from Southern Water

Competition and Markets Authority
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Response to CMA consultation

Date
11/06/2025

Dear CMA,

Southern Water response to the CMA PR24 redetermination approach and prioritisation consultation

Thank you for the opportunity to comment on the CMA's proposed approach and prioritisation in relation to the PR24 redeterminations.

Except where otherwise stated in this letter, we support the approach taken by the CMA. We acknowledge the challenges faced by the CMA in conducting the redetermination in the time available.

We have a limited number of concerns, which we set out below:

1. **Cunliffe's Independent Water Commission findings:** We acknowledge that the remit of Sir Jon Cunliffe's Independent Water Commission has been set to develop future changes to water regulation beyond PR24 (e.g. institutional arrangements, changes to the framework). Nevertheless, where the Commission has diagnosed flaws in Ofwat's current framework, these shortcomings represent evidence that the CMA should take into account in considering its redetermination of PR24, which was developed under this framework. These include:

    - there are limits to how accurate a benchmarking framework and econometric tools can be and the extent to which these can be relied upon;
    - a fundamental strengthening and rebalancing of the current approach to economic regulation is required;
    - the need to narrow the variability of returns, reducing both the upside and downside risks to investors; and
    - funding for renewal and capital maintenance by Ofwat continues to be based primarily on previous capital maintenance and incidence of asset failure rather an explicit assessment of the condition of assets.

We encourage the CMA to form its own views on how best to address these flaws in its PR24 redeterminations. To do so would be consistent both with the CMA's statutory duties and align with the remit of the Commission.

2. **Prioritisation:** We have a small number of specific concerns about the CMA's prioritisation:

   a. **De minimis – still a significant impact:** We acknowledge that the CMA intends to prioritise issues above a de minimis threshold, deprioritising issues with an insignificant impact on customer bills or other outcomes, in order to allow the CMA to focus on the core issues. We note, however, that the value of deprioritised issues amounts to a material funding gap and as such, represents a significant funding shortfall. We ask the CMA to take account of this shortfall when considering its PR24 redetermination in the round, in particular in its assessment of the WACC.

   b. **Artificial disaggregation of cases with common issues:** The CMA should be careful not to disaggregate issues into small segments that fall below the de minimis level, where they are in fact a single issue above the materiality threshold, subject to a common analysis.

      In our SoC, this is particularly relevant to **Flow monitoring enhancements.** Our SoC contains a number of cases related to flow monitoring but this programme was defined separately, rather than naturally grouped together. While we are not challenging the CMA's proposed de minimis rule per se, our case is that the definition of the enhancement schemes as separate from each other is an artificial disaggregation of a single issue. We note that the de minimis rule applied separately would result in WINEP monitoring at emergency overflows being considered, but WINEP flow monitoring at sewage treatment works would not be considered.

      Assessing flow monitoring as a whole would require a single, common assessment and therefore limited additional work for the CMA. Therefore, we ask the CMA to consider flow monitoring as a whole.

   c. **Final mechanical adjustment to retail allowances:** Retail allowances are dependent on two sets of inputs – retail cost to serve (e.g. direct retail costs) and a final mechanical adjustment that reflect allowances to cover bad debt, leading from the wholesale household bill. The latter is a calculation that is fundamental to the conclusion of the price control.

      We have not included any errors in our SoC concerning the retail cost to serve. However, we wanted to point out to the CMA in our SoC, that if it makes any changes to the wholesale price controls and hence household bills, that the retail circular calculation is one of the final steps within Ofwat's price control system that requires a mechanical adjustment. We are not challenging the way that Ofwat set out this adjustment, but if the CMA does not replicate the adjustment, then the price control calculation would be incomplete and we would be short of funding needed to cover bad debts.

This is a material issue for Southern Water. Our SoC in its entirety could lead to a retail adjustment shortfall in excess of c.£100m, if the mechanical adjustment on retail allowances is not completed.

In contrast to the characterisation in paragraph 52, making the mechanical adjustment would not be an onerous process. It would entail the use of the updated Ofwat APR cost and data, which the CMA is considering using, according to paragraph 98, as well as updated data from the ONS – as inputs into the standard Ofwat model. Given the materiality of the issue for Southern Water, we would ask the CMA to complete the price control and make this mechanical adjustment to retail allowances.

3. **Econometric modelling of botex:** We support the CMA's inclusion of botex modelling into the redetermination, given the magnitude of the impact on bills. It would have been inconceivable for botex to have been deprioritised from the redetermination as Ofwat suggested. While we are keen for the CMA to find a practical approach to assess modelling, we note that Ofwat consulted extensively on its modelling principles – principles that we agree with. Therefore, while the CMA wants to use a LASSO approach to variable selection, the CMA should not ignore additional evidence and modelling cross-checks that adhere to Ofwat's modelling principles. We include further details in the annex.

4. **Asset health guidelines for Ofwat:** The Disputing Companies were consistent in their SoCs that the current health of key assets is the product of consistent underfunding over successive AMPs by Ofwat price control decisions. This point has been recognised by the Cunliffe Independent Water Commission. While we recognise that Ofwat has devised a process that may lead to additional funding, potentially in the subsequent AMP and beyond, the investment need is immediate and pressing.

   We note that the CMA wants to deprioritise questions of asset health. However, such questions are fundamental to, and indivisible from a holistic redetermination of PR24 and resolution of the issues raised in our and other Disputing Companies' SoCs. Therefore, we would ask the CMA to set tramlines for the conduct of Ofwat's process and establish an expectation that should Ofwat identify underfunding it will take steps to correct for that underfunding within AMP8.

5. **Bottom-up cross checks to enhancement cost efficiency assessments:** In our SoC, we pointed out where Ofwat had not cross-checked its modelling and shallow dive assessments against bottom-up costings, which featured cost benchmarking. In many instances this reflected a specific feature in our scheme which was not comparability with the schemes in the dataset used by Ofwat – for example, our Andover Link Main project features a type of complex tunnelling to protect environmentally sensitive areas, which was not a feature of schemes that comprised Ofwat's core modelling data. This may naturally result in a difference between the benchmarked bottom-up costing and the modelling result (Ofwat's 'one-size-fits-all' approach) – a difference which is entirely justifiable to take

sufficient account of company-specific conditions and challenges, in the accounting for enhancement allowances.

We note that the CMA intends to use a similar approach to Ofwat in this area. In doing so, we prevail upon the CMA not to make the same mistake as Ofwat in failing to conduct a reasonable bottom-up cross check and failing to make adjustments to its top down assessment to address any material differences.

6. **Clarification: Delivery Mechanism:** We note that there appears to be a contradiction between paragraph 67 in the CMA's document, which implies that the CMA will consider our concerns in relation to Ofwat's use of uncertainty mechanisms in the determination of enhancement cost allowances, and paragraphs 87-88 in which the CMA identifies the OAM and the ASM as the only uncertainty mechanisms that affect risk, and so other uncertainty mechanisms will not be reviewed. We believe this to be an oversight.

   In our SoC, we identified the choices made by Ofwat about the design of our Delivery Mechanism, which will impede deliverability and create unnecessary risk. On pages 82/83 of our SoC, we set out the risk implications of this mechanism design. The Delivery Mechanism covers £553m of our enhancement programme and, with such a large scope, poor choices about its design would create a material risk for our ability to fulfil the price control.

   Therefore, we ask the CMA to consider the design of the Delivery Mechanism, both to mitigate risk and to establish the right design to maximise the ability of Southern Water to deliver its enhancement programme.

7. **Additional components of the financeability assessment:** We urge the CMA to consider relevant downside scenarios, when considering the financial resilience of the notional firm. We welcome the CMA intention to assess in relation to appropriate debt and equity metrics, as stated in paragraph 91. We would encourage the CMA to consider the impact of the ASM and OAM; as well as to also cross check evidence to equity payback periods, longer term financeability dynamics (to avoid the risk that metrics deteriorate in future AMPs based on the PR24 FD, as the overall Cost of Debt increases – highlighting that Ofwat's Cost of Equity is not sustainable).

8. **Cut-off date:** We support the use of latest data for setting a price control, where it is more informative about the future, compared with out-of-date data. Holding to an artificial historical dataset would have put the CMA at risk of setting a redetermination that was observably incorrect. Therefore, we support the CMA's choice to use June/September data in the calculation of its provisional and final determinations.

9. **Errors and post-FD positions taken by Ofwat:** Finally, we note that Ofwat has acknowledged some of the errors in its Final Determination (FD). We further note that through the CMA's process to date, Ofwat has taken post-FD positions (e.g. Ofwat has accepted that each of our 5 sites enhancement cases should be considered within the

Large Scheme Gated Process). We would ask the CMA to ensure that these changes are reflected in both its provisional and final determinations.

Please feel free to contact me if we can provide any further clarification about these points.

Yours faithfully,

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Annex: The LASSO technique

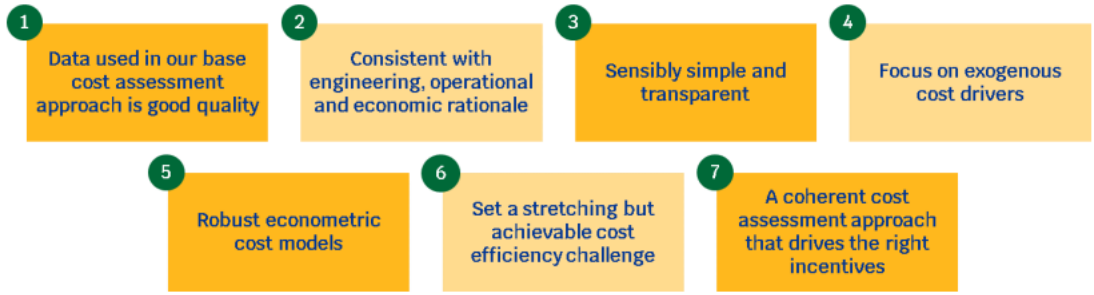
The CMA stated in its Approach and Prioritisation document that it will explore a "data-driven" approach to assessing claims about explanatory variables. It stated that it will consider tools such as LASSO (Least Absolute Shrinkage and Selection Operator). Ofwat uses the random effects panel data econometric technique to assess base costs so the CMA's decision could be a potential departure from what Ofwat has previously done.

At this stage, we do not disagree with the use of the LASSO technique. However, there are potential risks and well as benefits to the technique, and in that context we set out in this annex a number of considerations which we ask the CMA to take into account in determining its approach to assessing claims about explanatory variables.

We set out below a brief overview of Ofwat's approach to modelling at PR24, outline the LASSO technique, and conclude with four considerations relevant to the CMA's determination of its approach.

Ofwat's approach to modelling at PR24

Ofwat assessed models at PR24 using seven criteria (Ofwat's principles)[1]. See the figure below.



It aimed to produce models that were sensibly simple but based on exogenous cost drivers that did not provide perverse incentives, measured by good quality data. Ofwat's aim was to produce models that would "accurately predict and forecast efficient costs."

In order to determine which variables to use in the FD models, Ofwat employed various model selection criteria. These consisted of the following:

- Are the estimated coefficients of the right sign and of plausible magnitude?
- Can the models accurately predict the efficient expenditure of companies? (R squared metric)

[1] Ofwat, 'Creating tomorrow, together: Our final methodology for PR24. Appendix 9 Setting expenditure allowances', December 2022, p.8
PR24_final_methodology_Appendix_9_Setting_Expenditure_Allowances.pdf

- How do the models perform across a range of statistical diagnostic tests (e.g. statistical significance of individual parameters, RESET test for omitted non-linearities, multicollinearity test, etc.)?
- Are the estimated model results stable / robust to changes in the underlying assumptions and data (e.g. different sample period; alternative model specification)? [2]

In all, Ofwat employed a range of principles to design the models and it used a variety of model selection criteria to decide which variables should be employed in the final models. It chose cost drivers that were based on engineering and economic rationale and picked the individual variables that best represented these effects using the model selection criteria.

What is the LASSO technique?

LASSO is a machine learning technique. It comes from the high dimensionality branch of statistics where the number of parameters to estimate can be larger than the available amount of data. Thus, it relies on the assumption of sparsity where the size of the model (parameters to estimate) is low relative to the amount of data.

It is typically employed where there is an omitted variable bias. The standard textbook solution is to find the appropriate explanatory variable to add to the model that solves the bias. However, this might be problematic where there are many possible candidate variables. Adding all possible variables will overfit the model (coefficients become untrustworthy). Adding a subset that is not appropriate will fail to solve the bias.

The LASSO provides a solution to this. It allows the analyst to test a large number of possible explanatory variables quickly by assessing how each one contributes to the predictive power of the model. Each addition is subject to a penalty so that ones which contribute little are excluded from the model.

We know that the latest versions of Stata software allow two target criteria, the maximisation of the R squared (R2), or the minimisation of the standard error metric.

Considerations relevant to the CMA's determination of its approach

Consideration 1: Will the CMA use the same method as Ofwat to determine which variables have "economic and engineering rationale"?

The CMA indicates that it will apply LASSO by starting with a set of potential explanatory variables that have "economic and engineering rationale". This is to place a fairly well-defined set of

[2] Ofwat, Econometric base cost models for PR24, April 2023, p16
Econometric_base_cost_models_for_PR24_final.pdf

restrictions on the possible permutations of variables that LASSO could investigate. If the CMA uses the same method as Ofwat then it will come to the same pool of regressors that Ofwat did. It is currently unclear if that will include potential additional variables that companies have suggested through the CAC process including a regional wages driver and coastal population. Southern Water has offered three methods for assessing the impact of regional wages, but only one of these could be tested through the LASSO approach, namely putting a wage measure into the models.

If the CMA uses a different method to Ofwat for determining "economic and engineering rationale" then the pool of regressors could become much wider. It could be as wide as all regressors within the modelling dataset (feeder model 1). In that case, the final modelling suite could look substantially different to the one at FD, going beyond the specific disputed points that the CMA is reconsidering.

Consideration 2: The LASSO optimises one criterion. Which will the CMA pick and will the CMA use other model selection criteria?

The CMA stated in its Approach and Prioritisation document that the LASSO picks "*the set of explanatory variables that best predict the outcome variable of interest*". We note that the latest versions of Stata software allow two target criteria, the maximisation of the R squared (R2), or the minimisation of the standard error metric. We interpret the CMA's statement to mean it will choose the maximisation of the model fit through the R2 metric.

There is a potential risk to this approach. If the CMA uses Ofwat's method to determine "economic and engineering rationale" then it might arrive at a similar suite of models to the FD. Then, setting the LASSO's target as maximisation R2 could boil all model criteria down to whichever gives the higher R2 and could make the exercise somewhat more trivial than intended. In other words, applied in this way, LASSO could undercut the application of Ofwat's model selection criteria or other similar criteria.

We see the application of the LASSO in this way as unduly narrow and with the possibility of excluding other potentially useful model selection criteria. By way of example, we have argued for the removal of the Bands 1-3 measure of economies of scale as it fails the p value test. That is, the variable doesn't have a detectable, statistically significant impact. Applied as above, the LASSO would not pick up on this failing. As another example, we have argued that the APH variable is not of sufficient data quality to be included in Ofwat's models, it breaks one of Ofwat's modelling principles. If applied as above, the APH variable could be selected by the LASSO, without its data weakness being tested at all.

Consideration 3: Will the CMA impose criteria for explanatory variables beyond having an "economic and engineering rationale"?

A question arises as to whether the CMA will select explanatory variables based on known engineering impacts. In the models, variable selection is tailored to capture particular, known effects. For example, scale affects all companies and the models include a variable to capture this. In water, there are two candidate variables for scale, connected properties and lengths of main. Without further conditions imposed, the LASSO could pick both of these variables in the model as scale variables have high explanatory power. On the other hand, also in the water models, the water treatment complexity variables do not impact the model explanatory power to a significant degree. Without further conditions imposed, the LASSO might leave treatment complexity unaccounted for. Further still, it would be prudent to filter variables for data quality before allowing the LASSO to explore its approach to variable selection.

Consideration 4: Will the CMA utilise some form of triangulation and if so, how will it be applied?

Ofwat typically applies triangulation between model specifications that capture similar effects. In its own words, it does this to "*mitigate the risk of error and bias in any one model*"[3] For example, Ofwat uses six models for water resources plus models and applies a weighting to the outcome of each because this allows it to incorporate the impacts of using different measures of population density and water treatment complexity. As in Consideration 3 above, without further restrictions, the LASSO might leave some cost drivers unaccounted for.

References

Ahrens_et_al_PDS_lasso.pdf

Forecasting macroeconomic time series: LASSO-based approaches and their forecast combinations with dynamic factor models - ScienceDirect

An introduction to the lasso in Stata - The Stata Blog

[3] Ofwat, Econometric base cost models for PR24, April 2023, p2
Econometric_base_cost_models_for_PR24_final.pdf