Cost Adjustment Claim:

Energy

ANH_CAC_3.1

Anglian Water

June 2023

Document reference	**ANH3.1 Energy**		
Title of cost adjustment claim	**Energy**		
Price control	Water Resources, Water Network Plus, Wastewater Network Plus	Symmetrical?	~~YES~~/NO
Basis of claim	The forward looking costs of purchasing energy In AMP8, including non-commodity costs, are much higher than the historic levels experienced by the industry and are thus not adequately reflected in the cost assessment models. Energy prices so far, seem to have peaked in 2022/23 and there is currently an expected significantly negative Real Price Effect (RPE) post 2022/23 and this Cost Adjustment Claim needs to be considered collectively with the negative RPE. The aim is to ensure that after both of these steps the higher cost of energy is adequately funded. We believe that there may well be better ways of resolving this issue but in the absence of an alternative have submitted this Cost Adjustment Claim which should be considered along with the negative RPE adjustment.		

	Water Resources	Water Network+	Wastewater Network+	Total
Gross value (£m five years)	£108.0m	£349.4m	£523.2m	£980.6m
Implicit allowance (£m five years)	£42.5m	£138.5m	£194.9m	£375.9m
Net value of claim (£m five years)	£65.5m	£210.9m	£328.3m	£604.7m
How efficiency of costs are demonstrated	We are taking the future market price for energy compared to the historic rate assumed by the models, and thus as we are assuming the market price is the efficient price, consider efficiency has been demonstrated.			
	Water Resources	Water Network+	Wastewater Network+	
Materiality (as % of totex for price control)	16%	6%	8%	
How customers are protected	This claim is to ensure the expected energy costs are covered adequately in a determination. There are numerous other ways of doing this and true-up mechanisms could be used to deal with the levels of volatility in the market experienced in the last couple of years.			
Supporting document references	ANH_CAC_ 3.2 Day Ahead market prices ANH_CAC_3.3 CAC energy water and summary ANH_CAC_0.1 Oxera Assurance Letter ANH_CAC_0.2 PR24 Template			

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Context of the claim

Energy prices broadly trebled between the long term costs included in the cost assessment models and 2022/23. Whilst market prices have fallen back since then they are still approximately double the historic levels assumed in the model.

Our understanding of the guidance informs us that we need to use two separate steps within the PR24 methodology to arrive at the correct funding level for energy costs for AMP8. We have this Cost Adjustment Claim and the Real Price Effect adjustment process. It is worth noting that whilst the Real Price Effect (RPE) is written as the second step below, the guidance for this asks us to calculate the RPE based on macro-economic factors outside of the companies' direct control. This drives to use market data, which shows a significant decrease post 22/23, which in turn means we need to use the same market data in calculating the Cost Adjustment Claim. The effect of this is to end up with a very large cost adjustment claim, a large negative RPE adjustment, and combining the two steps, a large net increase in power costs reflecting the current forecast costs of energy compared to the historic costs used in the cost assessment models.

We do not think however that a 'CAC+RPE' approach is the best way to deal with this issue. A more sensible approach would be some kind of indexation of the price control to quoted energy prices: this reflects good principles of economic regulation as energy is a volatile and large common cost which is mainly uncontrollable and companies would still have an incentive to contract efficiently by using a public index. Failing that, or in addition to it, an uncertainty mechanism with true-up (ideally on the basis of a published index) could also work. If Ofwat decided that mechanisms such as these would be more successful in aligning risks and incentives in energy purchase we would withdraw our claim.

On the basis there are currently no alternatives to the 'CAC+RPE' approach the steps we have followed are as below.

The **first step** is this cost adjustment claim, calculating the gap between the implicit allowance assumed in the cost models and what that would have been if the 2022/23 energy prices were used in the models instead.

The **second step** is to use the Real Price Effects (RPE) process to pick up the difference between the 2022/23 market price and the latest expected forward rates for forward purchasing in AMP8.

It is essential to view these two steps together to get the overall picture. Changes in the methodology for one of these could well lead to a change in methodology for the other. In particular the methodology for calculating the 2022/23 market rate must be the same in both steps to ensure consistency. The result of the two adjustments together should arrive at the forward market rates for energy that we expect to incur in AMP8.

Background

The market price for wholesale energy, and the associated forward purchase rates, have risen materially above the historic levels in the industry cost dataset which have been used as inputs to the cost models.

The peak so far has been in 2022/23 when the day forward price rose as high as £527 per MWh, with an average for the year of £187 per MWh. There has been a significant reduction since then, but forward purchase rates remain approximately double the level incurred during the years feeding the cost assessment models. In addition, the non-commodity costs (NCC's) have also been rising.

Whilst we can influence energy usage to a degree, we clearly cannot control the energy prices set by the market. We can, and do, hedge our energy costs through forward purchase contracts, which we build up over time. This basically fixes the price we pay in advance.

It is important to note that we hedge to increase financial certainty and to avoid short term shocks to our cost base. We do not hedge to attempt to outperform the market, which of course is only possible with hindsight. So, as we increase our hedge position we reduce the risk of cost shocks, but also reduce the potential for achieving lower costs should prices fall post securing the hedge. Over time we have both outperformed and underperformed the market

price through the approach. In AMP7 our approach has protected us to an extent from the energy cost shock. We had forward contracts in place for 2021/22 and most of 2022/23, but only few forward contracts in place for 2023/24 and 2024/25, so we are now experiencing the cost increases some other companies incurred in 2021/22 and 2022/23.

As soon as the short-term market prices started rising, the longer term AMP8 forward prices rose sharply too, making purchasing forward contracts for AMP8 much more expensive. Since that time forward contract prices have fallen back, but are still double the historic average assumed for the data feeding the cost models. As we follow our hedging strategy we build up a portfolio of forward price hedges over time. At the point of securing each hedge we simply cannot know do if we will end up above or below the eventual actual market price.

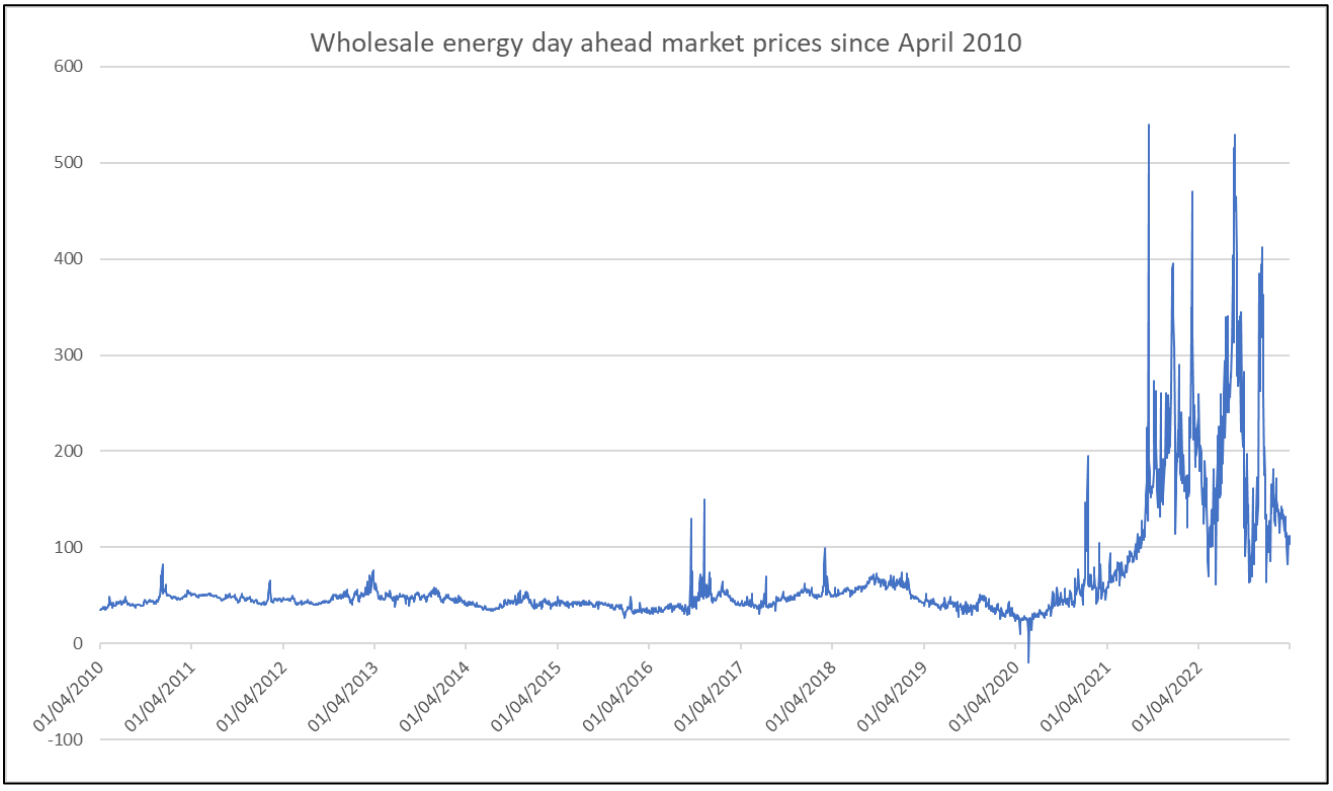
Materiality

This cost adjustment claim is material for Water Resources, Water Network plus and Wastewater Network plus. We do not believe it is material for Bioresources or for Retail.

The materiality is formally assessed later in this document.

Volatility

It is worth stressing that the energy market remains volatile, with the external factors causing that volatility still very much evident and so the situation is likely still evolving. The chart below shows the relative stability in the wholesale price prior to the invasion of Ukraine, the huge cost increases in 2021/22 and 2022/23 and the volatility since then. More recently prices have reduced form the peaks but are still approximately double the long term average.



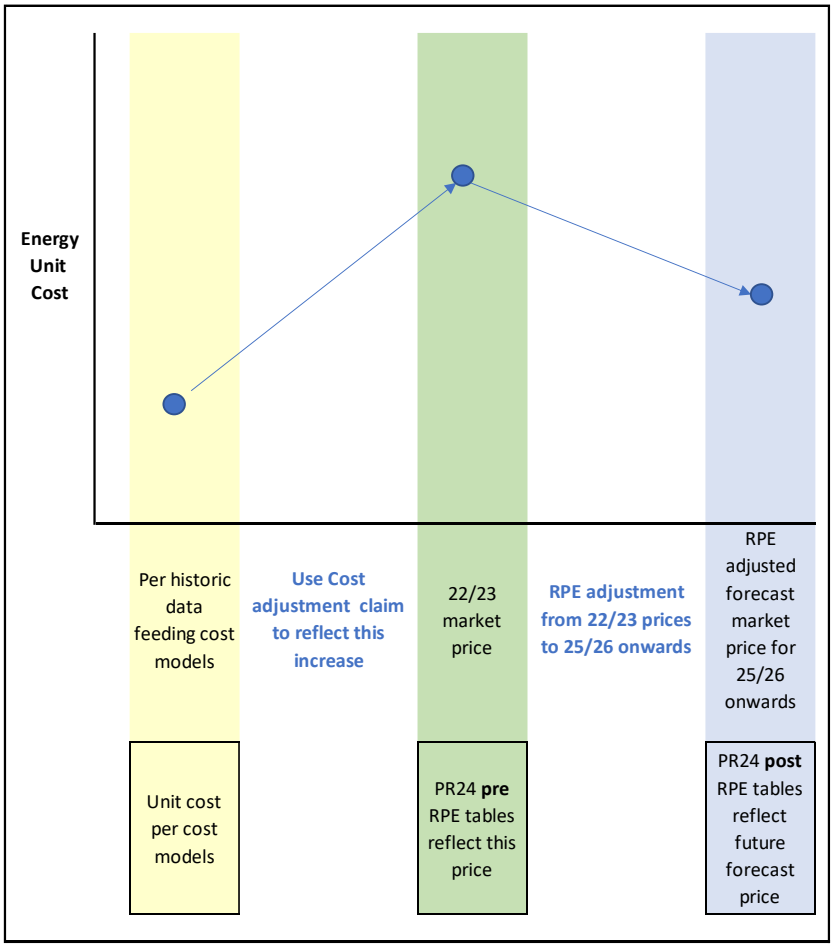
Symmetrical or non-symmetrical

This is an industry wide matter, with the potential for the material unfunded energy costs that are being suffered in AMP7, to remain unfunded for all companies in AMP8. We therefore conclude that this would be a non-symmetrical cost adjustment claim based on the national increases in energy prices.

This cost adjustment claim ultimately impacts the whole industry in the same way because it is based on the market rate for energy. All companies will have experienced very significant cost increases in 2022/23 for wholesale energy. Whilst we had some protection as a result of our hedging strategy, the underlying cost for 2022/23 is effectively the 2022/23 market rate.

In our approach it is particularly important to also use this 2022/23 rate as the starting point in the calculation of the Real Price Effects (RPE) adjustment. By keeping the methodology on the 2022/23 market price aligned across the two separate adjustments, we ensure we end up at the expected unit cost of energy for AMP8. The graphic below seeks to demonstrate this, and the approach we are taking.

We acknowledge that there are numerous approaches to calculating the cost adjustment claim. Our approach is largely driven by the guidance for calculating Real Price Effects in which we are expected to demonstrate how future costs will move, post 2022/23, in relation to cpih due to macro-economic factors outside of the companies' direct control. We have concluded that the best way to demonstrate macro-economic factors outside of our control is to use the market price data for 2022/23 and the expected forward market prices. In our approach it is essential that the calculation of the 2022/23 market price is the same in both the Cost Adjustment Claim and the Real Price Effect. In this way, when taking the two adjustments together we arrive at what we consider to be the market price for AMP8. The forward prices change frequently, so we anticipate that the RPE will need recalibrating as we go through the Price Review.



Methodology for the claim

In this cost adjustment claim we essentially use five data points and then a calculation to derive the size of the claim.

A. The market average wholesale price for 2022/23 (£/MwH)
B. The expected total energy purchased (MwH)
C. The split of energy costs by price control (%)
D. A x B x C x 24 hours x 365 days, divided by a million (which returns a £M result per price control)
E. The Non-commodity costs incurred for 2022/23 (£M)
F. The implicit allowance assumed in the cost models (£M) in 2022/23 prices

The Cost Adjustment Claim can then be expressed for each price control as follows

Cost Adjustment Claim = D + E – F

Part A: Calculating the market average wholesale price for 2022/23 (£/MwH)

We have calculated the average market price for 2022/23 by taking the day ahead rates as quoted on Bloomberg. We have then taken a simple average of these 365 individual prices. We recognise there may be more sophisticated methodologies, for example weighting the daily price by daily usage to get a weighted average price, but we have not done this for two main reasons

1. Our daily usage highs and lows are driven by many external factors which could be different in AMP8 compared to 2022/23 in which we saw record temperatures is the summer, and drought conditions through much of the year.

2. Assuming the same market average wholesale price is used in both the calculation of the Cost Adjustment Claim (CAC) and the calculation of the Real Price Effect (RPE), it doesn't seem to matter which exact point is chosen for the 2022/23 market price, because the combined effect of the CAC and RPE for energy is to arrive at the expected future market prices of energy.

For these reasons we believe a simple average cost is sufficient.

The resulting daily average is £186.97 per MWh. We have included all of the daily rates used in the calculation of the average in an Appendix to this document.

Part B: Total forecast energy consumption

We expect our energy consumption the over five years of AMP8 to be 778MWh per annum as the base position. Whilst we expect this to increase over the AMP due to growth and new obligations, that increase will appear in Enhancement opex and so is excluded from this claim.

	2025/26	2026/27	2027/28	2028/29	2029/30	AMP8
MWh	778,000	778,000	778,000	778,000	778,000	3,890,000

Part C: Energy usage by Price Control (%)

To get this split we have taken our actual cost per the APR in 2020, 2021 and 2022 and expressed these as a percentage of the total energy cost for that year. We have then added our as yet unaudited costs for 2022/23 in the same format. With these four years' worth of data, we are able to calculate an average percentage split by price control for use in this cost adjustment claim.

We believe this approach is reasonable because it can smooth out any variations in individual years caused by the impact of the prevalent weather conditions for that year. The data actually shows relatively modest variation from year to year, further validating the approach.

The resulting percentages for both the individual years and the average we will use in this cost adjustment claim are shown below:

Proportion of Energy use by Price Control per the audited APR (2020,2021 and 2022) and as yet unaudited 2023					
	Water Resources	Water N+	Wastewater N+	Bioresources	Total
March 2023 APR (draft)	11.51%	35.44%	52.50%	0.56%	100%
March 2023 APR (audited)	11.15%	34.44%	53.66%	0.76%	100%
March 2021 APR (audited)	11.02%	36.31%	53.94%	-1.27%	100%
March 2020 APR (audited)	10.38%	36.56%	53.73%	-0.67%	100%
Average	11.03%	35.68%	53.43%	-0.14%	100%

Part D: A x B x C divided by a million (which returns a £M result)

This is a mathematical calculation to turn the inputs provided by A and B into an annual cost for wholesale energy in £m, based on the 2022/23 market price. As per the chart earlier in the document, at the time of writing this is higher than the expected future cost – the RPE adjustment we are proposing will bring this down to the future expected prices.

	% of total	Consumption MwH (AMP8)	Cost per MwH £	Wholesale cost £m
Water Resources	11.03%	429,067	186.97	80.2
Water Netwok+	35.68%	1,387,952	186.97	259.5
Wastewater Network+	53.43%	2,078,427	186.97	388.6
Bioresources	-0.14%	-5,446	186.97	-1.0
Total	100.00%	3,890,000	186.97	727.3

Part E: The non-commodity costs incurred for 2022/23 (£M)

We incur non-commodity costs (NCCs) on our energy purchases from the grid. In 2022/23 these amounted to £50.4m. This is on top of the wholesale price. We take this total and divide it by usage to get £/MWH rate, which we can use to then spread the cost across the Price Controls.

As with the wholesale cost, the RPE process will pick up any RPE differences between the 2022/23 price we incurred and the for the NCCs we expect to incur in AMP8.

The split of the NCC's across the price controls is shown below. As this is a charge largely levied on energy purchased from the grid, this cost is mostly borne by Water Resources, Water Network Plus and Wastewater Network Plus and is effectively pro-rata the energy purchased. Whilst our Bioresources sites generate significant amounts of energy, we do still purchase energy from the grid for Bioresources, and thus Bioresources takes a share of the NCCs as well. Whilst we assess that Bioresources does not pass the materiality test, we include it here for completeness and transparency.

	Wholesale cost £m	NCC £m	Total Cost £m
Water Resources	80.2	27.8	108.0
Water Netwok+	259.5	89.9	349.4
Wastewater Network+	388.6	134.6	523.2
Bioresources	-1.0	-0.4	-1.4
Total	727.3	252.0	979.3

Part F: The implicit allowance implied by the models

Whilst we have seen the published models, we don't yet know which models Ofwat will use for PR24 and in what combination/proportion they will be mixed together to arrive at a funding level. We have calculated the implicit allowance by Price Control, using an even weighting of the models and using the PR24 dataset.

We run the models twice, using two sets of data. The first set includes power costs, the second set excludes power costs. The difference between the two is assumed to be the implicit allowance for energy costs. The calculations are attached in the excel document 'ANH_CAC_3.3 Energy implicit allowance and summary'.

This approach gives us the implicit allowances set out in the table below, stated in both 2017/18 prices and 2022/23 prices. We acknowledge that the implicit allowance will need to be recalculated once the actual mix of models for PR24 is known.

	£m, 2017/18 prices			£m, 2022/23 prices		
	Modelled allowance		Implicit allowance for power	Modelled allowance		Implicit allowance for power
	Including Power	Excluding Power		Including Power	Excluding Power	
Water Resources	340.8	304.9	36.0	402.4	359.9	42.5
Water Network+	1,112.1	994.7	117.3	1,313.0	1,174.4	138.5
Wastewater Network+	1,544.7	1,379.6	165.1	1,823.7	1,628.8	194.9
Bioresources	358.4	384.8	-26.3	423.2	454.3	-31.1
Total	**3,356.1**	**3,064.0**	**292.1**	**3,962.3**	**3,617.5**	**344.8**

The Cost adjustment Claim calculation and materiality test

As above this is Part D + Part E – Part F. The table below shows this calculation which includes the expected level of materiality for the relevant price control, and whether the claim passes the materiality test or not. This test confirms that the Bioresources cost adjustment claim is immaterial to the Price Control. The materiality test is passed for the other three price controls.

	£m, 2022/23 prices				
	AMP8 power costs in 2022/23 market	Implicit allowance for power	Net cost adjustment claim	Materiality level for price control	Material to price control
Water Resources	108.0	42.5	65.5	24	YES
Water Network+	349.4	138.5	210.9	36	YES
Wastewater Network+	523.2	194.9	328.3	43	YES
Bioresources	-1.4	-31.1	29.7	45	NO
Total	979.2	344.8	634.4		

Summary

In three price controls this cost adjustment claim is material and the values of each are shown below. The claim is not material for the Bioresources price control and is thus excluded. The resulting claim is summarised in the table below.

	£m, 2022/23 prices		
	AMP8 power costs in 2022/23 market	Implicit allowance for power	Net cost adjustment claim
Water Resources	108.0	42.5	65.5
Water Network+	349.4	138.5	210.9
Wastewater Network+	523.2	194.9	328.3
Bioresources	Not material		
Total	980.6	375.9	604.7

It is worth noting that in our methodology, the separate RPE adjustment would offset approximately half of this cost adjustment claim, based on the current future energy cost forecasts compared to the peaks seen in the 2022/23 market prices.

Annex – Cost Adjustment Claim assessment criteria

Need for adjustment (necessary)

1.1. Unique circumstances

Is there compelling evidence that the company has unique circumstances that warrant a separate cost adjustment?

This claim is not based on the presumption that Anglian Water has unique circumstances. Indeed, other companies are likely to be in the same situation. This claim is based on the fact that the base cost models cannot take account of the recent increase in the costs in question because they were not incurred in the modelled period.

Is there compelling evidence that the company faces higher efficient costs in the round compared to its peers (considering, where relevant, circumstances that drive higher costs for other companies that the company does not face)?

Not relevant – see above.

Is there compelling evidence of alternative options being considered, where relevant?

Not relevant – see above.

1.2. Management control

Is the investment driven by factors outside of management control?

The energy market price spike is outside of the control of management and has impacted the whole industry and indeed the whole economy, whether businesses or domestic energy users.

Have steps been taken to control costs and have potential cost savings (eg spend to save) been accounted for?

Hedging via forward purchase contracts can give financial certainty in the short to medium term but you cannot secure a defined outcome. Whether hedging means you spend more or less than the eventual actual market price, depends upon the eventual actual market price. In AMP7 our hedging strategy gave us good protection from the cost shocks in 2021/22 and 2022/23 but the higher costs are hitting in year 4 and will do in year 5 as we only had limited forward contracts in place at the time of the price increases.

1.3. Materiality

Is there compelling evidence that the factor is a material driver of expenditure with a clear engineering / economic rationale?

The additional costs pass Ofwat's materiality threshold. The sector is heavily reliant on energy and energy is much more expensive today, and forward contract pricing suggests will still be much more expensive inn MAP8.

Is there compelling quantitative evidence of how the factor impacts the company's expenditure? Adjustment to allowances (including implicit allowance)

The case and the valuation are set out in the main part of this document.

Is there compelling evidence that the cost claim is not included in our modelled baseline (or, if the models are not known, would be unlikely to be included)? Is there compelling evidence that the factor is not covered by one or more cost drivers included in the cost models?

By running the PR24 models as a group with weightings advised by Ofwat, we can work out the allowed funding by Price Control. By running the models again without the energy cost included in the cost data, we can then work out the allowance excluding energy costs, and thus we can calculate the implicit allowance included for energy in the models. We know the historic cost of energy per unit of usage and can then calculate the impact of the unit cost increase on the total.

Is the claim material after deduction of an implicit allowance? Has the company considered a range of estimates for the implicit allowance?

The materiality of the claim is demonstrated below:

	£m, 2022/23 prices			
	Water Resources	Water Resources	Water Resources	Bioresources
Total AMP8 energy expenditure	108.0	349.4	523.2	-1.4
Allowance implied by the models	42.5	138.5	194.9	-31.1
Net value of the claim	65.5	210.9	328.3	29.7
Materiality of the claim (as % of totex for the price control)	16%	6%	8%	4%
Materiality threshold (as % of totex for the price control)	6%	1%	1%	6%
Is the claim material?	YES	YES	YES	No

We have only considered one methodology for the implicit allowance because we are able to both include and exclude energy costs from the historic dataset feeding the cost assessment models and thus can isolate the energy costs assumed in the models by doing that.

Has the company accounted for cost savings and/or benefits from offsetting circumstances, where relevant?

This is generally about cost increases, but where energy is generated and exported to the grid there should be a corresponding benefit through a higher sale price. However this is typically only in the Bioresources price control. We cannot think of any other offsetting benefits.

Is it clear the cost allowances would, in the round, be insufficient to accommodate the factor without a claim?

Energy is significant part of the cost base and failure to allow the claim would impose a huge and unjustified efficiency challenge to the company, over and above the other efficiency challenges which have been separately calculated and justified.

Has the company taken a long-term view of the allowance and balanced expenditure requirements between multiple regulatory periods? Has the company considered whether our long-term allowance provides sufficient funding?

After a relatively stable decade energy prices roughly tripled from the historic long-term average to 2022/23. Whilst prices have been partially recovering since 2022/23 the forward cost still looks double the historic long-term allowance. Also, the factors causing the volatility are still evident today, so whilst prices

have been falling there cannot be any certainty they will continue to do so. We repeat that we don't think the 'CAC+RPE' approach is the best way to handle this cost item in the current volatile environment.

If an alternative explanatory variable is used to calculate the cost adjustment, why is it superior to the explanatory variables in our cost models?

This claim is not about explanatory variables, but about the increase in the market price of energy.

2. Cost efficiency (necessary)

Is there compelling evidence that the cost estimates are efficient (for example similar scheme outturn data, industry and/or external cost benchmarking, testing a range of cost models)?

We have based our claim on the market price of energy, which is the logical efficient unit cost. Whilst companies may have forward purchasing contracts in place these are just as likely to be more expensive than less expensive. We do not hedge to 'beat' the market price. We hedge for short-term financial certainly and to avoid short-term cost shocks impacting our financials. Therefore we believe the market price to be the efficient price.

Does the company clearly explain how it arrived at the cost estimate? Can the analysis be replicated? Is there supporting evidence for any key statements or assumptions?

The historic market data has been drawn from Bloomberg historic day ahead data. The forward prices have been taken from Lloyds. These forward contract process will change on a frequent basis as the market moves. The analysis could therefore be replicated and updated as prices move. As above we don't think the 'CAC+RPE' approach is the best way to handle this cost item in the current volatile environment.

Does the company provide third party assurance for the robustness of the cost estimates?

Our forecasts are based on actual forward prices from Lloyds. The historic data is all from Bloomberg. Our claim has been reviewed by our external assurers.

Need for investment (where appropriate)

Is there compelling evidence that investment is required?

Not applicable – this relates to ongoing base opex energy unit cost

Is the scale and timing of the investment fully justified?

Not applicable – this relates to ongoing base opex energy unit cost

Does the need and/or proposed investment overlap with activities already funded at previous price reviews?

Not applicable – this relates to ongoing base opex energy unit cost

Is there compelling evidence that customers support the need for investment (both scale and timing)?

Not applicable – this relates to ongoing base opex energy unit cost

3. Best option for customers (where appropriate)

Did the company consider an appropriate range of options to meet the need?

Not applicable – this relates to ongoing base opex energy unit cost

Has a cost–benefit analysis been undertaken to select proposed option? There should be compelling evidence that the proposed solution represents best value for customers, communities and the environment in the long term? Is third-party technical assurance of the analysis provided?

Not applicable – this relates to ongoing base opex energy unit cost

Has the impact of the investment on performance commitments been quantified?

Not applicable – this relates to ongoing base opex energy unit cost

Have the uncertainties relating to costs and benefit delivery been explored and mitigated? Have flexible, lower risk and modular solutions been assessed – including where utilisation will be low?

Not applicable – this relates to ongoing base opex energy unit cost

Has the company secured appropriate third-party funding (proportionate to the third party benefits) to deliver the project?

Not applicable – this relates to ongoing base opex energy unit cost

Has the company appropriately presented the scheme to be delivered as Direct Procurement for Customers (DPC) where applicable?

Not applicable – this relates to ongoing base opex energy unit cost

Where appropriate, have customer views informed the selection of the proposed solution, and have customers been provided sufficient information (including alternatives and its contribution to addressing the need) to have informed views

Not applicable – this relates to ongoing base opex energy unit cost

4. Customer protection (where appropriate)

Are customers protected (via a price control deliverable or performance commitment) if the investment is cancelled, delayed or reduced in scope?

No, but given the volatility an uncertainty mechanism with true-up (ideally on the basis of a published index) could work to pick up any difference between a reasonable cost allowance and the eventual market price. Such a mechanism could protect customers from paying more than the real cost of energy.

Does the protection cover all the benefits proposed to be delivered and funded (eg primary and wider benefits)?

No, but if an uncertainty mechanism were introduced it would depend on the mechanism.

Does the company provide an explanation for how third-party funding or delivery arrangements will work for relevant investments, including the mechanism for securing sufficient third-party funding?

Third-party funding and delivery are not relevant to this Cost Adjustment Claim.