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Data analysis | Economic regulation | Competition law

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Opportunities for improving Ofwat's approach to asset health following the PR24 draft determinations

The regulatory approach to asset health and the associated risks to customer and environmental outcomes is a highly important issue for the water industry. There has been growing concern about this issue amongst a range of stakeholders, including water companies, Defra, the Environment Agency and the National Infrastructure Commission. Earlier this year, a project sponsored by four water companies articulated the concerns with the regulatory treatment of capital maintenance expenditure and asset health, and considered potential reforms to tackle these concerns. While the focus of that project has been on changes that could be applied to the PR29 price review, Water UK asked Reckon to consider whether there are opportunities for drawing on the insight and options developed so far to make more immediate improvements to Ofwat's regulatory approach as it moves towards its PR24 final determinations. Our view is that, even at this late stage of the PR24 process, there are significant opportunities for Ofwat to improve its regulatory approach in ways that could bring forward the potential benefits of those reforms for customers and the environment.

Background

Earlier this year a project sponsored by four water companies (the "Infrastructure Health" project) identified a number of concerns with the treatment of capital maintenance expenditure and asset health under Ofwat's regulatory approach and considered potential regulatory reforms to tackle these. Water UK played an active role in that project, including as a steering group member.

The Infrastructure Health project is focused on potential regulatory reforms that could be applied to the PR29 price review. This reflects the time needed to develop and implement comprehensive adaptations to Ofwat's price control framework (e.g. if they require additional data on asset health across the industry or the development of new analytical tools for cost assessment).

Nonetheless, Water UK asked Reckon to consider how the options and insight developed so far under the Infrastructure Health project could contribute to Ofwat's treatment of capital maintenance expenditure and asset health as it moves towards its PR24 final determinations. This would allow more immediate improvements to be made and earlier benefits for customers and the environment.

Concerns with the regulatory treatment of capital maintenance and asset health

One output of the Infrastructure Health project has been the articulation of a number of inter-related concerns relating to the regulatory treatment of capital maintenance and asset health under Ofwat's regulatory approach. We summarise these as follows:

- **Informational concern:** there is not enough useful information available about the risks of service disruption and adverse environmental outcomes in the future that may arise from asset deterioration or poor asset health, and how these risks are being managed by water companies.

- **Behavioural and decision-making concern:** the behaviour and decision-making of water companies, *which is heavily influenced by the regulatory framework*, may not be well-aligned with the achievement of good outcomes for customers and the environment over the long term, in terms of the adequacy of investment in asset health to manage risks to future outcomes in an efficient way over time.

- **Funding concern:** the funding available to water companies from customer bills, as governed by the regulatory framework, would not be sufficient to properly remunerate efficient companies who adopt the best long-term decisions about asset health and the management of future risks.

- **Responsibilities concern:** the regulator may not take enough responsibility for understanding and mitigating, through its own actions and decisions, the long-term risks to customers and the environment that may arise from asset deterioration or poor asset health.

Ofwat's response to asset health concerns over the course of the PR24 process

The regulatory approach to asset health – and the associated risks to customer and environmental outcomes that can arise from asset failure – is a highly important issue for the water industry, yet it seems to have been given insufficient attention by Ofwat as it developed its methodology for the PR24 price review.[1] At the same time, there has been growing concern amongst a range of stakeholders, including water companies, Defra, the Environment Agency and the National Infrastructure Commission.

Compared to its approach to the PR19 review, Ofwat's PR24 draft determinations show greater recognition of concerns relating to asset health and a willingness to make some changes to its regulatory approach to start to tackle these. For example, it has provided some companies with additional allowances on a targeted basis to increase their rates of water mains replacement.

Despite some positive developments, Ofwat's draft determinations involve quite limited action to respond to the funding concern by supporting asset health investment across the industry and the specific approach it has taken to water mains replacement seems quite problematic.

In relation to concerns about concerns about decision-making above, Ofwat seems to have given limited attention to understanding the extent to which its own regulatory framework might incentivise companies to focus more on shorter-term performance than long-term investment – and how it might best respond to this. This is despite Ofwat previously finding evidence of insufficient focus by water companies on the long term.[2]

And Ofwat's draft determinations do not give much prominence to tackling the informational concern. Ofwat is carrying out separate work related to operational resilience but there seems to be insufficient recognition of the interactions between this and the PR24 determinations.

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[1] For example, Ofwat's consultation on the PR24 methodology only considered a narrow set of options for tackling funding concerns related to asset health and did not consider in any detail concerns relating to the incentives on companies to focus more on short-term rather than long-term performance.

[2] Ofwat (2021) *Asset management maturity assessment – insights and recommendations*, page 19.

Opportunities for PR24 arising from the Infrastructure Health project

We have considered the extent to which it would be possible for Ofwat to take further action as part of the PR24 process by implementing, or moving towards, the "policy packages" identified in the Infrastructure Health project. The idea of policy packages reflects the finding that, to tackle the concerns highlighted above, there is a need for a set of complementary reforms across different parts of the regulatory framework, rather than making changes to one part in isolation (e.g. cost assessment, or regulatory reporting of asset health and operational resilience).

We consider that three of the five policy packages identified in the Infrastructure Health project are unlikely to be feasible at PR24, due to the extent of changes from the current approach and/or the data requirements. For instance, it does not seem possible at this stage for Ofwat to carry out a separate explicit assessment of companies' capital maintenance requirements. Ofwat's process to-date has placed emphasis on using "base cost" econometric models that treat operating expenditure and capital maintenance together; our view is that for PR24 any viable action needs to build on this foundation (e.g. by applying adjustments to results from these models) rather than trying to assess operating expenditure and capital maintenance separately. And for PR24 it would be very difficult to adopt the type of approach used by Ofgem of making price control funding for energy network companies conditional on the delivery against a set of monetised network asset risk metrics (NARMs); no similar asset risk metrics are available at present in the water industry.

Nonetheless, two of the policy packages from the Infrastructure Health project do seem relevant and useful to consider further in the context of the PR24 draft determinations.

Given Ofwat's emphasis on base cost econometric models, one type of approach is to make targeted adjustments to the allowances for base costs to support additional asset health investment in specific areas (beyond the levels implicitly funded by the base cost models), with the additional funding tied to price control deliverables (PCDs) relating to specified investment volumes. This was the basis for one of the five policy packages, which we saw as closest to the approach from the PR19 price review. In its draft determinations, Ofwat has applied this type of approach specifically for water mains replacement for some companies in its draft determinations.

However, it is difficult to understand why the problem of under-investment in asset health that Ofwat identified and responds to would be isolated to water mains and not extend to other types of assets. Some companies sought additional funding for investment in areas outside of water mains but, apart from the more pro-active approach to funding asset health investment that Ofwat plans to take with Thames Water, Ofwat did not accept these proposals.

The position seen in the draft determinations can be understood to reflect not simply Ofwat's assessment of the evidence put forward by companies, but some inherent challenges that arise if the type of approach outlined above is to be applied in practice, especially on a sector-wide basis. More broadly, we found in the Infrastructure Health project that this type of approach is quite limited in its ability to tackle the concerns about the regulatory approach to asset health set out above.

From the perspective of the Infrastructure Health project, we see the most opportunity for PR24 to come from a different type of approach, which was assessed more favourably as an option for PR29 and could be applied, in modified form at least, at PR24. In the context of PR24, we would see the core features of this approach as follows:

- A sector-wide uplift to base cost allowances to support greater asset health investment than is funded by the allowances from Ofwat's base cost models.
- Companies having flexibility on how to spend the additional allowance, without this being hypothecated to specific areas of investment or conditional on PCDs for specified asset replacement volumes.
- A set of informational and incentive remedies, to be introduced gradually during AMP8 but forming part of the final determinations policy package, to keep better track of asset health and associated risks over time, and to better align companies' investment behaviour with long-term performance and the effective management of risks to outcomes in the future.

The uplift could be based on regulatory judgment informed by evidence that is available outside of the base cost models (e.g. estimates that draw on evidence about asset age profiles and plausible asset life assumptions). This judgement could also recognise that the historical expenditure data, which is used to estimate Ofwat's base cost models, may under-state the long-term efficient levels of expenditure (e.g. because companies have taken expenditure decisions in the context of regulatory incentives to focus on nearer-term cost control rather than longer-term performance).

In addition to these elements there is the potential to include further arrangements, especially if there are concerns that the uplift provided at PR24 final determinations might go beyond what companies actually spend during AMP8 and/or concerns about the uncertainty faced in deciding on the scale of uplift to apply. Although there remains the option of not including such arrangements for PR24, we see two key options if further action is considered:

- An adjustment mechanism which would adjust all companies' base cost allowances at the end of AMP8 in light of the average difference between the assumed and outturn levels of base costs, such that, on average across the industry, there is no net under- or over-spend.
- A form of use-it-or-lose-it provision such that, at a company level, any under-spends against the uplift to the base cost allowance would be returned to customers (or perhaps deferred to subsequent price control periods) such that an under-spend of the uplift does not benefit investors.

The first of these forms part of the corresponding policy package from the Infrastructure Health project. But this package was developed as an option to consider further for PR29, and we recognise that the novelty and complexity of this mechanism raise some questions about its suitability for PR24. The second of these options is likely to be easier to implement in some form for PR24. And the potential drawbacks from a use-it-or-lose-it type approach would be considerably lower if this is clearly presented as an interim solution that would be replaced at PR29. That said, the uplift could be applied without either of these two provisions.

Our scope of work for Water UK did not include a detailed consideration of policy options outside of the Infrastructure Health policy packages and there may be further options that are worth considering for PR24 final determinations beyond those that we identify in this note.

Concluding remarks

Our overall view is that, even at this late stage of the PR24 process, there is a significant opportunity for Ofwat to improve its regulatory framework and provide additional funding to support asset health investment. While some of the options for reform considered in the Infrastructure Health project would take a longer timeframe to implement, there are also options that could be applied more quickly to tackle the concerns about the treatment of capital maintenance and asset health under Ofwat's regulatory framework and bring forward the benefits of those changes for customers and the environment.

Furthermore, the work emerging from the initial phase of the Infrastructure Health project provides a valuable resource which Ofwat could draw on, potentially with some further modifications, to adapt its approach ahead of the PR24 final determinations.

1. Context and scope of the work

Reckon carried out workstream 2 of the project commissioned by Affinity Water, Anglian Water, Northumbrian Water and Wessex Water on *Improvements to the regulatory framework for asset health and operational resilience*. We refer to the project in this note as the "Infrastructure Health" project, in line with the Water UK page hosting content.[3] Water UK played an active role in that project, including as a steering group member.

As part of workstream 2 of the Infrastructure Health project, Reckon considered what regulatory reforms might be made to improve the approach to capital maintenance and asset health. The focus of this work was on reforms that could be implemented for PR29 (or perhaps PR34) and workstream 2 did not consider what changes could be made for PR24.

Workstream 1 of the Infrastructure Health project, carried out by Jacobs, identified and assessed a range of metrics that would help to reveal current and future asset health risks and historical trends in asset health, including metrics that could support the potential changes to the regulatory approach identified in workstream 2.

As a foundation for considering potential regulatory reforms, we sought to articulate the concerns with Ofwat's current regulatory approach. In the report to workstream 2, where we referred to Ofwat's "current" regulatory approach, we meant the approach used for the PR19 price review, subject to planned modifications that Ofwat had specified in its PR24 final methodology. (workstream 2 was completed before Ofwat published its PR24 draft determinations).

At that stage, we identified four high-level inter-related concerns with Ofwat's regulatory approach in relation to capital maintenance and asset health. These were as follows:[4]

- **Informational concern:** there is not enough useful information available about the risks of service disruption and adverse environmental outcomes in the future that may arise from asset deterioration or poor asset health, and how these risks are being managed by water companies.
- **Behavioural and decision-making concern:** the behaviour and decision-making of water companies, *which is heavily influenced by the regulatory framework*, may not be well-aligned with the achievement of good outcomes for customers and the environment over the long term, in terms of the adequacy of investment in asset health to manage risks to future outcomes in an efficient way over time.
- **Funding concern:** the funding available to water companies from customer bills, as governed by the regulatory framework, would not be sufficient to properly remunerate efficient companies who adopt the best long-term decisions about asset health and the management of future risks.
- **Responsibilities concern:** given how companies act (or are likely to act) under the current regulatory framework, the regulator may not take enough responsibility for understanding and

[3] https://www.water.org.uk/investing-future/infrastructure-health

[4] Reckon (2024) Improvements to the regulatory framework for asset health and operational resilience: Workstream 2 main report.

mitigating - through its own actions and decision-making (e.g. in relation to the adequacy of cost allowances) - long-term risks to customers and the environment that may arise from asset deterioration or poor asset health.

These concerns are heavily interrelated. For instance, the funding concern is one of several significant drivers of concern about decision-making by companies, and that concern is itself one of the drivers of the funding concern. Some key interactions are set out in the report to workstream 2.

During the course of workstream 2, we considered what regulatory reforms might be introduced at the PR29 price review (i.e. to be effective from 1 April 2030) to tackle the concerns above, with a particular emphasis on the informational, behavioural and decision-making, and funding concerns. Our work included: a review of past studies and regulatory approaches in other sectors; the compilation of a long list of potential regulatory remedies; the development of a set of five policy packages that each combined complementary reforms across different parts of the regulatory framework; and a structured assessment of these against a set of evaluation criteria.

Against this background, and following the publication of Ofwat's draft determinations for PR24, Water UK asked Reckon to prepare a note that:

- Briefly summarises how Ofwat has adapted its regulatory approach for the PR24 draft determinations to take account of concerns about capital maintenance and asset health, giving particular attention to the four concerns identified as part of the Infrastructure Health project.
- Compares the changes that Ofwat has made in its draft determinations against the regulatory reforms envisaged in the set of policy packages from the Infrastructure Health project.
- Provides a view on the extent to which it would be possible for Ofwat to take further action as part of the PR24 process (i.e. rather than waiting until PR29) by implementing, or moving towards, the policy packages identified in the Infrastructure Health project.

We have focused on the prominent aspects of Ofwat's draft determinations approach to capital maintenance and asset health, complemented by further discussions with Water UK. It is possible that, given the volume of material published, the complexity of Ofwat's regulatory framework and the timeframe within which this note was prepared, we have overlooked further aspects of draft determinations that are relevant to asset health.

We primarily consider Ofwat's PR24 draft determinations in terms of whether they move towards any of the policy packages from the Infrastructure Health project. This note is not intended to provide a more general review or critique of Ofwat's draft determinations in relation to capital maintenance and asset health.

The primary purpose of this note was to consider the potential applicability to PR24 of the policy packages developed as part of the Infrastructure Health project. Nonetheless, we have also briefly considered some other regulatory options, especially where these might be viewed as modifications of the Infrastructure Health policy packages intended to make these more viable for PR24.

The remainder of this note takes the following topics in turn:

- Action on asset health from the PR24 draft determinations.

- Comparison against Infrastructure Health policy packages.
- Opportunities for further progress at PR24.

In addition, the appendix provides further discussion of the feasibility for PR24 of individual elements of the regulatory options and initiatives under the two policy packages from the Infrastructure Health project that seem more relevant to PR24.

2: Action on asset health from the PR24 draft determinations

In this section we summarise some of the key aspects of Ofwat's PR24 draft determinations, in relation to the regulatory approach to capital maintenance and asset health, that involve changes from the approach applied at PR19 or planned in Ofwat's PR24 final methodology.

We comment, at a high level, on the extent to which Ofwat has made changes to help tackle the informational, behavioural and decision-making, funding and responsibilities concerns identified in the Infrastructure Health project.

On the whole, Ofwat's PR24 draft determinations show some recognition of, and response to, concerns about capital maintenance and asset health, but the changes made relative to the PR19 approach seem quite isolated and limited.

This section is organised as follows:

- Recognition that there is a problem and a need for changes to the regulatory approach.
- Limitations in Ofwat's action on asset health at the draft determinations.
- Other observations on the regulatory response in the draft determinations.

Recognition of problems and a need for changes to the regulatory approach

Compared to its approach to the PR19 review, and its PR24 final methodology, Ofwat's PR24 draft determinations show greater recognition of concerns relating to capital maintenance and asset health and a willingness to make some changes to its regulatory approach to start to tackle these concerns.

In its draft determinations:

- Ofwat seems to recognise that, under its prevailing regulatory framework, there are risks that companies focus on investments that have a greater performance impact in the short term, in a way that leads to a deterioration in asset health in the long term.[5] While Ofwat has recognised these risks before, it seems to give them more weight in the PR24 draft determinations.
- Ofwat seems to accept that this is a sector-wide issue, calling for sector-wide responses, rather than an issue arising for specific companies.
- Ofwat seems to recognise a need for funding in AMP8 to be higher than historically to enable companies to achieve improvements in asset health. For instance, Ofwat highlights that in its draft determinations base expenditure allowances are 14% higher than at PR19, and 3% more than companies have spent in the last five years, and says that it expects companies to "use this increased expenditure to maintain and improve the health of their asset base" (taking into account the impact of climate change in the 2025- 30 period).[6]

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[5] Ofwat (2024) *PR24 draft determinations: Expenditure allowances*, page 34.

[6] Ofwat (2024) *PR24 draft determinations: Expenditure allowances*, page 3.

These steps seem to be positive developments compared to the PR19 approach.

Limitations in Ofwat's approach at draft determinations

Despite the positive developments above, Ofwat's draft determinations involve quite limited changes to its prevailing regulatory approach in relation to capital maintenance and asset health.

In relation to funding:

- Ofwat's approach to cost assessment for water companies' base costs (which covers operating expenditure and capital maintenance / asset replacement expenditure) is to a large degree the same as that applied at PR19.[7]

- The key area of change in relation to capital maintenance and asset health concerns water mains replacement. Ofwat has provided explicit funding for additional rates of water mains replacement, following cost adjustment claims on water mains from some companies that prompted Ofwat to consider this issue at a broader sector level. But Ofwat's approach to water mains replacement provides additional funding to only six of the 17 companies, with 85% of it allocated to just three companies. It is also requiring other companies to achieve increased rates of water main replacement without additional funding in a way that seems particularly problematic.[8]

- Ofwat seems to identify a concern with the condition of sewage pumping mains, saying that the sector has rehabilitated sewage pumping mains at a rate of 0.33% per year on average over the past five years but that some companies have rehabilitated much lower levels of sewage pumping mains over this time period (as low as 0.03% per year). Ofwat says that it expects companies with poor condition sewage pumping mains to set out how they intend to improve the condition of their sewage pumping mains over AMP8.[9] But the draft determinations do not provide any additional funding for this. Nor do they recognise that if some companies have spent too little in this area in the past this will tend to have supressed the base cost allowances that Ofwat sets for all companies in AMP8, given the influence of historical expenditure across the industry on the base cost allowances Ofwat sets for AMP8.[10] This is an example of a wider concern that the historical expenditure data used for Ofwat's econometric benchmarking of base costs is polluted to some degree: companies' decisions on how much investment in asset health to undertake have been made within the context of a regulatory framework that gives more

[7] For a more detailed summary of Ofwat's approach to cost assessment (before PR24 draft determinations) see pages 7 to 9 of Annex 1 to Reckon's report to workstream 2 of the Infrastructure Health project.

[8] It is outside the scope of this note to review the basis on which Ofwat decided to provide some companies with no additional funding and/or to require some companies to carry out more mains replacement in AMP8 than other companies without additional funding. As a general point, we saw serious problems with this aspect of draft determinations, especially given its retrospective nature and inconsistency with the totex and outcomes regulatory framework that companies could reasonably have expected to operate under over AMP6 and AMP7.

[9] Ofwat (2024) *PR24 draft determinations: Expenditure allowances*, page 33.

[10] Given both (a) Ofwat's emphasis on econometric modelling of base costs that uses historical expenditure data across the industry as the starting point for base cost allowances for each company; and (b) its use of efficiency ratios calculated over the last five years of historical data to determine the catch-up efficiency adjustment.

emphasis to companies' near-term cost control and within-period performance than to their longer-term efficiency, asset health and management of risks to future outcomes.

- It is difficult to understand why the problem of under-investment in asset health that Ofwat identified and responds to in its draft determinations would be isolated to water mains (and sewers) and not extend to other types of assets.

- Ofwat highlights that its base cost allowances are greater than in AMP7, and more than companies have spent over the last five years, and expects companies to improve asset health. But for most companies the increases to allowances seems to be largely driven by other factors.[11] The draft determinations do not seem to provide any additional funding for investment to *improve* asset health beyond the highly-targeted and hypothecated increases for water mains replacement for a subset of companies.

- Ofwat's cost assessment seems to implement a funding squeeze on water companies, once consideration is given to the upward trend in companies' base costs over time (which is overlooked by Ofwat) and the factors that are likely to be driving this.[12] This funding squeeze poses risks to capital maintenance and asset health further to the more specific limitations above.

- Ofwat received specific proposals from two companies (leaving aside Thames Water which we comment on separately below) for additional funding for capital maintenance relating to improvements to asset health for assets other than water mains. Ofwat rejected Northumbrian Water's cost assessment claims for additional funding for additional capital maintenance expenditure in relation to water non-infrastructure assets (claim for £52 million) and wastewater non-infrastructure assets (£94 million). Ofwat found that Northumbrian had not demonstrated a need for an adjustment to its allowances in respect of these claims.[13] Ofwat rejected Yorkshire Water's cost adjustment claim for £187 million to deliver an increase in capital maintenance expenditure for water treatment works; Ofwat found that the claim failed the "need for adjustment" and "cost efficiency" assessment criteria.[14]

- Ofwat raised a number of serious concerns with Thames Water's claims for additional funding, including for improvements to asset health, to tackle what the company called its "asset deficit" (Thames Water sought an additional £779m for water assets and £1.2 billion for wastewater assets). Ofwat said that the claims largely duplicate base expenditure, do not identify the risks they are seeking to address and do not clearly set out outputs or outcomes or improvements for

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[11] For example, while Ofwat does not provide a detailed breakdown of the reasons for differences in base cost allowances between AMP7 and AMP8 we understand that these reflect a combination of increases in the modelled costs derived from Ofwat's econometric models (e.g. due to projected increases in the variables used as measures of companies' scale as well as higher outturn expenditure in AMP7 than historically) and factors for which Ofwat has made explicit adjustments to allowances for (e.g. allowances for aspects of smart metering costs that Ofwat attributes to base costs, additional allowances for higher ongoing costs of more stringent phosphorus permit levels when treating sewage, and resilience to climate change).

[12] See, for example Ofwat's chart in "PR24 Cost Assessment Working Group Forward looking capital maintenance (28 September 2021)", page 11. This chart shows a clear upward trend in industry-wide base expenditure since 2011/12 that has not been captured in Ofwat's base cost models for PR24.

[13] Ofwat (2024) PR24 Draft Determinations: Total expenditure allowances – by company, page 19.

[14] Ofwat (2024) PR24 Draft Determinations: Total expenditure allowances – by company, page 53.

customers and the environment.[15] Nonetheless, Ofwat is proposing additional funding of up to £1 billion specifically for Thames Water to support the company improving its assets and performance. This funding would be subject to special regulatory arrangements for Thames Water, which would involve more detailed and ongoing involvement by Ofwat in Thames Water's asset management activities during AMP8 compared to the approach taken for other companies. Ofwat said that its approach builds on the conditional gated allowances approach at PR19 for Thames Water (London resilience and London Water Network).

Given these issues, Ofwat's PR24 draft determinations does not go very far in addressing the industry-wide funding concerns identified in the Infrastructure Health project.

Furthermore, as Reckon's work on the Infrastructure Health project sought to emphasise, it is important to view the concerns about capital maintenance and asset health as broader than concerns about price control funding, and to recognise other concerns arising under the current regulatory framework, such as the informational concerns and concerns about the contribution of the regulatory framework to the companies' decision-making being insufficiently focused on the long term.

Outside of what seems to be quite a simplistic approach to water mains replacement, Ofwat's draft determinations do not involve any significant measures to better align the incentives and decision-making of water companies with long term performance, in particular through the management of risks to future outcomes associated with asset health.

This is despite Ofwat's recognition in its draft determinations of risks that companies may focus on short term performance as highlighted above. This is a concern that Ofwat has also recognised in the past, when it reported findings from its review of the PR14 regulatory framework in 2022:[16]

> *"Our intention with the PR14 outcomes framework and totex approach was to encourage a long-term focus on asset health, using short-term incentives as a stepping stone. But many companies commented that, although they set out longer-term strategic contexts in their business plans, they tended to focus on short-term delivery – where incentives were clear – at the expense of longer-term objectives. In particular, some companies said that they delayed spend on capital maintenance in order to focus on delivering against specific PCs by the end of the 2015-20 period."*

> *"... we agree that the outcomes framework does incentivise some focus on the long term. However, the AMMA report highlighted that few companies have been able to demonstrate that they looked at longer term asset health trends outside of the established performance commitment framework. It also found that only a minority of companies engaged with their boards specifically on asset health and operational resilience risks and mitigations.... we consider there is evidence of insufficient focus on the long term during the PR14 period."*

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[15] Ofwat (2024) PR24 Draft Determinations: Total expenditure allowances – by company, pages 41-42.

[16] Ofwat (2022) *PR14 Review*, pages 23-24.

In view of the statements above, one of the notable features of Ofwat's approach to PR24 so far has been how little attention it seems to have given towards understanding the extent to which its own regulatory framework might have driven this observed behaviour, and what changes to the framework might be adopted to achieve more desirable long-term behaviour.

Workstream 2 to the Infrastructure Health project gave attention to different ways in which the incentives arising under the regulatory framework might be improved (beyond changes to the approach to cost assessment). This included the potential to improve incentives by expanding the scope and usefulness of information that companies report on asset health and asset risk, and by exposing more information relating to potential risks to outcomes in the future arising from asset failure risks. This in turn reflects a view that informational concern was one of the key drivers of the behavioural and decision-making concern.

In contrast, Ofwat's draft determinations do not seem to view improvements to the available information on asset health, and associated risks to outcomes in the future, as a key part of the regulatory package for AMP8.

Ofwat's published analysis of asset condition information is limited to water mains and bioresources assets, and its comments on asset condition in the draft determinations document on expenditure allowances are focused on water mains, sewers and bioresources. Ofwat's consideration of data on condition grades for bioresources asset was due to concerns it had that some companies' high costs of work to achieve IED compliance might be indicative of insufficient maintenance of assets and could overlap with work that is funded through base expenditure allowances.[17]

Furthermore the draft determinations do not properly discuss the limitations with data focused on condition grade (e.g. not reflecting consequences or criticality) or set out plans to improve the data on asset health over AMP8. We understand that Ofwat has re-started its work on operational resilience, but little has been published in this area since 2022 and this work does not seem to be closely joined up with Ofwat's draft determinations. Ofwat simply reports in its draft determinations that it is "developing an integrated monitoring framework to form a holistic and complete view of asset health and operational resilience going forward".[18]

Other observations on the regulatory response in the draft determinations

In addition to the limitations in the scope of Ofwat's response at PR24 draft determinations, there seem to be some significant problems with the action on asset health that Ofwat has taken. We make a number of observations:

- By introducing requirements for specific volumes of mains replacement, Ofwat's approach risks skewing companies' investment in asset health towards water mains without reason to be confident that this is the most effective use of additional investment to improve asset health. Ofwat's focus on water mains does not reflect any evidence that asset health and operational resilience across other aspects of water companies' assets and systems are at sufficient levels.

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[17] Ofwat (2024) *PR24 draft determinations: Expenditure allowances*, page 86.

[18] Ofwat (2024) *UK Government priorities and our 2024 price review draft determinations*, page 12.

- Even within the category of water mains replacement, Ofwat's approach at draft determinations risks deterring companies from using sensible approaches to asset management. For instance, a sensible strategy for asset replacement would consider both risks of asset failure (for which asset condition is only one source of relevant evidence) and the potential consequences of such failure (e.g. in terms of impacts on customer service and environmental outcomes). Ofwat's approach at draft determinations implies that the correct or efficient thing for companies to have done in the past is to replace mains that are reported to be in the worst condition grades, even if failures of these mains pose smaller risks to performance (e.g. in terms of leakage or supply interruptions) than other mains.

- Ofwat says in its PR24 draft determinations that its regulatory regime "gives companies considerable flexibility as to how they invest their base expenditure allowances to deliver good outcomes for customers and the environment".[19] However, in practice Ofwat's approach at draft determinations implies that companies ought to have achieved specific improvements in water mains condition during AMP6 and AMP7, and must make up for any shortfalls during AMP8 without additional funding. Ofwat seems to have moved away from the PR14 and PR19 policy position that it is for companies to decide how best to use their base cost allowances, subject to legal requirements and the outcomes/ODIs framework, and seems to be retrospectively introducing prescriptive investment requirements for the volume of water mains replacement and evolution over time in reported asset condition grades. And Ofwat has not considered asset health outside of water mains, sewers and bioresources assets and it is possible that water companies that have seen decreases in water mains condition have improved asset health elsewhere.

Beyond these comments, this note is not intended to provide a more general review or critique of Ofwat's draft determinations in relation to capital maintenance and asset health.

[19] Ofwat (2024) PR24 draft determinations: Expenditure allowances, page 34.

3: Comparison of draft determinations against reforms identified in the Infrastructure Health project

In this section we compare, at a high level, the changes that Ofwat has made in its draft determinations against the regulatory reforms envisaged in the set of policy packages from the Infrastructure Health project. This section is structured as follows:

- Overview of the five policy packages.
- Comparison between the draft determinations and policy package 1.
- Steps towards other policy packages.

We focus in this section on the approach that Ofwat has taken in general across the industry and leave aside the special arrangements for Thames Water (those arrangements are well outside the type of approach considered for the industry as a whole during workstream 2 of the Infrastructure Health project).

Overview of the five policy packages

In this section we briefly overview the five policy packages from workstream 2 of the Infrastructure Health project, which are labelled packages P1 to P5. These policy packages are quite complicated and varied in terms of the nature of the changes to the regulatory framework that they would involve. These can be introduced very briefly as follows:

- **Package P1**: Base cost benchmarking retained, supported by an improved process for funding additional investment in asset health beyond that implicitly funded by the base cost models.
- **Package P2**: Base cost benchmarking retained, supporting by forward-looking and dynamic industry-wide adjustments to base cost allowances and enhanced incentives on long-term performance.
- **Package P3**: Ofwat-owned assessment of each company's capital maintenance expenditure requirements, combined with enhanced incentives on long-term performance.
- **Package P4**: Funding and delivery accountability based on composite asset risk metrics (this package draws on the Network Asset Risk Metric (NARM) approach used by Ofgem).
- **Package P5**: Regulatory review of each company's business plan for capital maintenance with extensive PCDs tailored to the investments from companies' plans that Ofwat has funded.

The table on the next page provides an overview of the packages in broad terms. The table summarises key elements of each package in relation to: (a) the high-level approach to cost assessment; (b) whether capital maintenance funding is tied to within-period deliverables; (c) the role for informational and incentive remedies; and (d) whether the package includes an industry-wide adjustment mechanism for outturn expenditure.

More detailed information on the policy packages, and the regulatory options or initiatives within them, is contained within Annex 1 to Reckon's report to workstream 2.

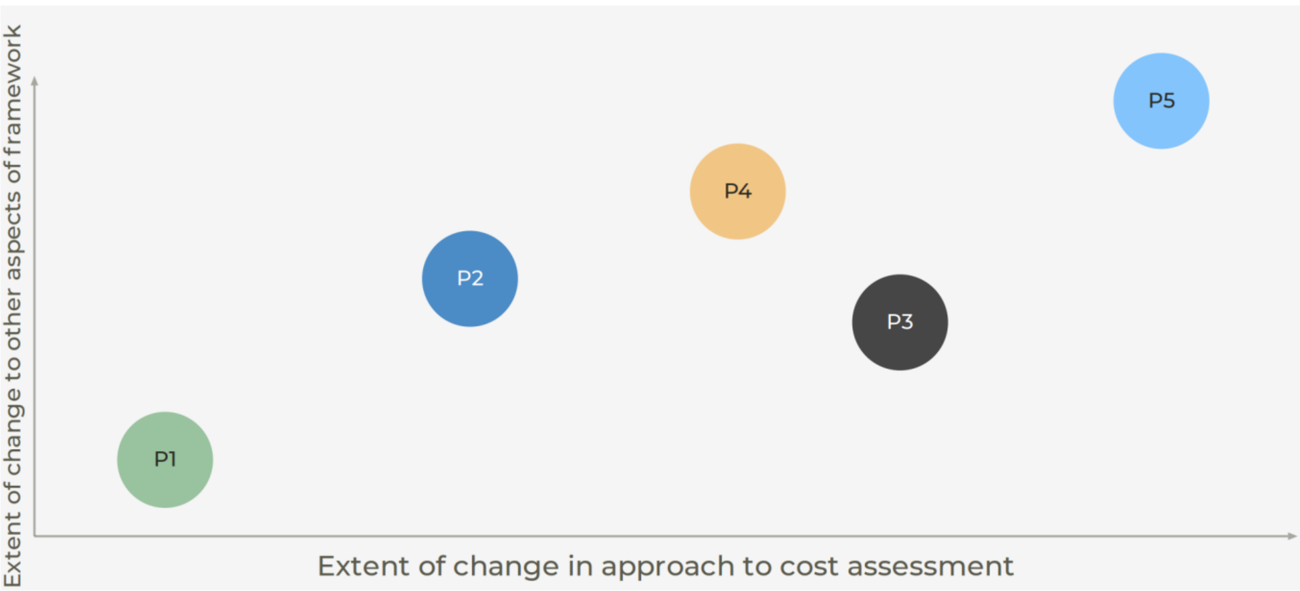
Figure 1 Overview of Reckon policy packages from Infrastructure Health project

Package	P1	P2	P3	P4	P5
High-level approach to cost assessment?	Base cost models with potential adjustments based on Ofwat review of company proposals for additional investment in asset health	Base cost models with Ofwat assessment to consider industry-wide forward-looking adjustments for factors including asset health, drawing on a range of evidence	Ofwat detailed assessment of capital maintenance using a range of its own models and tools (move away from base cost models)	Use of approach from package 2 and/or 3, in a way that draws on data on composite asset risk metrics	Ofwat cost assessment starts from review of each company's business plan for capital maintenance (move away from base cost models)
Is the expenditure allowance for capital maintenance conditional on delivery of specified deliverables/outputs?	Yes in part - PCDs in specific areas for which additional funding is provided (not for the rest of capital maintenance)	No	No	Yes - NARM-style composite asset risk metric used to assess delivery against ex ante allowances	Yes - PCDs for whole of capital maintenance based on detailed investment plan or granular asset health metrics
Other remedies to address behavioural and informational concerns?	Narrow set of informational remedies	Enhanced set of incentive and informational remedies	Enhanced set of incentive and informational remedies	Narrow set of informational remedies	Narrow set of informational remedies
Introduction of adjustment mechanism for industry-wide outturn expenditure?	No	Yes	No	No	No

Source: Reckon (2024) Improvements to the regulatory framework for asset health and operational resilience: Workstream 2 main report.

Reckon's workstream 2 report also provides an approximate indication, based on judgement, of how each of the five packages compares to the current regulatory framework, comparing the package in two dimensions: (a) the extent of change in the approach to cost assessment; and (b) the extent of change to other aspects of the regulatory framework. We reproduce the diagram from the report in figure 2. This indicates that package P1 is closest to the current regulatory framework and package P5 the furthest.

Figure 2 Reckon comparison of packages in terms of the extent of change from current approach



Source: Reckon (2024) Improvements to the regulatory framework for asset health and operational resilience: Workstream 2 main report.

Comparison between the draft determinations and policy package 1

Ofwat's approach in the PR24 draft determinations is closest to package P1 (which in turn is the package closet to Ofwat's PR19 approach). The developments in the draft determinations that stand out in this respect are as follows:

- Supplementing the allowances derived from base cost models with targeted additional allowances for additional asset health investment.
- Considering sector-wide adjustments in response to funding claims submitted by a subset of companies that have more general applicability.
- Applying PCDs for the specific asset health activities for which the additional allowances are provided (without any PCDs or similar arrangements being applied to the bulk of capital maintenance expenditure).

However, Ofwat's focus on water mains replacement without allowances for other areas of asset health investment means that the draft determinations represent quite a narrow application of package P1.

Furthermore, package P1 as envisaged by the Infrastructure Health project involved a number of further changes to Ofwat's regulatory approach which have not been implemented at PR24. Package P1 would involve a dedicated process for Ofwat to consider requests from companies for additional funding for targeted investment in asset health (further to what is deemed to be funded via allowances derived from the base cost models) supported by arrangements to help promote effective use of that process. For instance, in order to encourage the use of the process, under package P1 Ofwat's business plan assessment process would be changed to reduce the risk of deterring proposals for additional investment in asset health that is to the longer-term benefit of customers.

In contrast, Ofwat's draft determinations – and the PR24 process more generally - have not benefited from the improvements to the price review process envisaged under package P1. For instance, given the nature of the business plan assessment process set out in the PR24 final methodology in December 2022 (the Quality and Ambition Assessment), companies will have faced significant downside financial risk from submitting expenditure plans that included cost adjustment claims or enhancement proposals for additional investment in asset health. Furthermore, Ofwat's PR24 final methodology indicated that there were limited circumstances under which companies could submit cost adjustment claims for additional funding for asset health investment beyond that allowed for simplicity in the base cost econometric models,[20] and that companies would need to provide what Ofwat considered to be "compelling evidence" on the need for an adjustment.

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[20] For example, Ofwat said in its PR24 final methodology (Appendix 9, pages 47-50) that, in relation to capital maintenance and asset health, it would consider "cost adjustment claims related to exogenous factors / cost drivers that

In this context, the evidence from companies that is available at this stage of the PR24 process, on the case for additional investment in asset health during AMP8, is likely to be more limited than we would expect to be the case had package P1 been implemented more fully for PR24.

Steps towards other policy packages

As far as we can tell from our review, Ofwat's PR24 draft determinations do not include any of the key elements of packages P2 to P5, as indicated in figure 1 above.

Nonetheless, there are some aspects of draft determinations that might be seen as initial steps towards some of these packages. In particular:

- Ofwat seems to have made somewhat greater use of asset health data as part of its cost assessment process to set base cost allowances (albeit heavily limited by the limitations in the data currently available). Packages P2, P3 and P4 would all involve a greater role for comparisons over time, and between companies, of data relating to asset health and operational resilience as part of cost assessment.
- Ofwat sees merit in increasing funding for companies to improve asset health relative to current levels and/or what is funded implicitly by the allowances derived from its base cost econometric models. Each of packages P2, P3 and P4 involves an approach to cost assessment which is intended to provide a more forward-looking perspective than provided for by the base cost econometric models, with explicit consideration of the needs for investment in asset health.
- Ofwat recognises a role for increased funding to be supported by other regulatory measures to help ensure that the increased funding is spent on asset health investment (i.e. PCDs in the case of the additional funding for some companies to increase water mains replacement rates). Each of packages P2, P3, P4 and P5 have a set of arrangements to help ensure that the increased funding is spent on asset health investment (i.e. enhanced informational and incentive remedies in the case of P2 and P3, and different forms of PCDs under P4 ad P5).

require a step change in efficient capital maintenance expenditure", and that companies should provide compelling evidence for any adjustment including "evidence of a clear link between the exogenous factors and maintenance expenditure requirements" and "evidence on how these exogenous factors are likely to change in the future". However, the case for increasing asset health investment, beyond what is implicitly funded in the base cost models, in order to reduce risks to outcomes in the future (to the benefit of customers and the environment) may have little connection to exogenous factors.

4: Opportunities for further progress at PR24

This section considers the extent to which it would be possible for Ofwat to take further action to tackle the concerns relating to capital maintenance and asset health, as part of the PR24 process, by implementing, or moving further towards, the policy packages identified in the Infrastructure Health project.

In considering what is feasible for Ofwat within the remainder of the PR24 process, we have assumed that Ofwat's final determinations are to be published in December 2024 or January 2025.[21]

We have considered a number of constraints in what is possible for PR24 final determinations. In particular, there are constraints from the time left in the process and the data that are currently available (or which could reasonably be produced/reported in the time available). We also recognise that there may be particular concerns if aspects of a new approach were to require retrospective changes to the rules of incentive schemes that companies have already responded to (e.g. the business plan assessment process). More extensive changes may be possible if there were to be a substantial delay to the planned timing for Ofwat's final determinations (e.g. to better align with updated government priorities).

Furthermore, movements towards the policy packages from the Infrastructure Health project could involve a significant departure from both the approach indicated in the PR24 final methodology and adopted at draft determinations. In the interests of good regulatory practice, such a change would require justification, including by reference to stakeholder submissions on these issues. There may be a role for targeted further consultations with stakeholders. We have not sought to consider legal constraints on what might be achievable for final determinations and separate advice might be needed on this before final determinations.

Finally, our main focus in this section is on opportunities to tackle asset health issues across the sector, rather than the specific case of Thames Water for which Ofwat proposes bespoke regulatory arrangements in its PR24 draft determinations. Nonetheless, there may be wider lessons from Ofwat's approach to Thames Water: Ofwat recognises the benefits to customers of it taking a more proactive approach to managing risks relating to asset health even where it has not found the evidence provided by the company to be sufficient or compelling. Without involving the same degree of regulatory intervention, there seem to be opportunities for Ofwat to take a more proactive approach across the industry to managing asset health risk to the benefit of customers.

The section is organised as follows:

- Opportunities to extend the application of package P1.
- Opportunities to move towards the other policy packages.
- Other regulatory options that might be considered for PR24.

[21] Ofwat said in its draft determinations that it plans to publish final determinations by 19 December 2024, but has proposed licence modifications that would allow it to delay final determinations to January 2025 if necessary due to unforeseen circumstances.

Opportunities to extend the application of package P1

As indicated in section 3, Ofwat's approach at draft determinations is closer to package P1 from the Infrastructure Health project than the other four packages. There may be opportunities for Ofwat to retain this type of approach for final determinations but go further in scope in order to better address the informational, behavioural and decision-making and funding concerns.

For instance, Ofwat could consider:

- Extending the set of companies for whom additional funding for water mains replacement is provided.
- Applying a similar approach to other areas of asset replacement beyond water mains.

However, at this stage of the PR24 process, it is difficult to fully implement package P1. Several of the features of P1 that differentiate it from Ofwat's PR19 approach are intended to influence companies' business plan submissions, and it is too late for these to have the intended effects at PR24. In this context, the application of the funding and PCD arrangements envisaged under package P1 seems to be heavily constrained at this stage because Ofwat has received formal proposals for additional funding for asset health investment outside of water mains from only three companies (one of which is Thames Water which Ofwat is treating differently).[22]

There does not seem likely to be time for Ofwat to develop a further business plan submission process and review the outputs from this ahead of its planned final determinations in December 2024 or January 2025.

If timing was the only limiting factor, Ofwat might consider some form of targeted re-opener process or gated approval arrangement early in the AMP8 period (e.g. to take effect from April 2026), enabling companies to make submissions for targeted additional investment in asset health during AMP8 (supported by associated PCDs) beyond what has been funded at final determinations by Ofwat's base cost allowances and water mains replacement arrangements. But aside from the uncertainty around the outcome of that process at final determinations, it is questionable whether this type of approach could work well as an industry-wide response that funds asset health improvement beyond water mains replacement.

Ofwat's approach at draft determinations helps to demonstrate some of the limitations of the approach under package P1 in cases where a sector-wide response to asset health concerns is needed. While it seems feasible to estimate implicit allowances for water mains replacement and set PCDs for the volume of assets to be replaced (e.g. defined by length of mains), it may be more difficult to do so on a common base across all companies for other categories of water and wastewater assets. It is possible that Ofwat's focus on water mains replacement reflects, at least in part, the practical challenges of the type of approach it has adopted to support asset health investment in the draft determinations.

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[22] The number of companies is based on the claims / proposals received from companies as reported in Ofwat (2024) *PR24 Draft Determinations: Total expenditure allowances – by company*.

Opportunities to move towards the other policy packages

As indicated above, the changes to Ofwat's approach to capital maintenance and asset health in the PR24 draft determinations is closest to package P1 and there is some opportunity to align final determinations further with P1.

However, package P1 was not one of the three packages shortlisted for further development at the end of workstream 2 of the Infrastructure Health project. As part of workstream 2, we assessed each of the five policy packages against a set of evaluation criteria. These criteria included the capability of the package to address the concerns identified with the current framework as well as criteria relating to risks of unintended consequences, implementation challenges and the ongoing regulatory burden. Drawing on this assessment, we said that package P1 seems to offer more limited scope for improvement on the current approach, which reflects the more incremental nature of this package.

In this context we have considered whether the three shortlisted packages (P2, P3 and P4) might be introduced in some form at this stage of the PR24 process. We summarise our views on this in the table below, which also considers package P5 for completeness.

Table 1 Overview of feasibility of packages P2 to P5 for PR24

Package	Feasible for Ofwat at PR24?	Comments
P2: Base cost benchmarking with forward-looking and dynamic industry-wide adjustments and enhanced incentives on long-term performance	Broadly yes, but some potential constraints	• We consider it likely to be feasible for a version of this package to be applied by Ofwat for PR24, in full or in large part. • This would not be simple, given the timing, but we have not identified why the key ingredients of package P2 would be unachievable for PR24 if this is treated as a priority. • This package builds on Ofwat's current approach to cost assessment and there is likely to be available evidence to support some form of adjustment to provide a more forward-looking perspective. • Package P2 includes an enhanced set of incentive and informational remedies, most of which seem feasible to introduce in some form during AMP8 on a gradual or phased basis. • At this stage of the PR24 process, there may be more challenges with the introduction of the adjustment mechanism for industry-wide expenditure than there would be if it were to be introduced at PR29. • If Ofwat were to introduce this package for its PR24 FD there may be a case for a targeted mini-consultation before FD, alongside further consultations post FD to flesh out the details of implementation.
P3: Ofwat-owned assessment of capital maintenance expenditure with enhanced incentives on long-term performance	Probably not	• A key feature of this package is that Ofwat would explicitly determine separate allowances for capital maintenance expenditure relative to operating expenditure (or for some modified versions of these cost categories). • At this stage of the PR24 process, we think that it would be very difficult for Ofwat to move completely away from its use of base cost models, and get to a position where it is able to determine explicit allowances for capital maintenance expenditure. • Package P3 also includes an enhanced set of incentive and informational remedies, most of which seem feasible to introduce in some form during AMP8.
P4: Funding and delivery accountability based on composite asset risk metrics	Probably not	• A key feature of this package is that the bulk or all of each company's allowances for capital maintenance expenditure allowances would be conditional on delivery against some form of monetised asset risk metric (e.g.

Package	Feasible for Ofwat at PR24?	Comments
		similar to the way that energy network company allowances are under Ofgem's approach). • Ofwat's regulatory reporting arrangements do not include anything close to this type of metric, and it is likely to be time consuming to develop for water companies' assets. • Given the central role that monetised asset risk metrics would play under P4, we consider it unlikely that such metrics could be developed to an adequate quality standard in time for PR24.
P5: Regulatory review of business plans for capital maintenance with granular PCDs	Probably not	• Under Package P5, there would be a separate assessment of capital maintenance expenditure requirements, drawing on a regulatory review of each company's business plan. • We do not think that this is likely to be feasible for Ofwat at this late stage of the PR24 process, as it is such a departure from the cost assessment approach it has been using for base costs (including capital maintenance) so far at PR24 and also PR14 and PR19. • There does not seem enough time before FD for Ofwat to carry out a proper review of business plan proposals on capital maintenance across the whole of capital maintenance expenditure and to develop and apply a new approach to operating expenditure. • Furthermore, under package P5, there would need to be a set of PCDs covering all or the bulk of capital maintenance expenditure, and this may be challenging to implement.

As indicated in the table, we see real scope to make further progress on tackling concerns relating to capital maintenance and asset health during AMP8, through a modified approach to PR24 final determinations based around the opportunities for package 2.

Package P2 from the Infrastructure Health project can be seen to involve changes from the current approach in three main areas:

- Changes to the approach to cost assessment, with a potential industry-wide uplift to allow for differences between the likely levels of efficient costs in the next price period and the cost levels indicated by cost benchmarking models that have been estimated using historical data. Companies would have flexibility on how to spend the additional allowance, without this being hypothecated to specific areas of investment or conditional on PCDs for specified asset replacement volumes.
- A set of incentive and informational remedies intended to improve companies' focus on long-term investment and performance (e.g. exposing more information about companies' asset health and their management of associated risks to customer and environmental outcomes in the future).
- An industry-wide adjustment mechanism to adjust price control expenditure allowances for each company in light of the levels of outturn expenditure across the industry (relative to what was expected when ex ante allowances were determined).

In the context of the PR24 final determinations, there would be an option to apply the first and second of these elements without introducing the industry-wide adjustment mechanism (the Infrastructure Health project recognised an option in which this element was dropped from this package). The industry-wide adjustment mechanism could help to mitigate against the uncertainty in setting an appropriate value for the scale of uplift to base cost allowances, and to reduce concerns that, on average across the industry, there is an under-spend against the uplift. However, the novelty and complexity of this adjustment mechanism raise some questions about its suitability for PR24. We also outline a potential alternative to this mechanism in the subsection below.

Given the time remaining before final determinations, the determinations of the uplift would not be able to draw on the same range and depth of evidence that would be available if package P2 were implemented at PR29. But an uplift set using judgement could nonetheless offer significant improvements on the draft determinations in relation to the funding for asset health investment in AMP8.

The uplift could be a regulatory judgement informed by evidence that is available outside of the base cost models (e.g. estimates that draw on evidence about asset age profiles and plausible asset life assumptions to produce a more forward-looking estimate of efficient levels of capital maintenance expenditure, potentially assessed for a number of scenarios for asset lives).[23]

The judgement on the uplift could also recognise that the historical expenditure data, which is used to estimate Ofwat's base cost models, may under-state the long-term efficient levels of expenditure (e.g. because companies have taken expenditure decisions in the context of incentives to focus on nearer-term cost control rather than longer-term performance).

We provide further comments on the potential application of package P2 at PR24, including further details of potential informational remedies, in the appendix.

Other regulatory options that might be considered for PR24

The primary purpose of this note was to consider the potential applicability to PR24 of the policy packages developed as part of the Infrastructure Health project. Nonetheless, we have also briefly considered other regulatory options, especially where these might be viewed as modifications of the Infrastructure Health policy packages intended to make these more viable for PR24.

In doing so we have drawn on the long list of regulatory policy options developed as part of the Infrastructure Health project,[24] discussions with Water UK and some suggestions from Northumbrian Water (one of the sponsors of the Infrastructure Health project). We have recognised that some regulatory options that seemed less attractive as a sustainable regulatory approach to apply from PR29 onwards could play a role as an interim measure within the constraints at this stage of the PR24 process.

One significant option that we identified for PR24, as a form of interim measure ahead of more effective reforms at PR29, would involve the type of uplift to base cost allowances summarised under package 2 in the table above (combined with the introduction of the informational remedies over the course of AMP8) but with the following modifications:

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[23] See for example discussion of evidence source 3 on pages 23-27 of Annex 1 to Reckon (2024) *Improvements to the regulatory framework for asset health and operational resilience*.

[24] See the appendix to Annex 1 to Reckon's report to workstream 2 of the Infrastructure Health project.

- Dropping the adjustment mechanism for industry-wide outturn expenditure.
- The uplift element of the base cost allowances being provided on a use-it-or-lose-it basis such that any under-spends against the uplift would be returned to customers (or potentially rolled forward for use in subsequent price control periods).

The potential adjustment mechanism for industry-wide outturn expenditure was included in the Infrastructure Health project as an option to consider further for PR29, and we recognise that the novelty and complexity of this mechanism raise some questions about its suitability for PR24. The modification above, which would replace this mechanism with a use-it-or-lose-it provision, is likely to be easier for Ofwat to implement at this stage of the PR24 process if final determinations are in December 2024 or January 2025.

Under this alternative approach, we envisage that only the uplift element of base cost allowances would be subject to the use-it-or-lose-it provision. For instance, if a company under-spent against its pre-uplift allowance, then its outturn expenditure would be subject to conventional cost sharing against the pre-uplift allowance.

Furthermore, there may be merit in an approach in which, if a company does not spend the uplift, it is deferred until subsequent price control periods, rather than lost completely (i.e. in a way that means that shareholders do not profit from the under-spend but could use the uplift in a subsequent price control period). This additional flexibility might be seen to recognise that different companies may be at different points in their investment cycles and/or at different levels of asset management sophistication / maturity.

It would be necessary to define the scope of expenditure that counts towards the use-it-or-lose it provision. One approach would be for this to apply to capital maintenance expenditure (and expensed infrastructure renewals), as this might be seen to fit with the intention of an uplift to support asset health investment. However, there may be a case for applying it to a broader scope, such as base costs in aggregate, so that the regulatory arrangements for each company would not be dependent on its internal accounting decisions on what costs are treated as operating expenditure and what costs are capitalised.

We have not considered this alternative in any detail at this stage, but our initial view is that the drawbacks from a cost pass-through or use-it-or-lose-it type of approach (e.g. in terms of risks to companies' efficiency incentives, value in revealing information on efficient base cost expenditure requirements over time, and an asymmetric risk structure) would be considerably lower if this is clearly presented as an interim solution that would be replaced at PR29.

We present this here as an alternative to consider, alongside versions of package P2 as set out earlier in this section, which also include the option of package P2 without either the adjustment mechanism for industry-wide expenditure or the use-it-or-lose-it provision.

The comments above are intended to help broaden the set of options that could be considered as Ofwat moves towards the PR24 final determinations, while still building on the platform provided by the Infrastructure Health project. We have not carried out an extensive process to develop and assess regulatory options specifically for PR24.

Appendix

In this appendix we provide further information on the feasibility for PR24 of individual elements of the regulatory options and initiatives under packages P1 and P2. Our focus on these two packages reflects a view that, as set out earlier in this note, the options within these packages generally seem to be more feasible for PR24 than for packages P3, P4 and P5.

Further discussion of package P1

As indicated at the start of this note, package P1 involves the least amount of change from the current regulatory approach, and departs from the current approach in two limited ways:

- Changes to the approach to cost assessment, involving the creation of a new process for Ofwat to review proposals for water companies for additional funding to support investment in asset health beyond the funding provided for this (implicitly) via the allowances derived from the econometric benchmarking of historical expenditure data, and changes to the way that Ofwat assesses such proposals.
- Companies reporting against a broad set of metrics of asset health and operational resilience.

While the first change would be relatively small-scale compared to the current approach, this does not mean that it is straightforward to adopt this approach at this late stage of the PR24 process. This is because a number of aspects of this approach would be intended to affect what proposals and evidence companies include in their price control business plans.

Part of the rationale for the approach to cost adjustment envisaged under package P1 is to tackle concerns that, under Ofwat's current approach, companies may face insufficient opportunity and incentives to put in high-quality proposals and evidence relating to additional asset health investment in their business plans, and it is too late now to address this for Ofwat's PR24 final determinations as these plans have already been submitted.

In the table below we highlight some aspects of the approach to cost assessment under package P1 that are indicated in Annex 1 to the Reckon workstream 2 report and briefly comment on their feasibility for PR24.

In relation to the second change above, on asset health metrics, we consider that this is a feasible part of the price control package to be determined as part of the PR24 final determinations. It would not be feasible to have the data reporting in place from the first year of the price control period, but progress could be made during AMP8 with a view to having good reporting in place by the end of this period. Ofwat is already looking into some of this as part of its ongoing work on operational resilience.

Table 2 Further consideration of package P1

Key aspect of approach to cost assessment under package P1 (from WS2 Annex 1)	Feasible for Ofwat at PR24?	Comments
There would be a dedicated process for companies to submit proposals for targeted increments to their expenditure allowances to fund additional investment in asset health, beyond that which is funded (implicitly) via the allowances derived from the econometric benchmarking models, and for Ofwat to review and assess those proposals. The process would relate to a broad concept of asset health investment which might cover expenditure categorised as capital maintenance, operating expenditure (e.g. expensed renewals) or expenditure to improve asset health that could be viewed as enhancement expenditure.	Partially	• No dedicated process but some companies have used PR24 cost adjustment process or enhancement claims to make a case for asset health investment
Ofwat would update RAG 4 to provide greater clarity and coherence on the distinction between capital maintenance and enhancement expenditure recognising that how expenditure is classified and reported does not need to determine how it is assessed (e.g. some enhancement expenditure is already assessed alongside base expenditure through the same econometric models).	No	• It seems too late for this to have intended effects for PR24 as company business plans already submitted and DD response window is very short.
Ofwat would provide guidance to water companies as part of the final methodology on what is expected in submissions for this process. The tests or criteria used for Ofwat's assessment, and explained in the guidance, would be tailored to the key considerations for making and reviewing claims for additional asset health investment.	No	• It seems too late for this to have intended effects for PR24 as company business plans already submitted and DD response window is very short.
Ofwat would work together with water companies and regulatory experts to produce a better understanding of how implicit allowances for asset health investment can be estimated, and it would provide guidance in the final methodology on this matter. This would look to address as far as possible some of the difficult issues that arise in practice and which do not seem to be resolved at present.	No	• It seems too late for this to have intended effects for PR24 as company business plans already submitted and DD response period is very short.
There would be an expectation that any funding provided under this process would be linked to corresponding delivery accountability arrangements (e.g. price control deliverables).	Yes	• This aligns with what Ofwat has done for the additional funding for water mains replacement in its PR24 draft determinations. •
Ofwat would assess each company's proposals on a case-by-case basis. However, it would consider whether it would be appropriate for additional allowances that have been sought by one or more companies to be provided to those companies only or on a similar basis to all companies.	Yes	• This aligns with what Ofwat has done for the additional funding for water mains replacement in its PR24 draft determinations (pitting aside the merits of Ofwat's draft decisions as to which companies should or should not have an adjustment).
Where Ofwat does not accept a company's claim, there would be no automatic financial (or reputational) downside to the company as part of Ofwat's business plan assessment of the "efficiency" of each company's plan (if such an assessment is to be retained): instead, any such downside would apply only if a company's submission were to be found by Ofwat to be poorly reasoned and evidenced (with a realistic threshold for what could have been done).	Probably not	• Too late for this to have intended effects for PR24 as company business plans already submitted and DD response window is very short. • There may be some broader signalling benefits from adopting this aspect of the approach at PR24 but against this Ofwat could face challenges if its approach to financial rewards and penalties from the business plan assessment departs from the approach indicated at the time plans were submitted.
In developing the approach and guidance for this process and applying it in practice, Ofwat would consider whether	Partially	• Too late for this to have full intended effects for PR24 as company business plans already

Key aspect of approach to cost assessment under package P1 (from WS2 Annex 1)	Feasible for Ofwat at PR24?	Comments
the type of evidential threshold used for the existing cost adjustment claim process (e.g. requirement for "compelling evidence") is appropriate.		submitted, but Ofwat could still reconsider the evidential threshold for the claims it has received.

Further discussion of package P2

This subsection provides a more detailed discussion of the feasibility of specific elements of package P2 for the purposes of PR24. As indicated in figure 1 above, package P2 can be seen to involve changes from the current approach in three main areas:

- Changes to the approach to cost assessment, with consideration of a potential industry-wide adjustment to allow for differences between the likely levels of efficient costs in the next price period and the cost levels indicated by cost benchmarking models that have been estimated using historical data.
- A set of incentive and informational remedies intended to improve companies' focus on long-term investment and performance.
- An industry-wide adjustment mechanism to adjust price control expenditure allowances for each company in light of the levels of outturn expenditure across the industry (relative to what was expected when ex ante allowances were determined).

We take each of these three areas in turn and present tables below that provide an initial view on the feasibility of different elements of these for the purposes of PR24.

We start with cost assessment and consider which of the key analytical tools and sources of evidence suggested to support cost assessment under package P2 (i.e. support the assessment of the need for an adjustment and its appropriate scale) might be available for PR24. The set of analytical tools and sources of evidence comes from the Annex 1 to Reckon's report to WS2.

Table 3 Further consideration of cost assessment under package P2

Potential source of evidence to inform package P2	Feasible for Ofwat at PR24?	Comments
1. Analysis of changes over time in expenditure and consideration of the factors driving these changes	Yes	• This analysis seems feasible. Can draw in part on evidence provided by companies in business plan submission (e.g., Wessex Water cost PR29 adjustment claim on changes over time in industry-wide costs) complemented by consideration of factors highlighted in Reckon's annex 1 to the WS2 report.
2. Analysis of historical data on asset health over the historical period covered by expenditure benchmarking	Partially	• We expect that there is information to carry out some useful and insightful analysis in this area at PR24. However, limitations in data reported on asset health are likely to mean that there is less information than envisaged if package P2 were to be applied at PR29.
3. Estimates of expenditure requirements based on asset inventories and assumed asset life estimates	Partially	• There may already be some information on this in company business plans, whether building on the WICS approach or providing analysis that is used for analysis / tests relating to "broad equivalence".

Potential source of evidence to inform package P2	Feasible for Ofwat at PR24?	Comments
		• Under package P2, these estimates would be used to inform an overall judgement on a potential adjustment to ex ante allowances vs estimates from the base cost models, and it is not essential for these estimates to be highly accurate to add value: even very approximate estimates bring a valuable alternative perspective and could play a useful indicative role.
4. Projections for asset health and outcomes under defined investment scenarios drawing on asset deterioration modelling	Probably not	• Our initial view is that it would be challenging to develop this type of analysis to a point where Ofwat could use it for PR24. However, it may be more feasible if something good in this area has already been done by one or more water companies.
5. Econometric benchmarking models of base-plus expenditure with time trend explanatory variables	Yes	• This would be reasonability straightforward.
6. Econometric benchmarking models of base-plus expenditure with explanatory variables relating to asset health	Maybe	• There could be scope for drawing on some analysis of this nature, but limitations in available asset health metrics may limit the role for this type of modelling compared to what might be done at PR29.
7. Econometric benchmarking models of capital maintenance expenditure	Maybe	• There could be scope for drawing on some analysis of this nature as part of a broader information base (e.g. may help highlight how historical expenditure data profiles are driven by volumes of asset replacement activity and/or asset age). • Limitations in available asset health metrics may limit the role for this type of modelling compared to what might be done at PR29.
8. Econometric benchmarking models using company expenditure forecasts as input data	Yes	• Yes in principle, but we would be concerned that, given behavioural and decision-making concern at PR24 (e.g. from Ofwat's business plan incentives which may incentivise some companies to submit forecasts of base expenditure which are lower than they might expect to spend) this information is not sufficiently reliable to use in this way.
9. Analysis of costs per unit of monetised asset risk reduction	No	• This is dependent on the development of reporting arrangements for composite asset risk metrics and does not seem a relevant strand of analysis for PR24.

To make up for some of the informational limitations indicated in the table above, we see a potential role for the following to further inform the evidence base for assessment of a potential industry-wide adjustment under package P2:

- Evidence from company business plans which makes the case for increases in investment in asset health, compared to historical levels.
- Analysis from Reckon's report to workstream 2 which suggests that historical levels of expenditure, and company forecasts for AMP8, may be below the efficient levels of expenditure for AMP8 since these may be polluted by the effects of the regulatory framework on decision-making by companies.
- Evidence from other reports that suggests that efficient levels of expenditure for AMP8 may be above historical levels (e.g. Economic Insight report for Water UK).

- Possible evidence of emerging risks to performance against common PCs that might be attributable to asset failure.

Another key element of package P2 in Reckon's report to workstream 2 is the "Enhanced set of incentive & informational remedies". We present our initial analysis of the feasibility of each individual remedy within this set, drawing on the set of incentive and informational remedies from the Annex 1 to the workstream 2 report.

Table 4 Further consideration of incentive and informational remedies under package P2

Initiative	Feasible for Ofwat at PR24?	Comments
Increasing the prominence and credibility of information relating to future outcomes performance		
Companies report against a broad set of metrics of asset health and operational resilience	Probably yes, with gradual implementation over AMP8	• We consider this is feasible for PR24 for Ofwat to implement in full or in large part. • These initiatives concern reporting and assessment arrangements in AMP8, starting in April 2025. • These arrangements may not be available from the first year of the price control and could take some time to develop, but we do not see a reason why they are infeasible during AMP8 if sufficient priority is given to them and they are outlined as far as possible in draft determinations. • In order to have desired incentive effects, it is not essential that these arrangements are in place immediately; what matters is that there is a credible plan to implement them over the price control period.
Long-term projections of PC/outcomes performance under well-defined scenarios		
Company-owned policies on the management of asset health and risks to future outcomes		
Comparative evaluation of companies' outcome risk management		
Shadow RCV adjustments for scenarios of each company's future outcomes performance		
Assessment of best practice / maturity in asset management and guidance for improvement		
Use of financial ODIs applied to information on operational resilience		
Financial ODIs apply to outcome of comparative evaluation of companies' outcome risk management referred to above	Potentially: but further consideration needed	• There are some questions about the feasibility of applying a financial ODI that would rest on data, information and evaluation processes that do not exist at the time of final determinations: the ODI itself could not be introduced until further into AMP8 and it would be difficult to specify at FD exactly how it would work. • There may be ways to mitigate the concern, through providing as much clarity as possible at FD and being clear about maximum and minimum financial exposure under the ODI (and these being relatively small given uncertainty around details of the mechanism).
Steps to avoid misleading inferences being drawn on companies' current performance		
Ofwat to make clear to stakeholders why over-spend against ex ante allowances does not necessarily imply inefficiency and may reflect a good long-term approach	Yes	• Communication task that can be applied from the start of AMP8.
Ofwat to make clear to stakeholders why base-plus cost benchmarking results are not on their own a reliable guide to companies' relative efficiency or performance	Yes	

Initiative	Feasible for Ofwat at PR24?	Comments
Other targeted changes to reduce risks of undue incentives on short-term performance		
Ofwat's business plan assessment process avoids rewarding / penalising companies according to a narrow assessment of their near-term cost control	No	• Too late for this to affect business plans and expenditure expectations at PR24
Use an alternative to the catch-up (e.g. upper quartile) efficiency challenge that is less vulnerable to risk of treating near-term cost control as efficiency	Yes	• This seems feasible for PR24
Other targeted changes to support decision-making with a long-term perspective		
Policy of cost-sharing incentive rates that are symmetric and stable over time in order to limit risk of distortions to the timing of investment or artificial incentives for deferral	Potentially: but further consideration needed	• Ofwat may feel constrained from significant changes to its business plan assessment process when finalising cost sharing rates at PR24, but may be some opportunity for this, and Ofwat could adopt the policy going forward.
Use dynamic PCLs (e.g. more like C-MeX approach) rather than ex ante PCLs to provide a more visible/credible mechanism through which investment today that improves (relative) performance in the future would bring quantifiable financial benefits over time	Potentially: but further consideration needed	• Some effort to implement this but seems feasible if there is desire for it, perhaps for a subset of common PCs. • More likely to apply if other good reasons for this approach besides asset health are used to rationalise change from PR24 final methodology (e.g. uncertainty about future performance levels of an efficient and well-run company and lessons from AMP7 where Ofwat PCLs seem too tough).

The final main component of package P2 is the adjustment mechanism for industry-wide outturn costs. We comment on this in the table below. While this is specified as a component of package P2, it would be possible to apply P2 without it: it does not look essential for the rest of the P2 package to have beneficial effects. So if this element is considered unfeasible, it does not need to hold back introduction of other elements of package P2.

Table 5 Further consideration of adjustment mechanism for industry-wide costs under P2

Component of package P2	Feasible for Ofwat at PR24?	Comments
Adjustment mechanism for industry-wide outturn expenditure	Yes, although significant effort required and some issues to consider due to novelty of mechanism	• We consider that this approach remains feasible for Ofwat to introduce at PR24. • It would take some time to develop the detailed methodology and spreadsheet model for the implementation of the adjustment mechanism, but provided key aspects of the approach are specified in FD the finer details could be developed as part of work on the PR24 reconciliation rulebook. • The main issue for Ofwat that we see is procedural: it is quite a significant change to regulatory funding arrangements for all companies and it would not be ideal to include in FD without consultation, though Ofwat could potentially do a very targeted consultation exercise pre-FD. • This would be a very significant change to the way that price control funding works at a late stage in the PR24 process. • For AMP8 there may be ways to implement it that addresses some concerns about the novelty of the mechanism (e.g. specify maximum upwards and downwards adjustments from base allowances). • Potential concern about unintended consequences of a novel mechanism if it is developed quickly