

Kirstin Baker CBE
Panel Inquiry Chair
Competition and Markets Authority
The Cabot
25 Cabot Square
London E14 4QZ

9 January 2026

Dear Kirstin,

PR24 Base Costs Modelling Working Paper – Investor Group Third Party Submission

- (1) On behalf of the Investor Group,¹ we are grateful for the opportunity to submit this response to the base costs modelling working paper following on from our submission in response to the PR24 provisional determinations (“PDs”) of 11 November 2025.²
- (2) We explain why the working paper has not resolved our concerns. As investors across UK infrastructure and more broadly, we remain concerned that the CMA is proposing late stage revisions to a matter as fundamental as basic maintenance and operational allowances. Both the first LASSO model, and its revision, in our view, lead to a still greater departure from the reality of what companies require. These are matters fundamental to the investability of UK infrastructure and the availability of low cost investment grade debt that the sector requires.
- (3) In particular:
 - (i) The revised model is skewed by outliers. The CMA’s reliance on econometric modelling is unsuitable as it ignores the presence of outliers, such as Thames Water, which should be excluded from the econometric benchmarking to avoid skewing the results of any comparative econometrics.
 - (ii) The revised model fails essential reality-cross checks. The CMA’s updated approach to base costs modelling would have exacerbated the significant industry-wide underfunding that resulted from PR19. Counterfactually applying the updated CMA approach to PR19 leads to underfunding of 16% for wholesale water and 13% for wastewater across the water industry for modelled costs.

¹ The Investor Group represents a large ad hoc group of over 100 financial institutions that are creditors of Thames Water Utilities Limited (“Thames Water”), amongst them a number of the largest infrastructure investors and capital providers in the UK water sector. The Investor Group does not speak for Thames Water, nor does it prejudge or constrain any submissions that Thames Water may make, whether as part of its own reference in due course or in relation to the references for other water companies.

² Investor Group, Third-Party Submission, Response to CMA PDs, 11 November 2025 and Annex 1, Reply to certain aspects of the CMA’s Provisional Determinations, Dr. Dermot Nolan and Compass Lexecon.

- (iii) The updated CMA approach leads to upper quartile (“UQ”) catch-up efficiency challenges of 7% and 6% for PR24, which are unrealistic when considering that the catch-up efficiency challenges required for the median firm to break even in PR19 were in fact negative, at minus 13% for wholesale and minus 5% for wastewater, meaning that both required an uplift compared to the model’s predictions, rather than a reduction. This is far from the significant cost reductions due to assumed catch-up efficiencies that the CMA is now envisaging.
 - (iv) We submit it is not rational to maintain costs modelling that would have resulted in significant underfunding of the water industry in the previous price review period (PR19). This is especially so when the CMA’s conclusion is that firms should be able, through catch-up efficiencies, to reduce their costs even further vis-à-vis the econometric model.
 - (v) Quadratic density terms continue to be excluded from any candidate set of cost drivers for wastewater. There can be no question as to the factual and engineering rationale for this driver. Excluding it from LASSO where the original reason for adopting LASSO was to identify the best-fit variables is highly unsatisfactory.
 - (vi) The cost adjustment claims³ consultation highlights the fragility of the updated CMA approach.⁴ If the updated CMA approach is applied symmetrically across companies, Thames Water (if the CMA were to provide a redetermination) would have allowances increased by £336m (+8%), whereas the impact on South Staffs Water would be a reduction of £62m (-12%). Such large swings should never occur as the result of a single cost adjustment claim by another company.
- (4) We also highlight three additional matters relating to the CMA’s assessment of outcomes, namely:
- (i) Ofgem’s RII0-3 price control framework final determinations published on 4 December 2025 offer the energy sector several opportunities to improve its financeability and investability based on a higher allowed cost of capital, strong incentives for outperformance that do not place excessive downside risk on companies, better protections against input price increases, and lower levels of overall risk,⁵ which the CMA should follow for the PR24 final determinations;
 - (ii) The Office for Budget Responsibility (“OBR”) has downgraded the long-run productivity forecast in the recent Budget,⁶ demonstrating the inherent instability of the “wedge” between CPI and CPIH and that it is not an appropriate measure for a stable framework in which to deflate nominal debt costs; and
 - (iii) As we submitted in our response to the PDs, there is no evidence that exogenous factors can explain underperformance against the outcomes package in PR19. We present quantitative analysis that confirms this. Accordingly, there is no safe evidential basis to reject the submissions based on the PR19 outcomes that the PR24 risk and return package will carry forward the materially negative downside skew.

³ CMA, Base Costs Modelling Working Paper, Section 5.

⁴ See for example our critiques in our First Nolan/CL Report, paras 3.43-53, and Second Nolan/CL Report, paras 3.25-35 and 3.45-71.

⁵ See <https://www.ofgem.gov.uk/decision/riio-3-final-determinations-electricity-transmission-gas-distribution-and-gas-transmission-sectors>.

⁶ See Office for Budget Responsibility, Economic and fiscal outlook (November 2025), available at: <https://obr.uk/efo/economic-and-fiscal-outlook-november-2025/> [accessed 11 December 2025].

- (5) We recognise that time is short and urge the CMA to take account of these concerns in revising the base cost model to fund water companies appropriately. We anticipate these are matters where all stakeholders will be concerned to see that the CMA will reach a lawful decision consistent with its duties, rational appraisal of the evidence and fair and transparent process.

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- (6) **The CMA’s reliance on econometric modelling is unsuitable for these price redeterminations.** As submitted in the **First and Second Nolan/CL Reports**⁷, the cross-sectional data available on the water industry shows that the presence of outliers, such as Thames Water, skews the results of comparative econometrics because of fundamentally non-comparable businesses. This core concern with econometric modelling of the water sector continues to be unaddressed, regardless of the model used. The Independent Water Commission has raised similar criticism by reporting “*over-reliance on [a data-driven, econometric] approach, and its over-development, have over the years led to sub-optimal outcomes for the sector, for customers, for investors and for the environment.*”⁸ The revised LASSO approach – which would have caused still greater sectoral harm at PR19 - exemplifies how theoretical models have underfunded the sector because they have not been tempered with a proper understanding of each company’s specific facts.
- (7) **Revised LASSO does not rectify its significant lack of predictive power.** Applying the updated CMA approach to PR19 shows underfunding of 16% (£3.5 billion) for wholesale water and 13% (£2.3 billion) for wastewater across the water industry for modelled costs. This is three and 29 percentage points less (i.e., from -13% to -16% and from +16% to -13%), respectively, than the CMA’s first LASSO model as identified in the Second Nolan/CL Report.⁹ For comparison, the approach actually applied by Ofwat in PR19 led to underfunding of 16% (£3.6 billion) and 9% (£1.6 billion) in wholesale and wastewater, respectively. On this basis, the updated CMA approach would have resulted in even more significant underfunding than Ofwat’s actual approach to PR19.
- (8) The differences in the CMA’s models are not what the CMA’s working paper suggests.¹⁰ This is because the CMA has not acknowledged the coding error in the first LASSO model, identified in the Second Nolan/CL Report (amongst others), which once reversed, produced entirely different figures.¹¹ We regret that this is not acknowledged in the working papers, without which consultees will not have an opportunity to effectively present their views on the revisions to the LASSO model.
- (9) Respectfully, we disagree with the suggestion that details of the LASSO are unimportant and its predictive power should be considered at a high level by placing “*greater emphasis on the overall predictive performance and robustness of the model, rather than on the interpretation of specific parameter estimates.*”¹² Without understanding the details, it is impossible to assess the model’s predictive power and whether in its design or application it is likely to over or underfund base spend. Moreover, in its current state, the model offers neither sufficient predictive performance nor robustness. As the check against the outcome in PR19 demonstrates, the updated model will likely

⁷ Investor Group, Third Party Submission, Annex 4: Compass Lexecon Third party submission on behalf of Investor Group, 29 April 2025, (First Nolan/CL Report), and Investor Group, Third-Party Submission, Response to CMA PDs, Annex 1: Dr. Dermot Nolan and Compass Lexecon Reply to certain aspects of the CMA’s Provisional Determinations, 11 November 2025 (Second Nolan/CL Report).

⁸ IWC, Final Report, 21 July 2025, para. 417.

⁹ Second Nolan/CL Report, FN 29.

¹⁰ CMA, Base Costs Modelling Working Paper, Tables 3.3 and 4.3.

¹¹ Second Nolan/CL Report, paras. 3.51-3.60.

¹² CMA, Base Costs Modelling Working Paper, para. 2.22.

result in similar or worse levels of underfunding for PR24. Ensuring that models reflect reality is fundamental for any econometric model. The more so when it will dictate the water sector's basic operational costs for five years. The model fails this essential quality control.

- (10) It is no answer to say that diagnostic tests suggest statistical robustness.¹³ These are self-referential tests within the sample, not ones that check predictions against out-of-sample outcomes.¹⁴ They are particularly dangerous to rely on here where just one variable – such as scale – could have high internal explanatory power in terms of R², yet a regulatory cost model based only on scale would clearly be inadequate to predict real-world outcomes. Ofwat's models that delivered substantial underfunding at PR19 had the same or better self-diagnostic explanatory power.¹⁵ These are the same models the CMA rejected – despite supposedly high internal robustness. Unfortunately, it now proposes LASSO-derived benchmarks which have observably worse predictive power.
- (11) **Revised UQ catch-up efficiency challenges are unrealistic.** The CMA's updated model generates UQ challenges of 7.3% and 5.9% for PR24. The CMA argues this is appropriate due to broad alignment with catch-up efficiency challenges in previous price review periods.¹⁶ However, in prior periods, such as PR19, the catch-up efficiency challenge was unrealistically strict and median companies were found to have actual costs 19% higher than allowances for wholesale and 8% higher for wastewater.¹⁷ Moreover, in PR19, the catch-up efficiency challenges that would have allowed the median firm to break even with equal allowance and actual spending, *ex post*, were substantially lower than what the revised model provides, at minus 13.3% for wholesale and minus 5.4% for wastewater.¹⁸ This is far less aligned than the CMA suggests, as it means the modelled costs would have required significant uplifts, instead of reductions, compared to predictions of the econometric model. Such across-the-board efficiency gains are unrealistic in light of the actual industry performance in PR19 and reflect the inappropriateness of the model.¹⁹
- (12) **Quadratic density terms are still excluded.** The CMA continues to use LASSO modelling to choose between candidate cost drivers, however quadratic density has not been included in any candidate set of cost drivers for wastewater, despite acknowledging engineering and economic evidence showing its importance.²⁰ As explained in previous submissions, excluding squared density terms from LASSO leads to critical underfunding for wastewater spending.²¹

¹³ CMA Base Costs Modeling Working Paper, paras. 3.30-31, 4.26-27.

¹⁴ Third Nolan/CL report, para. 3.8.

¹⁵ Third Nolan/CL report, para. 3.8.

¹⁶ CMA, Base Costs Modelling Working Paper, paras. 3.24 and 4.20.

¹⁷ Investor Group, Third Party Submission, Response to Base Cost Modelling Working Paper, Annex 1: Dr. Dermot Nolan and Compass Lexecon, Reply to CMA's Working Paper on Base Costs Modelling ("Third Nolan/CL Report"), para. 4.5.

¹⁸ Even if the updated CMA approach had been used in PR19, and cost drivers had been known in advance (i.e., using actual costs including energy prices and labour costs), the median firm still would have required uplifts (of 10.1% for wholesale and 3.7% for wastewater) instead of reductions.

¹⁹ This is on top of a frontier shift of 0.7% per year. CMA, PDs, para 4.153.

²⁰ CMA Base Costs Modelling Working Paper, para. 4.5.

²¹ First Nolan/CL Report, Section 3; Second Nolan/CL Report, paras. 3.67-3.71.

- (13) **Cost adjustment claims demonstrates the fragility of the CMA’s approach.** The consultation on cost adjustment claims²² highlights the fragility of the CMA’s updated approach, which it shares with the PDs and Ofwat’s Final Determination.²³ In the PDs, the CMA claimed the CAC was met with inclusion of a variable for the average size of WTWs in one of the bottom-up models (the WRP model) for wholesale water.²⁴ Now the CMA is asking if it should follow an approach closer to Ofwat, but applying a uniform CAC methodology across water companies.²⁵ If the updated CMA approach is applied symmetrically, Thames Water (if the CMA were to provide a redetermination) would receive increased allowances by £336m (+8%), meanwhile South Staffs Water would lose £62m (-12%). Such large swings should not occur as the result of one cost adjustment claim and are a sign that something is fundamentally wrong in the overall approach.

Outcomes

RIIO-3²⁶

- (14) **Ofgem’s final determination can be applied to benefit the water industry.** Ofgem’s 4 December 2025 final determinations provide strong opportunities for financing the energy sector. In particular, Ofgem’s cost of capital allowances reflect higher interest rates with cost of equity intended to ensure the sector remains attractive to investors.²⁷ Ofgem has also rejected the CPI-CPIH wedge, stating evidence does not support its application and has preferred the OBR’s 5th-year CPIH forecast (2.08%) instead of the 2% long-run inflation assumption.²⁸ The incentives package is simpler, more symmetric than contemplated in the CMA’s PDs, actually encouraging companies to outperform.²⁹ The CMA could place less revenue at risk and reduce potential for extreme outcomes if it applied the same logic.
- (15) Ofgem’s RPE mechanism is more advanced than the CMA’s PDs envisage, as it offers annual true-ups and sector-specific indices to protect energy companies against input cost rises, with automatic adjustments to allowances.³⁰ The CMA could also combat the water sector’s steadily rising demand and costs by using reopeners to more adequately offer flexibility and adjust allowances.³¹ Altogether, the water sector’s financial stability and investability would benefit from the CMA applying some of Ofgem’s logic in PR24.

²² CMA, Base Costs Modelling Working Paper, Section 5.

²³ See for example our critiques in our First Nolan/CL Report, paras 3.43-53, and Second Nolan/CL Report, paras 3.25-35 and 3.45-71.

²⁴ CMA, PDs, paras 4.485-4.499.

²⁵ CMA, Base Costs Modelling Working Paper, paras 5.8-5.9.

²⁶ Third Nolan/CL Report, Section 6.

²⁷ Ofgem, RIIO-3 Final Determinations Overview, paras. 9.5–9.7.

²⁸ Ofgem, RIIO-3 Final Determinations Finance Annex, paras. 2.139-2.141, 2.146.

²⁹ Ofgem, RIIO-3 Final Determinations Overview, paras. 9.13-9.18.

³⁰ Ofgem, RIIO-3 Final Determinations Overview, paras. 6.77-6.95.

³¹ Ofgem, RIIO-3 Final Determinations Overview, Table 14.

OBR³²

- (16) **The “wedge” has a diminished role to play.** As we anticipated in our response to the PDs, the OBR lowered its forecast for long-run productivity increases by 0.3 percentage points.³³ Using the OBR’s estimate of 2.5% as the long-run value of average nominal hourly earnings growth,³⁴ we estimate that the reduction of 1.3 percentage points in nominal hourly earnings growth (compared to 3.8% in October 2024) would translate into an estimate of a 0.26% reduction in the value of the “wedge” between CPI and CPIH.³⁵ A revised value of the long-run trend of CPIH should be 2.14%, and therefore the wedge should have fallen to 0.14%. This strengthens the case to not use the “wedge” approach in deflating the cost of debt given inherent uncertainty and difficulty in assessing the long-run productivity trend in the UK. The CMA should revert to a 2% deflator that sets clarity necessary to attract long-term investment and has the benefit of being the statutorily mandated target for the Bank of England.³⁶

Rainfall³⁷

- (17) **Lack of evidence supporting effects of rainfall on underperformance.** The PDs stated that PR19’s industry-wide underperformance was anomalous partly due to atypical rainfall, as well as referring – in non-specific terms– to possible impacts from Covid and the Russia/Ukraine war. For that reason it dismissed submissions that PR19 underperformance showed the PR19 Outcomes package was miss-specified and that the same could be expected at PR24.³⁸ As our prior submissions set out, the CMA has not provided evidence to support these conclusions. We set out that the Outcomes package was mis-specified, particularly so for mandatory incentives.³⁹
- (18) Statistical analysis of rainfall patterns confirms the CMA’s conclusions have no empirical support. There is no meaningful correlation between the levels of rainfall in each year of PR19 and the level of underperformance amongst water companies for the same period. Rainfall levels over the period of PR19 were only slightly higher than over the previous two price controls, and arguably had fewer “extreme” rainfall events than those periods. The impact of rainfall on underperformance is similarly small, negative in one-third of cases, and never positive and statistically significant. As such, the CMA’s statement that rainfall may be an explanatory factor is neither supported by any evidence presented by the CMA nor supported in the aggregated data available. This low level of correlation has almost no meaning in statistical terms and the CMA has no basis to suggest that rainfall is at least partly responsible for underperformance in PR19. Similarly, we find no basis for possible impacts from Covid or Ukraine.

³² Third Nolan/CL Report, Section 7.

³³ See Office for Budget Responsibility, Economic and fiscal outlook (November 2025), available at: <https://obr.uk/efo/economic-and-fiscal-outlook-november-2025/> [accessed 11 December 2025].

³⁴ Office for Budget Responsibility, Economic and Fiscal Outlook (November 2025), pp. 41–42.

³⁵ The OBR uses both nominal hourly earnings growth and nominal weekly earnings growth across its forecasts. However, it is clear that nominal hourly earnings growth is the more appropriate measure as it corrects for any demographic changes. See <https://obr.uk/efo/economic-and-fiscal-outlook-november-2025/>, paragraph 2.43.

³⁶ Second Nolan/CL Report, Section 7.

³⁷ Third Nolan/CL Report, Section 8, paras. 8.9-8.14.

³⁸ CMA, PDs, para 8.60.

³⁹ Second Nolan/CL Report, paras. 5.17-5.24.

Conclusion

- (19) As we set out above, we regret that the working paper's approach is fundamentally flawed and, if implemented, will undermine the sector's stability and market perception of the water regulatory framework. Our analysis shows the proposed model materially understates companies' real needs, and would have caused a base shortfall of GBP 3.5 billion for wholesale water and GBP 2.3 billion for wastewater against the known outcomes at PR19. We are concerned that a working paper with such far reaching consequences should be made available with only 11 working days for consultation over the Christmas holiday period. We are not aware of any government consultation of this economic magnitude, certainly not for an essential sector, being consulted on summarily in this manner. As we also observe in this letter, the consultation has been materially incomplete in its presentation of the first LASSO model, without which the second cannot be fully understood. We are also mindful that stakeholders will likely share our concerns, and of the potential consequences of legal challenge causing further uncertainty for the water sector's regulatory framework, as well as the negative impact on market appetite for the sector, if these matters are not addressed.
- (20) In the circumstances, and in light of the compressed timetable for further steps in the appeal, we should be grateful for the earliest opportunity to meet with the panel, together with our experts, Dr. Moselle and Dr. Nolan, to be able to effectively present our analysis. We consider it important to have an effective opportunity to be heard in this matter, consistent with the CMA's public administrative law duties.

Yours sincerely,



Akin Gump LLP

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For and on behalf of the **Investor Group**

ANNEXES

Annex 1: Reply to CMA's Working Paper on Base Costs Modelling, Dr Dermot Nolan and Compass Lexecon, 9 January 2026