

October 2021

Bioresources cost allocation – Energy generation and odour control final decision

About this document

In June 2021, we set out our [proposals](#) for how the revenues and/or cost savings arising from energy generation within the bioresources control should be allocated across price controls going forwards. We also requested stakeholders' views on the need to issue guidance on the allocation of odour control costs.

This document contains our final decision on these matters, as well as industry feedback on the proposals and our response to this feedback.

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1. Introduction

As part of our [Review of the bioresources market](#) and ongoing associated work, we have been aiming to address differences in how companies allocate costs associated with the bioresources price control. Inaccuracies or inconsistencies in the way that companies allocate costs and/or revenues to the bioresources control can have detrimental effects on bioresources market development. This in turn prevents customers realising the full benefits that are likely to come with a competitive, well-functioning bioresources market.

Energy generation is worth a significant amount to the bioresources control in either revenue (from sales to the grid) or an avoided cost (that is, the cost that the bioresources business unit would incur to buy energy were it not able to generate this energy itself). Over the 2020-25 period, £366 million¹ of revenue is expected to be generated through the sale of the by-products of the sludge treatment process. Sales of energy make up the majority of this and we would expect this to increase as the sector moves closer to its [net zero ambitions](#). This is in comparison to the approximate £3 billion² revenue that companies are allowed to collect from customers for bioresources activities in the same period.

Given the scale of revenues or avoided costs from renewable energy generation, inconsistencies in how these are allocated across price controls can create issues for market development and our regulation. Issues with cost allocation can mean costs are less comparable between companies, making it more difficult for us to assess efficient costs and set stretching efficiency challenges, and harder for third parties to identify relative levels of efficiency to inform trading opportunities. Addressing these issues is likely to facilitate market development, leading to benefits for customers in the form of bill reductions and increased service resilience.

In June we consulted on [proposed guidance](#) for how the costs and revenues associated with energy generation in the bioresources control should be allocated across price controls. This document sets out our final decision on this guidance. We also requested stakeholders' views on the need to issue guidance on the allocation of odour control costs across price controls. We set out our final decisions on this topic as well.

Our proposals were informed by a [report by Jacobs](#) which explored how companies are currently undertaking the allocation of these costs and revenues and made recommendations on how greater standardisation could be achieved. Further details of our proposals can be found in the consultation document and Jacobs' report.

¹ This estimate is based on the PR19 business plan data tables.

² This estimate is based on our PR19 final determinations, published in December 2019.

This guidance is to be applied from the 2021–22 reporting year onwards. To support this, we have made small changes to RAG 2 (paragraphs 2.30–2.33), APR tables 8C and 4K, and the accompanying table definitions in RAG 4.

The rest of this document is structured as follows:

- Section 2 provides a summary of our final decision
- Section 3 contains our consultation proposals, stakeholder feedback on these, our response and also our final decisions.
- Appendix 1 sets out further guidance for estimating heat energy consumption.

2. Summary of our final decisions

In summary, our final decisions are:

- Energy generated and consumed within the bioresources control should be treated as an avoided cost;
- Energy exported from bioresources to other price controls should be considered a sale and therefore have negative opex in bioresources associated with it;
- Companies should aim to measure at least 80% of their bioresources energy consumption across their portfolio;
- When estimating heat energy consumption, companies should follow the guidance which we consulted on in September 2021. For ease of reference, this guidance is laid out in appendix 1;
- The price paid by other controls to bioresources should be benchmarked against the price that the business unit would have paid to import energy from an external source, were it not receiving energy from the bioresources control. In the majority of cases, this is likely to be the price to purchase energy from the national electricity/gas network (the grid). For the remainder of this document we refer to this as the 'import price'.
- Companies are required to shadow report based on the new guidance, alongside reporting based on their current practice for the remainder of the 2020-25 period;
- At present, we are not issuing guidance on the allocation of odour control costs.

Our consultation document and the accompanying Jacobs report provided greater detail of our proposals. With the exception of the 'Accounting for energy use and transfers' and the 'Pricing for energy use and transfers' sections, we are retaining the proposals set out in the consultation in full and so this further detail remains relevant and useful for companies.

Our decisions will take effect for reporting year 2021-22 and so this document has been published alongside the 2021-22 Regulatory Accounting Guidelines. Regulatory Accounting Guideline 2 has been updated to include our decisions as specific guidance.

We provide further detail and context to our decisions in section 3.

3. Industry feedback and our response

We received ten responses to our consultation which were all from regulated wastewater companies.³

This section is divided into our consultation proposals, industry feedback and our response, and our final decisions for each of the areas which we consulted on.

3.1 Accounting for energy use and transfers

3.1.1 Our consultation proposals

In summary, our proposals for accounting were as follows:

- Energy generated and consumed within the bioresources control should be treated as an avoided cost;
- Energy exported from bioresources to other price controls should be considered a sale and therefore have revenue to bioresources associated with it;
- Incentive payments associated with the generation of renewable energy in bioresources should be allocated to bioresources;
- To maximise accuracy, energy generation should be accounted for at site level and then aggregated, rather than at portfolio level.

3.1.2 Industry feedback

Our proposals around accounting for energy use and transfers were generally well received by respondents.

Five companies raised concerns over our proposal that transfers of energy from bioresources to other controls should have revenue attached to them. They said that this would cause compliance issues with the revenue controls and potentially create perverse incentives. Some of these companies correctly assumed that our intention was for the costs to appear in the control receiving energy and for the income the bioresources control receives to be treated as negative opex (which would negate this issue).

Southern Water and Dŵr Cymru also requested a worked example that demonstrates where this transfer should appear within reporting.

³ By "regulated wastewater companies" we mean companies that hold appointments as sewerage undertakers under the Water Industry Act 1991.

3.1.3 Our response

We clarify that our intention was for the costs to appear in the receiving control and for the 'payment' to bioresources to be treated as negative opex in the bioresources control. This ensures that compliance with the revenue controls is unaffected.

We have provided a walkthrough of how companies should account for this in the Annual Performance Report (APR) in the below box:

Box 1 – APR reporting guidance

As detailed in section 3.4 of this document, we are requiring that companies shadow report based on our final decisions for the remainder of the 2020–25 period. This is in addition to companies continuing to report based on their current practice.

When shadow reporting based on our final decisions, companies should account for transfers of energy to wastewater network plus as follows:

- The cost to wastewater network plus of purchasing energy from bioresources should be accounted for within APR line 4K.19. From 2025 onwards, when our decisions will be fully implemented, this should be accounted for within APR line 4K.1.
- The income received by the bioresources control associated with this transfer should be accounted for within APR lines 4K.20 and 8C.20. From 2025 onwards, when our decisions will be fully implemented, this should be accounted for within APR lines 4K.2 and 8C.3.

3.1.4 Our final decisions

Our final decisions for how companies should account for energy use and transfers are:

- Energy generated and consumed within the bioresources control should be treated as an avoided cost;
- Energy exported from bioresources to other price controls should be considered a sale and therefore have negative opex in bioresources associated with it;
- Incentive payments associated with the generation of renewable energy in bioresources should be allocated to bioresources;
- To maximise accuracy, energy generation should be accounted for at site level and then aggregated, rather than at portfolio level.

3.2 Measurement of energy use and transfers

3.2.1 Our consultation proposals

In summary, our original proposals for measurement were as follows:

- Companies should meter at least 80% of their bioresources energy consumption across their portfolio;
- Companies are not required to meter or sub-meter assets with insignificant energy consumption or where metering data will not be useful in measuring energy consumption. However, this should not prevent the above 80% figure being reached without good reason;
- Where permanent sub-metering is not practical, companies should use temporary metering;
- Estimation remains appropriate in the case of heat energy due to technical challenges in measuring this.

We also adopted more detailed recommendations around measurement made to us by Jacobs. Further detail surrounding our proposals can be found in the Jacobs report that accompanied our consultation document.

A number of companies indicated in their consultation response that further guidance on how to estimate heat energy consumption across price controls would be useful. We therefore consulted companies separately on further guidance in this matter. A description of the consultation proposals and our final decisions on this can be found in appendix 1.

3.2.2 Industry feedback

Respondents had mixed views on our proposals for measurement.

Anglian Water, South West Water and Thames Water stated that the requirement to meter 80% of their consumption was disproportionate, with some suggesting that only the largest assets should be metered, before using this data to estimate consumption for smaller assets. South West Water, United Utilities and Yorkshire Water also requested further guidance on how to estimate heat energy consumption. Following this, we consulted companies on further guidance around how to estimate heat energy consumption across controls. A description of the consultation proposals can be found in appendix 1.

We received six responses from companies regarding our heat consultation. There was some disagreement on technical details, but the industry generally expressed support for our proposed approach. Specific issues raised included the suitability of spot sampling when estimating heat energy consumption, as well as our proposal that companies should not be

required to estimate exported heat where this makes up 10% or less of total heat generated in bioresources (see appendix 1). United Utilities stated that the proposed threshold was too high.

3.2.3 Our response

We consider that accurate measurement of energy consumption is key to ensuring accurate cost allocation. In their report accompanying the consultation document, Jacobs estimated that variation in measurement could result in a possible impact of up to £3 million in costs per year being misallocated across price controls for an average company. They also indicated that metering should not be overly costly to address for companies (around £5k to purchase and install each meter) and would be beneficial. As described by one company, increased metering will benefit companies by enabling them to find and resolve process efficiencies more quickly and contribute to carbon reduction. Furthermore, estimation of consumption for smaller assets is likely to lead to further variation in allocation approaches.

Regarding the issues raised in response to our consultation on estimating heat energy consumption, we accept spot sampling is not as accurate as other more complex estimation methods. However, we consider that our proposals strike an appropriate balance between accurate estimation (and therefore accurate cost allocation) and ease of implementation for companies. We consider that our selection of a 10% threshold (where if the heat energy exported from bioresources is equal to or less than 10% of the total heat generated in bioresources companies are not required to estimate this) is appropriate for similar reasons. In our view, requiring companies to meter energy consumption below this threshold would risk imposing a cost on companies that is disproportionate to the benefits that would be gained.

3.2.4 Our final decisions

Our final decisions for how companies should measure energy use and transfers are:

- Companies should meter at least 80% of their bioresources energy consumption across their portfolio;
- Companies are not required to meter or sub-meter assets with insignificant energy consumption or where metering data will not be useful in measuring energy consumption. However, this should not prevent the above 80% figure being reached without good reason;
- Where permanent sub-metering is not practical, companies should use temporary metering;
- When estimating heat energy consumption, companies should follow the guidance which we consulted on in September 2021. For ease of reference, this guidance is laid out in appendix 1.

We are implementing in full the recommendations made to us by Jacobs in their report which accompanied our consultation document (apart from those regarding the estimation of heat energy). Further detail of these can be found in section 1.5 of the Jacobs report.

3.3 Pricing for energy use and transfers

3.3.1 Our consultation proposals

In summary, our original proposals for pricing were as follows:

- The price paid by other controls to bioresources should be benchmarked against the price that the bioresources business unit would receive, were it to export the energy to the grid.

On balance, we considered the above proposal to better support market development. However, we stated in the consultation that use of the import price may also be a reasonable approach.

3.3.2 Industry feedback

Most respondents disagreed with our proposal that companies should use the export price to benchmark the price paid for transfers of energy from bioresources to other price controls. Wessex Water stated that no price should be mandated, whilst the majority argued that we should require use of the import price.

Part of our rationale for proposing use of the export price in the consultation was that an independent bioresources operator in a competitive market would be unable to attract the higher import price when selling its energy, therefore putting the incumbent wastewater companies at an advantage. However, five companies argued that independent bioresources firms can attract the import price for the energy they generate by selling the energy on a localised basis, in a similar manner to the regulated wastewater companies. Some respondents also highlighted the differential renewable energy generation incentives on offer to these firms.

Three companies commented on the perverse incentives mandating the export price could produce, including reducing the incentive to invest in renewable energy technology and the possibility that companies who have previously invested in electricity generating assets instead of gas to grid for instance would be penalised.

Yorkshire Water highlighted that use of the export price would be inconsistent with the approach we took during the RCV allocation exercise in 2018. In that instance, we required

companies to use the import price when valuing the renewable energy generation potential of bioresources assets.

3.3.3 Our response

Based on the feedback we have received from respondents and further evidence, our final decision is that companies should use the import price when benchmarking. However, we still consider that this is a finely balanced decision and that use of the export price has the potential to further market development. Given this, we will continue to monitor the development of the bioresources market and may choose to mandate use of the export price in future if, for example, we do not observe significant increases in market activity.

In coming to the above decision we have engaged with independent bioresources operators. They have indicated that whilst the practice of co-locating their sites with an energy importing customer is not yet widespread, the market is developing and this arrangement is becoming increasingly likely. This in theory would allow these firms to attract the import price for the energy they generate, putting the incumbent wastewater companies at a competitive disadvantage were we to mandate use of the export price. We are also keen that companies pursue efficiencies arising from co-location, with the ability to sell energy locally for the import price being a key factor in this.

We accept that requiring use of the export price to benchmark transfers could penalise some companies who have undertaken certain investment in renewable energy generation in the past. For example, companies who have previously invested in bioresources assets that maximise electricity generation, rather than revenues from gas to grid arrangements, would now find that they would receive less for this electricity generation than anticipated when making the original investment decision (assuming the original investment decision was based on receiving the import price for the generated electricity). We consider that companies should retain the flexibility to pursue the renewable energy strategy most beneficial for themselves and their customers, and that our framework should not unnecessarily penalise companies for decisions that were made on a prior information basis.

In section 5.47 of our [feedback to companies on the bioresources RCV allocation exercise](#), we stated that companies should use the import price when valuing the energy generated by the appointed business. Although this guidance was issued as part of an accounting exercise and had different purposes to this document, we accept that requiring use of the export price would be inconsistent with our past approach. We consider that any effect on company RCV balances as a result of this would likely be small. Despite this, requiring companies to use the import price would ensure this issue is negated.

3.3.4 Our final decisions

Our final decisions for how companies should price energy transfers are:

- The price paid by other controls to bioresources should be benchmarked against the price that the business unit would have paid to import energy from an external source, were it not receiving energy from the bioresources control. In the majority of cases, this is likely to be the price to purchase energy from the national electricity/gas network (the grid).

3.4 Reporting

3.4.1 Our consultation proposals

As part of our consultation, we requested stakeholder views on the reporting related to our proposals for accounting, measurement and pricing.

3.4.2 Industry feedback

Companies provided mixed views on the reporting associated with the new proposals.

Four companies raised concerns over the regulatory burden of extra reporting and stated that reporting should happen outside of the APR process. Separately to this, Anglian Water, United Utilities and Wessex Water commented on the need for shadow reporting for the remainder of this regulatory period to ensure that cost treatment is consistent for 2020–25. Severn Trent Water and Dŵr Cymru also commented on the fact that accurate reporting would not be possible until 2022–23, due to the time needed to install meters.

3.4.3 Our response

We agree with the assessment that changing cost treatment mid-period should be avoided where possible. Our proposals would see the control receiving the energy (likely wastewater network plus) incur cost as it purchases energy from bioresources. Whilst we cannot be sure how every company is currently accounting for this arrangement, we expect our proposals will see costs in receiving controls increase and costs in bioresources decrease for some companies. As there is cost sharing in the controls likely to receive energy but not in bioresources, this would see increased costs passed on to customers. The opposite situation may also occur, with companies having to incur higher costs. We are keen to avoid imposing this type of unforeseen cost increase on customers or companies.

Our decision is therefore that companies should shadow report based on the new guidance for the remainder of the 2020–25 period, before full implementation is introduced in the 2025–30 period. This means that we can use the shadow reported data to improve our cost assessment at PR24, whilst avoiding unforeseen rises in either customer bills or company costs. This is also consistent with the approach we implemented for the [treatment of sludge liquor costs](#) in April 2021.

We accept that some companies will need time to install additional meters. We expect companies to reach the 80% metered consumption figure ahead of the 2022–23 reporting year. This will ensure that data reported for the 2022–23 reporting year is sufficiently accurate and may also enable improved estimates for the 2021–22 reporting year.

As companies will not be able to report accurately until 2022–23, we will only have two years' worth of reliable data to use in our cost modelling at PR24 (and only one years' worth of data to use for our draft determinations). Therefore, as well as shadow reporting based on the new guidance, companies should also report based on their current method. This will allow us to potentially use a comparison between shadow and other reported data for 2022–23 and 2023–24. We may also ask companies to backcast data for previous years of the period as part of wider cost assessment work. Further detail on how companies should report in the APR is contained within box 1 above.

Companies should also report the percentage of their energy consumption that is metered. This will allow us to make a judgement on the reliability of shadow reported data.

We recognise that implementing dual reporting will increase the burden on companies somewhat for the remainder of this period. However, we consider that this is necessary to avoid imposing unforeseen cost increases on customers or companies. We also do not agree that this burden would be eased by reporting outside of the APR process. Collecting this data through the APR is most efficient for Ofwat and also companies, who can include the new data within their existing reporting and assurance processes. We consider that additional reporting arrangements outside of the APR would likely increase administrative burden further and may result in the data being assured to a lower standard. Housing this data within companies' APRs also ensures that this data is easily visible to other stakeholders.

3.4.4 Our final decisions

Our final decisions related to reporting are as follows:

- Companies are required to shadow report based on the new guidance, alongside reporting based on their current practice for the remainder of the 2020–25 period;
- Companies should look to reach the 80% metered consumption figure in time to report accurately for 2022–23;

- Companies should also report the percentage of their energy consumption that is metered;
- Reporting requirements will be implemented through the existing APR process.

3.5 Odour control costs

3.5.1 Our consultation proposals

As part of our consultation, we requested stakeholder views on the materiality of incorrect allocation of odour control costs, and whether allocation based on airflow would be an appropriate way to resolve this.

3.5.2 Industry feedback

Respondents broadly disagreed with the need to provide guidance on the allocation of odour control costs by airflow. Nine companies indicated that this would be disproportionate given the relatively immaterial nature of odour control costs across price controls. Five companies also said that our suggested approach of allocating cost based on airflow would be difficult / impractical.

3.5.3 Our response

We accept the points made by respondents. We agree that the allocation of these costs is unlikely to be material enough to warrant allocating cost based on airflow. This would impose disproportionate costs on companies and may be difficult to implement.

Southern Water suggested an alternative approach where these costs could be allocated across price controls using the same splits as used for allocating local authority rates. This would be simple for companies to implement and would be a more proportionate method of ensuring these costs are allocated consistently. We will explore this further and may include this as a proposal within the 2022-23 RAGs consultation.

3.5.4 Our final decisions

At present, we are not issuing guidance on the allocation of odour control costs. We may consult on further action in this area within the 2022-23 RAGs consultation.

A1 Estimation of heat energy consumption – guidance

In response to our original consultation, three companies requested further guidance on how to estimate heat energy consumption.

Following this, we consulted companies on further guidance around how to estimate heat energy consumption across controls. We proposed that:

- For heat that is exported from the bioresources control, this should be estimated by taking a spot sample of flow, outgoing temperature and incoming temperature (if relevant) and undertaking a heat balance calculation to identify the proportion of heat being exported. This should then be applied to heat generation calculations or estimations going forwards to identify the level of heat exported. This work should be undertaken over the same sample period as that for electricity estimation. Where 10% or less of total heat generated is exported from the bioresources control, this does not require estimation. We considered that requirements to estimate exported heat below this threshold would be disproportionate.
- For estimating the total heat that is generated, this should be sampled as above. For heat generated within a CHP engine, companies should use the samples to identify the ratio between heat generated and electricity generated and then utilise the electricity generation data to calculate heat generated. Where heat is generated in a boiler or another process, a conversion factor should be created utilising the relationship between boiler fuel and output heat (boiler efficiency). This factor should then be used in ongoing reporting.

We are implementing these proposals in full as part of our final decisions.

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