UUWR_20

PR24 Draft Determination: UUW Representation

Area of representation: Cost and Price Control Deliverables (PCDs)

August 2024

This document provides an overview of UUW's representations on Ofwat's proposed approach to cost assessment and Price Control Deliverables (PCD) as set out in its Draft Determination (DD). The importance of some issues has warranted a separate standalone representation document. In these cases, this document provides an overview and signposts the reader to our detailed response on that issue.

Reference to Draft Determination documents:
'PR24 Draft Determinations: Expenditure allowances'
'PR24 Draft Determinations: Expenditure allowances – base cost modelling appendix'
'PR24 Draft Determinations: Expenditure allowances – enhancement cost modelling appendix'
'PR24 Draft Determinations: Price control deliverables appendix'

United Utilities

Water for the North West

1. Introduction

1.1 Key points

- **We support Ofwat's approach to modelled base costs 'in-the-round'.** Ofwat's model suite is generally well motivated and is supported by an extensive model development process spanning two price reviews.
- **We support the principle of post-modelling adjustments.** These adjustments supplement Ofwat's backward-looking modelled base costs with recognition of forward-looking cost pressures. We do not support Ofwat's proposed energy adjustment and reconciliation.
- **Ofwat has made an error in its assessment of our reservoir base cost adjustment.** Ofwat is wrong to conclude that the number of statutory inspections is the cost driver of interest. The volume and stringency of statutory actions per inspection has increased following the publication of the Balmforth Report.
- **We have some concerns over the treatment of unmodelled base costs.** There are clear flaws in Ofwat's business rates forecast, which creates unnecessary cashflow risk in AMP8. Wastewater discharge permit consent costs should be assessed as unmodelled expenditure.
- **We have concerns over Ofwat's novel approach to scheme-level forecasting.** We support the underlying principle of scheme-level modelling, but we consider that such a fundamental shift in approach should have been supported by an extensive model development process and engagement with the industry.
- **Ofwat makes inappropriately stringent efficiency challenges across statutory enhancement programmes.** We observe some fundamental flaws in Ofwat's approach to cost assessment for statutory programmes that comprise a material element of UUW's programme.
- **We have material concerns over Ofwat's proposed approach to PCDs.** We are providing extensive feedback at this, the first opportunity, to comment on Ofwat's application of PCDs. Absent substantially greater engagement prior to FD, Ofwat should scale back its proposed PCDs at PR24 and engage with the industry ahead of PR29.
- **Ofwat overestimates the potential for frontier shift.** CEPA's analysis appears to be overly focused on aligning with regulatory precedent rather than the latest empirical evidence.
- **UUW generally supports Ofwat's approach to Real Price Effects.** We align with Ofwat's view of RPEs. However, we continue to consider that companies are best placed to manage energy price risk.
- **UUW generally supports Ofwat's approach to cost sharing.** Ofwat's approach to cost sharing is pragmatic and reflects the pressures companies will be under within AMP8. However, enhanced cost sharing rates should not be considered mitigation for a poorly motivated ex ante regulatory cost assumption.
- **UUW supports the principle of Ofwat's gated mechanism.** We disagree that the schemes Ofwat proposes to put through this mechanism are suitable candidates.
- **UUW has submitted additional scope at DD.** We ask that Ofwat considers our enhancement cases as part of its Final Determination.

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Ofwat's DD represents an extraordinarily stretching approach, to the point where the draft determination does not represent a deliverable programme. While we generally support Ofwat's approach to base costs, it has made a number of highly material interventions across a number of areas, particularly on our enhancement programme and associated PCDs. UUW considers that Ofwat's DD will pose significant risks to the delivery of our AMP8

programme and we consider that Ofwat should reassess its position in a number of areas in light of additional evidence provided within our DD response.

UUW has thought carefully about Ofwat's challenges to our business plan. In some areas, we have identified changes to our scope to better align with other companies' approaches to delivering enhancement schemes. This has resulted in reduced enhancement costs in AMP8 (although we do consider that there is a risk of detrimental impacts on ongoing operating expenditure in future AMPs). In other areas, where appropriate, we are making a high-level cost challenge to move towards Ofwat's view of efficient costs. Finally, in a small number of areas covering non-statutory activity, we accept that Ofwat's lack of support means delivery in AMP8 is not feasible. These changes have allowed us to reduce our view of cost relative to our January business plan.

There have also been some additions to our AMP8 programme since we submitted our January business plan. These are primarily new additions relating to our environmental programme. We ask that Ofwat include these business cases as part of its Final Determination (FD).

These movements are summarised in Figure 1.

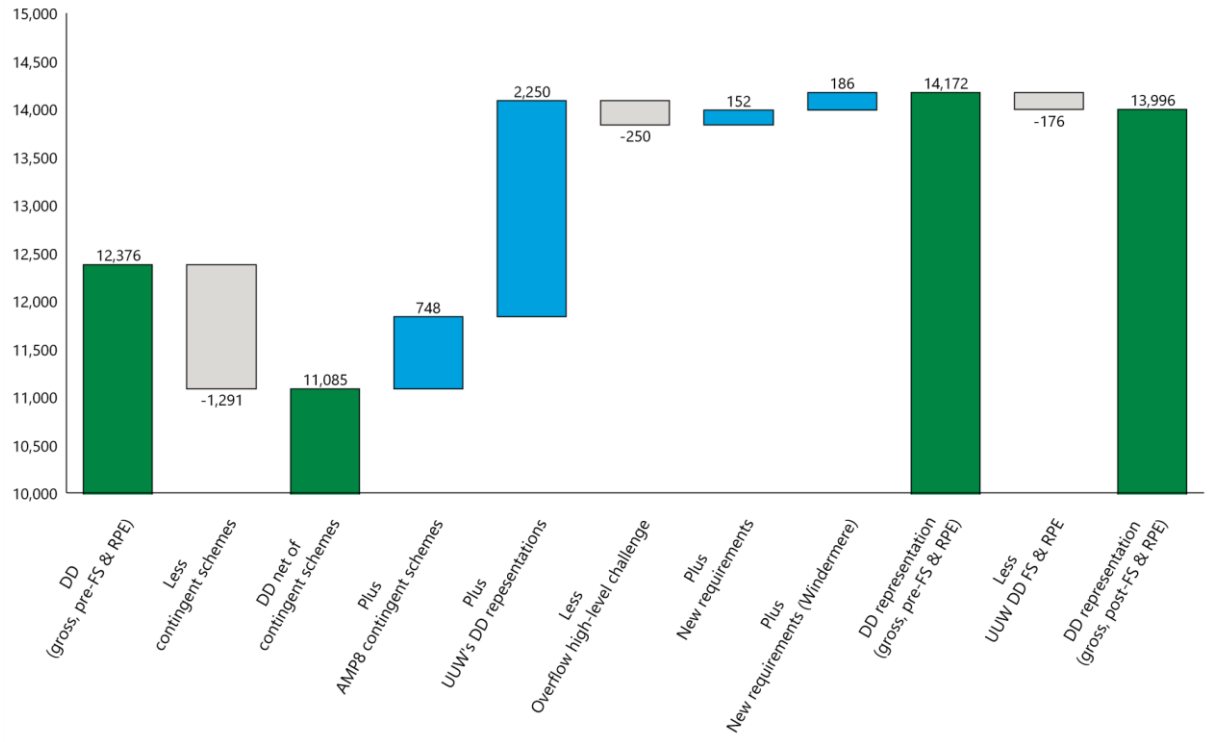
As we discuss in '*UUWR_11_Gated mechanisms*', we disagree that the four schemes selected for the gated mechanism by Ofwat are suitable candidates. We consider the AMP8 element of these schemes should be assessed as part of Ofwat's enhanced engagement process. As such, we net out the AMP8 and AMP9 totex and only reflect the AMP8 totex within our DD.

In the data tables our DD representations total £2,250m. This reflects a £250m reduction in our proposed overflow programme costs that has been applied at a scheme level. In addition, we also propose to make a further £250m top-down efficiency challenge to our overflow programme beyond the scheme level efficiencies set out in ADD20.

We have reflected around £339m of additional scope. We consider that the Windermere element of this additional scope would be suitable for Ofwat's gated mechanism.

We have reflected our view of frontier shift and Ofwat's view of RPEs in our '*DD representation (gross, post-FS &RPE)*' number. The £250m high-level challenge to storm overflows is not reflected in our data tables so this value will not reconcile to our data tables.

Figure 1: Movements from Ofwat's DD to UUW's DD representations



Source: UUW Draft Determination representation

1.2 Ofwat's approach to cost assessment

Base cost assessment

We consider that Ofwat's approach to base cost assessment is generally appropriate. The models have been subject to an extensive development process and cross-industry engagement over the course of two price reviews. There is certainly scope for further improvement, but we consider that Ofwat's models are generally fit for purpose for PR24. We are supportive of Ofwat's use of company cost driver forecasts and the use of the upper quartile catch-up challenge. We also support Ofwat's recognition of inflationary effects in residential retail. While we do have some targeted concerns with the use of average pumping head, we consider that Ofwat's models are appropriate 'in-the-round'[1]. We have aligned our view of modelled base costs to Ofwat's at DD.

We are generally supportive of Ofwat's post-modelling adjustments. Conceptually, these supplement backwards-looking modelled cost allowances with a forward-looking view on cost pressures within the upcoming AMP. UUW continues to consider that companies are best placed to manage energy price risk, meaning an energy RPE adjustment may not be necessary. However, should Ofwat consider an adjustment to be necessary, then we expect it will be applied consistently across all companies.

We do not support Ofwat's assessment of the MITIOS element of our reservoirs cost adjustment claim as enhancement – it is better considered as a cost adjustment claim (although we accept Ofwat's assessment of the Portfolio Risk Assessment (PRA) element of the claim as enhancement). We present additional evidence to support Ofwat's assessment of these costs at FD. We accept Ofwat's benchmarked cost allowance for ongoing phosphorus removal operating expenditure relating to the AMP7 programme.

Ofwat's approach to assessing unmodelled costs is generally appropriate. However, we have noticed an error in Ofwat's DD calculations that inappropriately excludes Industrial Emissions Directive (IED) compliance costs[2]. We also have strong concerns over Ofwat's business rate forecasting methodology – its assumption that 2022-23 is a representative year for AMP8 is demonstrably flawed. We have concerns over the lack of clarity provided by Ofwat on the structure of its proposed third-party reconciliation adjustment[3].

Enhancement cost assessment

Ofwat has introduced scheme-level models for enhancement cost assessment at PR24. This represents a fundamental departure from its PR19 approach which focused upon company-level models and deep dive assessments. However, Ofwat did not seek to engage the industry on this substantial change in its regulatory methodology, which may otherwise have enabled companies to explain some of the issues resulting from Ofwat's approach in its draft determinations. This in stark contrast to its approach to base cost model development where, as discussed above, Ofwat engaged the industry extensively over a prolonged period. We consider that this has led to substantial issues at DD, including the failure of one scheme-level model (sanitary parameters) and the over-reliance on a surprisingly simplistic model without due regard given to underlying engineering rationale (storm overflows).

Having implemented enhancement cost assessment methodology that often does not benefit from robust methodological foundations, Ofwat then uses it as a basis to draw very strong conclusions about relative efficiency, without considering it necessary to reflect on any process failings and methodological limitations as a mitigating factor in cost assessment. It does this without regard to the coherency of its methodology as a whole.

For example, Ofwat sought additional information on the cost efficiency of 30 of UUW's schemes within OFW-OBQ-UUW-178[4]. This response was used by Ofwat to inform its deep dive assessments. None of our evidence was considered acceptable by Ofwat. We now understand that Ofwat was looking for evidence that the site-specific factors at each site were not captured by its benchmarking model. We question whether it was reasonable to

[1] For lack of doubt, this does not mean we condone the use of average pumping head within cost assessment.

[2] This is due to Ofwat using a mixture of acronyms to describe United Utilities Water. We consider that Ofwat should use one acronym consistently across all its model infrastructure.

[3] Ofwat published its draft model on 20 August. This did not give UUW sufficient time to scrutinise it.

[4] This query had a two day deadline.

expect companies to be able to answer this question without having visibility of Ofwat's model at the time that the query was made. Ofwat then provided a 'modelled allowance' for these schemes, using a model that excluded those supposed 'outlier' schemes from the underlying dataset. By definition, such a model is unable to capture the relationship between cost and cost driver at these schemes and will be unable to provide an appropriate allowance as a result. This appears incoherent.

We have also observed cases where companies' business plan data appears to inform Ofwat's interpretation of underlying engineering rationale, rather than (as is proper) underlying engineering rationale informing Ofwat's interpretation of companies' data. Such an approach could be characterised as 'data fitting'. In this context, we do not see how Ofwat could defend its methodology as being primarily informed by engineering rationale, which would be represent a clear inconsistency with its principle that cost assessment should be: *"consistent with engineering, operational and economic rationale"*[5]. For example, in its response to OFW-IBQ-UUW-008, Ofwat states:

"Some companies have no outliers and therefore we infer that the model includes all costs relating to storage solutions, including a range of ground conditions and site constraints."

Ofwat appears to suggest that the fact some companies have no outliers is evidence that its model is capturing all relevant cost drivers. However, we consider this is primarily due to the companies in question costing their storm overflow programmes using the same simplistic model specification as Ofwat. In such cases, it is obvious that these companies won't have outliers. We also question the internal coherency of Ofwat's statement – if the model does reflect a range of site-specific costs, then shouldn't we expect **all** companies to have their fair share of outliers?

We also consider that Ofwat should place additional focus on AMP8 in its cost modelling. Our Future Ideas Labs submissions have previously discussed the importance of reflecting forward-looking cost pressures within cost assessment[6]. While backward-looking models certainly have a legitimate place in cost assessment, Ofwat must carefully consider whether they are as capable at reflecting the relationship between cost and cost driver that will dominate during AMP8. For example, its backward-looking phosphorus removal models are objectively worse at predicting phosphorus removal costs. We do not share Ofwat's concerns that this may encourage companies to submit higher cost forecasts – the regulatory framework contains strong incentives to submit stretching business plans and there would need to be extensive industry coordination to influence the benchmark. We do not see this as a well-founded concern and we have not seen any evidence that suggests it is a risk Ofwat should take particularly seriously.

Overall, we understand Ofwat's desire to move towards scheme-level modelling. However, Ofwat must better recognise and account for the inherent challenges and limitations of implementing such a substantially different methodology without prior engagement with stakeholders. We consider the strength of conclusions it is drawing from its models are disproportionate to the robustness of its approach. For FD, it should give much more careful thought to whether its models are identifying legitimate differences in efficiency or whether its conclusions are being compromised by the inherent methodological and process limitations.

Where a modelled approach is not feasible, Ofwat makes a series of ad-hoc assessments through its shallow and deep dive process. While it is entirely legitimate for Ofwat to challenge companies' proposals in this way, we do consider that it must ensure that the outcome of these challenges does not compound into an unachievable target. The downward bias associated with these challenges is not backed by a detailed rationale and we do not believe that the draft determination decisions are justified or reasonable in the round.

[5] Ofwat (2022) *PR24 Final Methodology Appendix 9 – Setting expenditure allowances*. Available here: https://www.ofwat.gov.uk/wp-content/uploads/2022/12/PR24_final_methodology_Appendix_9_Setting_Expenditure_Allowances.pdf

[6] UUW (2021) *The Principles of Regulatory Cost Assessment.* Available here: https://www.unitedutilities.com/globalassets/documents/pdf/the-principles-of-regulatory-cost-assessment.pdf

Approach to managing risk

We generally support Ofwat's proposed approach to cost sharing in AMP8, although we do consider it is appropriate for abstraction licence costs to continue to have enhanced cost sharing as in AMP7. We support the reintroduction of cost sharing to the Bioresources price control – this is welcome recognition of the uncertainty that is currently pervading that element of the value chain. We also support Ofwat's proposals for 40:40 enhancement cost sharing, which recognises the inherent risk presented by the unprecedented scale of the AMP8 enhancement programme.

While we support Ofwat's proposals for a gated mechanism, we disagree that Davyhulme, Eccles and Wigan are suitable candidates. We consider that our Windermere scheme is a much more compelling candidate for this process. We do not dispute Ofwat's inclusion of Salford, Pennington Flash and Vyrnwy within the enhanced engagement cost sharing process, though we do provide additional evidence of cost efficiency.

We have strong reservations regarding Ofwat's proposed Bioresources uncertainty mechanism. We do not consider that it provides sufficient protection against the key risk it is supposed to mitigate.

1.3 Ofwat's approach to Price Control Deliverables

Ofwat has introduced a significant update to its high-level outline approach set out in its PR24 methodology. Whilst we support some of the changes to the high level PCDs approach, its implementation in practice is highly problematic. We support Ofwat's approach to separating (end period) delivery incentives (including allowing for circumstances where delivery might extend into early AMP9), and timing incentives (including making a positive allowance for early delivery). However, at this first opportunity to provide feedback on Ofwat's approach, we must identify some significant concerns:

- Ofwat's methodology is unclear and untested, and Ofwat has not provided detailed models that would enable companies to see better how PCDs would likely work in practice. For example, we cannot replicate Ofwat's RoRE ranges using its assumptions, using the PCD formulae it has provided. Given that PCDs are expected to apply to many £billions of investment, there is potential for very significant unintended or unforeseen consequences due to a poorly understood or partially described PCD methodology.
- Ofwat's approach significantly conflicts with its totex and outcomes regime, and hence the benefits that are achievable from the flexible delivery enabled by totex and outcomes are likely to be reduced. In many cases, Ofwat's proposed PCD delivery metrics are rigid and inflexible. This will significantly limit and restrict opportunities for innovation and efficiency, which will ultimately be to the detriment of customers.
- The time value incentives are wholly asymmetric, with very limited benefit from delivering early. Following Ofwat's formulae, there are positive incentives for delivering on time – however, the marginal incentives to deliver early are a tiny fraction of the adverse incentives due to late delivery. These incentives need to be more symmetric.
- Ofwat has moved away from taking account of ODI incentives when assessing PCD incentive rates. This means that PCDs are sometimes implemented when there is no need (as delivery was adequately managed via a related ODI). In some cases (e.g. P removal) Ofwat has removed an ODI in favour of implementing a PCD. This is a regressive step, given the largely asymmetric nature of PCDs – an ODI, which would have provided rewards for over delivery has been removed in favour of a (substantially) penalty only mechanism to govern delivery of a capital programme. Having moved away from the "output based" regulation of earlier AMPs, it is difficult to understand why Ofwat would prefer to apply a PCD rather than an ODI that is already providing effective customer protection.
- Ofwat has applied PCDs to base costs. This is wholly inappropriate. It is appropriate to set PCDs for enhancements that are subject to specific customers funding, but the same is not true for botex. Botex is assessed on an aggregate, top down, basis and as such it does not, and cannot, be assumed to fund any specific activity, other than to maintain base service performance. Just because some companies have undertaken certain activity levels historically does not mean that botex is implicitly funding all companies to

deliver those activity levels. We consider that Ofwat should remove all PCDs from application to any areas of botex.

Furthermore, Ofwat states that its PCD mechanism will return the full value of non-delivered schemes, and also that it will reconcile non-delivery PCDs prior to assessing cost sharing. This implies that Ofwat will adjust totex baseline allowances for any PCD units considered undelivered, otherwise totex sharing incentives would also apply, thus causing a double count in value passed back to customers. Ofwat needs to be much clearer in its methodology about how this would work, to avoid the risk of double jeopardy.

1.4 RoRE totex

Ofwat considers that its DD creates a symmetrical totex RoRE range. This implies that companies are equally likely to underspend and overspend. We consider that this is unrealistic. Ofwat's DD imposes extremely stretching cost assumptions, such that we consider that it is impossible for UUW to outperform Ofwat's totex forecast. UUW's DD proposal results in an asymmetrical RoRE range but one that does reflect some small potential for outperformance. This is illustrated in Figure 2.

Figure 2: Totex RoRE ranges

Source: UUW analysis

2. Base modelled cost assessment (wholesale)

2.1 Key points

- **We are supportive of Ofwat's general approach to base modelled cost assessment.** While we have concerns over specific elements of Ofwat's approach, we consider Ofwat's methodology to be generally appropriate. As such, we have aligned our view of botex to Ofwat's view at DD.
- **We welcome the recognition of urban rainfall within base cost assessment but caution that this will not enable UUW to meet a common industry target for internal sewer flooding.** The introduction of urban rainfall across all model specifications is welcome and will enable UUW to appropriately maintain and maximise the hydraulic capacity of its existing assets. It will not facilitate the enhancement activity required to enable UUW to hit Ofwat's common PCL for internal sewer flooding.
- **We do not consider Ofwat has appropriately reflected the cost service relationship within its DD.** We consider that a less stringent frontier shift challenge would provide a more realistic view of AMP8 base costs.
- **We continue to have strong reservations about the robustness of pumping head data.** We do not consider the industry has made sufficient progress on improving reporting and methodology consistency for Ofwat to consider using a pumping head variable to allocate costs in AMP8.
- **We support the use of company cost driver forecasts.** The use of company cost driver forecasts increases the capacity of the allowance to reflect future cost pressures.
- **The upper quartile provides a sufficient level of stretch.** Applying a catch-up efficiency challenge beyond the upper quartile level risks setting an unachievable level of stretch, particularly given Ofwat's interventions in the wider regulatory framework e.g. performance targets.

Ofwat assesses the majority of base costs (botex) using econometric 'benchmarking' models that are based upon historical data. We consider that Ofwat's botex modelling approach is generally appropriate when viewed in isolation. As such, we accept the modelled botex allowances in full, although we have some residual concerns about individual elements of the methodology.

Table 1: UUW's view of modelled botex at Draft Determination

	Ofwat's view at DD	UUW's DD representation
Water resources	226	226
Water network plus	2,261	2,261
Wastewater network plus	2,366	2,366
Bioresources	459	459
Wholesale total	**5,312**	**5,312**

Source: UUW analysis

We provide some comments on Ofwat's approach to modelling in Appendix A. These comments note the range of factors that have contributed to our acceptance of Ofwat's DD position 'in-the-round'. This section sets out UUW's view of modelled base expenditure at DD and highlights key representations for the purposes of our DD response.

2.2 Urban rainfall

Ofwat includes an urban rainfall variable across all sewage collection models and wastewater network plus models. We welcome the recognition of urban rainfall within the regulatory framework. Frequent and intense rainfall events create operational issues and require a higher number of larger assets. These larger assets are associated with additional expenditure e.g. routine maintenance.

However, once rainfall volume surpasses a certain point then the impact of operational interventions (i.e. those funded from base expenditure) is limited. Appropriate maintenance can maximise the capacity within the sewer network, but prolonged/intense rainfall can still overload the hydraulic capacity of a well-maintained sewer system. At this point, additional base expenditure is associated with diminishing returns (we note that the impact of hydraulic capacity is more evident in regions with a high prevalence of combined sewers).

We consider that the uplift to our base allowances associated with the inclusion of urban rainfall facilitates a base expenditure allocation that aligns with the need to maximise the capacity of our existing sewer network in a way that is proportionate to an average rainfall year in UUW's region between 2000-01 and the present day. **We are extremely clear that this uplift does not facilitate the 'weather proofing' of our network, nor does it empower us to achieve Ofwat's common Performance Commitment Level (PCL) for internal sewer flooding.** As set out above, even a well-maintained network can reach hydraulic capacity in an area characterised by frequent and intense rainfall events and high combined sewer prevalence.

As a result of this, UUW's business plan proposed a company-specific PCL that reflects the challenges posed by exogenous factors within UUW's region. This proposal sought to ensure that all companies face a performance incentive that is proportionate to their regional operating environments. We continue to consider a company-specific PCL is appropriate, along with a collar to prevent the outcomes package being negatively skewed by exceptional weather events.

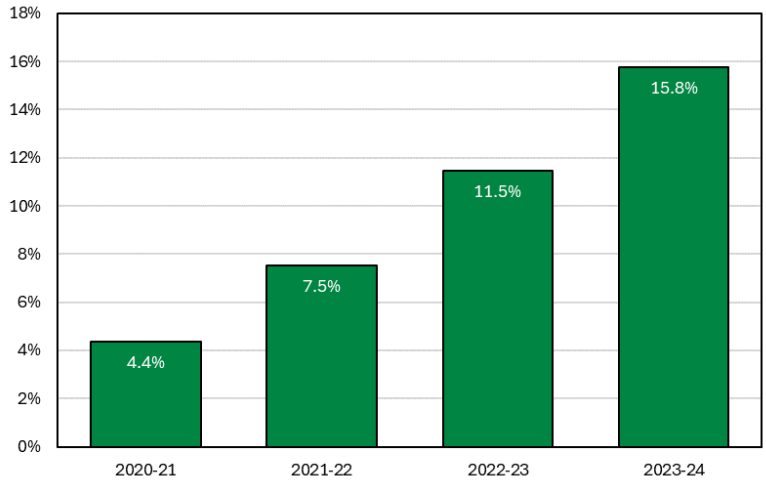
A full representation of UUW's position in this area can be found in '*UUWR_12_Internal sewer flooding*'.

2.3 The cost-service relationship

We are concerned that within its regulatory framework Ofwat has largely overlooked the relationship between costs and service performance. Economic and engineering rationale suggests that better performance outcomes should be associated with higher expenditure on asset maintenance and operations. It is therefore inappropriate to assume that achieving ever-improving performance levels is possible without a commensurate increase in base cost allowances. We note that while botex allowances have increased relative to PR19, Ofwat's imposition of PCDs on the generality of base expenditure means that a large part of this increase is already spoken for.

AMP7 evidence suggests that companies are generally struggling to meet Ofwat's performance and cost benchmarks. For instance, only four companies earned ODI reward payments in FY24 (mostly due to outperformance on bespoke commitments).[7] Meanwhile, base cost industry allowances for AMP7 have been so far overspent by around 10%. UUW analysis of base expenditure dynamics also reveals that the gap between Ofwat's PR19 allowances and companies' actual expenditure is growing, as shown in Figure 3. We also find that only three companies have managed to spend less than Ofwat's PR19 assumptions for base expenditure.

Figure 3: Industry base modelled cost overspend (%), by year (non-cumulative)



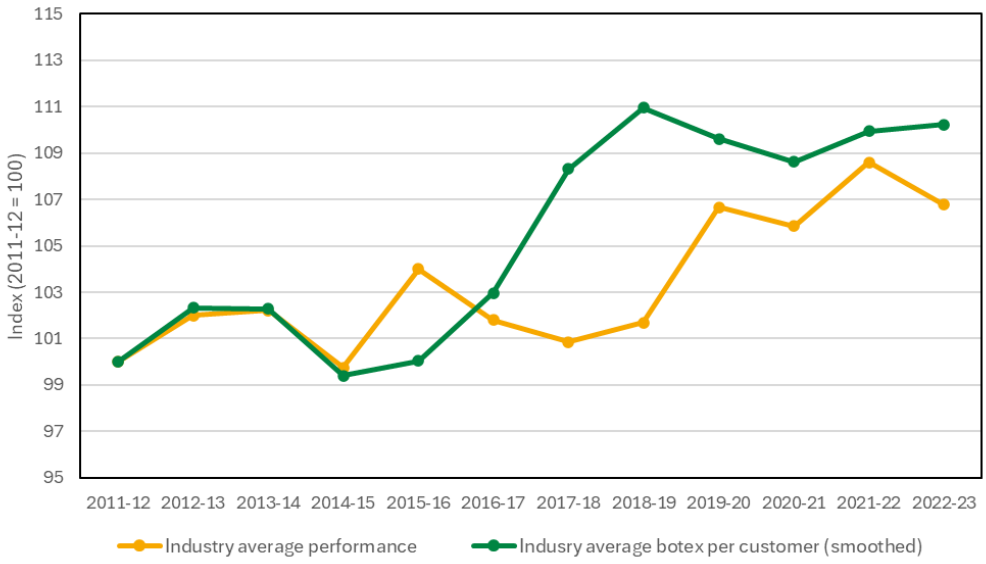
[7] Ofwat (2023), *Water company performance report 2022-23,* p 26.

It is also important to observe that within Ofwat's botex models, the backwards-looking catch-up challenge has produced adjustment factors which are close to or even above 1. As model predictions are below what companies have actually spent, this indicates that Ofwat's model suite fails to identify and predict important cost pressures that have materialised over the last five years. We consider that, to a large extent, this base overspend can be attributed to increasing demands related to service performance.

Ofwat has argued that there is no clear empirical relationship between costs and performance. To test whether this is the case, we constructed a composite performance index aimed at capturing industry-wide performance dynamics over time. This index was created using companies' PR24 business plan data tables which contain historical and forecast data on common performance commitments.[8] Each performance commitment value was normalised to a 0-1 scale, where a value of 0 indicates the worst observed company-year performance, while a value of 1 denotes the best observed company-year performance. Each performance commitment was then assigned equal weight to construct a composite performance index value.

The results of this exercise are shown in Figure 4, which graphs the change in performance and change in botex per customer across the industry. As company expenditure is sensitive to within-AMP maintenance peaks and throughs, we present a smoothed time series of botex per customer. Although there is still some year-to-year variability, it can be observed that performance and botex tend to move in the same direction. Our analysis suggests that since FY12 performance and botex per customer have both changed by around 10 percent. We also note that the upwards trend across both indices corresponds with the introduction of the totex-outcomes regime. We find that there is a strong correlation (0.63) between the two indices.

Figure 4: Index – Composite performance and botex per customer (industry average)



The observed relationship strongly suggests that better performance is in fact associated with increased base costs. We therefore consider it crucial for Ofwat to reflect the cost-service relationship when setting ODI and base cost targets. Ofwat has stated that its DD base allowances are around 14 percent larger compared to PR19 final determinations.[9] We note, however, that much of this increase will be associated with changes in company scale, treatment complexity and other model cost drivers. As explained, some of this additional allowance will also need to be diverted to achieve PCD commitments (e.g., on mains renewals). As such, there is a risk that companies' base allowances will be set at too low a level, thereby further exacerbating the issue of base overspend. If this

[8] We amended the dataset by removing missing observations and excluding implausible performance values. We also excluded values related to greenhouse gas and serious pollution incidents performance – these performance commitments are calculated on a non-normalised basis, meaning that their inclusion could undermine comparability between companies. For leakage and PCC we assessed absolute change in l/p/d, rather than the relative change since FY20 baseline – this approach allows to incorporate the full leakage and PCC data from FY12, increasing the number of observations.

[9] Ofwat (2024), *PR24 draft determinations: Expenditure allowances, p. 16.*

transpires, it is likely that companies will only prioritise essential base activities; meanwhile, companies' ability to achieve other performance improvement that matter to customers is likely to be compromised.

Therefore, service-related cost pressures should be appropriately reflected within the regulatory framework. In particular, Ofwat should not impose a catch-up challenge beyond the upper quartile level. We also consider that Ofwat's frontier shift of one percent should be reduced to 0.55 percent (see *'UUWR_25_Real price effects and frontier shift'*).

2.4 Other methodological issues

We have a number of additional methodological issues on which we are providing representations. These are:

- **The use of average pumping head.** We continue to have strong concerns that average pumping head data is not sufficiently robust for use in comparative benchmarking. We are not aware of any material progress in improving the quality of data since Ofwat and the CMA declined to use average pumping head at PR19 on data quality grounds. However, we are willing to accept the modelled allowance 'in-the-round', though this should not be interpreted as UUW's acceptance of pumping head's use.
- **Use of company cost driver forecasts.** We strongly support the use of company cost driver forecasts in Ofwat's benchmarking approach. This will ensure that Ofwat's allowances better reflect cost pressures within AMP8.
- **The upper quartile catch-up challenge.** We consider the upper quartile to be an appropriate catch-up challenge. Moving beyond this point increases the risk that the catch-up challenge is unduly influenced by statistical noise or estimation bias as the number of datapoints that informs the challenge reduces.

3. Base modelled cost assessment (residential retail)

3.1 Key points

- **UUW supports the continued use of deprivation and bill size as explanatory factors.** UUW considers that Ofwat's residential retail model suite aligns with operational rationale.
- **UUW welcomes Ofwat's recognition of inflation within the residential retail price control.** The PR19 approach to inflation led to an excessive efficiency challenge in AMP7. It is right to update this approach for PR24.
- **UUW supports Ofwat's proposed labour RPE.** Labour is a substantial element of the residential retail cost base and it is correct for this to be recognised through an RPE adjustment, particularly given the residential retail price control is exposed to inflation risk.

Ofwat assesses all residential retail expenditure through an econometric modelling approach. While we have some targeted concerns with Ofwat's approach, we consider it is generally appropriate.

We agree with the cost drivers used by Ofwat in its econometric models. We strongly support the continued use of deprivation and bill size cost drivers. We support the removal of metering penetration and transiency cost drivers. We also support the use of company forecasted cost drivers. We provide further comment on Ofwat's econometric modelling methodology in Appendix B to this document.

Ofwat provides a nominal retail allowance, which is calculated using a forecast view of CPIH. We welcome Ofwat's reflection of inflation within the retail price control, although we note that retail is still bearing inflationary risk. In completing a revised version of our retail cost submission, we have aligned our treatment of inflation to that used by Ofwat in its cost allowance.

We note that retail will face other headwinds in AMP8, including increasing bills, which are strongly correlated with customer contacts and bad debt risk. The scale of bill increases is not reflected in the historical cost record and as such it is unlikely that its models will be capable of accurately reflecting the increase in bad debt that will occur during AMP8. As such, we consider that Ofwat's DD represents a stretching settlement for the residential retail price control.

We have largely aligned with Ofwat's view of residential retail base costs at DD, although we have reflected our DD bill size within our cost forecasts and have also corrected an error in Ofwat's calculations[10]. This has resulted in a slight increase relative to Ofwat's proposals.

Table 2: UUW's representations on residential retail at DD

Nominal, pre-frontier shift and RPE	Ofwat's view at DD	UUW's DD representation
Residential retail (nominal)	745	782

Source: Ofwat DD and UUW DD representations

3.2 The effect of inflation

Ofwat models retail costs in 2022-23 CPIH prices. It inflates efficient allowances using its inflation forecasts and supplements this with a labour RPE. This represents a move away from its approach at PR19, which required companies to absorb all inflation and real price effect pressure. The high inflationary environment that ensued meant that the PR19 approach to retail cost assessment manifested as a strong efficiency challenge on the retail price control.

[10]This error related to the treatment of dual service cost driver forecasts and was highlighted to Ofwat through the query process. Ofwat has committed to correct this error for FD.

Ofwat's DD approach still requires companies to accommodate inflation risk i.e. in the case that inflation is higher than its forecasts. However, we judge the overall balance of risk and reward to be appropriate given Ofwat's recognition of labour RPE within the retail price control. We discuss RPEs in section 9. We do consider that there is some scope to align the treatment of inflation across residential retail and wholesale at future price reviews.

While Ofwat's recognition of inflation within the retail price control is welcome, we caution that the resulting allowance still represents a substantial cost stretch. This is because AMP8 will see rising bills, which are strongly correlated with increases in customer contacts and bad debt risk.

Residential retail data table resubmission

Ofwat comments that:

"We have concerns that some companies may have reported their retail costs in nominal prices rather than in 2022-23 prices in their business plan table submissions."[11]

We agree that companies may have taken different approaches to reflecting inflation within their business plan data tables. We also consider that companies should resubmit cost tables on equivalent bases to aid in assessing cost gaps for FD. We confirm that our business plan data reflected Ofwat's table guidance and that we have submitted updated versions of RET1 and RET1a in 2022-23 prices.

3.3 Revenue per customer (bill size) should reflect all revenue collected by the residential retail price control

Ofwat recognises that the size of customer bills is a key indicator of the overall revenue at risk from non-payment. The more revenue at risk, the more bad debt a company can expect to incur. Revenue at risk is exogenous to the retail price control because it is determined by wholesale expenditure. We support the continued inclusion of DPC-related revenue within Ofwat's forecasts of revenue at risk. Failure to include this would lead to substantial elements of bad debt being unrecoverable by the residential retail price control.

[11] Ofwat (2024) *Draft Determinations: expenditure allowances, page 143.*

4. Ofwat's post-modelling adjustments

Key points

- **UUW supports the principle of post-modelling adjustments.** These supplement backwards-looking modelled cost allowances with a forward-looking view on cost pressures within the upcoming AMP.
- **We have concerns about Ofwat applying PCDs to botex.** We are concerned that setting PCDs for botex (e.g. for mains replacement) sets an unhelpful precedent that restricts company freedom to innovate and delivery services efficiently, which is a key benefit of the totex and outcomes regime.
- **We support Ofwat's meter replacement cost uplift.** Ofwat provides an additional uplift to facilitate more meter replacements in AMP8. In this context, we agree that it is right that a PCD protects customers in the event the forecasted level of meter replacements doesn't materialise.
- **We do not support Ofwat's proposed energy RPE adjustment and ex post reconciliation.** We consider that companies are best placed to manage risk associated with energy price volatility.

Ofwat has made a series of post-model adjustments. In principle, we support these additions. One of our principles of regulatory cost assessment[12] was to uphold what we term 'external validity'. External validity seeks to mitigate the risk that a primarily backwards-looking approach is not able to appropriately reflect the cost pressures that emerge in future. Ofwat's post-model adjustments to seek to ensure that base cost allowances are sufficient to accommodate future cost pressures. Where appropriate, we set out our view on each one and signpost to where further representations can be found within our DD submission.

4.1 UUW's view of post-modelling adjustments at DD

Table 3 UUW's DD representations on post-modelling adjustments

£m, 2022-23 CPIH	Ofwat's view at DD	UUW's DD representation	Representation location
Mains replacement	0	0	'UUWR_44_Leakage'
Meter replacement	32	32	'UUWR_36_Smart metering'
Phosphorus removal opex	61	61	Section 4.4
Net Zero (base)	7.6	7.6	'UUWR_30_Carbon Net Zero enhancements'
Energy RPE	-23	0	'UUWR_25_Real price effects and frontier shift

Source: UUW analysis

4.2 Mains replacement

At DD, Ofwat has set out an expectation that companies should replace 0.3 percent of their mains using base allowances. The 0.3 percent was informed by an assessing of industry average historical mains renewals during the historical period covered by the cost models. Some companies are expected to deliver more than 0.3 percent although of these companies, those that reported a deterioration in asset health since PR09 did not receive additional base expenditure allocations to deliver more than 0.3 percent. Ofwat has imposed a PCD that will pass money back to customers if companies do not deliver their targeted level of mains replacement from base.

Whilst we would support a PCD that applied to enhancement funded mains replacement, we are concerned about the principle of modelled botex allowances being subject to PCDs. The totex and outcomes framework

[12] UUW (2021) *The Principles of Regulatory Cost Assessment.* Available here: https://www.unitedutilities.com/globalassets/documents/pdf/the-principles-of-regulatory-cost-assessment.pdf

introduced at PR14 represented a clear move away from such output-focused approaches to regulation. This was a conclusion of a report on the benefits of the move towards totex and outcomes, produced for Ofwat by KPMG and Aqua Consultants:

"The evidence reviewed in this study suggests that the introduction of the totex and outcomes framework allows companies to unlock further innovation and efficiency gains."[13]

We consider the imposition of a PCD on our modelled base costs does not entirely align with the report's findings. There is a risk that the ability of companies to innovate is restricted and it may create an incentive for companies to engage in capital work that may (for example) be rendered unnecessary by new innovations that extend the useful life of existing assets.

Whilst we are generally supportive of a move toards specific funding for mains replacement, it is incorrect to assume that botex funds any specific level of investment activity – Botex funds the high level outcome sof "maintaining base service performance". Companies have been enabled and encouraged to invest as they see fit, from their botex allowances, to deliver the various aspects of service performance that they are required to meet. This is a fundamentally essential component of the totex and outcomes regime, which provides companies the opportunity to identify innovative and efficient ways to deliver services to customers. Just because some companies have undertaken certain activity levels historically does not mean that botex is implicitly funding all companies to deliver those activity levels.

We consider that the incentives to maintain asset health created by the current totex and outcomes regime are sufficient. Crucial to this is that Ofwat commits to maintain these incentives within the regulatory framework over the long-run and is welcoming of future investment proposals that specifically target asset health.

We note that Ofwat is also seeking to collect more information about historic maintenance activity, to better understand "what base buys". We are concerned that if this heralded an ongoing shift in regulatory policy, then this will also reverse the benefits created by totex and outcomes and as such, will reduce the scope for innovation, leading to higher costs for customers than would otherwise exist. If Ofwat has a regulatory objective to increase mains replacement rates, then we consider companies' base allowances should be uplifted to achieve this and companies have been enabled and encouraged to innovate with their modelled base allowances. We could only support a PCD relating to mains renewals if it applied to an additional allowance, beyond that implied by modelled base costs.

Please see '*UUWR_44_Leakage*' for UUW's full representations in this area.

4.3 Meter replacements

We strongly support the uplift to base allowances to accommodate a step-change in the metering enhancement programme. We accept the principle that an uplift to base allowances should be accompanied by a PCD, in the absence of an alternative customer protection measure e.g. statutory requirements.

We note that Ofwat asks for company comments on the appropriate benchmark for meter replacement. We consider the median replacement cost to be appropriate. This will allow companies to target a range of different meter complexities, which ensures that the smart meter roll-out is primarily informed by best value rather than least cost.

Please see '*UUWR_36_Smart metering*' for UUW's full representations in this area.

4.4 Phosphorus removal base cost adjustment

Please see section 6.5 of this document for UUW's comments on Ofwat's approach to ongoing costs relating to the AMP7 phosphorus removal programme.

[13] KPMG LLP and Aqua Consultants Ltd (2021) *Innovation and efficiency gains from the totex and outcomes framework.* Available here: https://www.ofwat.gov.uk/wp-content/uploads/2019/01/Ofwat_totexoutcomes_FINAL_30012019.pdf

4.5 Net Zero base cost adjustment

We support Ofwat's proposed Net Zero base cost adjustment. We welcome Ofwat's recognition that transitioning to low-carbon heating and electric vehicle infrastructure is associated with additional costs. We set out further details of our proposed associated expenditure in section 5 of '*UUWR_30_Carbon Net Zero - Enhancements*''.

However, we are concerned that Ofwat's target of a further 2.5 percent greenhouse gas (GHG) emissions reduction is ambitious relative to the scale of the additional uplift. Please find more details of our representations in this area in 'UUWR_53_Operational GHG PCs for water and wastewater'.

4.6 Energy cost adjustment

We do not support Ofwat's approach to the energy RPE adjustment. We consider that companies are best placed to manage risk associated with energy price volatility. As such, we do not consider that an adjustment is necessary. However, we are clear that, whatever its final approach, Ofwat must take a consistent approach to the energy cost adjustment across the industry.

We provide representations on Ofwat's proposals in *'UUWR_25_Real price effects and frontier shift'*.

5. Unmodelled cost assessment

5.1 Key points

- **We have strong concerns over Ofwat's approach to forecasting business rates.** Business rate expenditure will be materially different in AMP8, with the difference being largely mechanistic and relatively aligned with other elements of Ofwat's DD. In this context, we cannot see any reasonable argument that would consider 2022-23 to be a suitable forecast for AMP8.
- **Wastewater discharge consents should be treated as an unmodelled cost.** Changes in the Environment Agency's approach to setting discharge consent costs mean there will be a step-up in associated expenditure in AMP8. As such, we consider these should be taken outside of the scope of modelled botex and treated as an unmodelled cost.
- **We observe an error in Ofwat's Industrial Emissions Directive compliance cost calculations.** We ask that this is corrected for FD.
- **Ofwat has not given us sufficient time to scrutinise its third-party reconciliation mechanism.** Ofwat published this mechanism on 20 August 2024. This did not give UUW enough time to reflect it within our DD representation. We believe Ofwat should commit to working with the sector to test it and ensure it is fit for purpose.

5.2 UUW's view of unmodelled costs at DD

Table 4: UUW's DD representations on unmodelled cost

	Ofwat's view at DD	UUW's DD representation	Representation location
Business rates	399	605	Section 5.3
Wastewater discharge consents	n/a*	28	Section 5.4
IED compliance	0**	3	Section 5.5
Abstraction licence costs	118	118	Section 5.6
TMA and lane rental	13	13	Section 5.7
Equity issuance	0	19	Section 5.8
Diversions and third party	465	445	Section 5.9

**Ofwat includes wastewater discharge consent costs within the scope of modelled cost at DD.*

***This appears to be an error in Ofwat's calculations. See section 5.5.*

Source: UUW DD representation

5.3 Business rates

We have strong concerns over the appropriateness of Ofwat's approach at DD. We consider that 2022-23 represents a demonstrably inaccurate forecast for business rates in AMP8. This is because business rate costs are informed by reference to the regulatory return and the AMP8 enhancement expenditure programme. Both are expected to increase substantially relative to AMP7. While Ofwat has increased cost sharing to 10:10, this alone does not mean that Ofwat should not seek to make a reasonable forecast for AMP8.

If Ofwat continues to consider its approach remains appropriate, then we would encourage it to provide an annual true-up to minimise the detrimental impact on financial headroom within AMP8.

Please see '*UUWR_26_Business rates*' for our representations in this area.

5.4 Wastewater discharge consent costs should be assessed as part of unmodelled costs

At Draft Determination, Ofwat's definition of modelled wastewater network plus cost includes *'service charges/discharge consents'*. This means that companies currently receive funding for these activities through their botex modelled allowances.

However, the Environment Agency recently consulted on a significant update to its charging approach for water quality permits. The changes to charges will significantly increase our costs relative to those we have incurred historically, by around £28m.

We consider that the scale of the proposed changes in the EA's charging means that it is inappropriate to assess these costs within the scope of modelled base cost. This is because these costs are now materially higher than those incurred in the past. As the approach to benchmarking focuses upon historical costs, it will not account for this future increase, with companies being unable to recover efficiently incurred costs.

Supreme Court ruling

This issue is also affected by a recent Supreme Court ruling[14]. This ruling could mean that wastewater companies incur more costs in the usual function of their duties. Importantly, these additional costs would not be related to non-compliance with our duties or obligations. As such, we consider they should be included in the scope of costs recoverable from customers.

We consider the most appropriate way to reflect these additional costs would be alongside EA discharge charges. This is because the scale of associated costs is currently uncertain and will be outside of companies' control (as the costs could be incurred by a company entirely aligned its statutory duties).

In the case of costs relating specifically to the Supreme Court's ruling, we note there is considerable ongoing uncertainty over the level of costs companies may incur going forward. As such, we consider it would be appropriate to provide a zero allowance at PR24, with a cost sharing rate that reflects the limited control companies have over these costs. Companies would then be able to recover associated costs through the reconciliation at PR29.

Summary

As such, we consider that Ofwat should assess these costs as part of its unmodelled cost assessment. This will ensure that it is able to appropriately account for the effect of the EA's updated charging scheme on the industry's cost base and reflects recent updates in UK case law. We note this harmonises the treatment of EA charges across water and wastewater – water resources abstraction charges are assessed as part of the unmodelled assessment within water wholesale cost assessment.

We would support a cost sharing rate equivalent to that used for abstraction licence costs. Our business plan submission argued that this rate should be 10:10 to reflect the limited degree of company control over these costs, while still maintaining an incentive for efficient management action. We continue to consider this is an appropriate position.

5.5 Industrial Emissions Directive compliance costs

These costs relate to the ongoing permitting costs incurred through compliance with the Industrial Emissions Directive (IED).

We identified an error in Ofwat's DD model infrastructure, which meant UUW did not receive an allowance at DD for IED compliance costs. We highlighted this error to Ofwat in OFW-IBQ-UUW-010. We would ask that Ofwat corrects its approach at FD in line with its query response.

[14] The Manchester Ship Canal Company Ltd (Appellant) vs United Utilities Water Limited (Respondent) No2. Case ID UKSC 2022/0121.

As a wider point, we observed Ofwat used both 'UUW' and 'NWT' to refer to UUW throughout Ofwat's DD calculations. We are content to use either acronym, but would ask that Ofwat should standardise to one anacronym across all model infrastructure. Otherwise, there is a risk similar errors occur in future.

5.6 Abstraction and discharge charges (water service)

Ofwat appears to have removed 25:25 cost sharing from abstraction charges. We do not support this approach. Abstraction charges are inherently uncertain because the Environment Agency can change its charges scheme at any time. As such, we consider that Ofwat should align its cost sharing rate with business rates at 10:10. This strikes the correct balance between not exposing companies to unreasonable risk and incentivising them to engage appropriately with the EA when it considers changes to its charging approach.

5.7 Traffic Management Act and lane rental costs

Ofwat applies the catch-up efficiency factor calculated by its cost models to companies' business plan Traffic Management Act (TMA) and lane rental costs. It caps this efficiency at 10 percent in recognition that base cost efficiency factors are an imperfect indicator of TMA cost inefficiency. Ofwat applies a 50 percent efficiency challenge to UUW's lane rental costs, because we have not incurred these in the past.

We do not raise any representations on Ofwat's approach to cost assessment, although we do disagree that it is appropriate for frontier shift to be applied to these costs (see *'UUWR_25_Real price effects and frontier shift'* for more detail).

5.8 Equity issuance costs

Our approach to calculating equity issuance requirements and allowances has been updated to align to Ofwat's approach for the draft determination, whereby allowances are derived based on the equity injections required for the notional company to remain below 57.5% gearing in each year. The allowance has therefore been calculated as 2% of the 'Ordinary shares issued' stated within RR4.65-RR4.70, but in real terms.

In section 4 of UWWR_70, we set out that we have followed Ofwat's draft determination approach and included 2% equity issuance costs in relation to any equity issued by the notional company. This has been done for consistency and comparability purposes and we continue to advocate that 5% should be allowed for equity issuance costs.

5.9 Diversions and third party costs

At PR24, Ofwat proposes to include non-price control diversions within third party services and is proposing to implement a reconciliation mechanism at PR29 that will 'true-up' any difference to Ofwat's ex ante assumptions at PR24. In principle, we understand the need for a reconciliation given Ofwat's proposed approach.

However, we will need to examine this mechanism to understand its appropriateness. Ofwat published a draft mechanism on 20 August 2024. This means we have not had sufficient opportunity to examine it prior to our DD submission. As such, we consider that Ofwat should work collaboratively with the industry to test it and ensure it is fit for purpose and provide an opportunity to ensure that any concerns are appropriately considered by Ofwat and reflected in the final reconciliation.

Table 4: UUW's DD representations on unmodelled cost suggests there is a difference between Ofwat's view and UUW's view of diversions and third party gross costs. This is because Ofwat appears to have included section 185 (water) diversions in its unmodelled calculations, while also including it in the scope of modelled base costs. We consider this a calculation error. For clarity, we do not dispute Ofwat's view of diversions and third party gross costs.

6. Cost adjustments

6.1 Key points

- **UUW withdraws the drainage cost adjustment claim.** We recognise that Ofwat has included urban rainfall across all relevant base model specifications. However, we are clear that will not facilitate the investment needed to achieve Ofwat's industry PCL for internal sewer flooding.
- **We present additional evidence to support Ofwat's assessment of our reservoir cost adjustment claim for FD.** We consider that the MITIOS element of our reservoirs CAC should be assessed as a base cost adjustment claim. We do not dispute the reallocation of the PRA element of our claim to enhancement.
- **We do not dispute Ofwat's approach to AMP7 phosphorus removal ongoing operating expenditure.** Ofwat is right to recognise that the AMP7 phosphorus removal programme will drive additional ongoing operating expenditure.

6.2 UUW's view of cost adjustments at DD

Table 5:; UUW's representations on cost adjustments at DD

	Ofwat's view at DD	UUW's DD representation	Representation location
Drainage	0	0	Section 6.3
Reservoirs	0	65*	'UUWR_14_Resevoirs'
Phosphorus removal (opex)	61	61	Section 6.5

**This relates to the MITIOS element of our reservoirs cost adjustment claim only. The PRA element is reflected in section 8 of this document.*

Source: UUW analysis

6.3 Drainage

UUW submitted a conditional cost adjustment claim to reflect the additional costs it faces in wastewater due to its exogenous regional characteristics. The claim was conditional because we stated we would withdraw it should Ofwat accept our proposals for a company-specific PCL on internal sewer flooding.

Ofwat has rejected our proposals for a company-specific PCL. It also rejected our cost adjustment claim, instead including urban rainfall across all sewage collection and wastewater network plus models. We estimate this has increased UUW's wastewater base allowances by circa £30m relative to Ofwat's recommended mode suite following its econometric model consultation. As set out in '*UUWR_12_Internal sewer flooding*', this is not sufficient to enable UUW to meet Ofwat's industry common PCL for internal sewer flooding.

For the purposes of our DD representation, UUW is seeking:

(1) A company specific PCL and collar on internal sewer flooding; and

(2) Ofwat to uphold its inclusion of urban rainfall across all relevant wastewater models.

For clarity, this means we are withdrawing this conditional claim. Please see '*UUWR_12_Internal sewer flooding*' for our representations on Ofwat's proposed PCL and collar for internal sewer flooding.

6.4 Reservoir dam safety

UUW submitted a £186.49m claim relating to reservoir dam maintenance. The claim had three parts:

(1) Ongoing higher costs relating to operating a large reservoir fleet relative to groundwater sources;

(2) A rise in the number of statutory actions and associated In the Interests of Safety (ITIOS) maintenance expenditure arising from regulatory safety inspections, since the publication of the 2020 Balmforth Report into the Toddbrook Reservoir emergency; and

(3) A change in the Environment Agency (EA) flood risk maps requiring additional work to remain compliant with the Health and Safety at Work Act 1974.

Ofwat assessed and rejected part one as a cost adjustment claim. Ofwat assessed parts two and three as 'reservoir safety' enhancement expenditure. It rejected part two due to a significant overlap with base expenditure and a concern that the drivers of expenditure were not sufficiently clear. It partly accepted part three, though it did apply an efficiency challenge relating to our optioneering process and minor concerns on cost efficiency. This resulted in an overall allowance of £57.4m.

We provide comment on this in the following sections and reference out to more detailed representations elsewhere in our DD submission where appropriate.

Part One: higher relative costs of reservoir sources relative to groundwater sources

We do not provide representation against Ofwat's DD judgement relating to part one of our cost adjustment claim.

Part Two: More statutory actions resulting from a more stringent inspection regime

We note that Ofwat assessed this element of the claim as enhancement and (in part) rejected it because it considered the related activity as base:

> *"We consider that the forecast MITIOS spend (£65.151 million) overlaps significantly with base expenditure as it appears to be general maintenance."*[15]

We agree that this element of the claim is best categorised as base expenditure. This is why we submitted a cost adjustment claim, and not an enhancement claim – we are clear that the step-up in statutory investigations and actions following the Balmforth Report is not reflected within base expenditure allowances. As such, Ofwat should assess this element of the claim as a base cost adjustment claim (as we submitted in our October 2023 plan) for Final Determinations (FD), and not treat this component as an enhancement claim.

Ofwat also considered that UUW did not set out clear drivers for the step-change in expenditure and appears to suggest the claim is motivated by an increase in statutory inspections:

> *"The company does not identify clear drivers for this expenditure. Most reservoir safety expenditure in previous periods has been delivered in base expenditure. The company's claim of an increasing trend of MITIOS due to increased inspection post Balmforth appears to reflect the change in the number of statutory inspections undertaken each year rather than any increase due to Balmforth."*[16]

We would like to clarify that the number of inspections has not increased. Inspections are driven by a fixed statutory timetable. While there is variation from year to year, we are clear that the Balmforth Report did not recommend or result in more inspections.

However, it has led to a higher number of statutory investigations and actions i.e. we now have a higher number of investigations and actions **per inspection**. This is the driver of additional expenditure, beyond that reflected in base allowances. UUW provided clear evidence of the step-change in our cost adjustment claim.

We continue to consider our claim is well justified and is linked to a clear cost driver. As such, Ofwat should assess it as a base cost adjustment. We provide further evidence and representation in '*UUWR_14_Reservoir*'.

Part three: Health and Safety at Work Act (1974) compliance

Ofwat has assessed this element of our claim as enhancement expenditure. We do not contest the classification of PRA as enhancement, given the associated improvement in performance levels. However, we do present

[15] Ofwat (2024) *PR24_DD_W_Reservoir-safety.xlsm, worksheet: NWT*.

[16] Ofwat (2024) *PR24_DD_W_Reservoir-safety.xlsm, worksheet: NWT*.

additional evidence of optioneering and cost efficiency within '*UUWR_14_Reservoir*'. We consider Ofwat should reflect this element of our claim in full as enhancement expenditure.

6.5 Phosphorus removal

UUW submitted a cost adjustment claim relating to the additional ongoing operating expenditure that will result from our AMP7 phosphorus reduction enhancement programme. Other companies also submitted related cost adjustment claims. As Ofwat recognises:

> *"…The additional ongoing opex to comply with tight phosphorus permits may not be fully captured in our base cost models. This is because the PR19 phosphorus removal enhancement schemes will not complete until 2025, and our base cost models rely on historical data."*[17]

In response to this, Ofwat has implemented a sector-wide phosphorus cost adjustment. We strongly support the need for an adjustment to our base allowances. We are clear that the historical data does not contain any cost evidence that would enable ongoing compliance with the drivers of the AMP7 enhancement programme. Ofwat's approach results in an uplift to UUW's base allowances of £61m, in contrast to UUW's cost adjustment claim value of £85m.

We have examined Ofwat's methodology for the adjustment and have the following comments:

- **Implicit allowance.** Ofwat assumes there is no implicit allowance. We consider that this is a reasonable assumption, which is supported by evidence within our claim that the implicit allowance was likely to be immaterial. As such, we consider Ofwat's approach to the implicit allowance to be pragmatic and proportionate.
- **Exclusion of schemes and the catch-up challenge.** Ofwat excludes certain schemes where enhancements are from a pre-existing historical permit level. We understand the rationale for this methodological decision and note Ofwat's comment that this is likely a conversative approach. In the context of this, we consider the use of an upper quartile catch-up benchmark is an appropriate assumption.

Overall, Ofwat's methodology appears to be generally appropriate and proportionate. Our cost adjustment claim stated:

> *"…We would support Ofwat's use of 7F data, as reported in companies' 2022-23 APR submissions, to identify an efficient benchmark for the sector"*[18]

As such, we are not challenging Ofwat's adjustment and will work to identify efficiencies in delivery where possible.

[17] Ofwat (2024) *PR24 Draft Determinations: Expenditure allowances.*

[18] UUW (2023) *UUW44: Cost adjustment submission: update to claims.*

7. Price Control Deliverables (PCDs)

7.1 Key points

- **Significant downside skew:** Ofwat has assumed that PCD risk is symmetric. This significantly understates the clear downside skewed financial risk of its proposed PCD methodology. In particular Ofwat has not given due consideration to the risk of companies needing to deliver substitute schemes that may be ineligible for PCD delivery, or costs incurred by companies for schemes that Ofwat rejects as satisfying its delivery criteria – even if statutory requirements have actually been met.
- **Ofwat's PCD approach runs counter to its totex and outcomes regime:** In many cases, Ofwat's proposed PCD delivery metrics are rigid and inflexible. The benefits that are achievable from the flexible delivery enabled by totex and outcomes will be undermined. This will limit and restrict opportunities for innovation and efficiency, which will ultimately be to the detriment of customers.
- **The time value incentives are asymmetric, with very limited incentive to deliver early:** Following Ofwat's formulae, there are positive incentives for delivering on time – however, the marginal incentives to deliver early are a small fraction of the adverse incentives due to late delivery. These incentives need to be more symmetric.
- **Ofwat should give more consideration to whether ODIs remove the need for a PCD:** PCDs are sometimes applied when there is no need (such as when delivery was adequately managed via a related ODI). In some cases (e.g. P removal) Ofwat has removed an ODI in favour of implementing a PCD. This is a regressive step, undermining the benefits of an ODI and replacing it with an asymmetric "output based" PCD incentive.
- **Ofwat should not apply PCDs to base costs:** It is appropriate to set PCDs for enhancements that are subject to specific customers funding, but the same is not true for botex. Botex is assessed on an aggregate, top down, basis and as such it does not fund any specific activity, other than to maintain base service performance. Observations of past company activity levels does not mean that botex is implicitly funding all companies to deliver those some activity levels. Ofwat should remove PCDs from application to any areas of botex.
- **Ofwat should reduce the scope of PCDs for PR24:** Ofwat's methodology is not yet fully defined or tested, and has not been appropriately scrutinised through the normal approach to consulting on new methodology. As such, Ofwat is unlikely to sufficiently understand the financial risk from its PCD methodology, or how it has been applied to individual cost areas. Given the significant coverage that PCDs have on the PR24 enhancement allowances, it is essential that Ofwat takes a precautionary approach to its implementation and it should limit the scope of its application, until it has been fully tested and proven to be effective (and not interfering with other incentive mechanisms).
- **There have been significant changes in PCD methodology, without consultation with companies and limited time afforded to companies to respond at draft determinations:** We believe that Ofwat should take the opportunity to engage further with industry to ensure PCDs are designed appropriately prior to inclusion in final determinations.

7.2 UUW's PR24 proposal

In our October submission we provided a reasonably well developed submission on PCDs, based on sound principles. This built on Ofwat's developing process for this new area of regulation, as set out in Ofwat's PR24 methodology and follow up workshop on 25 May 2023. We developed a methodology that we considered could be applied across the industry.

Our proposal offered customer protection for significant enhancement allowances, tracked meaningful/appropriate and measurable deliverables every year of 2025-30. UUW's PCD model provided a mechanistic means of calculating the appropriate penalty due to be returned to customers for late or undelivered

outputs and outcomes. It adjusted PCD payment rates for cost sharing and for any anticipated impact on PCLs (and hence ODIs), to negate any risk of double counting, and hence to ensure that customers are compensated appropriately.

Our proposed PCDs were predicated on measuring delivery against outcome-style metrics, that were aimed at maintaining the "flexibility in delivery" that is one of the principle efficiency benefits of the outcomes regime. In our approach we proposed metrics that could be achieved in many different ways, but still required investment. This is in contrast to "outcomes measures" that only measured performance. For example, for overflows investment:

- The outcome PC metric is "actual spills" – this would not be appropriate for a PCD, because it may be possible to achieve a reduction in spills without delivering funded investment (e.g. if the weather that year is particularly favourable).
- We noted that using "storage volumes" (or equivalent) would be inappropriate, because achievement of spill reductions may be achievable with a mix of storage, increasing pass forward flows, and/or some operational optimisations – this all may lead to a lower cost scheme, but a lower level of storage. Using storage volumes as the PCD metric would undermine the incentives for companies to identify better optimised solutions.
- We suggested "modelled spill reduction" as that is the only way we could see to incentivise companies to deliver investment in overflows in an efficient and innovative manner, and (largely) free from any unhelpful disincentives.

To counter some of the observed asymmetric risk from PCDs, we also proposed that companies should be able to trade early delivery off against late delivery, both within and between PCDs. Customers would still be protected even if the totality of value arising from PCDs was capped at zero.

This netting off / aggregation across PCDs is similar to what Ofwat's final methodology proposal for the ODI aggregated sharing mechanism. ODI risk will be managed primarily at an aggregate Water or Wastewater level with the sharing mechanism acting as a form of protective backstop to reduce (but not remove) the financial impacts of very high or very low performance. Given that Ofwat proposes the risk of PCDs is purely downside and it has the theoretical potential to be a very significant downside, we consider that our proposed PCD trade-off is in keeping with Ofwat's proposals elsewhere in the PR24 final methodology and should be included in the determination.

This overall approach to PCDs offers appropriate customer protection against the benefit that companies may gain from either late delivery or non-delivery of funded investment that is reflected at the price control.

We set out our approach in October 2023 business plan document UUW08 section 8.8.9 and provided a populated PCD model in document UUW32. Further information on each of the individual PCDs was also provided in the associated enhancement case documents, referenced in UUW08 Table 8-8.

7.3 UUW's understanding of the position in the draft determination

In its Draft Determination, Ofwat included in its publications significant updates to its Final Methodology on PCDs. This included significant changes in scope, design and incentivisation compared to Ofwat's published final methodology, the subsequent Information Notice IN 23/05 and the related workshop on PCDs.

Ofwat's engagement with the industry on design of PCDs was very limited. We did not receive feedback on our proposed approach, with the exception of further data requests on storm overflows and what is now data table ADD20. There were extensive submissions on PCDs from across the industry, which is understandable. This is new approach to regulation with substantial potential consequences including a significant downside financial risk to companies and suboptimal outcomes for customers and the environment if implemented poorly, or without full consideration of the risks and any unintended consequences. We regret, then, that we are only able to scrutinise Ofwat's detailed PCD proposals, for the first time, at this late stage in the process. Nevertheless, we consider that it is important to provide feedback on the proposals that have now been presented.

Ofwat's amended approach to price control deliverables separates it into a two part assessment which can broadly be generalised as:

- An end-AMP delivery test (including a test for delivery early in AMP9) – this will determine the proportion of allowed costs to return back to customers.
- On a minority of PCDs, an asymmetric timing adjustment, which rewards/penalises companies for early/late delivery.

In principle, we support this structure for a PCD mechanism – it reflects an approach is not dissimilar to the structure that we promoted in our business plan.

In implementing this high level approach, Ofwat appears to have taken the following positions (albeit we have had to surmise some of the following based on our interpretation of some of the DD publications):

- Ofwat has asserted that the PCD mechanism should return the "full cost" to customers in the event of non-delivery. Ofwat also states that it will reconcile non-delivery PCDs prior to assessing cost sharing. We assume that this implies that Ofwat will adjust totex baseline allowances for any PCD units considered undelivered, otherwise totex sharing incentives would also apply, thus causing a double count in value passed back to customers.
- In its design of timing incentives Ofwat applies asymmetric incentive rates, with the reward rate being 25% of the penalty rate (which equals the WACC.) The early delivery "reward" rate also applies to on-time delivery.
- In assessing the RoRE impact of PCDs Ofwat asserts that the resulting risk is symmetric. For delivery, Ofwat assumes that non-delivery only occurs as a result of zero investment in attempting to deliver – therefore any non-delivery penalty would be balanced by an equivalent cost saving. For the timing incentive, Ofwat assumes that companies are most likely to deliver on-time or early. It is worth noting that we have been unable to replicate Ofwat's time value RoRE range from its assumptions and it's stated PC formulae. The equivalent results we observe are downward skewed (see UUWR_93 for our commentary on the RoRE table ADD18).
- Whilst most PCDs apply to enhancement investment, Ofwat has, in some cases, applied PCDs to botex expenditure

In addition to these high level methodological positions taken by Ofwat in its PCD proposals, Ofwat has also taken a number of assumptions when applying PCDs to individual areas of investment.

- In some cases the metric and approach to assessing delivery is somewhat restrictive, and hence does not follow our expectation that PCDs would be measured against outcome style metrics that support flexibility in delivery (this being the key principle that supports Ofwat's totex and outcomes regime.)

  For example, in the assessment of overflows, Ofwat has proposed using "equivalent storage" as the basis for its overflows PCD, rather than our proposal of "modelled spill reduction". It has also restricted the ability of companies to claim delivery in the event of certain substitutions (e.g. a "grey" or "hybrid" solution cannot be used to claim delivery when the original proposed solution was "green", and these cannot be substituted or swapped between different locations).
- In the IED PCD, we can see that Ofwat's PCD proposes a 2024/25 delivery date. Whilst this is in line with the current statutory requirements, it is not aligned to the customer funded investment that is reflected in the determination. This would seem to deviate from the principle that PCDs are intended to compensate customers for non-delivery of funded investment.
- Ofwat applies a 1% threshold for application of PCDs. Nevertheless, Ofwat has included a PCD for UUW for Coastal and Riverine Erosion. The stated value in the PCD model falls far short of the necessary 1% threshold with Ofwat noting *"The scheme allowance does not meet the materiality threshold for PCD. However, given that there is no regulatory oversight other than Ofwat for this scheme and the level of allowance is significant, we propose to apply a PCD for this scheme."*[19].

[19] "PR24 draft determinations: Price control deliverables appendix", section 14.2.1

- Ofwat has not provided full and complete definitions for all PCD delivery metrics - for example, the measurement within the A-WINEP PCD will, in practical terms in AMP8, likely be problematic to evidence and assure given the lack of definition for what Ofwat regards as a "non storage solution". This could lead to a situation where Ofwat decides *ex post* that one of our solutions does not meet its criteria and as a result we would incur a PCD penalty, which may simply result from an incomplete measurement definition.
- There is considerable ambiguity on reporting and calculation of the PCD suite. Whilst Ofwat has published PCD models[20] these do not include any calculation as to the calculation of non-delivery or time incentive payments. These are included in the PCD appendix[21] but are disjointed from the PCD models and totex allowance models so it is unclear to us how the payments will actually be calculated.
- There is also ambiguity about the application of the PCD approach and reporting requirements. Ofwat's DD PCD publications state that it "will set out data requirements in due course." In response to a question post-DD publication, as to whether PCD payments would be made as an RCV or revenue adjustment, Ofwat stated that it is "still considering how the PCD payments will be reconciled at the end of the period and intend to consult on this at an appropriate point in the future." Such key factors, for such a fundamental regulatory shift for AMP8, should have been set out in Ofwat's PR24 Final Methodology so that companies can assess the risk which PCDs pose and how acceptable Ofwat's full PCD proposal is. Given that is has not done so already, the appropriate time for Ofwat to set out its proposals is now. Revealing this at Final Determination is too late for companies to assess their suitability, quite aside from having an opportunity to try and contribute towards a workable mechanism.

Ofwat has published 18 PCD models for UUW. These are in the separate PCD models published here: https://www.ofwat.gov.uk/regulated-companies/price-review/2024-price-review/price-control-deliverables/. Some of these PCDs are further split by multiple specified deliverables, in effect creating PCDs within PCDs. The table below sets out a summary of the PCDs and where in our draft determination representation there is further commentary on the approach to specific PCDs.

Table 6: PCD list by base/enhancement area

Base/Enhancement area	Deliverable	PCD ref	UUWR ref
Mains renewals	Length of mains (km): Base wholesale water model funded renewals Enhancement leakage and water quality renewals	PCDB1	UUWR_44
Wastewater enhancement – Net Zero	No. of sites	PCDWW34	UUWR_30
Industrial Emissions Directive	Number of sites achieving IED compliance	PCDWW30	UUWR_13
Water WINEP Biodiversity and Conservation	Hectares (ha) at 12 named schemes	PCDW1	UUWR_32
Metering	New installations Meter upgrades Meter Replacements	PCDW12	UUWR_36
Security – SEMD	Delivery of 1 new DWI legal instrument (Physical security)	PCDW17	UUWR_28
PR19 WINEP Carryover	Specific named WINEP actions	PCDWW35	UUWR_106
Treatment for tightening of sanitary parameters	Total number of schemes delivered to meet compliance Population equivalent served by the number of schemes delivered to meet compliance	PCDWW12	UUWR_11
Lead	Lead communication pipes replaced/relined	PCDW15	UUWR_29

[20] https://www.ofwat.gov.uk/regulated-companies/price-review/2024-price-review/price-control-deliverables/.

[21] PR24-draft-determinations-Price-control-deliverables-appendix.pdf (ofwat.gov.uk)

Base/Enhancement area	Deliverable	PCD ref	UUWR ref
Water Quality (RWD and TOC)	Delivery of 7 new named DWI legal instruments: 2-MIB, Geosmin, taste, odour Lead strategy PFAS strategy	PCDW13 PCDW14	UUWR_35
Reservoir safety	Number of reservoirs with interventions completed	PCDW16c	UUWR_14
WINEP - Storm Overflows - PFF	Number of schemes Flow to full treatment increase (litres/sec)	PCDWW5c	UUWR_10
Storm Overflows	Equivalent storage (m3)	PCDWW5	UUWR_10
PR24 Phosphorus removal	Population equivalent served	PCDWW10	UUWR_33
PR24 Growth at STWs	Compliance at named treatment works of the following: Expected Change in PE Expected change in DWF permit Added Process Capacity in PE	PCDWW27	UUWR_42
WW enhancement - Resilience	Spend £m on Coastal and Riverine Erosion Completion of named schemes	PCDWW32b	Section 8.19
A-WINEP	Equivalent storage avoided	PCDWW23	UUWR_41
Investigations	Number of satisfactorily completed WINEP / NEP investigations - desk-based / simple Number of satisfactorily completed WINEP / NEP investigations - complex	PCDWW18	UUWR_38

Ofwat has brought forward the APR timeline by a month to 15 June. Whilst it justifies this on the basis that there are far less PCs for companies to report on annually, it does not appear to have considered the burden of the annual PCD reporting, forecasting and assurance requirements upon companies. PCs plus PCDs will likely amount to the same, if not additional, requirements on companies every year in AMP8 compared to AMP7 Outcomes requirements.

7.4 Issues and implications arising from the draft determination

Downside RoRE skew

Ofwat proposes a PCD regime that has a number of significant methodological issues, which creates a significant downside financial skew to the PR24 package, unrecognised by Ofwat in its RoRE assessment. This downside skew arises from:

- Restrictive and inflexible PCD metrics and substitution rules, which increase the risk that Ofwat will perceive non-delivery (even if statutory requirements have been met) due to the company delivering a substitute solution that Ofwat judges to be ineligible for the PCD, or due to costs having been substantively incurred but delivery had been significantly delayed outside of the company's control.
- Time incentives that are downside skewed - with very little marginal incentive for early delivery - and sparsely applied. This is contrary to Ofwat's assessment of the balance of risk (which it viewed to be symmetric) but we have been unable to replicative its results.
- Time incentives which are often measured in advance of PCD delivery and totex profiles (and hence in advance of what customers have paid for), which is contrary to Ofwat's stated intent for PCDs. This means that companies would have to choose between spending more (or spending earlier) in order to avoid PCD penalties
- Double jeopardy of ODI penalties with late delivery PCD penalties which is significantly underestimated by Ofwat.

Ofwat has countered this downside skew by assuming that companies are most likely to deliver programmes of work (consistent with Ofwat's rather inflexible view of delivery), and most likely to deliver them on time. However, if Ofwat believed that such assumptions were true, then that would undermine the need for PCDs in the first place – if companies already generally deliver, and on time (or early) then it is difficult to see what benefit the PCD mechanisms will have for customers. However, this will create additional regulatory complexity and an additional reporting burden, and additional downside risk for companies.

It cannot be emphasised enough that the risk of insufficiently scrutinised, and poorly implemented new regulatory mechanisms in this area could lead to significant financial downside. This is unrecognised by Ofwat in its RoRE assessment[22]. Ofwat has now included in the revised RoRE risk table ADD18 and Ofwat's RoRE risk assessment of the draft determination. However, we consider that Ofwat's assertion that PCD risk is symmetric substantially understates the downside skew in actual PCD risk. This may be because Ofwat does not recognise the poor design and scope of its proposed PCDs and the distortionary impact including them – in their current state – will have on the wider PR24 package.

Ofwat includes only its view of the impact of time incentives in its PCD RoRE risk assessment. It excludes non-delivery financial risk entirely. It assigns P10 and P90 expectations of performance relating to timeliness of delivery which we consider to be inappropriate and unrealistically optimistic assumptions to result in a symmetrical P10 P90 risk range[23]. Regardless of Ofwat's assumptions, we have been unable to replicate Ofwat's symmetric results from the PCD formulae that Ofwat provided in the Draft Determinations. Ofwat has not considered the most appropriate historic basis on which to assess delivery risk of extensive totex programmes. It should use a more suitable index, such as a construction index, rather than scenarios "based on the rate of delivery of projects in WINEP for 2020-25"[24]. A wider UK construction index is more suitable to assess the delivery risk facing companies with such significant totex programmes, rather than the narrower historical data set that Ofwat has chosen.

Ofwat's time incentives – where they do exist – are downside skewed. They apply to only five of UUW's 18 PCDs but are 4:1 financially skewed to penalty for four PCDs and penalty-only (late delivery) for one PCD.

Fourteen of UUW's PCDs therefore have no capacity to outperform in the case of early delivery. This removes any financial incentives to deliver early to improve outcomes for customers and the environment; but perhaps more importantly, it removes a key compensating mechanism within the management of a portfolio of projects whereby, inevitably, some will deliver late and companies will try their best to deliver others early.

We recognise that Ofwat has also provided a positive incentive value for "on-time" delivery. However, this appears to us to be providing Ofwat with a false sense that it has adequately incentivised early delivery. Actually, the marginal incentives for early delivery (beyond "on-time" delivery) are negligible. We are therefore proposing that Ofwat retains its existing incentive rate for on-time delivery, but increases the rate for early delivery to equal the rate for late delivery.

Ofwat asked companies to comment on, alternatively, also including RCV run off rates in applying PCD under/outperformance payments. This would be wholly inappropriate, as RCV run off is 'value neutral' for companies, as it is also deducted from the RCV – i.e. companies receive no net benefit from RCV run off, other than ensuring adequate cashflow to maintain financeability. If Ofwat set PCD penalties that included an additional run-off component then this would inappropriately reverse a value neutral company allowance in price limits by applying a value negative adjustment (unless Ofwat also, in parallel, adding that run off value back to the RCV). We therefore cannot support this proposal.

Ofwat further sought company feedback on setting an output band (say +/-20%) within which neither underperformance or outperformance payments would be applied. Given the likely natural variation in delivery timing, which is most often outside of management control, this may be a pragmatic option to consider. However, absent further details, it is difficult to fully assess the pros and cons of such an approach. We have more broadly

[22] 'PR24 draft determinations: Aligning risk and return appendix', pages 11-12

[23] 'PR24 draft determinations: Aligning risk and return appendix', page 12, Figure 4

[24] 'PR24 draft determinations: Aligning risk and return appendix', page 12

suggested that further engagement is needed on PCDs between Ofwat and water companies, prior to finalising Final Determinations. This option may be some something to consider further at such a workshop.

Role of PCDs in the regulatory framework

Ofwat should carefully consider what the role of PCDs is intended to be within the regulatory framework. We consider that there are limited circumstances in which PCDs should apply. Since we submitted our own proposals we have worked with an independent third party to consider what the role of PCDs should be and how they can best be employed in the regulatory framework, to minimise distortionary effects on the existing framework and maximise their benefits of ensuring that companies delivery their "funded" investments on time.

We consider that there are limited circumstances where PCDs should be applied. We set out a decision making framework for assessing how and when PCDs should be applied to each investment scheme. We also set out specific recommendations for how Ofwat can apply PCDs at PR24, while minimising distortions to incentives and avoiding exposing companies to unreasonable risks. For further details see *UUWR_45 – Economic Insight – PCD*.

Distortionary effect on Price Control and existing mechanisms

In our business plan, we proposed that, for those enhancements which have an impact on performance which is measured by PCs, that ODI penalty payments should also be taken into account in the calculation of the non-delivery payment.

Given that Ofwat's common PC suite is intended to cover the generality of companies' performance and the vast majority of Ofwat's proposed PCDs relate to general company also, we would expect there to be a great deal of overlap between most PCDs with ODIs. The overlap between ODIs and Ofwat's proposed PCDs risks distorting companies' existing investment incentives, with companies forced to focus scarce revenues on areas of investment most susceptible to "double penalties".

We do not agree with Ofwat's assessment in 'PR24 draft determinations: Expenditure allowances' page 168-170 tables 39 and 40 that there is minimal overlap and therefore ODI payments should not be netted off from any non-delivery PCD payments[25]. Expenditure on mains replacement, for instance, addresses a wide range of outcomes associated with ODIs, including burst mains, leakage, water supply interruptions, as well as measures related to customer experience of water quality (e.g. CRI and customer contacts) and the broader customer measure of experience (C-MeX). This high degree of overlap reinforces the risk of mis-calibrated incentives, and suggests there is limited justification for additional mechanisms due to gaps in the existing framework.

What overlap Ofwat does acknowledge - such as the 24.6% ODI overlap on PCDW10 leakage PCD - it then ignores in the calculation of the non-delivery payment. This will result in over-inflated payments back to customers.

The overlap between ODIs and the mains renewal and WINEP carryover PCDs appear to have been discounted by Ofwat in its assessment in tables 39 and 40 of 'PR24 draft determinations: Expenditure allowances' as these two PCDs are missing from Ofwat's assessment. As stated above, expenditure on mains has a wide range of performance impacts: if not delivered, the penalty will be captured by both the ODIs and also Ofwat's PCD.

Ofwat has avoided a significant double count from expenditure on phosphorus improvements by removing the financial ODI from the RWQ PC. However, by only having a PCD on this expenditure area, which has minimal early delivery financial incentive - Ofwat has essentially removed the effective potential for companies to further improve the environment by delivering their phosphorus requirements in advance of regulatory dates, or to deliver additional phosphorus removal, where possible. This would seem to be a less favourable environmental outcome and not one that was signalled in Ofwat's PR24 final methodology. It seems odd, in this case, that Ofwat would restrict use of the more established ODI mechanism (with symmetric incentives) in favour of an untested, and not fully developed PCD mechanism (with asymmetric incentives).

Ofwat is also applying PCDs to base costs, which we do not believe was the original intention for PCDs. PCDs should be implemented when they are needed to protect customers (in the event of non-delivery) by returning specific additional funding provided by customers for the delivery of enhancements. In contrast, customers do not fund any specific activity as part of base costs – the approach to setting base cost allowances reflects a

[25] 'PR24 draft determinations: Expenditure allowances' page 168-170

"block" of base cost allowances that enables companies to deliver all ongoing base services. Inherent to Ofwat's approach is that companies have been enabled and encouraged to choose how to prioritise investment to deliver those services. However, by assigning base service costs and implied activities (such as mains replacement) to PCDs, Ofwat is undermining that flexibility, and hence undermining one of the key benefits of the totex and outcomes regime.

The benefits of the existing regimes have been recognised by Ofwat previously. Ofwat used them as a justification for choosing a 'high' frontier shift at PR19[26]. In doing so, Ofwat cited evidence that the move to a totex and outcomes regime resulted in a 0.5% efficiency improvement per year over PR14. By implementing Ofwat's proposed PCD regime, Ofwat will limit the future availability of this potential source of efficiency and innovation.

Inflexible PCD designs lead to lost totex efficiencies and significant downside risk

In our PR24 business plan PCD proposals we designed PCDs which retained this flexibility, as required by Ofwat's PR24 final methodology. We urge Ofwat to reconsider its PCD designs to ensure that this flexibility is reinstated to enable delivery of the efficiencies which the totex and outcomes regime can deliver.

The inflexible designs of Ofwat's proposed PCDs reduces innovation and companies' totex delivery choices. PCDs should incentivise companies to deliver the improvements to outcomes from enhancements whilst maintaining company flexibility in how to meet that outcome. Strict output-based PCDs deprive companies of the flexibility to maximise the benefits of the totex and outcomes regime.

Flexibility in delivery was at the heart of Ofwat's stated methodology for PCDs. However, Ofwat's draft determination proposals have now removed that flexibility in many instances, imposing greater restrictions on companies as to where, when and how they deliver their requirements, setting in stone the outputs of enhancement and base allowances more than five years in advance of final AMP8 delivery dates. This leads very little room for the recent gains of innovation. This is also at odds with Ofwat's proposals to double the size of the innovation fund for AMP8. Given the restrictions that PCDs will impose on how companies spend their allowances, Ofwat has increased the fund but significantly reduced the potential for where it can be applied in the price control.

Examples of the inflexibility of Ofwat's PCD designs include:

(1) Mains renewals and Metering - PCD on base totex allowances – This goes against the inherent flexibility of the totex regime and Ofwat's PR24 final methodology for PCDs. Companies should have the flexibility to choose solutions to best meet the outcomes; restricting this impedes innovation and increases financial downside risk. For further discussion of this issue see UUWR_44.

(2) Storm overflows - only the time incentive for early/late delivery is assessed at an aggregate level. The non-delivery PCD is assessed scheme by scheme, with individual m3 equivalent storage and unit costs for each of the 417 schemes. The PCD does not allow substitution between our 11 'green only' and 417 grey/grey-hybrid solutions, despite the fact that the enhancement that customers are paying for is spill reduction, which would still be delivered following a substitution. As well as removing flexibility in delivery, this approach will also place a very significant annual reporting and assurance burden on companies and on Ofwat in its annual assessment of company progression with the enhancement programmes. For further discussion of this issue see UUWR_10.

(3) Lead - No substitution permitted between the three output types and therefore no flexibility for timeliness of delivery (no time incentive). Replacement of lead supply pipes can be disruptive for homeowners and social housing tenants. Their appetite for replacement can vary over time – for example, due to general economic conditions, budgets and/or the timing of major works to the kitchen or driveway. In order to maximise take-up of lead pipe replacement in line with customer preferences, we suggest that the PCD should (at least) have a tolerance of +/-20% in each year, subject

[26] Specifically, Ofwat set a frontier shift target based on the 'upper end' of the frontier shift range calculated by Ofwat's consultants) 'PR19 final determinations: Securing cost efficiency technical appendix', Ofwat (Dec 2019), page 177

to a hard target of 30,000 replacements by 2030, in line with the DWI notice. For further discussion of this issue see UUWR_29.

(4) Metering - No substitution is permitted between the three output types. For further discussion of this issue see UUWR_36.

PCD delivery in advance of totex allowance

PCD non-delivery and time incentive profiles should be related to what customers have paid – i.e. they should align with the totex allowance profiles assumed in the determination. Depending on the design and specification of the PCD deliverable, it is acceptable that PCD delivery dates may not be perfectly aligned to totex allowances – e.g. many capital works will take multiple years to complete, so delivery of assets will usually lag behind the profile of costs. An example of this is the storm overflows PCD which we proposed – there is an expectation that totex projects will not deliver the output/outcome in the same year that the cost allowance is made – some projects take more than one year to deliver. However, it should never be the case that PCD output/outcome delivery or time incentives are in advance of the totex allowance. This creates the perverse situation whereby a company would be expected to pay back an allowance (upon non-delivery) that it has yet to receive through customer bills – i.e. it would result in testing delivery before customers had paid for it. This is the situation that we see in Ofwat's IED PCD (see UUWR_13 for further discussion of Ofwat's IED PCD). Ofwat has also imposed time incentives in advance of delivery incentives for the Storm overflow programme and PR24 WINEP P PCDs. The delivery profile and time incentive profile of these two PCDs can be seen in ***Table 7*** below.

Table 7: Showing PCD time incentives are in advance of the profile for non-delivery for Storm overflows PCD and PR24 WINEP P PCD

			2025-26	2026-27	2027-28	2028-29	2029-30
Storm Overflows PCDWW5	Equivalent storage	PCD outputs (cumulative)	34,306	102,919	240,145	445,984	686,129
		PCD outputs (% cuml.)	2%	9%	25%	55%	100%
PR24 draft determinations: Price control deliverables appendix	Table 2: Proposed delivery profile to set time incentives for storm overflow programme	Cumulative % of equivalent storage delivered	5%	15%	35%	65%	100%
PR24 Phosphorus removal PCDWW10	Population equivalent served	PCD outputs (cumulative)	0.00	65.86	461.05	856.24	1317.30
		PCD outputs (% cuml.)	-	2%	20%	51%	100%
PR24 draft determinations: Price control deliverables appendix	Table 3: Proposed delivery profile to set time incentives for PR24 WINEP / NEP phosphorus removal	Cumulative % of population equivalent (PE) delivered	-	5%	35%	65%	100%

Source: UUW analysis

Inconsistent and unsignalled framework:

Ofwat's draft determination PCD publications signal a break in Ofwat's regulation for this area of totex. Areas where we now see a discontinuity and inconsistency of methodology in the DD PCDs include:

- Ofwat has intentionally applied PCDs to areas which are below the 1% threshold which it set in its PR24 Final Methodology. For example, UUW has a Coastal and Riverine Erosion PCD relating to £14.7m totex allowance, Yorkshire Water has a "Living with Water" PCD relating to £7.59m totex allowance, both far below the companies' relevant 1% Ww PCD thresholds. This is an over-reach of Ofwat's PCD regime, inefficient regulation, and UUW's PCD should be removed from the FD.

- Ofwat has applied a PCD to WINEP carryover allowance, i.e. allowances first made in PR19 when PCDs were not part of the regulatory regime. We do not agree with this retrospective application of new regulatory mechanisms to previous price control settlements. In addition, we disagree with the schemes which Ofwat includes in this PCD (again, a PCD falling under the 1% threshold). Once adjusted to include only the two appropriate schemes, the totex allowance which this PCD seeks to regulate amounts to £7.6m (Hazel Grove and St Helens WwTWs). For Ofwat to apply the intense regulatory requirements of PCDs to this value of totex is inappropriate. For further details, please see UUWR_106.
- Ofwat has included two PCDs[27] which relate to cost adjustment claims, rather than enhancement allowances. This again was not signalled in its PR24 final methodology.
- Ofwat's DD position appears to still contain lots of incomplete areas and unresolved issues. Significant areas of the PCD framework remain unpublished or unclear, even at this late stage of PR24. These include areas relating to reporting, data requirements, and also where PCD payments will be applied in PR29 (i.e. RCV/revenue). In our October 2023 Business plan we made a clear case for PCD penalties to be applied to the RCV, however Ofwat appears still not to have considered this key point.

Limited industry engagement or time to respond

Given the constrained time allowed by Ofwat to respond to the draft determination publications and the extent of the new methodologies included in the DD documentation, we have endeavoured to respond to Ofwat's revised PCD methodology in this DD response.

We submitted a robust and well considered proposal in our PR24 business plan submission for how Ofwat could implement a successful PCD regime into the existing PCD regime. This followed on from Ofwat's PCD workshop held on 25 May 2023 at which it asked for companies to submit their proposals for PCDs. We assumed that Ofwat would continue to engage with the industry to develop these proposals but there has been no further engagement or queries in the intervening 10 months since October 2023 PR24 business plan submission, with the exception of further data requests on storm overflows (what is now ADD20).

Given the brevity of the DD response period, the reduced scope for engagement with Ofwat post PR24 business plan submission and the quantity of documentation Ofwat has now published on PCDs, it is a significant risk that errors may be made in this significant new area of regulation. This could lead to significant financial risk given that PCDs cover a significant proportion of what is the largest enhancement package in the history of the industry It could also lead to incentives that do not yield the best outcomes for customers and the environment.

We therefore consider that PCDs should have a far more limited scope and roll out for PR24. This is similar to how Ofwat rolled out the financial incentives of the new Outcomes regime at PR14 final determinations, compared to its approach at PR24. This will ensure that PCDs can be adjusted from the PR24 roll-out and will therefore ensure that they are fit for purpose for PR29 and beyond.

7.5 What Ofwat can do in the final determination to address these issues

In the preceding sections we have set out many issues that we consider Ofwat should address in order to make its PCD framework workable, coherent, fair, incentivising of the right behaviours and more supportive of the best outcomes for customers and the environment.

- Ofwat should introduce a more limited scope of better designed and specified PCDs at PR24, seeking to ramp up their significance and remit from PR29 onwards.
- We strongly encourage Ofwat to engage constructively with the sector in the remaining time available to ensure that the new PCD regime is enacted in the most effective manner possible. Without such engagement and redesign, Ofwat risks significant downside financial risks for the sector.
- Ofwat should publish all reporting requirements and PCD calculation models including those related to how payments will be applied to PR29 in advance of this workshop. This will enable Ofwat and the industry to have

[27] Detailed in Ofwat's 'PR24 draft determinations: Price control deliverables appendix', Water softening PCD for SES Water, Network reinforcement for Thames Water sections 3.2 and 3.3 respectively

well-informed engagement. Publishing such requirements at or after the FD would be unacceptable. It would mean that companies are unable to quantify the financial risk attached to a significant area of the PR24 determinations.

- Ofwat should publish more detailed specification of its PCD delivery metrics - for example, in the measurement of the A-WINEP PCD there is a lack of definition for what Ofwat regards as a "non storage solution". This could lead to a situation where Ofwat *ex post* decides that one of our solutions does not meet their criteria and hence result in an unpredictable PCD penalty.
- Ofwat should publish the detailed calculation of its RoRE ranges, as we have been unable to replicate Ofwat's symmetric time value risk, based on the formulae it has provided.
- Ofwat has stated that it will reconcile non-delivery PCDs prior to assessing cost sharing. We assume that this implies that Ofwat will adjust totex baseline allowances for any PCD units considered undelivered, otherwise totex sharing incentives would also apply, thus causing a double count in value passed back to customers. Ofwat needs to be much clearer in its methodology about how that would work, to provide confidence that PCDs will avoid the risk of double jeopardy with cost incentives.
- Ofwat should apply a symmetric incentive rate for early delivery, whilst maintaining its proposed (lower) incentive rate for "on-time" delivery).
- Ofwat should rely on the efficacy of its outcomes framework and related ODIs, and not implement PCDs where an area has a suitable ODI. An ODIs should also be preferred over PCDs where there is significant overlap (e.g. the P removal PCD should be removed, and the related ODI be reinstated).
- Ofwat should not apply PCDs to areas that represent less than 1% of programme costs (e.g. the coastal and river erosion PCD should be removed).
- Ofwat should ensure that PCD delivery profiles reflect anticipated delivery from funded investment, and not for PCD delivery to be tested ahead of investment (e.g. on IEDs in Bioresources).
- PCDs should, in general, not be applied to investments from botex.
- PCD penalties should be applied to the RCV and not to revenues.

8. Enhancement and Price Control Deliverables – further detail

This section sets out further detail on UUW's representations on Ofwat's approach to AMP8 enhancement expenditure, including cost assessment and the proposed structure of its PCD package. We provide signposting information to help Ofwat locate our substantive representation documents, where applicable.

Where we do not provide a representation within a separate substantive document, we provide our representation within this section. This is the case for '*PR19 WINEP carryover*'; '*Green Recovery carryover*'; and '*Coastal and River Erosion*'.

We provide our response to Ofwat's enhancement modelling consultation in '*UUWR_21_Consultation questions*'.

Table 8 below summarises UUW's representations at DD. UUW's DD representations relates to scope included within our January business plan. All additional scope is set out within section 11.

Table 8: A summary of UUW's DD representations on enhancement cost assessment

Enhancement case	Ofwat view at DD	UUW DD representation	Supporting document reference
Overflows	1,563.1	2,535.5	UUWR_10_Storm overflows
Bioresources	188.0	319.9	UUWR_13_Bioresources
Lead	47.1	92.2	UUWR_29_Lead replacement
Carbon Net Zero	1.0	68.3	UUWR_30 Carbon net zero
Water WINEP	78.0	107.7	UUWR_32 Water WINEP
P Removal	329.3	629.2	UUWR_33_P removal
Vyrnwy	107.8	154.0	UUWR_34_Vyrnwy
Raw Water Quality Det	33.8	42.7	UUWR_35_Raw water quality deterioration
Smart Meter	213.5	246.3	UUWR_36_Smart metering
Investigations	44.9	70.7	UUWR_38_Investigations
AWINEP	229.1	229.5	UUWR_41_AWINEP
Ww Supply & Demand	93.8	109.3	UUWR_42_Wastewater supply and demand
Leakage	150.0	148.1	UUWR_44_Leakage
Resilience uplift	36.7	79.8	UUWR_39_Resilience uplift
Sanitary	399.7	1,033.3	UUWR_22 Salford
PR19 WINEP carryover	31.7	31.7	Section 8.17
Green Recovery carryover	52.0	52.0	Section 8.18
Coastal and river erosion	15.3	15.3	Section 8.19
Enhancing reservoir safety	57.4	114.8	UUWR_14_Reservoirs

Source: UUW DD

UUW is not providing representations across several different enhancement areas. For the avoidance of doubt this means that UUW is aligning its representation to Ofwat's DD position in these areas. The choice to align our representation to Ofwat's DD position does not mean that we accept that the conclusions Ofwat has drawn are correct, but it does mean that we are not making representations on them at this stage. In some cases this is due to prioritisation of issues within a very limited timescale for responses to the DD.

These enhancement cases are set out in Table 9, with a reference to Ofwat's relevant DD documentation.

Table 9 : Enhancement cases where UUW is not disputing Ofwat's Draft Determination position

Enhancement case	Ofwat view at DD	UUW DD representation	Supporting document reference
Bio screens	0.0	0.0	n/a
Bio WINEP - MBC	33.2	33.2	n/a
First time sewerage	5.8	5.8	n/a
Flow monitoring and EDM	137.7	137.7	n/a
HARP and DPC Management	25.4	25.4	n/a
Rainwater Management	0.0	0.0	n/a
SEMD and NIS-D	37.0	37.0	n/a
Water efficiency	21.0	20.5	n/a
Ww reservoirs	0.0	0.0	n/a
Final Effluent – Other*	83.0	108.1	n/a

Source: UUW DD

**Our Final Effluent -Other number is higher than Ofwat's DD view due to a reallocation of costs from other enhancement areas to UV Microbiological Treatment.*

8.1 Storm overflows

Cost assessment

Ofwat has assessed storm overflows expenditure using a simplistic econometric model, using storage volume as the sole explanatory cost driver. Its engagement with the industry during its model development was limited and primarily conducted through queries with tight turnaround times. Ofwat's approach implicitly assumes that the exogenous factors that cause efficient costs to vary by site and company are equally distributed across all companies. It also assumes that a hybrid scheme (i.e. one that provides both grey and green storage) can be delivered for the same cost as a grey-only scheme. It takes a simplistic approach to assessing flow to full treatment-related costs.

We also have strong concerns that Ofwat's conclusions about the underlying engineering rationale are being informed by companies' approaches to forecasting costs. This is the wrong way round. It would be more appropriate for Ofwat's conclusions about whether companies' forecast costs are appropriate to be informed by the underlying engineering rationale. Otherwise, there is a risk that Ofwat's approach to cost assessment could be characterised as 'data fitting'.

UUW considers that any reasonable engineering rationale would support the recognition of several different cost drivers that impact efficient storm overflow costs at a site level. These are: urbanicity, rurality, atypical environmental complexity, atypical planning complexity, atypical geological complexity and solution scope. We have found these to be asymmetrically distributed across the industry and in particular, heavily concentrated in UUW's region, meaning Ofwat's simple model is currently mistaking UUW's higher efficient costs as 'inefficiency'.

UUW has been able to develop a subset of these exogenous factors into variables suitable for use in an econometric model. We found that these variables perform well and generally improve model fit across a number of different measures. We also found the number of outliers identified by the 'Cook's Distance' test reduced, which is demonstrable evidence that Ofwat's simple model is not recognising underlying engineering rationale that would support a different efficient benchmark.

30 of UUW's schemes were considered as outliers. Ofwat sought additional information on the cost efficiency of these schemes within OFW-OBQ-UUW-178. This response was used by Ofwat to inform its deep dive assessments. None of our evidence was considered acceptable by Ofwat. We now understand that Ofwat was looking for evidence that the site-specific factors at each site were not captured by its benchmarking model. We

would question whether it was reasonable to expect companies to be able to answer this question without having had prior visibility of Ofwat's model. Ofwat does not appear to have considered this issue as a mitigating factor in its assessment.

Where Ofwat considers a company has not provided robust evidence to support atypically high scheme costs, it provides an allowance for that site based on the modelled allowance. However, we note that the modelled allowance is calculated following the removal of outlier schemes. This appears internally inconsistent and would tend to systematically understate delivery costs at these outlier schemes.

We have sought to substantially expand the evidence we provided in response to OFW-OBQ-UUW-178 within our DD response. We provide extensive bottom-up evidence of the exogenous cost drivers that are causing efficient costs at those schemes to increase. We relate these exogenous cost drivers to those identified as by engineering rationale to demonstrate that these factors are not reflected within Ofwat's simple model.

Our modelling improvements and deep dive evidence suggest an uplift of £1bn relative to Ofwat's DD is appropriate.

Price control deliverable

We consider that Ofwat's proposed PCD is inflexible and will compromise companies' abilities to innovate and find efficiencies where site-specific circumstances allow. We are concerned that this will prejudice Ofwat's ability to identify efficient costs of storage solutions delivered in AMP8 and therefore set appropriate benchmarks at future price reviews. This means customers will not benefit from efficiencies identified in AMP8 in future AMPs.

Ofwat can find our full representations in '*UUWR_10_Storm overflows*'.

8.2 Bioresources

Cost assessment

We welcome Ofwat's recognition that Industrial Emissions Direct (IED) expenditure will be required in AMP8. However, we have some concerns with Ofwat's proposed modelling approach. We set out some suggested improvements as part of '*UUWR_27_Enhancement_modelling_consulation*'. We also provide additional evidence to support Ofwat's deep dive assessments.

We have concerns regarding Ofwat's approach to assessing sludge storage costs. Its methodology fails to adequately account for the different levels of scope and storage density across company proposals, which results in an inappropriate allowance. We consider that Ofwat should carry over a deep dive assessment of our storage costs, based on the additional evidence provided at DD.

We also consider that Ofwat has made an incorrect decision to reject making allowances for several of our enhancement cases. Delivery of compliance with Environmental Permitting Regulations (EPR) is a WINEP action and a statutory obligation and we should have sufficient resources to deliver the required action. In addition, delivery of preparatory works for alternative outlets is essential to inform an efficient, planned and coordinated transition away from recycling to agriculture and provide a better outcome for customers – allowances should be made to avoid reducing flexibility, and closing off multiple strategic pathways on our LTDS.

Allocation between Wastewater Network Plus and Bioresources

We consider that Ofwat's approach to allocating its expenditure allowances between the Wastewater Network Plus and Bioresources price controls is producing an inappropriate outcome. In its opex-capex model[28], Ofwat uses company business plans to apportion its DD wastewater allowances between Wastewater Network Plus and Bioresources price controls. This was confirmed in Ofwat's response to OFW-IBQ-UUW-009.

Ofwat's approach results in an unduly high allocation of enhancement expenditure to Bioresources. This is because the proportionate cost challenge at DD to Bioresources' enhancement programme is larger than for

[28] PR24-DD-Opex-capex-split.xlsx

WwNP. We consider that Ofwat must allocate between these two price controls in a manner that is consistent with its decisions on the respective programme in each price control.

Price control deliverable

While we agree that a PCD for IED is required, the draft determination design is unworkable and overly punitive. The delivery profile must be aligned to the economic regulatory framework (what customers are paying for) rather than the environmental regulatory framework (compliance deadlines). The PCD should be constrained to the elements of works being specifically funded through PR24 IED allowances and it is incorrect to only conditionally allow enhancement upon demonstration of "best endeavours", otherwise the PCD is unworkable and inconsistent with Ofwat's design principles of a PCD.

Ofwat can find our full representations in *'UUWR_13_Bioresources'*.

8.3 Lead pipe replacement

Cost assessment

Ofwat uses a unit cost and log-log econometric model to assess communication pipe costs. It uses a simple unit cost model to assess internal and external supply pipe replacement costs. We do not dispute Ofwat's approach to cost assessment in this area.

Upon business plan submission, UUW observed an inconsistency between our approach to reporting supply pipe and other companies'. In line with Ofwat's response to OFW-IBQ-UUW-013, UUW has aligned its approach to reporting supply pipes to other companies. We expect Ofwat will update modelled allowances for internal and external supply pipes to reflect our revised cost driver data. We consider that this will demonstrate UUW's business plan costs are efficient.

Price control deliverable

We also propose a revision to the PCD approach to better align customer appetite and demand**.** Replacement of lead supply pipes can be disruptive for both homeowners and social housing tenants. Their appetite for replacement can vary over time. In order to maximise take-up of lead pipe replacement in line with customer preferences, we suggest the PCD should have a tolerance of +/-20% in each year, subject to a hard target of 30,000 replacements by 2030, in line with the DWI notice.

Ofwat can find our full representations in '*UUWR_29_Lead replacement*'.

8.4 Carbon Net Zero

Cost assessment

We consider that Ofwat has taken a punitive approach to Net Zero enhancement expenditure. We consider there are clear examples of Ofwat failing to apply its methodology consistently. For example, it does not provide allowances for the most efficient carbon reductions. Ofwat also appears to inconsistently apply its stated DD approach e.g. in the case of peatland and woodland restoration. Ofwat also makes inappropriate assumptions over what activity can legitimately be classed as base expenditure.

We provide additional evidence to support the reflection of an additional £67m of Net Zero enhancement within the FD.

Price control deliverable

We do not dispute Ofwat's approach to PCDs at DD, although we do have some minor clarification points.

Ofwat can find our full representations in '*UUWR_30_Carbon Net Zero Enhancements*'.

8.5 Water WINEP

Cost assessment

Ofwat has assessed Water WINEP through a range of different methods depending on the characteristics of the enhancement area. Most Water WINEP enhancement areas are assessed through either a shallow dive or a deep dive. We have provided additional evidence in response to Ofwat's challenges on optioneering and cost efficiency.

We also note that three additional AMP8 WINEP projects have been identified since our business plan submission in January 2024. Please see section 11.1 for more details.

Price control deliverable

Ofwat asked UUW to provide details of locations and descriptions of environmental improvements as part our DD submission. We provide further details on the hectarage of areas to be improved within our DD, which suggests a PCD rate of £1,089.57/hectare.

Ofwat can find our full representations in '*UUWR_32_Water WINEP*' and a business case for new additions in '*UUW_77_New WINEP*'.

8.6 Phosphorus removal

Cost assessment

Phosphorus removal costs have been assessed using scheme level cross-sectional econometric models. The econometric models chosen by Ofwat account for various explanatory variables including population equivalent and permit levels. Ofwat triangulates across four scheme level models with equal weighting applied to all four. Two models are estimated using forecast data, and two models are estimated using forecast data. The exception to this methodology is for our two gated schemes where we receive 6% of our requested totex, providing an allowance for development costs only.

We do not consider that Ofwat's approach is appropriately reflecting the costs that companies will incur in AMP8. In particular, we consider it places too much weight on the backward-looking models when these are objectively worse at predicting AMP8 costs. We consider it should place more weight on the forward-looking models.

We do not agree that the schemes Ofwat has currently selected for its gated process are suitable candidates. We are confident in the need and the scope, and therefore confident in our proposed delivery schedule and cost. We also consider that Ofwat's proposal creates significant risk in achieving the regulatory dates due to the tension it creates with our delivery model and creates an overly punitive financing position. We have provided further commentary on this in UUWR_11_Gated Mechanism.

UUW's cost data does not include business rates or bioresources costs

Ofwat requests that companies confirm their updated CWW19 tables do not include business rates or bioresources costs. We can confirm that table CWW19 submitted with our DD representations excludes business rates and bioresources costs.

Price control deliverable

We consider that Ofwat should align its PCD date to the regulatory date.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_33_Phosphorus removal*'.

8.7 Vyrnwy (improvements to taste, odour and colour)

Cost assessment

We provide additional evidence in response to Ofwat's challenges on our optioneering and cost efficiency. We share the full optioneering report that was shared with the DWI prior to the DWI issuing its enforcement notice. We would also note that following the issuance of the enforcement notice, it is not an option for UUW to deliver an alternative solution. We also provide evidence in our representation that there are significant and elevated risks associated with the AMP8 programme that were not present for earlier phases of the project. These increases reflect the increasingly urbanised locations and complexity of interactions with other infrastructure such as rail.

Price control deliverable

UUW does not consider that the associated PCD sufficiently protects customers from non-delivery. We provide an alternative PCD that ensures the DWI enforcement order is delivered in full.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_34_Vyrnwy re-lining in AMP8*'.

8.8 Raw water quality deterioration

Cost assessment

Ofwat has applied an excessive efficiency challenge to our Fishmoor WTW scheme. We provide additional evidence that supports why our chosen approach is best value for customers.

Price control deliverable

We disagree with Ofwat's choice to include company-wide lead and PFAS strategies in the PCD model for raw water quality deterioration (RWD) and taste, odour and colour (TOC) as this is not in line with the purpose of a PCD and is therefore wholly inappropriate. The company wide lead and PFAS strategies have respective Section 18 Undertakings, enabling the DWI to take enforcement action acting on behalf of the Secretary of State and Welsh Ministers. A condition of the Undertakings is to provide an annual report to DWI on progress made with carrying out the steps set out in the action plan. A PCD is unnecessary for application of these Legal Instruments which are the subject of a legally enforceable undertaking from the DWI.

Whilst we understand the decision of Ofwat to combine RWD and TOC enhancements for some companies where the proposed schemes under each driver are of a similar nature, this is not the case for UUW. The Vyrnwy LDTM re-lining in AMP8 is a large scheme with an estimated totex of over 3.5 times that of the RWD schemes at five named WTWs. In combining the totex, the non-delivery unit rate for each of the named WTW is £20.237m which is **4.6 times** the allowed capex to deliver the smallest scheme at Cowpe WTW and **2.5 times** the allowed capex to deliver the largest scheme at Fishmoor WTW. This is entirely disproportionate. We have proposed a separate PCD for our Vyrnwy which will address this issue.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_35_Raw water quality deterioration*'.

8.9 Smart metering

Cost assessment

We consider that limitations in Ofwat's cost model design, particularly the limited consideration of important operational context (such as meter fit locations), and an overreliance on a single group of associated companies has resulted in Ofwat unreasonably disallowing elements of our cost allowance submission. This is supported by the result of a recent competitive tender process, which demonstrates that our submitted cost position is efficient when compared to market rates.

Price control deliverable

We agree that a PCD should incentivise companies to deliver AMI programmes but we propose an alternative design in our representation to avoid stifling innovation, pushing up whole life costs, and compelling companies to artificially constrain meter fit locations. We propose an alternative metering PCD design to avoid driving perverse outcomes and penalising efficient delivery. The current PCD delivery definition requires 100% of all installed meters to achieve stretching communication standard despite recognition across the water and energy sector that a minimum of 20 percent of smart meters will typically operate at a lower, but still beneficial level of meter read communication.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_36_Smart metering*'.

8.10 Wastewater WINEP investigations

Cost assessment

We have observed a fundamental inconsistency in the data that uses Ofwat to benchmarking complex investigations. Other companies appear to have reflected their total number of overflows subject to investigation within their cost driver data. However, UUW has reflected the number of catchments subject to investigation within our cost driver data. This makes UUW's unit cost appear artificially high when compared to others because a catchment will contain many overflows. We have restated our data at DD to align with the approach other companies have taken. We ask that Ofwat uses our updated data at FD and consider this will demonstrate that our business plan costs are efficient.

We also note that for chemical investigations it is not appropriate for Ofwat to apply the level of efficiency they have in the DD due to the ceiling price on joint UKWIR projects where a set price is committed by each WaSC based on the UKWIR formula or a straight split.

Price control deliverable

We propose the PCD needs to align with WINEP. Currently, the PCD requires delivery of all outputs by FY28, however this is not in line with all AMP8 investigations.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_38_Investigations*'.

8.11 Advanced WINEP

Cost assessment

We welcome the support that Ofwat has given to our Advanced WINEP programme.

Price control deliverable

The design of the PCD removes the agility we need to work effectively with partners as it requires us to run hydraulic models for 'non storage solutions' which is time consuming, costly and resource intensive. This would constrain the areas and interventions that UUW could look to co-fund with partners which would reduce the learning from this innovative programme to inform future WINEP approaches. It would also severely impact the £50m co-funding target which is expected to be generated by the 'agile opportunity' schemes that senior stakeholders have committed to deliver in partnership with us.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_41_AWINEP*'.

8.12 Supply and Demand

Cost assessment

We note that Ofwat's ex ante cost assumption has been determined via a scheme-level model. We acknowledge this produces reasonable outcomes at a programme level, although it has limitations when viewed on a scheme-

by-scheme basis. We propose some improvements to Ofwat's cost assessment approach within '*UUWR_27_Enhancement modelling consultation*'.

Price control deliverable

We are concerned that the current PCD methodology impacts on flexibility and generates a high level of financial uncertainty for companies. The PCD proposes to track performance against this measure at scheme level, and across multiple deliverables rather than focusing on the primary outcome of increased PE treatment capacity. We have also observed that the end of AMP reconciliation will generate financial uncertainty and therefore risk that PCD allowances could be clawed back after projects have been delivered. The PCD should be simplified to help manage this uncertainty.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_42_Wastewater supply and demand*'.

8.13 Leakage

Cost assessment

UUW broadly supports Ofwat's approach to setting enhancement allowances for leakage and mains renewals.

Price control deliverable

We also broadly support Ofwat's use of a PCD for mains renewal enhancement expenditure. However, we do not support Ofwat's application of a PCD against modelled base expenditure allowances (see section 4.2).

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_44_Leakage*'.

8.14 Water trading

Cost assessment

We have updated our total expenditure request. This is the result of a number of changes in the underlying scheme optioneering and feasibility set out below:

- North West Transfer SRO funding request reduced from £77.42m to £37.11m
- Severn Thames Transfer SRO funding request increased from £1.25m to £2.5m
- Kielder SRO funding request reduced from £5.23m to £1.7m

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_40_Water trading*'.

8.15 Resilience uplift

Ofwat's proposed resilience uplift is significantly below what is likely to be required to address the risks from climate change and wider resilience challenges. We set out evidence to support a larger resilience uplift, totalling £79.8m.

Ofwat can find our full representations on its assessment of our business plan in '*UUWR_39_Resilience uplift*'.

8.16 Sanitary parameters

Cost assessment

We do not dispute Ofwat's approach to company-level cost benchmarking. However, we do consider that Ofwat's cost assumption for the Salford scheme is unrealistic and does not represent best value for customers. The Environment Agency has signalled that we can expect a Technically Achievable Limit (TAL) phosphorus permit at Salford in AMP9. As such, our AMP8 investment proposals will ensure we can meet the AMP8 sanitary permit and the AMP9 phosphorus permit at the lowest cost over the course of AMP8 and AMP9. We are clear that this

represents the best option for customers. We expect the benefits of a lower cost AMP9 solution would be passed back to customers at PR29.

Ofwat can find our full representation on this issue in *'UUWR_22_Salford'*.

8.17 PR19 WINEP carry over

This section contains our full representation on Ofwat's approach to PR19 WINEP carry over. We have not submitted an additional representation document.

Ofwat has introduced a WINEP carry over adjustment model for AMP7 WINEP expenditure. It states that this model "*calculates the allowance for companies to deliver incomplete PR19 WINEP actions that were within the PR19 uncertainty mechanism, that are still required to be completed. The model uses information from companies' PR19 WINEP Reconciliation models to derive this allowance*"[29].

UUW does not consider Ofwat's PR19 WINEP carryover approach is legitimate

Whilst we do not seek to directly challenge this element of Ofwat's DD, this should not be taken as acceptance of the change in approach to reconciling AMP7 that Ofwat set out in its PR19 FD and subsequent PR19 Reconciliation Rulebook.

We believe that Ofwat has fundamentally changed the design of the WINEP reconciliation mechanism, retrospectively overlaying its approach for AMP8 of setting enhancement allowances and PCDs to AMP7[30], when they are not part of the PR19 regulatory contract that companies accepted. The PR19 final determination documentation is clear that the WINEP adjustment mechanism is "*a mechanism to adjust our totex for schemes which are later confirmed as not required*"[31] – it is not a mechanism that seeks to reconcile (non) delivery. Therefore, by definition, if a scheme has been confirmed as required on the WINEP but not (yet) been delivered, the PR19 WINEP reconciliation mechanism should not be applied. It was for these reasons that our business plan did not include any expenditure for these nine schemes in AMP8 – because customers had already paid and we were not seeking to recover the costs twice. Reconciliation to account for (non) delivery are already being undertaken through both the outcomes and/or cost sharing mechanisms as well as EA enforcement/fines and so retrospectively changing the approach to PR19 WINEP reconciliation mechanism without consultation undermines regulatory stability and confidence.

The only reason that we are not seeking to challenge this approach is because there are more material areas of concern elsewhere within the draft determination that warrant Ofwat's attention ahead of the FD.

UUW rejects the inconsistent approach to making adjustments for the PR19 WINEP carry over schemes

This section provides representation on the merits of Ofwat's judgement when applying its proposed approach for the DD.

Ofwat has taken an inconsistent approach to making its adjustments for the schemes within the scope of its PR19 WINEP carryover model. There are three areas where it has clearly applied inconsistent assumptions when reconciling PR19 and making subsequent allowances for PR24:

- It removes the allowances from PR19 for nine schemes where the EA confirms that the regulatory delivery date is within AMP8 (2026-27). This ignores the fact that the WINEP and Price Review timeframes are different. Companies must be able to seek cost allowances in one period to deliver schemes that span multiple AMPs and so may ultimately complete in the following period – the important qualification being that the company only seeks allowances once, as we have done.

[29] PR24 DD PR19 WINEP carryover

[30] We also note that under Ofwat's own methodology, this expenditure would not actually pass the materiality threshold to qualify for a PCD.

[31] PR19-final-determinations-United-Utilities-Water-–-Cost-efficiency-final-determination-appendix.pdf (ofwat.gov.uk) page 10

- It states that it will "*also apply a late delivery PCD payment rate which will be applied from the start of the 2025-30 period (1 April 2025), as these actions should have been completed in PR19 and companies need to deliver them*". However, it has not aligned its reasoning to adjusting cost allowances to the delivery date required by the PCD; setting the delivery profile to 1 April 2025 rather than within 2026-27 as it states being the completion date (aligned to the EA regulatory date) making it internally inconsistent and will penalise companies for delivering in line with the agreed regulatory date.
- Finally, it has evenly profiled the AMP8 expenditure allowance over each year in AMP8, rather than aligning it to the PCD delivery profile, where all expenditure would be on the 1 April 2025, or the regulatory date, where all expenditure would be incurred in the first two years. This is important as it will place an implicit financing challenge on the company, which is not appropriate.

Whilst the approach to removing expenditure from AMP7 and then profiling the expenditure in AMP8 is likely an oversimplification rather than an expectation of delivery, it means that UUW will not have sufficient cost allowances or financing to enable it to deliver its statutory environmental requirements for these nine schemes in AMP7 or AMP8.

Ofwat's approach for the final determination

Whilst we understand Ofwat's desire to ensure that companies are only remunerated for schemes that it delivers, we do not agree that Ofwat's approach to the PR19 WINEP reconciliation for the draft determinations is legitimate - it has fundamentally changed the purpose of the reconciliation model that it set in the PR19 Reconciliation Rulebook. We are not challenging the outcome of this change, as we believe there are more fundamental areas of concern with the draft determination that Ofwat should be focussed on in the time allowed. However, we would encourage Ofwat to consider strongly the impact of retrospectively adjusting its framework in future and the associated risk of undermining the regulatory contract.

For the final determination, if Ofwat wishes to continue to make adjustments to AMP7 allowances for schemes that are due to deliver in AMP8 then it must correct for the inconsistencies across all areas of its determination in order for this to be acceptable. In order to achieve this, we propose that having removed the allowance from PR19 it must:

- Set a PCD delivery date aligned to the year in which the regulatory date is required (31 March 2027), where a late delivery PCD payment rate which will be applied from this date; and
- Profile the expenditure allowance entirely in the first two years of the AMP so that the company is fully funded to deliver the scheme by the agreed PCD delivery date and with no expenditure occurring after the agreed date.

8.18 Green Recovery

This section contains our full representation on Ofwat's approach to Green Recovery. We have not submitted an additional representation document.

UUW's Green Recovery Final Determination reflected three distinct activities (all values in 2017-18 CPIH prices):

- **Accelerating partnerships to deliver natural solutions.** £14.943 million to protect habitats, enhance raw water quality, improve drainage and reduce phosphorus;
- **AMP8 WINEP investments at Bury.** £44.060 million to provide additional wastewater storage to improve water quality in the Manchester Ship Canal; and
- **Tackling storm overflows.** £5.399 million to help tackle storm overflows and improve river water quality.

This representation focuses on 'AMP8 WINEP investments at Bury'. Our reconciliation commentary document ('*UUWR_106_PR19 reconciliation submission*') provides details on the other two schemes.

Ofwat has included a Green Recovery carryover model in its DD publication. This model reflects the full value of Bury (in 2022-23 CPIH prices) within UUW's DD. Ofwat states this is because we plan to deliver the scheme in AMP8. Ofwat does not include any financing costs.

Our Green Recovery Annual Progress Report[32] sets out that we will have achieved 40 percent of our milestones relating to the Bury scheme within AMP7. We note that the Green Recovery FD included a time value of money adjustment. As such, we consider that it would be appropriate for 40 percent of the Green Recovery allowance for Bury to be subject to a time value of money adjustment. However, given the small associated value and tight timescales, we have not reflected this in our DD.

Ofwat has profiled Green Recovery expenditure evenly between 2025-26 and 2026-27. However, as our Green Recovery Annual Progress Report states, we will complete this scheme in 2025-26. As such, we consider Ofwat should allocate the full Green Recovery carryover allowance to 2025-26 for FD.

Price control deliverable

We do not support Ofwat's proposed PCD for Green Recovery carryover. As we set out in section 8.17, this represents an ex-post change in regulatory methodology. As set out in section 7.4 it also does not take into account the non-delivery interaction with the cost sharing mechanism. In addition, the volumetric deliverable was conceived before the Defra storm overflow reduction plan existed, so measurement should be against the WINEP requirement at that point in time, not an AMP8 volumetric PCD. As such, we consider it is illegitimate for Ofwat to make this change.

8.19 Coastal and River Erosion

This section contains our full representation on Ofwat's approach to Coastal and River Erosion. We have not submitted an additional representation document.

We do not dispute Ofwat's approach to cost assessment for this enhancement case.

Price control deliverable

Whilst we welcome Ofwat's decision to grant UUW an allowance of £15.297 million (pre-frontier shift) to protect our wastewater asset base from accelerating erosion rates, we consider that a PCD is unnecessary and the PCD proposed is unduly restrictive. In line with Ofwat's guidance for PCDs, we did not propose a PCD for this measure as it fell significantly short of the 1% of totex materiality threshold. However, at draft determination, Ofwat states that *'given that there is no regulatory oversight other than Ofwat for this scheme and the level of allowance is significant, we propose to apply a PCD for this scheme'*[33]. We do not consider that there is no oversight from other regulators. Specifically, given the nature of this enhancement case, if erosion undermines the stability of our wastewater assets, there is a high risk of pollution and/or treatment works non-compliance. The Environment Agency therefore expect us to provide evidence that we have a comprehensive strategy for managing erosion risk and actively undertake investigation in the instance that a failure occurs and a pollution event results.

This enhancement funding will be used at sites where there is a real risk that without proactive intervention, erosion will undermine the asset and cause service disruption. The most likely outcome is a serious pollution event due to the lag time between a discharge from a damaged asset occurring and the time required to get overpumping and tankering arrangements in place. A serious pollution event would incur significant underperformance payments against both the serious pollution and total pollution PCs, as well as potentially affecting our Environmental Performance Assessment (EPA) rating. Therefore, whilst UUW does not believe it is possible to cancel or delay investment owing to the consequences of failing to do so, if the investment were to be cancelled or delayed, customers would be fully protected by the pollution and serious pollution PCs. We therefore do not consider that a PCD is necessary.

Furthermore, the PCD proposed is especially restrictive. The PCD has two deliverables, namely the delivery of six named schemes and £m spend on those schemes. The £m spend should be regulated through the totex cost sharing mechanism not a PCD. Additionally, we are concerned that such a restrictive PCD could limit our ability

[32] UUW (2024) *Green Recovery Annual Progress Report.* Available here: https://www.unitedutilities.com/globalassets/documents/pdf/green-recovery-2024

[33] https://www.ofwat.gov.uk/wp-content/uploads/2024/07/PR24-draft-determinations-Price-control-deliverables-appendix.pdf, page 191

adapt to changes in risk and thereby ensure investment is prioritised appropriately. As outlined in our business plan submission, whilst not appropriate for Crosby Rising Main given the scale of the scheme and partnership dependencies, we argued that for the remaining schemes, should it become apparent that another site is at a higher risk of erosion between October 2023 and project delivery, we should have the flexibility to substitute such a risk for an equivalent scheme in the programme.

Erosion patterns are highly variable, especially in fluvial environments, and therefore there is inherent uncertainty associated with predicting future rates of erosion. Indeed, a UK Climate Resilience Programme (UK-CRP)- funded project[34], concluded that whilst asset resilience is critically dependent on understanding future risks of changing erosion patterns, no predictive modelling framework yet exists for erosion hazards. Prime *et al.* (2018)[35] outline how this leaves decision-makers with difficult decisions to make regarding which assets to protect and at what time. This is especially so for the water industry, with much of UUW's asset base situated alongside, in or under watercourses, including over 1000 km of sewers within 10 m of a watercourse.

Therefore, whilst the enhancement case was scoped based on those risks that were defined to be of the highest priority at the time of UUW's business plan submission, it is entirely plausible that higher risk sites will emerge between now and project delivery. In this instance, UUW considers it appropriate to substitute such a risk for an equivalent scheme in the programme, provided the overall programme outcomes are still delivered and the scheme delivers comparable value. Such flexibility is critical in facilitating adaptive planning in the face of inherent uncertainty and therefore the PCD proposed is inappropriate. Should investment be cancelled, delayed or reduced in scope, we consider that customers are fully protected by performance commitments (PCs), namely the total pollution and serious pollution PCs.

At final determination, we therefore consider that Ofwat should remove the PCD for this enhancement case.

8.20 Enhancing reservoir safety

Ofwat has assessed this element of our claim as enhancement expenditure. We do not contest the classification of PRA as enhancement, given the associated improvement in performance levels. However, we do present additional evidence of optioneering and cost efficiency within '*UUWR_14_Reservoir*'. We consider Ofwat should reflect this element of our claim in full as enhancement expenditure.

[34] Erosion Hazards in River Catchments: Making Critical Infrastructure More Climate Resilient - (ukclimateresilience.org)

[35] Protecting Energy Infrastructure against the Uncertainty of Future Climate Change: A Real Options Approach - NERC Open Research Archive

9. Frontier shift and Real Price Effects

9.1 Key points

- **Ofwat's view of frontier shift overstates the potential productivity improvements in the water sector.** We observe some flaws in the process and methodology used to arrive at a one percent frontier shift assumption.
- **UUW supports the labour RPE in residential retail.** Labour represents a substantial element of residential retail costs. It is right that this is reflected through an RPE adjustment, particularly where the residential retail price continues to carry inflation risk.
- **UUW does not support Ofwat's proposed energy RPE adjustment and ex post reconciliation.** UUW continues to consider companies are best placed to manage energy price volatility. However, Ofwat's ultimate approach must be applied consistently across the industry.
- **UUW supports Ofwat's proposed ex post adjustment for materials, plant and machinery input costs.**

9.2 UUW's view of frontier shift and RPEs at DD

Table 10: UUW's representations on frontier shift at DD

	Ofwat's view at DD	UUW's DD representation	Representation location
Frontier shift (wholesale)	1%	0.55%	'UUWR_25_Real price effects and frontier shift'
Frontier shift (residential retail)	1%	0.45%	'UUWR_25_Real price effects and frontier shift'

Source: UUW DD

Table 11: UUW's view of Real Price Effects at DD

	UUW's position at DD
Labour RPE (wholesale)	UUW does not dispute Ofwat's RPE for wholesale labour costs.
Labour RPE (residential retail)	UUW supports Ofwat's RPE for residential retail labour costs.
Energy RPE	UUW does not support Ofwat's proposed energy RPE and ex post adjustment.
Materials, plant and machinery RPE	UUW supports Ofwat's proposed ex post adjustment for input costs.

Source: UUW DD

Table 12: UUW's representations on the applicability of frontier shift at PR24

	Ofwat's view at DD	UUW's DD representation	Representation location
Modelled base	Yes	Yes	None
Post-modelling adjustments	Yes	Yes	None
Abstraction charges	No	No	None
Discharge consents*	n/a	No	Section 9.4
Business rates	No	No	None
Industrial Emission Directive compliance	No	No	None
Traffic Management Act	Yes	No	Section 9.4

	Ofwat's view at DD	UUW's DD representation	Representation location
Lane rental	Yes	No	Section 9.4
Enhancement	Yes	Yes	None
**Discharge consents included within modelled costs in Ofwat's DD*			

Source: UUW DD

9.3 Frontier shift methodology

Frontier shift refers to the ability of the most efficient companies to identify opportunities to improve their productivity and become more efficient. UUW was part of a group of companies that appointed Economic Insight to explore estimates of frontier shift that would be suitable for use at PR24. Following this work, UUW identified a frontier shift of 0.55 percent for wholesale and 0.45 percent for residential retail.

CEPA is advising Ofwat on frontier shift at PR24. Its report[36], published alongside Ofwat's DD, suggests a frontier shift estimate in the range of 0.8% to 1.2% to be appropriate, and critiques Economic Insight's report. Europe Economics also publishes a critique[37] of Economic Insight's report.

Frontier shift is difficult to quantify empirically. There are several different, but equally legitimate, methods to explore the issue but as far as we're aware, there are none that can settle on an undisputable number. Ultimately, the question of frontier shift is a question of judgement. Our view is that CEPA's estimate provides an over optimistic view on the scope for productivity improvements in the water sector that appears to be more informed by regulatory convention than pragmatic judgement.

Ofwat can find our full representations in this area in '*UUWR_25_Real price effects and frontier shift*'.

Residential retail frontier shift

Ofwat's approach to retail now incorporates the effect of inflation. Our business plan proposed that retail did not need frontier shift because inflation acts as an implicit efficiency challenge. However, Ofwat's updated residential retail approach to inflation now means that it is appropriate to apply frontier shift to the retail price control. As such, we have adopted the retail frontier shift we considered appropriate in our business plan within our updated retail cost forecasts.

9.4 Application of frontier shift

We do not agree that TMA costs and lane rental costs should be subject to frontier shift. There is limited scope to make ongoing productivity improvements in this element of the cost base.

In section 5.4, we represented that Ofwat should treat wastewater discharge permit consent costs as an unmodelled cost due to a significant increase in their future value. If Ofwat aligns with our proposal, then we would not expect it to apply frontier shift to this element of our cost base. Similar to abstraction licence costs, companies do not have the ability to make productivity gains on these costs.

9.5 UUW does not support Ofwat's proposed ex ante and ex post energy RPE adjustment

UUW's business plan proposed that no energy RPE adjustment was necessary. We considered that the underfunding of energy costs by the greater weighting within the historical dataset towards low cost energy years prior to 2021-22 would be offset by a fall in energy prices throughout AMP8. However, most companies suggested an adjustment was necessary.

[36] CEPA (2024) *Frontier shift, real price effects and the energy crisis cost adjustment.*

[37] Europe Economics (2024) *Critique of Economic Insight Reports on PR24 frontier shift.*

Ofwat proposes to implement an ex ante RPE adjustment relating to the cost of energy. This has two parts:

(1) A base adjustment to reflect the disconnect between allowances based on historical costs and the costs companies have incurred since the price spike; and

(2) An RPE adjustment to reflect the fall in energy prices since the peak.

Ofwat also proposes an ex post true-up mechanism. This adjustment will be determined by the extent to which the outturn DESNZ index values differ from CEPA's forecasts constructed using Bloomberg data and third-party cost projections.

We consider that Ofwat's approach to the adjustment is broadly legitimate, although we do have some targeted concerns. We set these out in detail in '*UUWR_25_Real price effects and frontier shift*'.

We continue to consider that companies are best placed to manage energy price risk using hedges and within the context of a long-term base allowance. As such, we do not consider that an ex-ante or ex post energy RPE adjustment is necessary. However, if Ofwat still considers that an energy RPE is necessary, we are clear that Ofwat should apply it consistently across all companies in the industry.

Full representations on this issue can be found in '*UUWR_25_Real price effects and frontier shift*'.

9.6 UUW supports Ofwat's proposed labour RPE for residential retail

UUW supports Ofwat's recognition of a labour RPE in residential retail. Labour is a material share of retail costs and it is right that this is recognised through an RPE adjustment, particularly given the residential retail price control is exposed to inflation risk.

9.7 UUW supports Ofwat's materials, plant and equipment ex-post true-up

Ofwat is proposing to introduce an ex-post true-up adjustment for materials, plant and equipment costs. The true-up will reflect the difference between CPIH and the ONS's construction output price indices. Ofwat is not proposing to apply a related ex ante adjustment at PR24.

We agree with Ofwat's DD proposal and consider it will support the deliverability of the PR24 enhancement programme. AMP7 revealed that companies are subject to global supply chain shocks, which they have limited control over.

We note that Ofwat is concerned that:

"…The new infrastructure construction output price index is not a perfect index as it based on road and bridge construction rather than wider infrastructure projects."[38]

However, we note that the chosen construction index aligns well with UUW's internal 'basket of goods' index, which tracks the change in the input prices used in our capital delivery programme. As such, we consider it should appropriately reflect the changes in input prices used for our AMP8 enhancement programme.

Full representations on this issue can be found in *UUWR_25_Real price effects*.

[38] Ofwat (2024) *Draft Determinations: Expenditure Allowances.*

10. Dealing with uncertainty

10.1 Key points

- **UUW largely supports Ofwat's proposed changes to cost sharing.** We support most changes Ofwat has made to cost sharing. However, we consider that abstraction licence costs should continue to be subject to enhanced cost sharing given the inherent uncertainty of these costs.
- **An enhanced cost sharing rate should not be used as mitigation for a poorly motivated ex ante cost allowance.** Cost sharing provides ex post protection in the event the ex-ante regulatory assumption is wrong. This does not absolve the need for the regulator to ensure its ex-ante regulatory assumptions are robust.
- **UUW supports the concept of the large scheme gated process.** However, we do not consider that the four UUW schemes selected by Ofwat to feature in this process are appropriate candidates. We do consider that our new Windermere scheme is a suitable candidate.
- **We have strong reservations regarding Ofwat's proposed Bioresources uncertainty mechanism.** We do not consider that it provides sufficient protection against the key risk it is supposed to mitigate.

10.2 Cost sharing rates

We generally support Ofwat's proposed changes to cost sharing. However, we do consider that abstraction licence costs should be subject to the same cost sharing rate as business rates due to the inherent uncertainty associated with EA charges. If Ofwat aligns with our representations on wastewater discharge permit costs as set out in section 5.4, then we consider these should also be subject to an equivalent cost sharing rate.

However, where there is clear evidence of need (but maybe the precise costs are uncertain) then it is important that Ofwat makes a reasonable central estimate of costs, and therefore ensure that the cost sharing mechanism protects companies (and customers) in the event that outturn costs are higher (or lower). In some cases (e.g. expected increase in rates, and the schemes assigned to the gated mechanism) Ofwat has not made a reasonable central estimate, and instead assumed that the mechanism should be used to manage all (or the vast majority) of outturn costs. We do not support this, as Ofwat should make a reasonable ex ante allowance for expected costs, where there is reasonable certainty that there will be an increase in costs. The only justification for making no up-front allowance is where there is uncertainty in the need, and therefore the possibility that no additional costs will be required, as is the case for our proposed Bioresources Notified Item.

We welcome Ofwat's proposals for Bioresources cost sharing mechanisms, particularly given the ongoing uncertainty facing Bioresources. However, we do consider Ofwat's proposals may benefit from additional clarity. For example, Ofwat should explain how cost sharing will be executed, given its position on the RCV "guarantee" for Bioresources. In other areas of cost sharing, the value of any reconciliation adjustment is shared between an RCV adjustment and a revenue adjustment. Assuming Ofwat proposes a similar approach to Bioresources, this should necessitate a reinstatement of the RCV guarantee, to ensure that any reconciliation values assigned to the Bioresources RCV are passed onto customers in future. We do recognise that other options are available (such as putting 100% of any reconciliation adjustments to revenue in the next AMP). However, what is most important is that Ofwat is clear how that cost sharing mechanism will work, and whether that should change the status of the Bioresources RCV. Ofwat can find our full representation in '*UUWR_13_Bioresources*'.

10.3 Approach to large schemes

Large scheme gated process

We support Ofwat's proposal for a gated process where schemes are uncertain in scope, need, cost or deliverability. However, we do not consider that the four UUW schemes[39] selected by Ofwat meet its own criteria. We are confident in the need and the scope, and therefore confident in the delivery schedule and the cost. We also consider that Ofwat's proposal creates significant risk in achieving the regulatory dates due to the tension it creates with our delivery model and creates an overly punitive financing position. As such, we consider that Ofwat should reconsider the inclusion of these four schemes within the gated mechanism approach.

Conversely, the late addition of Windermere commitments are better candidates for the Large Scheme Gated Process as the scope, cost and deliverability are all uncertain.

Ofwat can find our full representations on gated mechanisms in '*UUWR_11_Gated mechanism*'.

Enhanced engagement and cost sharing process

We support Ofwat's proposals for the enhanced engagement and cost sharing process.

However, we do not consider that Ofwat's cost allowance for Salford is realistic. We provide further evidence on cost efficiency for Salford within '*UUWR_22_Appendix - Salford WwTW*'.

10.4 Third party services reconciliation mechanism

Ofwat can find our representation on this in section 5.9.

10.5 Uncertainty mechanisms

Bioresources

We face the risk of a significant deficit in available agricultural outlet for recycling biosolids. This could arise from many causes, and the consequence would be the need for substantial additional investment in Bioresources assets and operations across the sector.

We welcome Ofwat's recognition of this risk. Ofwat proposed a notified item in response but we disagree with the scope of Ofwat's proposals. In particular, Ofwat's approach assumes that any changes in landbank availability resulting from Farming Rules for Water is managed through the WINEP. This is not accurate. As drafted, the notified item fails to provide an effective uncertainty mechanism and will require an update to address significant shortcomings.

Ofwat can find our full representations on uncertainty mechanisms in '*UUWR_13_Bioresources* '.

Storm overflows uncertainty mechanism

We generally support Ofwat's proposed storm overflows uncertainty mechanism. It is important that the regulatory framework recognises that the storm overflow programme can change as a result of investigations, new bathing water designations including the disinfection of wastewater effluents, and revisions to SODRP. We do have some points to raise on the implementation of the mechanism, which we set out in detail in '*UUWR_10_Overflows*'and '*UUWR_77_New WINEP'*.

[39] Davyhulme (Phosphorus), Davyhulme (Sanitary), Eccles and Wigan.

11. New additions to UUW's business plan at DD

11.1 Additional Water WINEP enhancement cases £23.1m pre-frontier shift and RPEs / £22.7m post-frontier shift and RPEs

Background to case

Since the submission of our business plan in October 2023 and the receipt of the new WINEP from the Environment Agency in July 2024, three additional Water WINEP projects have been identified. These new projects are expected to appear in the final AMP8 WINEP due for publication in September 2024. The three new schemes are Blea Water, Yearl Weir and Naden Gauging Weir.

The three WINEP projects identified are new, discreet projects for AMP8. Two have arisen as a result of developments with projects undertaken in AMP7 (Blea Water and Yearl Weir). In these cases, the relevant AMP7 projects have seen significant increase to scope and scale, due to recent input from regulators. This has necessitated an extended period of investigation and feasibility assessment, and a prolonged period of regulatory approval. Both of these schemes now require the removal of a weir and remediation of the surrounding area following the identification of an appropriate solution in the current AMP.

The results of these investigations and studies will inform the construction phase of the project, which will also take place in AMP8. The construction phase will be regulated via two entirely new implementation projects (SSSI_IMP & HD_IMP), which we have proposed for the final edition of the AMP8 WINEP. The alteration and creation process for the existing AMP7 and new AMP8 projects was formally initiated in June 2024 and represents an extended period of negotiation with regulators over several years.

The Naden Gauging Weir project is entirely new. This project was recently identified as a potential barrier to fish passage and therefore requires an investigation into the role of the weir in acting as a barrier to fish migration. This will establish whether a weir modification/removal project will be required in AMP9.

Need

These projects represent important environmental schemes which have regulatory drivers and delivery dates. These new projects are therefore included in addition to our original October 2023 business plan Water Resources Business Case document UUW_60, to reflect the additional expenditure required to enable delivery of these regulatory requirements.

We have received verbal agreement from the Environment Agency for these changes, and we expect these three projects to be part of the final WINEP as published in September 2024. As such, we consider that it is reasonable to assume that these three projects will be included in the revised WINEP, indicating a clear need for investment to enable compliance with a statutory obligation.

Why this scheme wasn't reflected in our January 2024 business plan

These three projects were not included in the initial business plan submission as they had not yet been identified as requirements in advance of the October 2023 submission date.

Blea Water and Yearl Weir projects relate to recent developments from existing AMP7 investigations that have arisen since the previous submission. The AMP7 investigations in this area have now identified new solutions which achieved regulatory agreement in the last 12 months. We were therefore unable to include these new AMP8 solutions until they were fully established and agreed with the various regulators involved.

In addition to the two schemes above, Naden Gauging Weir has now been identified for delivery in AMP8. The requirements for this project were identified during a site visit by the Environment Agency to a United Utilities catchment area in summer 2024, post the submission of the business plan, meaning we did not have foresight of this requirement back in October 2023.

Reference to enhancement case

Further details of this proposed enhancement expenditure is set out in document *UUWR_80_Water WINEP - Enhancement cases*. This new enhancement case provides greater detail on these new projects, including in-depth sections discussing the need for investment, how our proposed solution is the best option for customers, and demonstrating cost efficiency.

11.2 P removal at Eccles

Background to case

The Eccles scheme is driven by improving the status of the Manchester Ship Canal as part of a long-term adaptive plan agreed with the Environment Agency. The decision for a substantial rebuild of Eccles has been validated following recent additions of new phosphorus and cypermethrin drivers post October 2023 which result in additional solution scope. The WINEP quality drivers for Eccles WwTW will make it the most tightly permitted site in the UU region and we believe one of the tightest in the UK.

Need

Following business plan submission there was a change to our WINEP drivers to include TAL for phosphorus (0.25mg/l) and a permitted value for cypermethrin which would be the lowest cypermethrin permit in UU. In addition, Eccles was also given a driver to achieve 0.1mg/l P in early AMP9 (31st December 2032). This change in drivers means we must increase the scope of our solution to achieve our regulatory requirements.

While we were developing the solution for Eccles for submission of our Business Plan in October 2023, we knew that the site would have a future tightening of the phosphorus permit to 0.25mg/l from the Environment Act in AMP9. As discussed in our representation for our phosphorus programme (UUWR_33_Phosphorus removal), when a new suspended growth (e.g. ASP) secondary treatment process is part of solution for sanitary drivers, the best value sustainable solution is to deliver biological phosphorus removal at the same time where there are phosphorus drivers. We therefore have developed an adaptive plan to deliver biological phosphorus removal as part of the AMP8 solution in anticipation of the future driver, therefore ensuring no abortive investment for AMP9.

Why this scheme wasn't reflected in our January 2024 business plan

This new project scope was not included in our initial business plan as there had not yet been confirmation of a phosphorus permit in our WINEP. During the post-submission period the 0.25mg/l phosphorus permit was accelerated into AMP8 and was included in our revised set of WINEP drivers. We are therefore proposing additions to our original scope at the first available opportunity to achieve these more stretching targets.

Reference to enhancement case

Further details of this proposed enhancement expenditure is set out in document *UUWR_11.2 Appendix – Eccles WwTW*. This new enhancement case provides greater detail on these new projects, including in-depth sections discussing the need for investment, how our proposed solution is the best option for customers, and demonstrating cost efficiency.

11.3 Village drains - £9.0m pre-frontier shift and RPE / £8.87m post-frontier shift and RPEs

Background to case

Since the submission of our initial business plan in October 2023, we have received a new version of the WINEP (5 July 2024 version). Investigations that have concluded since the submission of our business plan have identified three villages in Cumbria with a village drain arrangement (Hilton, Grinsdale and Knock). These drains were not identified in the iteration of WINEP used in our October business plan submission.

A village drain is a sewer which receives foul or surface water from a number of properties in the village and conveys it to a surface water outfall for discharge. A review has confirmed that responsibility for these village drains lies with UUW due to the likely construction date. Historically, these assets had not been identified as water company assets. Had the village drains previously been identified by UUW or the Environment Agency they would have been included in previous National Environment Programmes.

Some of the properties discharging into the village drains have private septic tanks or soakaways but not all do and so sewage is being discharged untreated via the village drain to a surface water. Due to this the Environment Agency has included 3 lines on the AMP8 WINEP under a statutory WFD_IMPg driver code. We are now required to treat the effluent before it discharges to the environment. The preferred solutions vary due to the differing locations of each of the village drains. These are discussed in more detail in the new enhancement case linked below.

Need

The Environment Agency included Hilton, Grinsdale and Knock village drains in the WINEP issued on 5 July 2024 to deliver adequate treatment by 31st March 2030. We consider there is now a clear need for these projects to be delivered in AMP8 to provide adequate treatment to the three village drains, complying with our regulatory requirements.

The Environment Agency requires us to enhance service standards in order to deliver environmental benefits which they will enforce through environmental permits. This enhancement investment is driven by the following statutory drivers; The Water Environment (Water Framework Directive) Regulations 2017.

Why this scheme wasn't reflected in our January 2024 business plan

These three drains were only identified as UUW assets in the period since our original business plan submission. It was therefore infeasible for these to be included in our previous submission. We are therefore presenting these schemes to Ofwat at the first possible opportunity since we became aware of our responsibilities for these village drains.

Reference to enhancement case

Further details of this proposed enhancement expenditure is set out in document *UUWR_79 Village Drains*. This new enhancement case provides greater detail on these new projects, including in-depth sections discussing the need for investment, how our proposed solution is the best option for customers, and demonstrating cost efficiency.

11.4 PFAS - £49.1m pre frontier shift and RPE/ £48.3m post-frontier shift and RPEs

Background to case

This programme of work is an additional provision associated with new requirements issued by the Drinking Water Inspectorate (DWI) to progressively reduce poly and perfluorinated alkyl substances (PFAS) in drinking water. This requirement has been formalised in an Undertaking issued by the DWI since our original submission in October 2023.

Following these new DWI guidelines, we have identified the need for additional control measures to be implemented at two WTW to reduce the concentration of PFAS in treated drinking raw water from the raw water concentration through additional permanent treatment solutions. The schemes are required at these sites due to the presence of individual PFAS in the raw water sources at Tier 2 concentration, where there is insufficient treatment to ensure that the final water concentration will be below the current Tier 1 threshold of 0.01 ug/l.

Need

PFAS in drinking water is a rapidly evolving space and in December 2023, post-submission of our initial business plan, a letter was issued by the Drinking Water Inspectorate (DWI) setting out clear expectations of companies to progressively reduce PFAS in drinking water. Accompanying the letter was a new requirement to submit a Section

19 Undertaking to formalise the AMP8 programme of work and to include any additional schemes required to meet the revised expectations.

In order to comply with the latest DWI requirements, investment is needed to install specific treatment processes to enable the removal of PFAS to below the DWI Tier 1 threshold at two water treatment works (WTW). It is crucial that the required investment is made in AMP8 as drinking water supplies in the affected areas are being put at increased risk through the need to reduce output to mitigate against the presence of PFAS in raw water sources. Customers ranked water that is safe to drink as the highest of our priorities for AMP8, which is a strong indication that customers will support this investment.

Why this scheme wasn't reflected in our January 2024 business plan

Due to the developing nature of research and understanding around PFAS, we only received the latest DWI requirements in December 2023, after our initial business plan submission. Consequently, this is the first opportunity we have had to present these additional projects required to comply with the latest regulatory requirements.

Whilst we are currently proposing work at two WTWs during AMP8 at the current time, any further changes to the regulatory requirements as more information becomes available may require us to complete work at additional sites within AMP8 and beyond.

Reference to enhancement case

Further details of the proposed enhancement expenditure relating to this scheme of work is set out in document '*UUWR_76 PFAS'*. This new enhancement case provides greater detail on these new projects, including in-depth sections discussing the need for investment, how our proposed solution is the best option for customers, and demonstrating cost efficiency.

11.5 Windermere – £186m pre frontier shift and RPE/ £183m post-frontier shift and RPEs

Background to case

UUW is committed to protect and enhance Windermere, England's largest lake, which is facing the increasing impacts of climate change along with phosphorus inputs from a variety of sources. Our new enhancement case in this area sets out our plans to enhance our service to deliver environmental benefits in line with our statutory obligations.

We have followed the latest Environment Agency guidance and identified nine sites for enhancement in AMP8, as part of a long-term plan to reduce nutrient load into Windermere under the AMP8 WINEP driver 25YEP_IMP. All sites identified for final effluent improvements contribute to nutrient loading into the lake and our enhancement investment will reduce this load by 515kg of phosphorus per year. This will contribute towards improved water quality of the lake.

In addition to interventions to meet final effluent requirements, three storm overflows have been identified for accelerated spill frequency reduction, two of which were previously profiled for enhancement in AMP9 but require investment in AMP8 to deliver the AMP9 benefits. These assets will provide benefit towards our long-term ambition of nutrient reduction within the catchment and will also help deliver the long-term spill frequency target in the Windermere catchment.

We consider that these schemes are an ideal candidate for Ofwat's gated mechanism process due to uncertainty in scope, cost and deliverability from late identification within the WINEP.

Need

Our base expenditure only covers the cost of meeting existing Environmental Permit requirements, we therefore require additional enhancement expenditure to allow us to meet challenges posed by climate change, evolving customer expectations and future statutory requirements. We consider there is a clear need for investment in this area due to the regulatory requirements that we are subject to under the WINEP.

The Environment Agency require us to enhance service standards in order to deliver environmental benefits, which they will enforce by varying our Environmental Permits.

This enhancement investment is driven by the following statutory and non-statutory drivers:

- The Water Environment (Water Framework Directive) Regulations 2017 (statutory);
- Environment Act 2021 (statutory); and
- 25-years Environment Plan (non-statutory)

Why this scheme wasn't reflected in our January 2024 business plan

On 5th July 2024 we received a new WINEP from the Environment Agency with changes to our deliverables. We now have requirements to further reduce phosphorus from final effluent discharges and reduce spills from three storm overflows that discharge into the Windermere catchment that are now included in the revised WINEP. At the time of our initial submission, we did not have WINEP actions associated with these overflows, therefore they were not included in our original submission.

Reference to enhancement case

Further details of the proposed enhancement expenditure relating to this scheme of work is set out in document UUWR_78 Windermere – Enhancement case. This new enhancement case provides greater detail on these new projects, including in-depth sections discussing the need for investment, how our proposed solution is the best option for customers, and demonstrating cost efficiency.

12. Approach for final determination

This section sets out UUW's position on key issues within Ofwat's DD. It summarises within a series of recommendations the representations and evidence set out in the previous sections. For ease and clarity, we have split these out by section.

In cases where substantive representations are made in a separate document (e.g. business rates or enhancement case representations), we refer the reader to that document within our DD submission, where a comprehensive set of recommendations are set out.

We note that an additional year of data relating to 2023-24 will be available to Ofwat for FD. We consider that it should update its modelling (where applicable) to reflect this information.

12.1 Modelled base costs (wholesale)

For FD, we recommend that Ofwat should:

- Maintain its approach to setting modelled base costs.

12.2 Modelled base costs (retail)

For FD, we recommend that Ofwat should:

- Maintain its approach to setting modelled residential retail costs.
- Correct the error relating to 'dual service percentage' cost driver forecasts within its calculations. See section 3.

12.3 Ofwat's post-modelling adjustments

For FD, we recommend that Ofwat should:

- Remove the energy adjustment and associated ex post reconciliation. See '*UUWR_25_Real price effects and frontier shift*'.
- Remove the PCD associated with mains renewal base expenditure. See *'UUWR_44_Leakage'*.
- Maintain all other elements of its approach to post-modelling adjustments.

12.4 Unmodelled cost assessment

For FD, we recommend that Ofwat should:

- Adjust its business rate allowances in line with the recommendations set out in '*UUWR_26_Business rates*'. If Ofwat does not consider this to be acceptable, then it should commit to an annual true-up to minimise in-AMP liquidity risk.
- Assess wastewater *'service charges/discharge consents'* as part of its unmodelled assessment. See section 5.4.
- Correct its error in the calculation of IED compliance costs. As a general point, we consider that Ofwat should use the same company acronym for United Utilities Water across all price review calculations to reduce the risk of similar errors occurring in future. See section 5.5.
- Commit to working with the industry on the design of its proposed third-party reconciliation mechanism. This was published on 20 August 2024 (prior to the DD submission deadline of 28 August 2024), which has not given UUW enough time to reflect on its appropriateness.

12.5 Cost adjustments

For FD, we recommend that Ofwat should:

- Assess the MITIOS element of our reservoirs cost adjustment claim as a base cost adjustment and accept it in full based on the additional evidence provided. See *'UUWR_14_Reservoirs'*.
- Assess the PRA element of our cost adjustment claim as enhancement and accept it in full based on the additional evidence provided. See *'UUWR_14_Reservoirs'*.
- Maintain its approach to assessing ongoing phosphorus removal expenditure.

12.6 Price Control Deliverables

For FD, we recommend that Ofwat should:

- Engage constructively with the sector in the remaining time available to ensure that the new PCD regime is enacted in the most productive manner possible. Without such engagement and redesign, Ofwat risks significant downside financial risks for the sector. See section 7.
- Introduce a more limited scope of better designed and specified PCDs at PR24, seeking to ramp up their significance and remit from PR29 onwards. See section 7.
- Ofwat should amend the payment rate for early delivery (but not for on-time delivery) so that it matches the penalty rate for late delivery.
- Ofwat should remove all PCDs associated with base expenditure.
- Ofwat should amend PCD delivery metrics and rules to make them less restrictive and more flexible. Ofwat should hold a further PCD workshop with the industry to resolve these issues in sufficient time prior to FD. Ofwat should publish all reporting requirements, PCD calculation models including those related to how payments will be applied to PR29 in advance of this workshop. This will enable Ofwat and the industry to have well-informed engagement. See section 7.

12.7 Enhancement and PCDs

We make a wide range of representations relating to enhancement and PCDs. Ofwat should refer to these documents, as summarised and referenced in section 8, and align to our proposals. We have summarised our key representations below - Ofwat should refer to our substantive representations to find our representations in detail.

Storm overflows (see document UUWR_10)

- In recognition that its simple model is not appropriately reflecting the exogenous factors that characterise UUW's region, Ofwat should provide a UUW-specific uplift for schemes assessed using Ofwat's simple modelling approach. As discussed in section 5.5, we consider this uplift should be £522m.
- Based on the compelling evidence provided by UUW within this representation and associated appendices, Ofwat should accept the site-specific costs at UUW's outlier schemes in full. This results in a £477m uplift.

Bioresources

- Ofwat should accept UUW's proposed improvements to its IED econometric modelled approach.
- Ofwat should assess UUW's updated sludge storage costs via a deep dive assessment based on additional evidence of cost efficiency provided at DD.
- Ofwat should accept costs associated with EPR compliance and adaptive pathway in full.
- Ofwat's proposed PCD design for IED is overly punitive. We consider that a number of changes are required to align with Ofwat's stated principles.

Lead pipe replacement

- Ofwat should reflect UUW's updated supply pipe cost driver data within its cost assessment at FD, as per query OFW-IBQ-UUW-013.

- We consider the lead PCD should have a tolerance of +/-20% in each year, subject to a hard target of 30,000 replacements by 2030, in line with the DWI notice. This recognises that lead pipe replacement is a customer-driven activity and as such, can be associated with large year-to-year swings.

Carbon Net Zero

- Based on the additional evidence provided by UUW at DD, Ofwat should reflect an additional £67m of Net Zero enhancement within the FD.

Water WINEP

- Based on additional evidence provided in our DD, Ofwat should accept our proposed costs in full.
- Ofwat should align the associated PCD rate to reflect the evidence on hectares improved provided at DD.

Phosphorus removal

- Ofwat should place a weight of 75% on forward-looking models and 25% on backward-looking models in its cost assessment approach.
- Ofwat should reflect the higher cost of bio-P solutions within its AMP8 benchmark. A reasonable uplift would be 18 percent against the modelled benchmark. This could be applied through a post-modelling adjustment if Ofwat did not wish to update its models for FD.
- We also encourage Ofwat to align its PCD with the WINEP delivery profile to ensure companies are not penalised for delivery of schemes on time.

Vyrnwy

- Based on additional evidence of cost efficiency provided, Ofwat should allow UUW's costs in full.
- Ofwat should align with UUW's proposed PCD, which ensures the DWI enforcement order is delivered in full.

Raw water quality deterioration

- Ofwat should reflect the full costs of Fishmoor WTW based on additional evidence provided at DD.
- Ofwat should not include both raw water quality deterioration and taste, odour, colour expenditure within a single PCD.
- Ofwat should align with our view of the scope of the raw water quality deterioration PCD for existing and new schemes.

Smart metering

- Ofwat should align with our business plan view of totex, in recognition that its relatively simple models do not appear capable of reflecting recent market evidence.
- Ofwat should align its PCD with our proposals to ensure that companies have the flexibility to innovate when delivering their smart metering programmes.

Wastewater WINEP investigations

- Ofwat should reflect our updated cost driver data which addresses an observed inconsistency between other companies' approaches and our own.
- We propose the PCD needs to align with WINEP. Currently, the PCD requires delivery of all outputs by FY28, however this is not in line with all AMP8 investigations.

Advanced WINEP

- Ofwat should update its PCD to address our concerns that its current design is overly restrictive and will limit the flexibility of our AWINEP programme – flexibility is a key tenet of the programme.

Supply and demand

- Ofwat should adopt our proposals for a simplified PCD mechanism linked to additional PE treatment capacity provided, the outcome of the programme, with a penalty per PE not delivered.

Leakage

- Ofwat should remove its proposed PCD for mains renewals funded from base.

Sanitary parameters

- Ofwat should allow the costs for Salford in full as these represent best value over the course of AMP8 and AMP9.

PR19 WINEP carryover

While we disagree that it is legitimate for a PCD to be applied to this expenditure, if Ofwat does continue to implement a PCD at FD, it should:

- Set a PCD delivery date aligned to the year in which the regulatory date is required (31 March 2027), where a late delivery PCD payment rate which will be applied from this date; and
- Profile the expenditure allowance entirely in the first two years of the AMP so that the company is fully funded to deliver the scheme by the agreed PCD delivery date and with no expenditure occurring after the agreed date.

Green Recovery

While we disagree that it is legitimate for a PCD to be applied to this expenditure, if Ofwat does continue to implement a PCD at FD, it should:

- Allocate the full Green Recovery carryover allowance to 2025-26 for FD.
- Align the PCD date to the regulatory date of the two relevant schemes.

Coastal and river erosion

- We consider that Ofwat should remove the PCD.

12.8 Frontier shift and Real Price Effects

For FD, we recommend that Ofwat should:

- As discussed in section 12.3, remove its proposed energy RPE adjustment and associated ex-post reconciliation. See '*UUWR_25_Real price effects and frontier shift*'.
- Maintain its labour RPE in residential retail. See '*UUWR_25_Real price effects and frontier shift*'.
- Maintain its ex-post true-up for materials, plant and equipment. See '*UUWR_25_Real price effects and frontier shift*'.
- Set a frontier shift assumption of 0.55 percent for wholesale and 0.45 percent for residential retail in line with the evidence we present in our DD. See '*UUWR_25_Real price effects and frontier shift*'.

12.9 Dealing with uncertainty

For FD, we recommend that Ofwat should:

- Ensure abstraction licences and discharge permit consent cost sharing rates are set to 10:10. See section 10.2.
- Maintain its approach to cost sharing in other areas, although it should note that enhanced cost sharing should not be considered a suitable mitigation for an inaccurate ex ante cost assumption.
- Remove Davyhulme, Eccles and Wigan from its gated mechanism approach. See '*UUWR_11_Gated mechanisms*'.

- Include our new Windermere project within the gated mechanism approach. See '*UUWR_78_Windermere*'.
- Revise its proposed uncertainty mechanism to ensure that it provides effective mitigation against land bank risk. See '*UUWR_13_Bioresources'*.

12.10 New additions to UUW's business plan

For FD, we recommend that Ofwat should:

- Assess UUW's business cases presented at DD and reflect the associated expenditure within FD. See section 11.

Appendix A Ofwat's approach to modelling wholesale base costs

A.1 Average pumping head

Our business plan provided extensive evidence to support our view that average pumping head should not be included within Ofwat's models until there has been a concerted effort across the industry to reduce reporting inconsistencies40. We continue to have strong concerns that the use of average pumping head introduces a material risk that companies can influence cost assessment in the short-term. This is a clear violation of exogeneity within UUW's principles of cost assessment41 and Ofwat's principles of base cost assessment42.

While Ofwat asserts that some companies have made significant improvements in average pumping head reporting, justifying the inclusion of this variable in the models, it has also acknowledged that the threshold of having 80% of the data measured rather than estimated has not yet been met.[43] Furthermore, it appears that most companies have not updated their pre-FY23 historical reporting values to reflect these reporting improvements, meaning that a significant share of average pumping head data points is still based on unreliable estimates.

As such, we consider that Ofwat should remove average pumping head from its approach and work with the industry following PR24 to ensure that the risk of endogeneity resulting from average pumping head's use is minimised. Once UUW is satisfied that data quality is materially consistent across companies (in both measurement and estimation methodologies), we would support the use of average pumping head within a model suite that triangulates between alternative measures of topography (e.g. booster pumping stations) – as discussed in '*UUW46: Cost Assessment Proposal'*, we are clear that average pumping head cannot be considered as the only topography variable.

As we have seen no new evidence that would assuage our strongly held concerns over the use of average pumping head, we do not consider that it should be used at PR24. However, we recognise that the use of average pumping head (irrespective of data quality concerns) is a major issue for several companies. As such, despite our concerns about data quality, we do not oppose the approach Ofwat has taken at DD, on a 'in-the-round' basis. For the lack of doubt, this should not be taken as our support for the use of average pumping head. We will continue to monitor data quality going forward, but we do consider that there will continue to be major inconsistencies in the underlying data without a concerted cross-industry effort.

A.2 Weighted Average Treatment Works Size (WATS)

Weighted Average Treatment Works Size (WATS) is a variable that captures economies of scale in wastewater treatment. It was developed by Ofwat as part of its econometric modelling consultation and is now one of two economies of scale measures in Ofwat's wastewater model suite.

As we stated in our response to Ofwat's modelling consultation, we strongly support WATS. This variable represents a genuine step forward in assessing wastewater treatment costs. It does not rely on arbitrary cut-offs that impose assumptions as to when economies of scale begin – we note that for DD, Ofwat dropped a variable that captured the percentage of load treated at Wastewater Treatment Works (WwTW) with a Population Equivalent (PE) larger than 100,000. We support this decision. The use of 100,000 is effectively arbitrary and we

[40] UUW (2023) *UUW46: Cost Assessment Proposal, section 9.2.* Available here: https://www.unitedutilities.com/globalassets/z_corporate-site/pr24/supplementary-documents/uuw46.pdf

[41] UUW (2021) *The Principles of Regulatory Cost Assessment.* Available here: https://www.unitedutilities.com/globalassets/documents/pdf/the-principles-of-regulatory-cost-assessment.pdf

[42] Ofwat (2024) *Expenditure allowances – base cost modelling appendix, Figure 1.*

[43] Ibid., p. 21.

are not aware of any underlying engineering evidence that suggests economies of scale begin to occur at the 100,000 PE point.

As set out in our consultation response, we would also support the removal of the variable 'percentage of load treated in bands 1-3' for the same reason. However, we recognise the value of an appropriately triangulated model suite with a diverse set of cost drivers. As such, we consider that Ofwat's focus on 'percentage of load treated in bands 1-3' and 'WATS' is a pragmatic approach for PR24 DD.

A.3 Water treatment complexity

We do not consider that the current set of water treatment complexity variables appropriately reflect the challenges posed by variability in the raw water quality of surface water sources relative to groundwater sources.

Ofwat states that high-quality groundwater sources (e.g. boreholes) should be reflected in lower bands, and lower-quality raw water sources (e.g., reservoirs) should be treated at above level 3 bands. However, this distinction does not seem to be represented by the WAC variable. For example, we find no correlation between WAC and the share of DI derived from reservoirs, despite operational rationale suggesting that greater reliance on surface water sources should be associated with higher treatment complexity. Furthermore, UUW's experience indicates that surface water quality is significantly more variable than that of groundwater sources, requiring our water treatment works to handle a broader range of water quality. This variability increases costs, yet it is not captured by the WAC variable. As acknowledged by Ofwat, the WAC variable consistently lacks statistical significance, suggesting that it may fail to capture key aspects associated with water treatment costs.

However, for PR24 DD we have not been able to identify suitable alternatives to reflect variability in raw wate quality. We intend to consider this issue in more detail and may publish a Future Ideas Lab paper on this topic in the future.

A.4 Wastewater treatment complexity

In its DD, Ofwat uses a variable to reflect the percentage of ammonia treated to standards of three mg/l or less within the models and implements an out-of-model adjustment to reflect the higher ongoing operating expenditure associated with the AMP7 phosphorus removal programme. The out-of-model adjustment for phosphorus removal is necessary because there is not yet sufficient information within the historical cost record drawn on by the cost models to provide an efficient allowance for the AMP7 phosphorus removal programme.

We consider this approach to be pragmatic and generally appropriate. We note that it will likely be necessary to make an out-of-model adjustment for treatment complexity at PR29 as well. We provide more narrative on Ofwat's out-of-model adjustments in section 4.

Other companies have suggested the use of a composite variable. Ofwat does not incorporate this into its DD approach:

> *"We therefore do not include composite sewage treatment complexity variables in our sewage treatment and wastewater network plus base cost models."*[44]

We agree with Ofwat that it is not clear that composite variables result in a more appropriate outcome at DD. We note it may be possible to add additional variables at future price reviews as additional years of data become available and increasingly stringent treatment standards start to feed through into the historical cost record.

A.5 Population density in sewage collection

We strongly support Ofwat's adoption of a log-linear functional form to reflect population density within sewage collection models. As we have previously argued, the engineering rationale for a u-shaped relationship in sewage collection is far less clear relative to water services because:

[44] Ofwat (2024) *Expenditure allowances – base cost modelling appendix.*

- Networks tend to be gravity-fed and as such require less operational intervention, assuming the network is operating appropriately.
- Properties in very rural areas tend to be served by septic tanks rather than through a local sewerage network.

Ofwat agrees with this position in its DD:

> *"…sewerage networks tend to be more localised than water networks and are more of a passive asset. More than 90% of legacy sewers of the water sector are gravity sewers. This reduces travel and intervention costs compared to water networks."*[45]

As such, we support Ofwat's approach at DD and share its concerns that the adoption of a u-shaped relationship could inappropriately reflect within the benchmark the relative efficiency of companies operating at extreme ends of the density spectrum.

A.6 Coastal population

In our Cost Assessment Proposal, we supported Southern Water's proposal to include a coastal population variable in wastewater models. We continue to believe that incorporating this variable would be worthwhile. UUW's own experience indicates that operating near the coast generally leads to higher costs due to salinisation, spatial constraints, and other factors. The proposed variable is exogenous, statistically significant and helps to correct the downward bias on the scale variable coefficient.

Ofwat has stated that the coastal population variable is unsuitable because it serves as a proxy for specific cost drivers (e.g., spatial constraints), rather than directly measuring these factors. This rationale appears inconsistent with how Ofwat treats other variables. For instance, it could be reasonably argued that the currently used population density variables also indirectly proxy several factors such as access costs, opportunities for scale economies, and labour costs. Therefore, we do not consider this to be a valid reason to dismiss the coastal population variable.

We consider that further work could be done ahead of PR29 to explore whether future cost models could include this variable.

[45] Ofwat (2024) *Expenditure allowances – base cost modelling appendix.*

Appendix B Ofwat's approach to residential retail base costs

B.1 Regional variation in deprivation

We are pleased that Ofwat continues to recognise that propensity to default (as measured by regional deprivation) tends to increase bad debt costs. We do have some residual concerns that the variables chosen by Ofwat do not reflect the exponential effect that extreme deprivation has on bad debt costs. However, we support Ofwat's pragmatic approach at DD and we strongly support the inclusion of deprivation variables within cost assessment in general. We may do further work to explore how to better reflect extreme deprivation in the future.

B.2 Revenue per customer

We strongly support the continued use of revenue per customer in residential retail cost assessment. This is a key driver of bad debt costs.

B.3 Metering

Ofwat removes its metering penetration variable from its model suit at DD. This is because future meter reading will be facilitated by the widespread adoption of smart meters, which results in minimal meter reading costs. We support this approach.

B.4 Transiency

Transiency is a measure of population movements within, into and out of a company's region. The associated costs relate to the opening and closing of accounts and the potential for bad debt to remain once an account has been closed.

Ofwat included a transiency measure at PR19, which was supported by companies operating in the Greater London area. However, we had strong reservations about the underlying operational rationale: efficiency in opening and closing accounts is within management control. Management can also take reasonable measures to minimise the risk that accounts are closed with residual bad debt attached. Any additional risk of residual bad debt, beyond that which can be reasonably managed by appropriate practices, is better explained by deprivation. Our internal LSOA-level modelling supports this conclusion. As such, we strongly support the exclusion of transiency as a regional factor from the regulatory framework.