companies' provisional RCV allocations[7] (as submitted in September 2017). The feedback was structured around Ofwat's 5-step process, as previously described. In relation to the feedback, we note:

- » Ofwat provided no explicit commentary indicating that Northumbrian should revise its approach (i.e. whilst Ofwat was critical of some companies' submissions, Northumbrian was not one of these).
- » Other than in a few narrow areas, Ofwat's feedback was relatively unspecific. For example, it notes variations in items such as average unit capital costs, or average asset age adjustments, but does not conclude one way or another as to whether this is problematic. Rather, the regulator simply indicates that companies should *consider* these issues with care.

In the next main section of this report we set out Ofwat's feedback in more detail and assess Northumbrian's proposals against it.

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5 *'Delivering Water 2020: Our methodology for the 2019 price review Appendix 6: Bioresources control.' Ofwat (December 2017).*

6 *'Delivering Water 2020: Our methodology for the 2019 price review Appendix 6: Bioresources control.' Ofwat (December 2017); page 24.*

7 *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018)*

4. Our review of Northumbrian's bioresources RCV allocation

In this section we set out our review of Northumbrian's bioresources RCV allocation. In turn we provide: (i) our assessment of the extent to which the company's *overarching approach* is consistent with Ofwat's PR19 methodology and guidance; and then (ii) set out our analysis of how the company's method addresses the industry feedback provided by Ofwat. As explained in the introduction, our views are based on our review of Northumbrian's internal report: *'Economic asset valuation for the bioresources RCV allocation at PR19;'* and the accompanying data table spreadsheet.

4.1 Overall consistency of approach with Ofwat's guidance

Based on our review, we find a high level of consistency between the company's approach and Ofwat's requirements. In the subsequent sections we provide more detailed observations on Northumbrian's method, in light of Ofwat's published feedback, and identify areas in which refinements could be made. However, at an overall level, we find the following:

- That the company has adopted an economic value approach to arriving at its proposed bioresources RCV allocation.
- The company has further clearly set out its approach to economic value within the wider context of its strategy for sludge, to ensure internal consistency.
- The company's approach defines the modern equivalent asset in a logical way – and, due to the recentness of its own strategy, assumes existing processes represent a fair measure of the modern equivalent – a point with which we concur.
- The company's approach includes values for shared assets.
- The company's approach includes land values.
- The company's approach includes and separately identifies relevant income.
- The company's approach includes a range of cross-checks, consistent with those outlined by Ofwat (although these could be further refined).

4.3 Extent to which Northumbrian's approach addresses Ofwat feedback

4.3.1 Ofwat feedback on step 1: defining the modern equivalent

Capacity measurement

OFWAT RAISED CONCERNS WITH THREE COMPANIES THAT HAD EXCLUDED CERTAIN CAPACITY.

In relation to capacity, Ofwat undertook an analysis whereby it 'normalised' capacity of sludge assets across the industry and then compared this to company-reported capacity numbers. Here, Ofwat's adjustment included: (i) assuming bioresources are retained in primary digestion for 15 days; (ii) reducing capacity by 15% to reflect required headroom for other factors; (iii) for liming, a headroom factor for capacity of 15% was applied. Here, Ofwat highlighted that four companies that excluded certain capacity. Specifically: Southern Water, Severn Trent, United Utilities and Wessex Water, had not provided compelling evidence that their capacity should be treated differently from other companies.

We note that Ofwat provided no specific feedback in relation to the level of capacity assumed by Northumbrian. In addition, on Ofwat's analysis, the difference between Northumbrian's reported capacity and the normalised capacity measure is relative modest[8] (for other companies the differences are much more pronounced). Consequently, our view is that Ofwat's feedback provides no obvious cause for concern regarding the capacity measures for Northumbrian.

4.3.2 Ofwat feedback on step 2 – establishing the gross MEAV

Ofwat undertook a range of analyses to compare company submitted data and made observations on it, as follows.

Relative capital cost of MEAVs per unit of normalised capacity

Using the normalised capacity (as above) Ofwat compared unit capital costs for the MEAVs submitted by companies.[9] This showed relatively significant variation across the companies – although: (a) Ofwat does not offer specific commentary as to whether this is potentially problematic; and (b) no specific feedback is provided in relation to Northumbrian. Looking at this analysis, our observations of relevance to Northumbrian are as follows.

Ofwat's figures imply that Northumbrian's unit MEAV capital costs are relatively low (second lowest in the industry). However, our view is this is reasonably explained by the fact that Northumbrian already utilises advanced anaerobic digestion (AAD) and has assumed that this is the 'optimal' technology within its RCV allocation. This would further seem to be consistent with Ofwat's own views. Specifically, whilst Ofwat finds no direct evidence of differences in capital cost by treatment type, Ofwat is sceptical of this, stating: *"we remain cautions of this result as it could be influenced by company and site-specific factors."*[10] Therefore, a reasonable interpretation of Northumbrian's 'low' capital cost per MEAV is that it reflects differing assumptions across companies as to the 'optimal' technology that would be used and the respective cost of this.

Ofwat similarly analyses unit costs of gross capital at 'other sites' per unit of bioresoruces transported.[11] Ofwat found significant variation in these cost across

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[8] *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018); see figure 3.1.*
[9] *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018); see figure 4.1.*
[10] *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018); page 16.*
[11] *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018); see figure 4.3.*

companies and suggested that the extent of this was such that it could not be explained differences in geographic operating circumstances. Whilst Ofwat made specific observations regarding a number companies, it raised no issues relating to Northumbrian.

In its feedback relating to gross MEAVs more broadly, Ofwat offered the following guidance:

- Companies should consider whether the proportion of shared assets assumed is 'reasonable' – **especially if the cost of shared assets are greater than 5% of their overall valuation.** Ofwat further stated that, should shared assets exceed 5% of the valuation, companies should provide specific assurance on this issue. This issue received particular attention in Ofwat's feedback (see below).

- All companies should take a view as to whether shared assets should be included or excluded and explain their reasoning.

NORTHUMBRIAN HAS INCLUDED A REASONABLE PROPORTION OF SHARED ASSETS.

Inclusion of shared assets

As noted above, the key issue for the industry identified in Ofwat's feedback relates to the inclusion of shared assets. Here, Ofwat had concerns regarding both: (i) the potential *exclusion* of shared assets from valuations by certain companies; and (ii) instances where the proportion of shared assets was high (resulting in Ofwat requesting further assurance from companies proposing proportions above 5%).

In relation to Northumbrian, we note that the company has included shared assets within its RCV allocation, as required By Ofwat. Specifically, row 159 of Table 6 'Site detailed data (inputs)', reports a value of £0.058m relating to 'allocation of net book value of shared/corporate assets to sludge business (insofar as not captured elsewhere)'. This represents just 0.04% of the company's RCV allocation. If management and general costs are also included, this increases to 4%, but still remains below Ofwat's threshold of 5%. Consequently, our view is that the company has included an appropriate proportion of shared assets – and further, the impact of shared assets and overheads on the RCV allocation is sufficiently small in Northumbrian's case that further assurance on this issue would not be proportionate.

Inclusion of land values within gross asset values

Ofwat's had limited feedback on this – noting just that there was little variation in the values assumed by companies for land – and that companies provided reasonable evidence of this.

In Northumbrian's case, we note the company used values from the DCLG 2015 report: *'land value estimates for policy appraisal',*[12] implying a value of £188.5k per hectre. We have verified that this reflects the information contained in the report and concur that this is a reasonable approach.

[12] *'Land value estimates for policy appraisal.' Ministry of Housing, Communities & Local Government; (December 2015).*

4.3.4 Ofwat feedback on step 3 – reflecting the current assets

Asset lives

Ofwat undertook an analysis to compare companies' (i) adjustment for asset life, as a % of the MEAV; and (ii) the weighted average age of assets (in years).[13] Here Ofwat's view was that, whilst overall the adjustments might seem reasonable, the regulator was concerned with the extent of variation – stating that this was *"more than we expected".*

In relation to Northumbrian, we note that the company had the second lowest % adjustment for asset life. However, we consider that this likely reflects the relative 'newness' of the company's assets – as we would expect there to be an inverse relationship between the size of adjustment and asset age (Ofwat also notes this within its feedback). Therefore, in Northumbrian's case, the adjustment factor appears consistent with the profile of its assets.

Ofwat did specifically comment on Northumbrian's approach – as follows: *"three companies (Dwr Cymru;* ***Northumbrian;*** *and Yorkshire Water) assumed that, where their actual assets were similar to the modern equivalent assets, then they would have the same overall asset life. The remaining life was therefore provided by subtracting existing asset age."*[14] Ofwat does not, however, comment on whether it thinks this is appropriate or not. Our view is that, in principle this approach is sensible and proportionate (although it clearly rests on 'how similar' the assets are to the modern equivalent) – and so this is a matter of degree. Thus, if Northumbrian wished to further strengthen its evidence in this area, it could seek to provide information to show that the average asset life of *new* AAD facilities is not materially different to those of its own assets.

In its feedback on this issue, Ofwat offered the following guidance as companies finalise their plans:

- Companies should reconsider if their reported MEAV asset lives are 'realistic' – especially if site specific aspects are unduly influencing the results.
- Companies should consider whether there are practical cross-checks that can be applied on remaining asset lives.
- Companies should calculate assets age as the time since the last substantial change to the asset.
- Companies should provide independent assurance regarding their adjustments to reflect asset life.

External income from bioresources treatment activities

Ofwat provided a range of feedback on how companies should have incorporated income from bioresources - as follows:

- Companies should base the incentives available for existing assets as of 2020 according to what is set at 30 April 2018.

13 *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018); see figure 5.1*
14 *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018); page 24.*

- Companies should assess the renewables incentives they receive for actual assets from 2020.

- To aid consistency, companies should use their average import price for the value of energy generated and used by the appointed business (regardless of whether it is used 'at site).

- In relation to exports, all companies should use the actual export price for the value of any energy sold to National Grid.

Our view is that Northumbrian's approach complies with the above guidance. For example, we understand the company's method captures income from the Bran Sands 'gas-to-grid' scheme, reflecting the export price. Consequently, as Northumbrian's methodology assumes the modern equivalent processes are the same as existing processes, no adjustment relating to this issue is required. Consistent with this, the company has entered a 'zero value' in row 149 of Table 6 *'Site detailed data (inputs)'.*

4.3.5 Further Ofwat feedback on step 1 – defining the modern equivalent (choice of technology)

Ofwat noted that companies made differing assumptions regarding the optimal technology when defining the modern equivalent. The regulator provided no feedback directly relating to Northumbrian, nor do the regulator's observations have any direct implications for Northumbria's approach. Feedback provided more generally by Ofwat includes the following:

- Companies should give further consideration of whether their choice of technology is appropriate.

- Companies should give consideration to the full range of incentives that could be available for each site.

- Companies should ensure that their definition of the modern equivalent technology is not influenced by sunk costs.

We consider that Northumbrian's approach (which is to assume that AAD is most efficient – and so the modern equivalent can be defined using existing processes) is reasonable. We further note (as explained below) that the company provides supporting evidence of this, by way of an OJEU notice issues by Yorkshire Water.

4.3.6 Feedback on step 4 – consider alternative approaches (cross checks)

Generally, Ofwat provided little specific / detailed feedback on this area. However, the regulator has been clear that it wishes companies to provide a good spread of cross checks to help substantiate their approaches. Northumbrian's report contains a number of cross checks, consistent with those highlighted in Ofwat's feedback to companies. Our observations on these are as follows.

Northumbrian check 1 – comparisons against historical accounting data

The company firstly presents a cross check of its RCV allocation against historical accounting data. Specifically, Northumbrian compares its RCV allocation to bioresources of £129m to the net book value of sludge assets of £70.9m in its regulatory accounts, noting that the latter excludes the £10.4m of gas to grid investment at Bran Sands. Northumbrian then comments: *"we would expect our bioresources RCV allocation to be higher than this [£70.9m] figure due to the effects of moving from historical cost to an MEAV approach. The switch from straight line depreciation to present value depreciation in the submission is another reason for a higher net book value. The RCV allocation of £129m thus seems to us to be consistent with our historical cost accounts."*

We note that the use of the above cross check is consistent with Ofwat's feedback to companies, which notes that: *"comparing an approach based on the valuation of the existing assets and their remaining life… will be a useful cross check."* [15]

CROSS CHECKS AGAINST HISTORICAL ACCOUNTING DATA ARE CONSISTENT WITH THE COMPANY'S APPROACH BEING APPROPRIATE.

In relation to this cross check, our view is that (given the method applied) we would expect Northumbrian's RCV allocation to be between the net book value of sludge assets (£70.9m) and the gross value (£187.1m), as reported in the regulatory accounts. Accordingly, the company's proposed figure of £129m is consistent with this test. Given that the company is assuming the same technology is applied under the modern equivalent, ultimately *it should be possible to further breakdown differences between accounting values and the proposed RCV into their constituent parts.* Specifically, we think there might be merit in the company adding further detail to this cross check by identifying the extent to which differences arise due to:

- The 'rolling forward' of additions from 2016/17 (as per the accounts) to 31 March 2020.
- The impact of the change in depreciation from straight line to present value.

Northumbrian check 2 – impact on wholesale tariffs

The company notes that, because the overall wastewater RCV is unchanged by allocating it between network + and bioresources, customers' wastewater charges are not impacted by its method. Consequently, the company focuses its 'bill impact' cross check on trade effluent charges – where the company notes that the allocation affects the balance between the related 'sludge' and 'network +' charges. The company further notes that *only 2 customers will be affected by any rebalancing.*

We concur with Northumbrian's analysis and observation. Specifically, it is correct that overall wastewater charges should remain unaffected (with one caveat) and, as such, the focus on trade effluent is logical. We further concur that the rebalancing impact within trade effluent is likely to be small for Northumbrian.

Notwithstanding the above, there may still be merit in the company showing the impact of its approach on the balance between overall sludge and wastewater network + bills for all customers. This is because, whilst (at present) there are no sludge treatment facilitates within an economically viable transport distance to make 'trades' possible, Northumbrian's report notes that: *"we are continuing to investigate the potential long-term treatment of sludge arising from a neighbouring WaSC sewage treatment works which is located relatively close to one of our AADs. This may be the lowest cost solution available to Yorkshire Water."* Given this, it would seem at least possible that a small sub-set of customers might face only the 'sludge' component of Northumbrian's prices in future.[16] Consequently, to further enhance the quality of its

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[15] *'Economic value of bioresources assets – feedback to companies.' Ofwat (February 2018); page 36.*

[16] *Although note, clearly such customers would also face a network + related impact, albeit reflecting the charges levied by another WaSC (in this case, Yorkshire).*

overall evidence base (and noting that Ofwat praised certain companies for including particularly detailed evidence on bill impacts) Northumbrian could include analysis to explore this. Such analysis would need to capture:

- The change in the balance between sludge and network + charges arising from the company's proposed allocation.
- An assumed proportion of customers who might only be impacted by the sludge element of its prices.
- Giving rise to an overall weighted average wastewater bill impact across the customer base (which we would expect to be very small under all approaches, given that for the vast majority of customers, wastewater bills are unchanged).

As a further minor refinement, Northumbrian could provide additional evidence regarding the 2 trade effluent customers that would be impacted by the rebalancing. For example, information on the likely materiality of the implied 3% increase in trade effluent changes to those customers (e.g. by comparing the £ impact relative to their reported revenues or costs from statutory accounts). This would provide further comfort that no mitigating steps were required.

Northumbrian check 3- Consistency with cost assessment data tables

This is a data validity check and we have no comments or observations on this.

Northumbrian check 4 – Consistency with recent expenditure

Northumbrian has included a consistency check whereby it has compared the depreciation charge implied by its proposed RCV allocation (£7.6m pa) against average capital maintenance expenditure in sludge (£4.6m pa). The company notes that, given the relative recentness of the assets, the latter should be lower than the former. We concur with this and therefore find that this cross check provides further evidence that the company's approach is valid.

Northumbrian check 5 – Comparisons with Yorkshire Water OJEU Contract Notice

Northumbrian includes a recent Contract Notice from Yorkshire Water, for the development of a new regional sludge treatment facility in Huddersfield. The notice states that the development will include an anaerobic digestion plant and will include bio-gas generation. Northumbrian uses this to demonstrate that AAD and bio-gas generation represent the optimal new technology that a new entrant would install. Again, we concur that this is a reasonable view and specifically, the fact that a company has recently gone to market with that specification is highly consistent with AAD being the optimal solution.

Drawing our review together, the following table summarises Ofwat's listed cross checks, and our assessment of Northumbrian's approach against these. Overall, our view is that Northumbrian has included a good range of checks, which show the expected results. There are some areas where further refinements are possible – and so we would recommend Northumbrian consider this (where proportionate). We shade our comments 'green', 'amber' or 'red' to indicate where further refinement might be most required (i.e. green signalling no refinement needed).

Table 1: Summary of cross check coverage provided by Northumbrian

Cross checks and alternative approaches to RCV allocation	Ofwat's guidance	Our assessment of Northumbrian's approach
Roll forward of PR09 valuation	WaSCs can consider a roll forward of the 2014-15 Net MEAV (based on the full revaluation of assets carried out at PR09). This comparison is a useful cross check, but would need consideration of the limitations of the valuation and the change in context.	The company does not provide a detailed roll-forward of the 14/15 MEAV from the PR09 revaluation. In populating Table 2, the company offers some commentary relating to the difference between the 14/15 MEAV and the 2017 MEAV revaluation (see commentary relating to line 7). We think there is some scope for Northumbrian to provide further detail and evidence to support the points made in the commentary (i.e. that the downwards adjustment primarily reflects the decision to write off the sludge drying plant from the previous sludge strategy).
Gross MEAV approach to RCV allocation	This would not reflect an appropriate approach to a focused allocation of the RCV to the bioresources price control.	Mainly not relevant, as noted by Ofwat, but information provided in report regardless.
Splitting pre-privatisation assets at a discount to the RCV and post privatisation assets at full value	This is particularly relevant if all or most sludge assets have effectively been replaced since privatisation. However, this may be difficult to calculate given changes to asset records and accounting classification since privatisation.	We do not think this is a practical cross check – NA.
Historical expenditure	Depending on the data and how new the assets are, this information may provide a useful cross check	Appropriate analysis included in report.
Projected expenditure – e.g. proportion of future expenditure expected on bioresources assets	Future maintenance expenditure could be compared to the proposed net value and remaining life of the assets as a cross check.	Not included as a cross check. We would recommend Northumbrian includes this for completeness.
Net MEAV	Comparing an approach based on the valuation of the existing assets and their remaining life to a hypothetical new build adjusted for differences in economic value will be a useful cross check.	Appropriate analysis included in report – scope to enhance and provide additional detail.
Averaged or hybrid approaches	In arriving at the RCV allocation, the choice between different approaches should consider the wholesale charge structure impacts.	Bill impact analysis included in report. Some (relatively minor) scope to further refine this.

Source: Ofwat and Economic Insight

4.3.7 Ofwat feedback on step 5 – propose and explain approach

Ofwat offered relative limited feedback on this step, other than to say it was appropriate for companies to continue to consider alternative approaches in the event that they identified issues with the economic value approach.

5. Conclusions and recommendations

Following from the above, our conclusions and recommendations are as follows:

- Our view is that **Northumbrian has adopted a proportionate and robust approach, which is consistent with the requirements set out in Ofwat's various guidance.** Most obviously, the approach is based on the economic value of the assets and the method applied incorporates all the key features identified by Ofwat.

- Consequently, from a 'substance' perspective, **our review has revealed no obvious reasons for the company to revise its proposed bioresources RCV allocation as it finalises its PR19 Plan.**

- **Northumbrian should consider revising its written report, such that it is more explicitly structured around Ofwat's 5-step process.** Whilst our review shows that the company's approach is consistent with Ofwat's requirements, it will be easier for Northumbrian to demonstrate this if there is more overt alignment between its description of its method and the steps identified by Ofwat. This could be done, for example, by inserting a summary table or section, whereby the company succinctly summarises its position and approach against each of the 5 steps.

- **Whilst the company has provided a good range of cross-checks, these could be further refined.** We specifically recommend: (i) providing more information / evidence as to how the roll forward of the PR09 revelation differs from the 2017 estimate; (ii) including cross checks based on projected expenditure; and (iii) making minor refinements to the bill impact analysis in the interests of being comprehensive.

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