

Wessex Water

Draft methodology response – Bio resources

1. Key Issues

We are pleased to submit our response to Ofwat's PR24 draft methodology in respect of the bioresources price control. The response addresses the questions raised in Appendix 4 of the July 2022 consultation document and the questions raised in the supplementary consultation document published on 2 September 2022.

We are broadly supportive of the direction of travel which Ofwat had set out in its July document. However, the proposals underlying Ofwat's preferred approach there mark a significant change in the approach to price control and there are some areas on which we have very significant concerns. In particular:

1. Ofwat's preferred approach, labelled as Option 3 in the consultation, would lead to a significant change in the balance of risk. This is a fundamental issue and one on which we consider further analysis must be done by Ofwat, and on which the industry can assist.
2. We see a very significant risk that the econometric models for benchmarking at the core of the Option 3 approach may not be fit for purpose because of data considerations or because of the difficulty in developing robust-enough models, or both. The econometric and data work set out in the supplementary consultation do not help allay this concern.

The lack of consideration and development of the above means we have serious concerns around the maturity of the proposed approach. We do not believe that at as it is currently stands, it is at a stage of development that could be called a "draft methodology", instead it is some way short of this, requiring significant further consideration. We are unclear how this will fit into the current process. It will not be appropriate to propose further, fundamental, and un-tested changes at the final methodology without much further industry consultation and discussion.

1.1. Proposed approach changes the balance of risk

In the consultation, you are clear that, as in the earlier December 2021 consultation on bioresources price control, you remain of the view that "there would not be a significant increase in the overall risk faced by companies".¹

We have some serious concerns about the tentative conclusion you reach here.

¹ Ofwat (2022) "Appendix 9 – Bioresources control", page 34.

- We do not share the view you reach based on your qualitative assessment of the impact of your proposals and we have concerns that the consultation document does not show that you have given appropriate consideration to points raised by respondents in your earlier consultation.
- You acknowledge that “quantitative analysis would help to give a better sense of the potential impact of the level of risk for individual companies”.² We agree with this. Whilst we understand that there will be some constraints with regards to the data that are available to develop such analysis, we were hoping that you might have been able to share some early analysis on this. If such analysis has been difficult to complete because the data required for it are not yet available, we would expect Ofwat to have kept a more open mind with regards to the impact of the proposed new approach on the balance of risk and not to pre-judge that important issue before it completes such analysis.

Ofwat’s qualitative assessment of impact of proposed approach on balance of risk

Assessing the impact of the proposed approach on companies’ risk should be an important element in the development, and eventual approval, for that approach. We found the assessment set out in the consultation document does not address the issue in full and suggest that a more systematic analysis could be carried out. This could involve identifying in a more structured way those features that arise from the change in approach from that in place for PR19 to the approach you propose for PR24 and, for each of those features, consider the impact on the balance of risk.

We set out here some aspects which would be affected by the change from the PR19 approach to the proposed new approach and which would give rise to a change in companies’ risk with regard to their bioresources activities.

Protection on pre-2020 RCV

The consultation document clarifies what Ofwat means when it states that the pre-2020 RCV is protected. This is helpful. That said, it seems you have defined what protection means by working backwards. That is to say, you set out what you believe the proposed approach does in terms of returns to pre-2020 RCV, and define that as “protection”. As you state in your consultation, your proposed approach “does not mean complete protection against any risk”.

Whilst excluding legacy assets from the catch-up efficiency challenge, the proposed approach glosses over the contribution that the depreciation and financing costs associated with pre-2020 RCV will make to the efficiency challenge that would be imposed on the other components of cost. This last point is an important one and we set out in our response to question 3.4 a hypothetical example to illustrate this.

Incremental volume risk from change to PR19 modified average revenue approach

² Ofwat (2022) “Appendix 9 – Bioresources control”, page 33.

The approach proposed in the draft methodology moves away from the modified average revenue approach that was in place for PR19, and replaces it with one where there are no mechanisms or adjustments in place in relation to volume risk.

We find the consultation document is severely lacking in setting out the reasoning behind that position. We note the following:

- Much of the discussion in section 3.4.5 on “Managing volume risk” seems to be concerned with risks associated with the incentives companies might have to under-forecast sludge production. Indeed, one of the three options put forward on page 43 is about the retention of the PR19 forecasting incentive model. It may be reasonable for Ofwat to have concerns about companies’ incentives when developing their forecasts of volumes, and there may be a role for the model it puts forward. But such a model is entirely about companies’ incentives in their forecast of volume of sludge treated and is wholly irrelevant to addressing the concern about volume risk that companies face.
- The volume risk concern is that, given the average revenue control, companies face the risk that the revenue they are allowed to collect over the regulatory period is linked directly to the volume of sludge treated whilst their costs are not, as some costs continue to be borne, unaffected by the volume of sludge treated. Ofwat does not acknowledge that removing this protection also removes any protection for the recovery of depreciation on pre-2020 assets, irrespective of how unit cost allowances are set.
- The modified average revenue approach that was introduced at PR19 provided some protection for that risk. On page 43 of the consultation, you outline under Option 3, an approach that seems to be in a similar mould to the approach introduced at PR19. You set out no assessment as such of that option other than to state, as a conclusion, that such an option “is disproportionate under our proposed approach. It would add complexity and have the effect of moving away from an average revenue control if actual sludge production is too different from forecast sludge production”.³

Ofwat may well choose to take a policy position to adopt an approach that does not protect companies from volume risk, whether fully or partially. Whilst we may have concerns with that in itself, the point we wish to stress here is that the consultation document does not recognise that, against the baseline of what was in place for PR19, the proposed approach increases the volume risk for bioresource activities, and so would be expected to have an impact on the overall balance of risk for that part of our business.

Change in funding for growth enhancements

Compared to the approach at PR19, the proposed approach to fund growth enhancements introduces two sources of risk, which are somewhat inter-related:

- Under the proposed approach for PR24, growth enhancements would be funded through the benchmarking done by the econometric model(s). We see a significant risk that the proposed

³ Ofwat (2022) “Appendix 9 – Bioresources control”, page 44.

approach to capture funding for growth enhancements through the econometric models will be inadequate. Whether this is the case or not is an empirical question. It is dependent on the set of explanatory variables included in the models and on the values of their estimated coefficients.

- Further, there is uncertainty around the value of those estimated coefficients. We expect that the value of those coefficients will vary from those you might set out in your September 2022 document to those in the models you adopt at final determinations. This will be in part because you might revise aspects of the model specification, but also because the models that you eventually use to set allowances at final determinations will draw on data for 2022/23 and 2023/24, which are not yet available. And, moving forward in time to future price controls, we would expect such coefficients – and indeed the specification of the models themselves – to be revised as the potential models you define for PR24 are developed further and refined.
- A different, though related point to ones above, is that the proposed PR24 approach funds growth enhancements on the basis of unit rate, leaving aside questions about how volume growth forecasts are compiled. This assumes that growth can be funded at the same unit rate as the modelled unit cost. Put differently, it assumes that the efficient marginal cost of additional units is the same as the average unit cost. Whether or not this assumption is valid will depend on the data and the estimates derived from the models.

Building on the above observations, we see a risk that growth enhancements at PR24 will go unduly underfunded due to limitations in the econometric models used for benchmarking. Further, even if for the models that you eventually develop for PR24 that turns not to be the case, there is a risk that it becomes the case at future price reviews, as the models are developed and/or updated data are used for the modelling.

At PR19, allowances for growth enhancements were set through deep (or shallow) dive assessments and so not were not dependent on outcomes of econometric models, and the degree of imprecision associated with them. We suggest that the change in approach introduces an element of risk to the setting of companies' allowances that was not there before.

A last comment on this, in anticipation that you might consider that process of cost adjustment claims would allow us to address these concerns. As outlined in the draft methodology, companies would have recourse to making a cost adjustment claim if the risks expressed above materialise and the allowances set by the models did not cover sufficient funding to cover anticipated growth enhancements. Cost adjustment claims could indeed be a route through which the above concerns might be mitigated. However, we are cautious to set much store by that process to address the concern here. The materiality threshold you have set constrains the claims can be applied for. In addition, we see a risk that because the econometric models will (almost certainly) include a driver reflecting scale (e.g., load treated) you will deem a cost adjustment claim to be unfounded because the model controls for volume, and therefore growth. That, however, would miss the point and not address what we see as the risk: that the implicit allowance for growth provided for in the models are insufficient to fund investment in growing capacity. In our answer to consultation question 3.2 of Appendix 4, we provide further discussion on the limitations of capturing an allowance for growth through the inclusion of a scale variable in the econometric models.

Change in funding for quality enhancements

The draft methodology proposes that new quality enhancement claims at PR24 would be funded through an allowance covering annualised costs over one regulatory period, and that in future periods you would consider cost adjustment claims to extent that the models “failed to address these costs adequately”. You add that “this approach would ensure that efficient enhancement costs can be recovered by companies.”⁴

We see a significant increase in the risk of companies not having a channel to fund such quality enhancements.

To illustrate this, consider the case of a proposed quality enhancement scheme which involves a capital investment of £10 million in an asset with an asset life of 25 years, and running annual operating expenditure of £0.25 million. Under the PR19 approach, an allowance would be made for £11.25 million, subject to shallow/deep dive review. Under the proposed approach for PR24, the enhancement allowance would be set at £3.25 million plus financing costs, assuming depreciation accumulates from day one, which would be the most generous – if not entirely plausible – of scenarios to consider.

The reasoning in the consultation is that the gap would be funded in future years from the benchmarking to the extent that the scheme had been an efficient one to make, or through cost adjustment claims. It is far from clear that either of those routes will provide sufficient cover or certainty for the risk that the gap remains unfunded:

- The gap might be met over time through the benchmarking model to the extent that the models adequately control for the dimension(s) of quality which the enhancement scheme contributes to. We have little confidence that this would be case. It is difficult to capture dimensions of quality within econometric models and the issue will be more significant where there are multiple dimensions of quality that would need to be captured. We note that neither of the two econometric models used to benchmark bioresources base-plus costs at PR19 included explanatory variables associated with level of quality or performance.
- The cost-adjustment-claim-route is an uncertain one and, as flagged above, the materiality thresholds constrains significantly what claims can be made.

Further to the above, the funding for proposed quality enhancements would also be subject to the volume risk. In particular, whatever the allowance is made for a given quality enhancement, this would be converted into a unit rate and added to the rate associated with the allowance for the base service. As such, the funding, in £ terms, associated with the enhancement scheme would be subject to the same volume risk as the “base-service” element of the allowance, which we discussed earlier.

Potential greater environmental regulatory uncertainty

⁴ Ofwat (2022) Appendix 4, page 28.

There are environmental regulatory issues concerning bioresources activities around which there is significant uncertainty going forward. This seems to be recognised and discussed in the consultation paper.

In this context, the uncertainty on the impact of the IED and around the application and enforcement of the “Farming rules for water” is of particular concern to us. Over AMP8, this investment could account for a significant increase in the totex programme, with considerable uncertainty around this. With regard to the farming rules for water, they shape the availability of a suitable landbank and so, on the routes available to us to dispose of sludge. We understand that Defra is to review its guidance on this, though that is due only in September 2025, much after we have finalised and submitted business plans.

Analysis of the impact of proposals on risk

The proposals set out in the consultation would mark a significant change in the form and nature of the price control applied to bioresources. We outlined out above some routes through which bioresources would face greater risk going forward, most of those arising from the proposed changes in the approach to the price control.

The consultation document offers very limited, if any, analysis on those points. It is imperative that further, quantitative, and systematic analysis be carried out with a view to Ofwat developing a better understanding of the impact on companies’ risk of the proposals that it is putting forward. Absent such analysis, we fail to see how Ofwat can assure itself, and the industry, of the impact of the significant changes being considered.

As an element of that further analysis, we would see value in an assessment of the impact of Ofwat’s proposed approach on RORE under different plausible outturn scenarios, focusing on ones capturing those sources of risk we discuss above or on other sources that Ofwat or other companies might identify.

We urge Ofwat to develop such analysis as part of its immediate work programme and, given the importance of the issue, we suggest there would be value in getting the industry involved in that effort.

1.2. Concern about econometric models of full economic cost being fit for purpose

The approach put forward in the draft methodology has at its core the development of a set of econometric models of “full economic costs”, meaning the sum of operating expenditure, depreciation, and financing costs.

This is uncharted territory for Ofwat. Ofwat has not developed such models of full costs at previous controls, nor has it previously drawn on some of the elements of data required (e.g., depreciation and financing costs) for the purpose of benchmarking.

The supplementary consultation document published on 2 September 2022 sets out an initial model of benchmarking full economic costs (the model for Option 3), alongside some econometric models relevant to Options 1 and 2, which are based on benchmarking measures of total expenditure.

You also set out in that supplementary document your proposals and ideas on revising the data on depreciation and on capital asset values, both necessary elements to produce a figure for the full economic costs which would be benchmarked under the approach of Option 3.

It is very helpful to have sight of where Ofwat has reached in terms of developing initial econometric models. It is equally helpful to understand Ofwat’s position with regards to the quality and appropriateness of the data on depreciation and on capital asset value that it has collected to-date, – and that has drawn on for purpose of developing the initial models for Option 3 presented in the supplementary document – and its view on how such data should be revised for the purpose of developing further models to implement Option 3.

But having had sight of that, we are left with serious concerns about:

- whether the models that Ofwat might develop for Option 3 would be fit for purpose, and
- the consultative process that Ofwat has taken.

The supplementary consultation document gives us no confidence that Ofwat would be able to develop econometric models to benchmark full economic costs that would be fit for purpose:

- The models to benchmark full economic costs that Ofwat has explored to-date and which it reports on in the supplementary consultation document draw on data which Ofwat recognises in that same document as needing to be refined, namely in relation to measures of depreciation and on capital asset value. Much of the material in that document is concerned with setting out options on such refinements and the associated guidance to implement those options. It follows that the initial econometric model put forward for Option 3 as well as any analysis that Ofwat might have done to-date exploring other models for that option have drawn on data which Ofwat proposes not to use going forward. In that light, what information then is revealed from the presentation of the initial Option 3 model? What assurance does that give about the feasibility of Ofwat developing appropriate and robust models to implement Option 3, once it draws on the refined data that it is seeking? We do not see that it provides any.
- The supplementary document describes the proposed changes to how data on current cost depreciation and capital asset value are to be derived as “refinements”, taking as the baseline

the standardised approach that Ofwat put forward in its December 2021 consultation and on which it collected data from companies. The set of calculations laid out in the supplementary document may differ substantially from those companies will have followed to produce the data that they have already submitted to Ofwat. It seems to us that there is more than a refinement here, and we see a possibility that the proposed set of refinements have a material effect on the measures of depreciation and financing costs, compared to those derived from the standardised approach underlying the data already collected by Ofwat and drawn on in its modelling so far, and so a material effect on model results.

- *If* we were to set the above concerns aside – i.e., if we were to entertain the possibility that the refinements to the data that Ofwat is proposing would not lead to particularly significant changes to the derivation of companies' full economic costs compared to the figures produced from the standardised approach followed in earlier data request – then the analysis and results of the initial model for Option 3 could be informative about the feasibility of deriving models for that model. But, under that premise, the information that that initial model reveals is not encouraging. Ofwat itself recognises evident concerns about the performance of that model. For example, it notes that the model does not produce robust results when the longer time period is used or, when the cost drivers related to density and included in BR1 and BR2 are considered separately.
- The analysis of the model results set out in the supplementary consultation suggests that Ofwat has done a limited assessment of the performance and robustness of the different models presented. Further to the points raised below regarding the interpretation of estimated coefficients, there are aspects that Ofwat does not seem to have explored. These include, for example, consideration about the sensitivity of model results to small changes in the dataset – this is something that, we suggest, may be more revealing about model robustness than the t- or z-statistic associated with given estimated coefficients – or consideration about the statistical precision around the modelled costs.
- The analysis of the model results set out in the supplementary consultation suggests that Ofwat has not delved sufficiently into the interpretation of the results across models and sought to understand important differences between them. For example, whilst the consultation document sets out what each of the models predicts in terms of company-level economies of scale, no discussion is set out on seeking to understand what drives the markedly different findings across the models: the models presented for Options 1 and 2 point to very high company-level diseconomies of scale whilst the model for Option 3 suggests some small economies of scale. What is driving such very different results across the models? Are there good operational or economic reasons why one would expect such differences depending on whether the measure of cost relates to totex or to full economic cost? Or are the very different results an indication of something gone awry in the definition of the measures of depreciation and/or financing costs? Or are there other explanations for this?
- Closely related to the above is the concern that Ofwat provides limited critical interpretation of the results of any one given model. Take the case of what models for Options 1 and 2 suggest about company-level economies of scale, namely that these are in range of 24 to 34 percent. These are very material diseconomies of scale and yet the consultation paper voices no consideration about the credibility of such a result, and the potential operational or economic

reasons that could potentially explain that. We understand that in relation to some cost drivers it may be difficult to formulate an ex-ante view, based on operational considerations, on the size of their coefficients and so understand the attention given in Ofwat's analysis of results to whether the sign of that coefficient is in line with operational or economic intuition. That said, we think that certainly in relation to the cost driver on the scale of the company, which plays a critical role in determining the size of modelled costs (or modelled unit costs), Ofwat ought to scrutinise model results further.

We also have serious concerns about the consultative process that Ofwat has taken with regards to issues brought to light in the supplementary consultation document and with the knock-on effect of this on the quality of the data and of the analysis that Ofwat may take forward.

- Taking the set of consultation documents together, we consider that the proposals put forward by Ofwat to this stage cannot be considered a draft methodology, particularly so with regard to Option 3.
- The supplementary consultation document – longer in length than the original July consultation – and associated data files cover lots of material. Ofwat has allowed 11 working days for responses. We feel such tight turnaround is not reasonable. It greatly limits the extent to which we can engage in the detail of the issues raised and in the extent to which we can explore and scrutinise the data shared.
- The above matters. The supplementary consultation document discusses proposals that have a direct and material impact on the price control of bioresources activities. Those proposals are not about secondary add-ons to an existing, embedded and well understood framework but rather concern themselves with some of the central planks of Ofwat's proposal for a new approach to the bioresources price control. The consultation process that Ofwat has followed greatly constrains the extent to which we can scrutinise those proposals. We are not able to engage with this in the detail required within the time available.
- We see a serious risk that the limited time to respond to the supplementary documents will have a detrimental impact on the quality of the data that Ofwat is asking for. This is in part because of the very limited time given to review the guidance set out relating to the data being sought and prepare a thorough review of those areas that might be problematic e.g., because of practical constraints on the availability of data in our systems or because of scope for companies to interpret what is being asked differently.

In the light of the above and setting aside other concerns we have with the proposed approach – namely on impact on balance of risk –, we consider that the progress made in developing models and in specifying and assuring required data means that implementing Option 3 for PR24 should not be pursued.

2. Responses to consultation questions

Q2.1: Do you have any comments on this section?

Key messages:

- We have concerns about the comparability and consistency using back cast data back to 2010-11.
- The termination of the Renewable Heat Incentive may make the task of developing robust and appropriate econometric models harder.

Use of backcast data

With regard to the use of backcast data, we value Ofwat's effort in seeking to mitigate the concerns about the consistency of data over time, through a set of revisions to the RAGs and request for backcast data. That said, we set out in our response to the December 2021 consultation that:

Back casting all the way to 2010-11 will be challenging and reduce the accuracy. Going back this far predates a lot of the asset classifications and metering installed in preparation for the separation of the price controls in 2020. This will necessitate significant assumptions. These will likely be based on recent metered / actual splits that could be materially different under different operating circumstances.

The view we held then remains.

Ofwat explains that the longer dataset, drawing on the backcast data, could be beneficial as it may improve the reliability of model estimates. We agree that a greater number of observations could contribute to that. However, that view should be checked against several factors, including:

- If there remain sufficient concerns about the consistency of data over time, then drawing on the backcast data may introduce noise rather than precision to the estimates.
- Further, if much or most of the time period from which data are drawn on for the modelling refer to years in which companies have had to backcast data then a concern arises that such backcast data “dominates” the more recent data which were prepared and reported from the start in line with current RAGs. Should there be concerns about the ability of companies to carry out the required backcasting in a consistent and sufficiently accurate way, then there will be a risk that the relations estimated by the models are unduly affected by the approach companies took to their backcasting of historical data and not reflect the association between cost drivers and measure of cost going forward.
- Further to the above points, the benefit associated with the greater number of observations from extending the sample period back in time may be limited. The additional observations relate to observations on the same set of companies, and we would expect observation points for a given company to be relatively bunched up and that the main source of variation in the data – necessary to improve precision of estimated coefficients – comes from the observed differences between companies. The extent to which this is improved by considering a longer time series may be limited.

In its December 2021 consultation, Ofwat explained that it would consider its decision on the period from which to draw data for its modelling in the light of the data and evidence that it receives from companies. We support that position and suggest that, in reviewing that data and evidence, Ofwat takes due consideration of the issues we note above.

In the light of the comments above, our position is that using a shorter time period would be preferable. We repeat here the suggestion we made in our response to the December 2021 consultation that Ofwat draw on data since 2017/18.

That said, we have an open mind on the matter provided that the models derived are robust, and subject to the observations made earlier.

Further to considerations about the quality of backcast data, the use of a longer time series for the modelling calls for greater attention to the given to how dynamic aspects are captured in the model specification. This includes, for example, consideration about the use of year-specific dummy variables. We discuss this in further detail in our response to Appendix 9 of the Draft Methodology consultation.

Adjustment for termination of the Renewable Heat Incentive

The termination of the Renewable Heat Incentive may make the task of developing robust and appropriate econometric models harder.

If RHI payments are material in many/all of the years covered by the data and have been collected by many/all companies, and such payments will not be available going forward (and new schemes are not equally generous), then there would be a concern that the estimated relations between drivers and historical costs will not do a good job in reflecting the relations going forward.

The concern here is about recognising that the environment – namely opportunities to run at lower net costs – in which companies operate may have changed and that costs modelled on past data may not be reasonable predictions of future costs.

The above risk should be considered by Ofwat as it develops its models and, in particular, considers choice of historical window from which to draw data for its modelling.

Q2.2: Do you have any further comments on our approach to a separate efficiency assessment, in particular the options we consider in section 2.4.2?

Key messages:

- The challenges of a separate efficiency challenge for bio resources were well established by the CMA in the PR19 re determinations.
- We struggle to see how these can be fully addressed, although it is impossible to say if it is appropriate without full sight of the benchmarking process.

The consultation paper recaps the concerns expressed by the Competition and Markets Authority that setting separate efficiency challenges for bioresources and wastewater network plus might impose an unachievable challenge, which is too heavily influenced by differences in the way

companies allocate costs across activities. You acknowledge too that the issue is not just about potentially different approaches to cost allocation but also, and on a more fundamental note, about differences between companies' asset configurations. You provide useful illustrative examples of this in the consultation.

We appreciate that progress has been made with regards to guidance to ensure more consistent approach to cost allocation and, as you set elsewhere in the consultation, you will be reviewing the extent to which the data submitted by companies meet your expectations on that count.

All the same, we consider that even if the data-consistency concern is addressed, there will remain a risk with regards to the impact that differences in asset configuration or operational constraints (e.g. differences in quality of sludge produced by wastewater network plus in terms of its thickness and content of volatile matter) may have on the efficiency challenge that is set. The consultation paper suggests that that risk could be addressed through the set of cost drivers included in the econometric models, and points to the PR19 models as examples of where this is applied. We are not so confident that that would be an adequate route to address the concern.

Given the relatively small dataset – and, more specifically, the small number of companies there are constraints on the number of explanatory variables that can be included in the econometric models. It is possible that the models will include some variables that are associated with factors linked to those aspects of asset configuration which raise concerns but we suggest it is likely that such aspects would only be able to be controlled for in the model tenuously.

You take a more positive position on this in the consultation than our own. You set out there that you will be considering appropriate drivers for those models, and that, in doing so you “would ensure there is an opportunity for these cost drivers [associated with differences in asset configuration] to be captured in our benchmarking models if appropriate”.

Without sight of those models, we are unable to comment on their ability to control for such differences in asset configuration such that concerns about an unfeasible overall efficiency would be mitigated.

There are two further aspects we wish to raise regarding the discussion in the consultation on setting separate efficiency challenges. Both relate to Ofwat providing further clarification of points referred to in the consultation:

- On page 14, after noting that you continue to consider setting separate efficiency challenges, you state “[t]hat said, we would ensure that the overall efficiency challenge across bioresources and wastewater network plus is appropriate and achievable under our proposed approach.” Delivering on this would address many, if not all, of the concerns about the application of separate efficiency challenges. We would welcome further details on the method or process you might follow to achieve this. Is Ofwat’s view that this would be achieved through a combination of (i) companies’ following cost allocation guidance and (ii) the appropriate specification of the econometric models, as discussed in the section? Or does Ofwat envisage applying a check of some sort, outside of what is presented in section 2.4.2? If so, we would welcome further details on this.

- On page 16, in the context of describing the development of the econometric models such that they would capture factors associated with asset configuration and which may give rise to concerns about separate efficiency challenges if not controlled for, you say “that said, we would consider evidence of where our cost drivers do not fully capture this impact”. It would be helpful to have a bit more clarity here. Is this about being receptive to submissions from companies with regard to the set of variables to include in models, or about companies submitting cost adjustment claims? Or does Ofwat envisage something different?

Question 3.1: Do you have any comments on this section?

Key messages:

- The application of a specific frontier shift on bio resources risks further eroding the protection of the legacy RCV.
- Greater uncertainty around future environmental regulations creates significant additional risk for bio resources – this can be easily mitigated by including totex cost sharing.

Some of the points we raised at the outset of our response to Appendix 4 touch on issues raised in section 3 of the appendix.

Other issues raised in section 3 are covered by specific consultation questions, and we address those below, against the relevant question.

There remain two issues which are discussed in section 3, and which are not covered by specific consultation questions. Not having another natural home for them, we raise them here. These cover: the application of a bioresources-specific frontier shift; and the proposal on cost sharing. We discuss each in turn.

Bioresources-specific frontier shift

The consultation paper indicates that Ofwat will explore setting a specific frontier shift for bioresources that is separate from other wholesale activities.

A concern we have is if the frontier-shift would, in effect, be applied to legacy assets too. If that were the case, then the protection of pre-2020 RCV would be further eroded, adding to our concerns about pre-2020 RCV protection which we discuss separately in our response.

In the event that Ofwat decides to apply a frontier shift to bioresources – whether that is a value derived specifically for bioresources or a value derived for all wholesale controls – it should aim to protect pre-2020 RCV by, for example, making an adjustment to the size of the frontier shift to reflect that.

Approach to cost sharing

Ofwat proposes to not apply cost sharing to bioresources, in line with its approach at PR19. We strongly disagree with this approach.

Over AMP7 we faced considerable uncertainty around the impact of the obligations driven by the Industrial Emissions Directive (IED) on the scale of investment and, going forward to AMP8, we expect the scale of investment driven by external regulations, such as farming rules for water, to grow, resulting in a significant increase in our totex programme.

Such uncertainty on the scale of investment that will be required adds to the risk we face over the PR24 regulatory period, as we comment in our discussion on the impact of the approach to the bioresources price control, in section 1.1 of this response.

Question 3.2: Do you have any further comments on the draft methodology proposals which we propose to retain from our December document and our reasons for doing so?

Key messages:

- There are significant uncertainties around investment required arising from environmental regulations such as farming rules for water.
- We see a significant risk that such an approach may provide inadequate funding for growth enhancements. Whether that is the case or not is an empirical question, dependent on the set of cost drivers that are included in the set of models you develop and on their estimated coefficients.
- We consider that the proposed approach you outline in the draft methodology for funding new quality enhancements raises significant risks in companies not being able to fund such enhancements by not considering the longer term.
- We see a risk that using forecast data to resolve sample size issues may be misplaced. It may do more harm than good.
- We expect that the proposals outlined in the draft methodology will increase the risk faced by companies. This is one of the key issues we wish to raise in our response, and we brought that out in our over-arching comments set out at the start of our response

We set out comments on issues discussed in section 3.3 of Appendix 4, which cover a range of elements related to the development and details of your proposals. Some of these issues overlap with the topic of other more targeted question in this consultation and we will cross-refer as appropriate.

Approach to developing Ofwat's proposals

We said in our response to your earlier December 2021 consultation that we were supportive of the general direction of travel of your policy objectives, opening bioresources to competition and the efficiencies that this can bring. We reaffirm that support here. However, we also repeat the concern we held then that there does not seem to have been due consideration around the ways that this can be achieved and of whether the approach that you have taken forward is the correct fundamental approach.

You have included in the annex to Appendix 4 a description of the development of options and your assessment of them. This provides some additional useful context. That said, we find the discussion to be limited and that it provides little assurance about the process to develop and test

the general policy proposal. We comment further on this in our answer to question 3.9 further below.

Uncertainty around environmental requirements

There are environmental regulatory issues concerning bioresources activities around which there is significant uncertainty going forward. This seems to be recognised and discussed in the consultation paper.

In this context, the uncertainty around the application and enforcement of the “Farming rules for water” is of particular concern to us, given the impact these may have on the availability of a suitable landbank and so, on the routes available to us to dispose of sludge. We understand that Defra is to review its guidance on this, though that is due only in September 2025, much after we have finalised and submitted business plans.

Inclusion of financing costs in benchmarking models

We understand the rationale, in principle, for benchmarking companies on the basis of “full economic costs”. We accept too, in principle, that if depreciation is to be included as a component in such a measure of economic cost, then so too should financing costs.

However, there are issues regarding the approach to calculating those financing costs which we think need further consideration. We set out our view on this in our response to question 3.5.

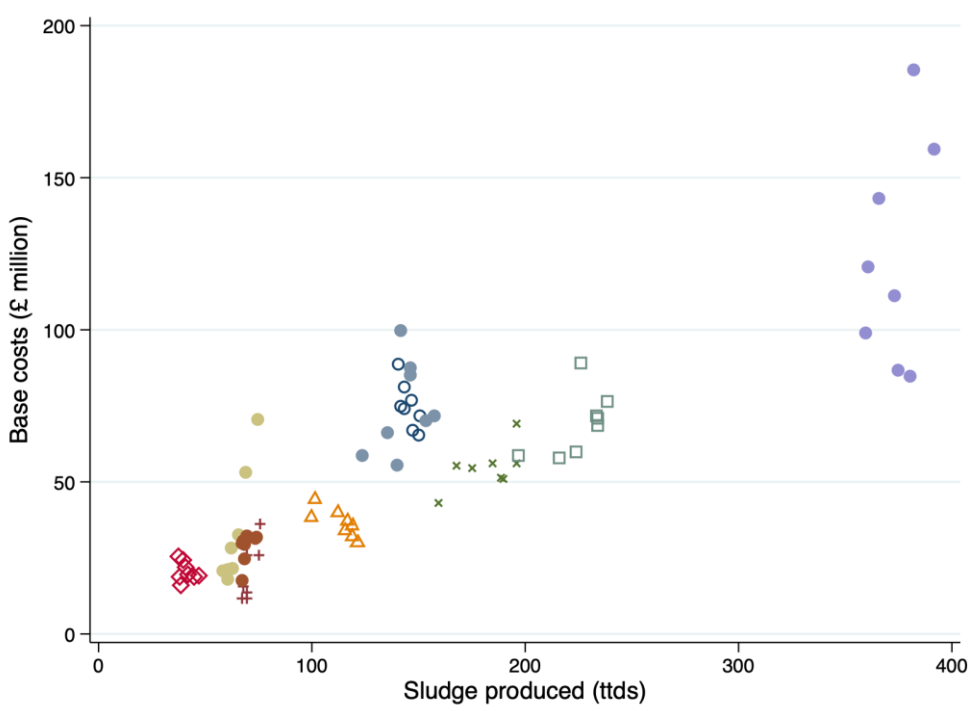
Bioresources growth enhancements

You propose to include growth enhancements within your econometric models.

We see a significant risk that such an approach may provide inadequate funding for growth enhancements. Whether that is the case or not is an empirical question, dependent on the set of cost drivers that are included in the set of models you develop and on their estimated coefficients.

You comment that you expect to capture the volume of sludge as a cost driver in the econometric models. The implication we draw from that is that you consider that, through the inclusion of such a driver, the models will be able to control for growth, via the effect that growth has on volume of sludge. In our view, it is not at all clear that this would be the case. The main role of including the volume of sludge produced in an econometric model like the one we expect Ofwat to develop for PR24 is to control for differences in scale *between* the wastewater companies. We think it has limited ability in controlling for changes in scale over time of a given company, i.e. in controlling for growth. This follows from recognising that the main source of variation regarding company scale in the dataset relates to variation between rather than within companies. Figure 1 illustrates this point. The figure draws a scatter of companies’ base costs against volume of sludge produced, drawing on the data Ofwat used for its modelling at PR19. The dataset covers annual data for the period from 2011/12 to 2018/19. Different shape/colours are used to mark the observations relating to different companies.

Figure 1 Scatter of bioresources base costs (2017/18 prices) against volume of sludge produced (2011/12 to 2018/19)



A simplification of the point we raise is that a line of best fit overlaid on the chart would be driven by the relative position of the clusters of observations of the different companies, and may not capture the dynamics of growth within each or any of the companies. We recognise that the models you expect to develop for PR24 would be of “full economic costs” rather than of base costs, as used for the chart, but the key point we illustrate above remains: that the inclusion of an explanatory variable reflecting sludge produced does not ensure that costs associated with growth would be adequately captured by the model.

We raise two further points relevant to your considerations about growth enhancements:

- Even if the set of estimated coefficients for the models that you develop for PR24 are such that they provide sufficient funding for growth, there is a question around the robustness of those estimates. In particular, we have a concern that the model may not be very robust – namely that the value of estimated coefficients may vary significantly with slight revisions to the data used to estimate them – so that, looking forward to future price controls, the risk remains that sufficient funding for growth will not be provided then.
- You comment in the consultation paper that because you intend to set an average revenue control “companies automatically get higher total revenue allowance as the volume of sludge they produce increases”.⁵ The observation is right, but it does not address the main concern we raise. If the modelling is such that it does not provide sufficient funding for growth, then the

⁵ Ofwat (2022) “Appendix 4”, page 26.

average revenue allowance will not be sufficient to cover those costs and an increase in allowance driven by increases in the volume of sludge treated does not address that.

New quality enhancement growth

We consider that the proposed approach you outline in the draft methodology for funding new quality enhancements raises significant risks in companies not being able to fund such enhancements.

In section 1.1 to this response, we identified this area one of the sources of risks that, compared to the approach at PR19, shifts the balance of risk towards companies. We repeat below the points we made in those opening comments.

To illustrate how the proposed approach adds to the risk that companies are unable to fund new quality enhancements, consider the case of a proposed quality enhancement scheme which involves a capital investment of £10 million in an asset with an asset life of 25 years, and running annual operating expenditure of £0.25 million. Under the PR19 approach, an allowance would be made for £11.25 million, subject to shallow/deep dive review. Under the proposed approach for PR24, the enhancement allowance would be set at £3.25 million plus financing costs.

The reasoning in the consultation is that the gap would be funded in future years from the benchmarking, to the extent that the scheme had been an efficient one to make, or through cost adjustment claims. It is far from clear that either of those routes will provide sufficient cover or certainty for the risk that the gap remains unfunded:

- The gap might be met over time through the benchmarking model to the extent that the models adequately control for the dimension(s) of quality which the enhancement scheme contributes to. We have little confidence that this would be case. It is difficult to capture dimensions of quality within econometric models and the issue will be more significant where there are multiple dimensions of quality that would need to be captured. We note that neither of the two econometric models used to benchmark bioresources base-plus costs at PR19 included explanatory variables associated with level of quality or performance.
- The cost-adjustment-claim-route is an uncertain one and, as flagged above, the materiality thresholds constrains significantly what claims can be made.

Further to the above, the funding for proposed quality enhancements would also be subject to the volume risk. In particular, whatever the allowance is made for a given quality enhancement, this would be converted into a unit rate and added to the rate associated with the allowance for the base service. As such, the funding, in £ terms, associated with the enhancement scheme would be subject to the same volume risk as the “base-service” element of the allowance.

Use of PR24 business plan forecasts

We see a risk that using forecast data to resolve sample size issues may be misplaced. It may do more harm than good. Our main concern is that the forecast data – because they are forecast rather than actual data – pollutes the relationship between the cost drivers in the models and the cost being explained, leading to less precise modelling results.

Use of market data

In principle, market data could provide valuable information to support the derivation of the bioresources price controls. However, we share the concerns raised by Ofwat itself in the consultation with regards to the availability of data from a market that is sufficiently comparable to bioresources.

We agree with Ofwat's proposal to deprioritise exploring the use of such market data for PR24.

Regulating post-2020 RCV and risk of asset stranding

The consultation paper notes the view Ofwat expressed in its December 2021 consultation that there would be no risk of asset stranding since companies would not face a direct threat from competitive entry.

We think that that assessment of the risk of asset stranding significantly underplays that risk. Specifically, under the approach proposed for PR24 companies will face volume risk: the volumes of sludge produced will vary over time and may or may not reflect the forecasts companies have. In turn, and given the average revenue structure of the proposed control, such volume risk translates to a funding risk. At an asset-level, this risk could be interpreted as a risk that the company may not be able to recover the costs of assets that are not running at the operational level envisaged when the investment was made.

Ofwat may choose to take, as a policy position, the view that companies should be exposed to such volume risk and this seems to be the position it has taken. If that is the case, the point we wish to stress is that Ofwat should then recognise that this contributes to shifting risk towards companies' bioresource activities, when compared with the approach that was in place for PR19.

Cost risk

We expect that the proposals outlined in the draft methodology will increase the risk faced by companies. This is one of the key issues we wish to raise in our response, and we brought that out in our over-arching comments set out at the start of our response to Appendix 4.

As a brief recap on those points, we consider that greater risk may come from:

- changes in approach to funding with regard to pre-2020 RCV;
- changes in approach to funding for new enhancements, whether relating to growth of quality;
- the incremental volume risk due to move away from modified average revenue control; and
- greater environmental regulatory uncertainty.

We discussed each of the above points within those earlier set of comments at the outset of our response, and we do not repeat them here though some of those points are picked up in our answers to more specific questions below.

That said, and for the purpose of stressing the point, we do repeat a comment we had also made then. Specifically, we note your comment in the consultation that "quantitative analysis would help

give a better sense of the potential impact of the level of risk for individual companies". We could not agree with this more and think it is critical for you to carry out and share such analysis as part of developing and testing your proposals further.

Cost of capital

The discussion in the consultation paper on pages 34 and 35 indicate that you propose to develop an appointee-level cost of capital.

We disagree with that position. Setting aside the (important) discussion as to whether the set of proposals lead to a greater degree of risk to companies, we consider that the logic of the approach you propose calls for the determination of a notional WACC for the bioresources activities. Whether this is the same or different to that of the rest of wholesale will be a matter for analysis and empirical evidence, and should not be pre-judged. But, as a matter of methodology, we think it would be wrong to impose at this stage the assumption that the bioresources WACC should equal that for the rest of the bioresources.

From the methodological point of view, a concern is that applying, on a principle, an appointee-level, rather than a bioresources-specific cost of capital, risks distorting the econometric benchmarking of the full costs of bioresource activities. Specifically, as set out in the draft methodology, those models benchmark companies' full economic costs, of which financing costs are an element. In that exercise, applying an appointee-level cost of capital to estimate financing costs will, unless it is the case that there are strong reasons to consider that the appointee-level cost of capital does match the cost of capital for bioresources, will distort the relative contribution of financing costs to full economic costs and so risk distorting the output of the econometric benchmarking.

Consider as an example, that, because, say, of the difference risks that bioresource activities are exposed to, the cost of capital for bioresources ought to be higher than the rate that would be derived from appointee-level data. If, however, the appointee-level cost of capital is used to derive estimates of the financing costs for bioresources, and these estimates are drawn on to produce estimates of full economic costs, then:

- the costs predicted by the model will under-state full economic costs;
- the modelling would produce a bias towards those companies that are more asset-light, and for whom the contribution associated with financing costs are lower.

Question 3.3: Do you have any suggestions on how our approach to PR24 quality enhancements could be implemented in a way that achieves our objectives whilst addressing the concerns raised by stakeholders?

Key messages

In our reply to question 3.2, we said that we consider that the proposed approach you outline in the draft methodology for funding new quality enhancements raises significant risks in companies not being able to fund such enhancements.

This is an important and complex matter to resolve and, within the space of the consultation period, we have not developed an approach to put forward. Going forward, we encourage Ofwat to work with the industry to develop a solution for, addressing the concerns that we, and others, raise.

Question 3.4: Do you agree with, or have any comments on, the degree of regulatory protection we propose for pre-2020 RCV? Do you agree with our proposal to implement option 1 to achieve this?

Strongly disagree

Key messages

- We cannot see how your proposal offers appropriate protection for the pre-2020 RCV.

The consultation document clarifies what Ofwat means when it states that the pre-2020 RCV is protected, it seems you have defined what protection means by working backwards. That is to say, you set out what you believe the proposed approach does in terms of returns to pre-2020 RCV, and define that as “protection”.

As you state in your consultation, your proposed approach “does not mean complete protection against any risk”. We agree with this statement and note the following in particular.

- You give no commitment about the treatment of pre-2020 RCV at future price controls.
- Compared to arrangements under PR19, companies face additional volume risk, due to the move away from the modified average revenue per unit. The component related to the run-off and financing of pre-2020 RCV is, in effect, also subject to this volume risk. We discuss the concerns about volume risk separately below.
- You propose to exclude legacy assets from the catch-up efficiency challenge, and suggest that this provides “a different level of regulatory protection for legacy assets”. We think this, and the discussion elsewhere in the document, glosses over the contribution that the depreciation and financing costs associated with pre-2020 RCV will make to the efficiency challenge that would be imposed on the other components of cost.

This last point is an important one and we unpack it here. We do so by illustrating it with a hypothetical example which we set out in **Error! Reference source not found.** The table compares actual and modelled costs, and allowances for two companies which are identical except for pre-2020 RCV, captured in the table through difference in the unit costs associated with their pre-2020 assets. The two companies have the same operating costs and same depreciation and financing costs associated with post-2020 assets. For each, we have expressed costs on a unit basis, £/ttds. Because, save for the difference in pre-2020 RCV we assume the companies are identical, we assume the modelled unit cost produced by the econometric benchmark is the same for the two, and we assume a value of the efficiency benchmark of 0.85. Using those assumed values, we have calculated the unit allowances for the two companies, drawing on our understanding of the approach you outline in the draft methodology consultation, in particular on page 39. To keep the table simple, we have not reflected in the calculations the frontier shift and we have assumed that the cost drivers used in the modelling are forecast to remain at same level, so

that the allowances can be set on the back of modelled costs. We could have relaxed those assumptions but that would have only added further layers to the table.

Table 1 Example to illustrate role of pre-2020 RCV on efficiency challenge on other costs

Ref		Company 1	Company 2
Actual costs			
A	Opex + depreciation and financing of post-2020 assets (£/tttds)	8	8
B	Depreciation and financing on pre-2020 assets (£/tttds)	12	8
C = A+B	Total unit costs (£/tttds)	20	16
D=B/C	Share of depreciation and financing on pre-2020 assets out of total costs	0.60	0.50
Outcome of modelling results			
E	Modelled unit costs (£/tttds)	16	16
F	Efficiency benchmark	0.85	0.85
Allowances (excl. frontier shift)			
G = B	Component related to depreciation and financing on pre-2020 assets (£/tttds)	12	8
H = E * (1-D) * F	Component related to opex + depreciation and financing of post-2020 assets (£/tttds)	5.44	6.80
I = G+H	Total unit allowance (£/tttds)	17.44	14.80

The point we wish to highlight in the table above is that the difference in the total unit allowance of the two companies – £17.44 for Company 1 and £14.80 for Company 2 – is smaller than the difference in the two companies' unit costs associated with depreciation and financing of pre-2020 assets, which are £12 and £8 respectively. Whilst, as shown in row G, the proposed approach nominally protects the return on pre-2020 assets, the mechanism involved in the calculation is such that it has the knock-on effect of reducing for the company with higher pre-2020 RCV, the component of the unit allowance associated with operating expenditure and the depreciation and financing costs of post-2020 assets, which is shown in row H.

Whilst the table simplifies the calculations that would be involved to derive allowances it captures, we suggest, the central feature of the approach being proposed for PR24 and reveals that, as envisaged in the proposals, the protection of the pre-2020 RCV is done in a way that has a knock-on effect on other components of the allowance. The effective protection is, in that sense, only partial, leaving aside further issues related to the volume risk which pre-2020 RCV will also be exposed to.

Question 3.5: Do you agree with, or have any comments on, our updated proposals for modelling financing costs in our benchmarking models?

Strongly disagree

Key messages

- This approach perpetuates the view that the overall level of returns should be driven by the asset base, and not a function of the overall risk.
- We have concerns that not sufficient consideration has been given to issues relating to data quality and consistency for the bioresources asset valuation
- We have wider concerns that it will not be possible to create robust benchmarking models including financing cost.

The consultation provides clarity on the proposed approach to model the financing costs to be included within the measure of annualised costs that are to be benchmarked. Specifically, that those are costs are to be calculated as the product of (1) the PR24 post-tax allowed return on capital and (2) a company's bioresources asset base.

We provide some comments with regards to both elements of that calculation.

Use of the PR24 post-tax allowed return on capital

We agree with the use of a post-tax allowed return on capital provided this is consistent with the measure of the cost of capital used.

We welcome the move since the December 2021 consultation away from the use of historical levels of allowed return to a more forward-looking assessment of allowed return on capital. As set out in our comments to question 3. 2 above, this does not mean that we consider that the level of allowed return applies should be the WACC figure that you will apply at PR24 in respect of the wastewater wholesale plus control. As we commented before, we think that from a methodological point of view, Ofwat should consider the allowed return for the two areas of activity separately.

Use of a company's asset base

Implicit in an approach that calculates companies' financing costs by applying a given return to the asset base is the view that the asset base is the driver of financing costs. We have several concerns about taking this, some of which arise in the specific context of the bioresources activities and of the data pertaining to it which are available. We set out some of our key concerns below:

- As commented above, at the heart of the proposed approach is a view that asset base is the driver of financing costs. This is a simplification. A company's need for financing arises from other sources other than from the value of their asset base. To take an example in extremis, a company that opted for an operational model of being very asset-light (e.g. through contracting out all activities to third-parties and holding few assets of its own) would incur financing costs all the same, namely those associated with holding contingent capital and having wider commitments not captured in the balance sheet with a view to being able to addressing the regulatory and legal responsibilities and risks that it continue to have.

- We have concerns that not sufficient consideration has been given to issues relating to data quality and consistency for the bioresources asset valuation. The output of that process is central to Ofwat’s approach, as it feeds in directly to the setting of the pre-2020 RCV. Yet, at PR19 the valuation done for each company was primarily an internal matter for that company, and its impact was primarily on the balance of revenue between bioresources and wastewater network plus controls. Under the proposals for PR24, problems in the valuation done by one company could adversely affect all companies via the benchmarking. There are questions about whether the data that draws on that valuation would be fit for the new purpose that Ofwat envisages. It is not clear from the consultation paper whether this is an issue that Ofwat has given due attention to.

Question 3.6: Do you agree with, or have any comments on, our proposals in relation to managing volume risk? Do you agree with our preferred option, that is, option 2?

Strongly disagree

Key messages

- Much of the discussion in section 3.4.5 on “Managing volume risk” seems to be concerned with risks associated with the incentives companies might have to under-forecast sludge production, rather than really focusing on volume risk
- You set out no assessment of the current PR19 option other than to state, as a conclusion, that such an option “is disproportionate under our proposed approach.

We expect that the approach proposed for PR24 would increase volume risk, as it would do away with the element of protection provided by the modified average revenue control in place for PR19.

We consider that the change will be add to the risk facing companies’ bioresources business. We set out in the section at the outset of our comments on Appendix 4 our reasoning underlying that view. For completeness, we replicate those same points here.

We find the consultation document is severely lacking in setting out the reasoning behind the position to choose option 2 in section 3.4.5. We note the following:

- Much of the discussion in section 3.4.5 on “Managing volume risk” seems to be concerned with risks associated with the incentives companies might have to under-forecast sludge production. Indeed, one of the three options put forward on page 43 is about the retention of the PR19 forecasting incentive model. It may be reasonable for Ofwat to have concerns about companies’ forecast incentives, and there may be a role for the model it puts forward. But such a model is entirely about companies’ incentives in their forecast of volume of sludge treated and is wholly irrelevant to addressing the concern about volume risk that companies face.
- The volume risk concern is that, given the average revenue control, companies face the risk that the revenue they are allowed to collect over the regulatory period is linked directly to the volume of sludge treated whilst their costs are not, as some costs continue to be borne, unaffected by the volume of sludge treated.

- The modified average revenue approach that was introduced at PR19 provided some protection for that risk. On page 43 of the consultation, you outline under Option 3, an approach that seems to be in a similar mould to the approach introduced at PR19. You set out no assessment as such of that option other than to state, as a conclusion, that such an option “is disproportionate under our proposed approach. It would add complexity and have the effect of moving away from an average revenue control if actual sludge production is too different from forecast sludge production”.⁶

Ofwat may well choose to take a policy position to adopt an approach that does not protect companies from volume risk, whether fully or partially. Whilst we may have concerns with that in itself, that is not the issue we raise here. Rather, the point we stress here is that Ofwat does not recognise that, against the baseline of what was in place for PR19, the proposed approach does increase the volume risk for bioresource activities, and so would be expected to have an impact on the overall balance of risk for that part of our business.

Question 3.7: Do you agree with, or have any comments on, our proposals to make a separate adjustment for tax?

Disagree

Key messages

- We find the discussion in the consultation paper on applying a separate adjustment for tax (section 3.4.7 of Appendix 4) to be very limited and not altogether clear. And, as commented in the consultation, the issue was absent from the December 2021 consultation. We would welcome further clarity on Ofwat’s proposals on this.

Question 3.8: Do you agree with, or have any comments on, our proposal to continue to refer to the post-2020 asset base as RCV?

Agree

Key messages

- We agree with Ofwat’s proposal on this as we see that there are benefits in recording post-2020 asset base as RCV.

Question 3.9: Do you have any comments on our option assessment in the annex?

Key messages

- We found the assessment of the options set out in the annex to be limited.
- We are not clear on what role the principles set out here played in the development of policy options as some, if not most, describe features of the option you chose to take forward rather than over-arching principles to guide you develop a set of alternative options.

⁶ Ofwat (2022) Appendix 4, page 44.

We welcome Ofwat's efforts to set out more clearly the rationale and objectives of the policy, as a whole and in making the case for the change in approach to bioresources control.

That said, we found the assessment of the options set out in the annex to be limited. We note the following aspects in particular:

- Section A1.2 sets out a set of principles to achieve the objectives outlined in section A1.1. We are not clear on what role these principles played in the development of policy options as some, if not most, describe features of the option you chose to take forward rather than over-arching principles to guide you develop a set of alternative options.
- With regard to the set of options presented in section A1.3, we have concern about how well developed and considered these were. Specifically, we have difficulties in seeing how option 2 would stack up. One of the few ways in which Option 2 seems to be different from Option 1, the status quo, is that under Option 2, Ofwat would make separate allowances for annualised cost (operating costs, depreciation and financing costs) over one regulatory period for new quality enhancements. Yet, we have difficulty in understanding how such an approach for quality enhancements could be grafted onto an approach of setting base cost (opex and capital maintenance) as this would evidently not produce a funding channel for new quality enhancements. Specifically, beyond the allowances for five-years' worth of depreciation and financing costs, how would a company be able to fund the capital expenditure of those new quality enhancements? This issue may be indicative of our concern that Ofwat did not engage sufficiently with the process of developing a set of alternative credible options.

QS.1: Do you have any comments on the type of data used for the example model results? Whist recognising the proposed refinements to establishing standardised depreciation in annex 6, do you have further comments on whether RCV and RCV run-off would provide an acceptable and/or more appropriate input to our econometric cost benchmarking models over the 2020 to 2025 period?

Key messages

- At this stage, we do not have substantive comments on the type of data used for the example model results. As noted by Ofwat, the example model results are not intended to be indicative of the likely outcome of PR24 bioresources cost assessment exercise. Furthermore, the input data and model results could change significantly once the company responses to Ofwat's data request relating to MEAV and depreciation are received and analysed.

Our response to Ofwat's December 2021 consultation set out our view on Ofwat's proposed use of RCV and RCV run-off data as inputs to the econometric modelling for the 2020-2025 period. In particular, we expressed concerns about the potential mismatches between RCV/RCV run-off and actual expenditure and depreciation. While data calculated in line with the approach set out in Annex 6 could, in principle, provide a reasonable alternative to RCV-based data, we are not yet in a position to form a view on whether that data would be of sufficient quality and be consistently determined across companies. We welcome the fact that Ofwat intends to keep the issue under review, and would strongly encourage Ofwat to publish the dataset and its draft conclusions and

seek stakeholder feedback before making any decisions on its choice of input data and models for bioresources.

QS.2: Do you have any comments on the econometric models and results? How could our models be improved? For example, should we consider alternative specifications or cost drivers?

Key messages

- The limited response time, and potential scale of changes from new data yet to be compiled significantly limits the amount of scrutiny we can carry out on these models.
- The analysis of the model results set out in the supplementary consultation suggests that Ofwat has not delved sufficiently into the interpretation of the results across models and sought to understand important differences between them.

It is helpful for Ofwat to have shared the set of initial models for the three options put forward, and the accompanying data and Stata script files. That said, we find that the opportunity and the worthwhileness of scrutinising those models in detail is significantly hampered by the consultative process that Ofwat has taken:

- The 11 working days allowed to respond to the supplementary consultation document limits significantly the analysis that we are able to carry out to scrutinise Ofwat's initial models.
- Ofwat is proposing to draw on new data, yet to be compiled, for the purpose of deriving estimates of depreciation and financing costs. As we suggest in our comments in section 1.2 of this response, we see a risk that such new data will have a material impact on the measure of full economic cost used as the dependent variable in the initial model for Option 3. As such, we do not see that there is much value at this stage in examining the specific performance of that model.
- In that light, it would seem to be more appropriate to consult points related to model specification and model assessment once Ofwat considerations on data are settled and these have been shared with the industry, and, critically, over a longer – rather than 11 days – consultation period.

In that light, our comments below are more targeted at the approach that Ofwat seems to have taken in developing and in assessing its econometric models, as revealed in the discussion in the supplementary consultation documents. We would expect that strengthening that approach would lead Ofwat producing better models going forward. Some of these comments we make here replicate ones we made earlier in section 3 of this response.

- **Consideration of alternative cost drivers and model specification.** The consultation is asking for views on alternative specifications and cost drivers. We are supportive of Ofwat to consider such alternatives and not constrain itself to the models developed for PR19. We have not developed fresh considerations on these points to share with you in this consultation, reflecting the two points made above. At PR19, Ofwat engaged at length with industry on developing the econometric models that it drew on, including models for bioresources (e.g.

through the March 2018 consultation on econometric cost models). Ofwat may find it helpful to re-examine issues raised then with regard to alternative model specifications.

- **Supportive of consideration of unit cost models.** The set of initial models reveal that Ofwat is also considering unit cost models. We are supportive of this as we see merit in exploring a range of alternative specifications and not be constrained to models where the dependent variable is of total costs. In the case of the set of models put forward in the consultation – where both the dependent variable and the scale variable are expressed in logarithmic terms – the two formulations produce identical results in terms of estimated coefficients (other than, naturally, on the scale variable) and on predicted costs; the consultation notes this. However, the precision of modelled costs (once expressed on a consistent basis, e.g. on a unit cost basis) will be different between models that use one or the other formulation. As we comment below, consideration of the precision of such modelled costs is very relevant in an assessment of alternative models.
- **Seeking to understand difference between model results.** The analysis of the model results set out in the supplementary consultation suggests that Ofwat has not delved sufficiently into the interpretation of the results across models and sought to understand important differences between them. For example, whilst the consultation document sets out what each of the models predicts in terms of company-level economies of scale, no discussion is set out on seeking to understand what drives the markedly different findings across the models: the models presented for Options 1 and 2 point to very high company-level diseconomies of scale whilst the model for Option 3 suggests some small economies of scale. What is driving such very different results across the models? Are there good operational or economic reasons why one would expect such differences depending on whether the measure of cost relates to totex or to full economic cost? Or are the very different results an indication of something gone awry in the definition of the measures of depreciation and/or financing costs? Or are there other explanations for this?
- **More thorough scrutiny of model results.** Closely related to the above is the concern that Ofwat provides limited critical interpretation of the results of any one given model. Take the case of what models for Options 1 and 2 suggest about company-level economies of scale, namely that these are in range of 24 to 34 percent. These are very material diseconomies of scale and yet the consultation paper voices no consideration about the credibility of such a result, and the operational or economic reasons that could potentially explain that. We understand that in relation to some cost drivers it may be difficult to formulate an ex ante view, based on operational considerations, on the size of their coefficients and so understand the attention given in Ofwat's analysis of results to whether the sign of that coefficient is in line with operational or economic intuition. That said, we think that certainly in relation to the cost driver on the scale of the company, which plays a critical role in determining the size of modelled costs (or modelled unit costs), Ofwat ought to scrutinise model results further.
- **Other aspects of model assessment.** The analysis of the model results set out in the supplementary consultation suggests that Ofwat has done a limited assessment of the performance and robustness of the different models presented. Further to the points raised above regarding the interpretation of estimated coefficients, there are aspects that Ofwat does not seem to have explored. These include, for example, consideration about the sensitivity of model results to small changes in the dataset – this is something that, we suggest, may be more

revealing about model robustness than the t- or z-statistic associated with given estimated coefficients – or consideration about the statistical precision around the modelled costs.

- **Clarity in the discussion of economies of scale.** We find that the interpretation of the model results which is presented in the supplementary document does not distinguish clearly enough between (i) potential economies of scale at the company-level, and (ii) potential economies of scale at the plant-level. Ofwat applies the term “economies of scale”, with no further qualification, to describe either feature. Greater precision and clarity on this terminology would be helpful: the two types of potential (dis)economies of scale arise from different operational or economic factors and, in assessing the credibility of what the results of a given model imply about each of the those features they should be kept distinct. Imprecise terminology risks muddling that.

QS.3: Do you agree with, or have comments on, the proposed, updated approach to calculating asset values and CCA depreciation as set out in annex 6?

Disagree

Key messages

- The limited response time, and potential scale of changes from new data yet to be compiled significantly limits the amount of scrutiny we can carry out on these areas.
- Comments below are limited to areas where we think there are clear errors or assumptions that need review

[Do you] agree with, or have any comments on, our proposed approach to calculating GMEAV and the alternative approach considered?

On this, we make the following comments:

- Box 1 on page 37 of the supplementary document sets out the formula for calculating the opening values of GMEAV. It looks like the inflation uplift is inconsistent with the calculations in the spreadsheet “New_depreciation_and_NMEAV_approach.xlsx”. Specifically, the inflation uplift in the document appears to be lagged by a year compared to the spreadsheet. The spreadsheet approach (i.e. without the lag) is probably the intended calculation. Separately on NMEAV, both Box 3 and the spreadsheet uses lagged CPIH uplifts to calculate opening NMEAV. No rationale is provided for using lagged CPIH. It would be more appropriate to use $CPIH_t/CPIH_{t-1}$ as the inflation uplift for calculating the opening value of NMEAV for year t.
- It is not evident to us that there is sufficient empirical grounding for the simplifying assumption that is drawn on for the alternative approach, namely that disposals are approximately equal to capital maintenance.

[Do you] agree with, or have any comments on, our proposed approach ('gradual unwinding') and alternative approach to estimate changes in the value of the NPV adjustment?

No comment.

[Do you] agree with, or have any comments on, our proposed approach ('bottom-up method) to recording CCA depreciation?

No comment.

[Do you] agree with, or have any comments on, our proposed approach to the rules on asset life assumptions?

No comment.

[Do you] have any comments on the options to generate backcasting estimates of asset values and depreciation?

No comment.