

UUWR26-06R

Cost Change Draft Determination: UUW Representation

Area of representation: Network storage assets

September 2026

This case sets out UUW's response to Ofwat's draft determination on Network Storage Assets and provides additional evidence on asset health need, intervention timing and customer support. It explains why the proposed investments represent a proactive, risk-based approach to managing deterioration and reducing future service risks. The case also requests that Pex Hill Service Reservoir remains within scope.

Reference to Draft Determination documents:

'Notification of the PR24 cost change process draft determination for United Utilities'

'PR24 cost change process - Asset health cross cutting issues appendix'

'PR24 cost change process - Price control deliverables appendix'

'CCP 2026 DD Cost Change model - United Utilities'

'PR24CCP12 Cost Change Draft Determinations 2026 - Asset health PCDs'

1. Key points

- We accept Ofwat's decision to exclude [X] reservoirs from the scope.
- We accept Ofwat's decision to retain the opex saving of £0.2 million.
- We provide further evidence on [X] reservoir and propose that the £4.9 million of investment should be brought back in scope. The evidence that supports this change is that the asset remained in active use through the October 2023 cut off date.
- We provide the following evidence to address Ofwat's questions on intervention timing, asset health need and customer support:
 - **Why now?** – evidence demonstrating how risk scores, deterioration forecasts, and asset health assessments up to 2055 coupled with deliverability assessments determine that the interventions are required now, that they deliver best value for customers and reduce asset health risk.
 - **Asset health need** – updated condition-based evidence, inspection findings, photographs and asset-specific assessments to clarify the justification and timing for each scheme, demonstrating existing defects, forecast deterioration and the consequences of delaying intervention.
 - **Customer support and willingness to pay** – we have supplemented our evidence with new bespoke customer research focused specifically on network storage assets showing an overwhelming customer support for the proposed interventions.
- We request an upward adjustment to the allowance for [X] of £5.5 million from £1.4 million to £6.9 million. This change reflects our recent detailed feasibility assessment for the selected option.
- Our representation has been independently assured by Deloitte to confirm that data and other information is accurate, complete and not misleading. Please see the associated memo, ref "UUWR26-08 - Asset Health DD response – Assurance report".
- We therefore ask that Ofwat allows in full the £48.4 million of conditional allowances, increases [X] intervention to £6.9 million and reinstates in the scope for [X] Service Reservoir £4.9 million. The revised totex allowance for the programme should be £58.8 million.

2. UW's Cost Change proposal

In its Cost Change 2026 submission UW proposed £78.2 million (net of opex savings) for network storage asset health in AMP8 to deliver interventions across 24 network storage assets at 17 sites. The breakdown of our totex submission is shown in Table 1 below.

Table 1: UW's AMP8 totex cost change proposal across 24 network storage assets (£million, 2022-2023 CPIH)

	AMP8 totex
Five tank replacements	17.327
Four membrane installations	18.716
Three tank refurbishments	5.028
One roof refurbishment	0.759
Seven tank divisions	6.751
Four tank recommissioning schemes	29.760
Capital expenditure	78.342
Opex savings	(0.165)
Cost change proposal	78.177

Source: UW estimates

3. Draft determination position

In the draft determination Ofwat excluded £29.8 million of proposed investment on the basis that the sites were out of service. The reason for their exclusion is that bringing these assets back into service would be deemed as a resilience, rather than asset health, driven investment and as such it should not form part of the cost change process.

Ofwat also recognises that there is a sector wide health issue for network storage assets and set out a conditional pass for £48.4 million of investment subject to receiving additional sufficient and convincing evidence about:

- why the investment is required now;
- the asset health issues being addressed; and,
- customer support for the proposed investment / predicted benefits.

Table 2 below summarises the draft determination decisions.

Table 2: Ofwat's AMP8 totex draft determination allowance for network storage assets (£million, 2022-2023 CPIH)

	AMP8
UUW's cost change proposal per Table 1	78.177
<i>Scope reduction for 4 tank recommissioning schemes:</i>	
[REDACTED]	(12.494)
[REDACTED]	(4.885)
[REDACTED]	(1.553)
[REDACTED]	(10.828)
Total scope reduction	(29.760)
Draft determination allowance – conditional pass subject to additional evidence being provided	48.417

Source: Notification of the PR24 cost change process draft determination for United Utilities

4. Issues and implications

This section covers three areas. Firstly, the sites included in the scope. Secondly, additional evidence required as part of the conditional pass set out in the draft determination. Lastly, an upward adjustment to the allowance for [REDACTED] following recent detailed feasibility studies.

4.1 Excluded sites

[REDACTED]

We accept Ofwat's decision to exclude [REDACTED] reservoirs because the assets have been out of service for long periods. While in our view the evidence provided and the requirements remain valid at these sites, we expect to address this through future funding mechanisms.

[REDACTED]

In view of the draft determination, we are providing further evidence in relation to [REDACTED] which has not been out-of-service for the long term. In retrospect, it would have been more appropriate to present [REDACTED] separately from the three out of service tanks included in our original proposal and listed above.

In our response to Ofwat's query OFW-UUW-CCP-026 we explained that [REDACTED] was taken out of service in January 2025. This status change was after the October 2023 cut-off established in PR24 cost change process - Asset health cross cutting issues appendix. Therefore, it is appropriate to retain the site within the cost change scope. The accompanying site-specific appendix provides further evidence on the asset health need at this asset.

We confirm that [REDACTED] and [REDACTED] reservoirs are adjacent and interdependent. One remains in service to allow maintenance on the other, like two compartments in a single reservoir. We historically prioritised interventions at [REDACTED] which was extensively refurbished in early AMP7. [REDACTED] was then isolated and inspected in September 2022 which identified poor asset health requiring refurbishment. [REDACTED] remained isolated from customer supplies and used to manage commissioning water from the [REDACTED] borehole scheme through 2023 and 2024. Therefore, though not used to store potable water, the asset remained in active use beyond the October 2023 cut-off.

In conclusion, the investment requirement at [REDACTED] is driven by a genuine asset health need and is consistent with the objectives of the Cost Change process. Therefore, we propose it should remain within the scope.

4.2 Conditional pass requirements

We provide the additional evidence requested in three sections below:

- **Why the investment is required now** outlines how a long-term ambition for sustainable asset health underpins our proposal. Asset health forecasts show that a program that accounts for efficient delivery still delivers a meaningful and persistent risk reduction.
- **The asset health issues being addressed** introduces the asset specific evidence provided in response to Ofwat's request. This information is security sensitive (containing locations, populations served and construction type, etc.) so is provided separately in 'UUWR26-06a Representation - AH business case – Enhance our Water Network Storage Assets appendix'.
- **Customer support for the proposed investment and predicted benefits** shares the results of specific research confirming strong customer support for the proposal.

4.2.1 Why the investment is required now

We welcome the introduction of an annual process for asset health that is aimed at facilitating investment to replace assets that have fully deteriorated to a level where they can no longer meet their requirements. It is important to note that our proposal is not solely focused on replacing fully deteriorated assets but it is also based on a proactive risk-based asset management approach with a programme of optimal interventions, i.e. interventions just before the asset reaches a level of deterioration that can directly impact customer service and water quality. This approach is focused on long-term asset stewardship consistent with best practice set out in ISO55001.

It is also important to note that, as we maintain a cyclical programme of planned inspections and maintenance of treated water storage assets every seven to ten years, there is limited opportunity to undertake significant remediation activities outside these planned inspection windows without significantly impacting system headroom. Undertaking work at assets which are outside the AMP8 reservoir inspection programme would require additional outage periods, resulting in further service and resilience impacts, customer disruption risks and increased mobilisation costs.

Deliverability is a primary consideration to execute interventions cost effectively and with no disruption to customer service. The operational impact associated with taking network storage assets out of service, the reduction in network resilience and increase in cost base require us to operate our inspection programme within a tightly controlled schedule. Our deliverability assessment has therefore directly informed our network storage proposal ensuring alignment to our existing inspection programme.

Therefore, our proposal has been targeted at the highest-risk assets that are both forecast to require intervention and scheduled for inspection during AMP8. Asset selection has been informed through a risk-based prioritisation process incorporating:

- historic inspection findings;
- deterioration trends;

- evidence from adjacent assets on the same sites that were constructed during the same period and demonstrate common deterioration mechanisms;
- water quality indicators and asset health risk assessments; and,
- engineering judgement (Appendix A).

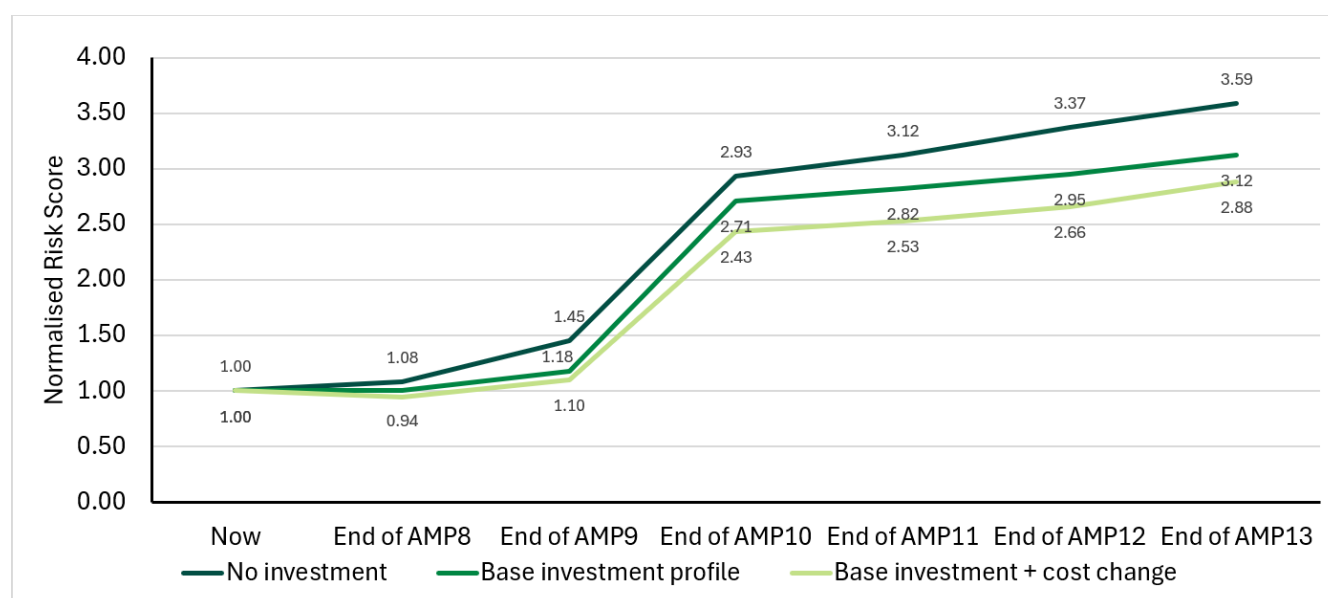
Evidence of these assessments is presented in Section 5 of 'UUW26-13 – Asset Health Business Case: Enhancing Network Storage Assets' and further evidence is included in Appendix A of this document.

Our prioritisation method ensures that investment is directed towards the assets presenting the greatest asset health risk, while also ensuring that interventions remain efficient, proportionate and deliverable within AMP8.

The analysis that we provided in our original submission showed the predicted impact of the investment across the wider portfolio of all 634 network storage assets over the next 30 years rather than focusing on the 18 projects included in our original submission. (This now reduces to 15 projects on 14 sites with the removal of [REDACTED]). The inclusion of the wider portfolio acted to obscure the risk reduction at selected sites.

Figure 1 repeats the analysis from our original submission. The baseline profile shows a significant increase in the risk across this asset base during AMP10 as part of our benefits assessment across the next 30 years. This reflects a concentration of ageing assets in moderate condition predicted to reach the end of their service lives over a relatively short period. While the cost change investment reduces this risk, the impact from the additional investment proposed in the cost change submission is relatively modest at a portfolio level because the assets included within this submission represent only a small proportion of the overall asset base.

Figure 1: Predicted relative change in service risk for the whole portfolio of Network Storage assets



Source: UW analysis

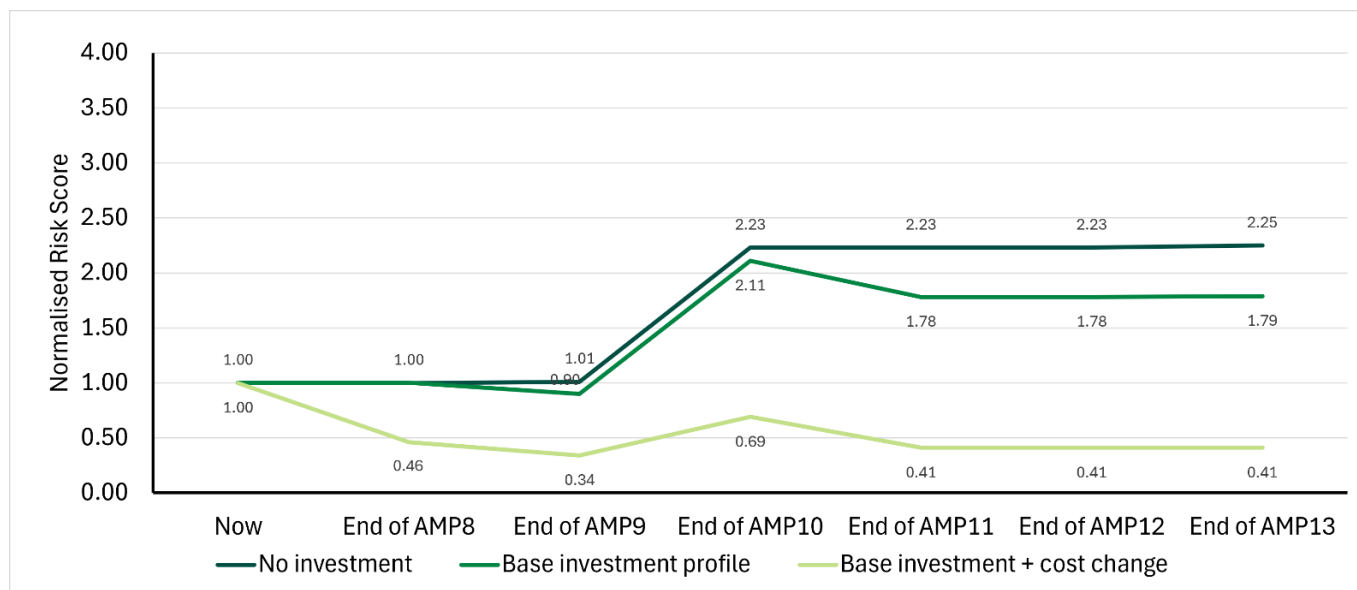
Figure 2, by contrast, shows the predicted risk profile of the 14 sites only (after excluding the scope for [REDACTED]) and better illustrates the benefit of the proposed interventions. This figure shows that the proposed interventions reduce the risk across those sites for whole forecast period (the initial risk for the 14 sites is normalised to a score of one).

The baseline scenario highlights the scale of the challenge at these sites. Risk increases sharply in AMP10 – from 1.00 to 2.11 – demonstrating that the proposed interventions are targeted at sites with high and increasing asset health risks.

The cost change scenario ("base investment + cost change") shows the benefit of the proposed investment. There is a 66% risk reduction by AMP9 and there is not a step-change increase in risk in AMP10. Moreover, the benefits

persist with a long-term 59% risk reduction. At a system level, this increases headroom to address risk at other sites.

Figure 2: Predicted relative change in service risk for 14 sites retained within Network Storage asset draft determination response



Source: UUW analysis

4.2.2 The asset health issues being addressed

The accompanying site-specific appendix contains further information on the asset health driver at the network storage assets in scope. For each site we provide four pieces of evidence as outlined below.

Consequence of failure

The number of people served by this asset and therefore the potential impact of poor asset health. For example, [REDACTED] supplies [REDACTED] people. To put this in context, a coliform detection with DWI recommendations would account for [REDACTED] of UUW's 2030 Compliance Risk Index performance commitment deadband.

Current and forecast deterioration

This is based on the condition score from the last inspection (as reported in query response OFW-UUW-CCP-026). As this inspection data can be up to nine years old, we have drawn on all available evidence to understand current and future expected condition. This includes the outcome and comments from inspections, evidence from recent inspections of equivalent assets, and performance trends across all assets.

For example, [REDACTED] was recorded in good condition in 2021. There are no concerns about the roof structurally, but there is a known vulnerability to ingress through roof joints with this construction type. We have recently inspected the adjacent [REDACTED] and substantial work is underway to mitigate risks from this vulnerability; this evidence has informed the need to mitigate the risk in [REDACTED].

Proposed intervention

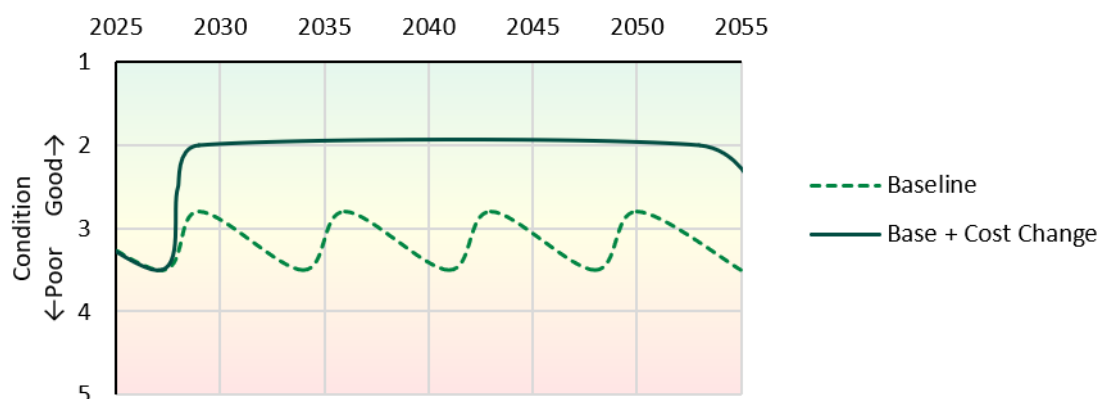
We outline in more detail the proposed intervention and how that mitigates the risk identified.

For example, we propose membrane installation at [REDACTED]. This reflects learning from [REDACTED] where multiple iterations of local repairs have been required to mitigate the risk, resulting in a prolonged outage and an increased project cost. A membrane will provide longer asset life from a shorter outage.

Risk reduction achieved up to 2025

We visualise the asset condition over the next 30 years to show the risk reduction achieved by the proposed intervention compared to the baseline plan. Figure 3 shows an example from [REDACTED].

Figure 3: Visualisation of risk reduction at [X]]



- The baseline forecast involves repeated local repairs every seven years when the asset is inspected;
- The cost change proposals involve installing a roof membrane. The roof does not return to 'very good' condition because the underlying structure remains midway through its asset life, but the vulnerability to ingress is addressed. We forecast a 30-year life for the membrane following a standard 'bathtub' curve that is stable for most of the period with an increasing failure rate towards the end; and,
- The difference between the lines visualises the risk reduction over the period.

Source: UW internal analysis

A one-off membrane installation is more cost efficient than the short life intervention (see 'UWR26-12 – Asset Health Business Case: Enhancing Network Storage Assets', section 5.4 'Best Value Assessment'). This solution represents the sustainable long-term approach to asset management that customer research supports as explained in more detail in the following section.

4.2.3 Customer support for the proposed investment and predicted benefits

To supplement the customer research provided in our original cost change submission, we commissioned further research with a representative sample of over 1,000 customers, to seek their views on investment in network storage assets. We summarise the findings below with the full research report submitted as "UWR26-06b – Representation - AH business case – Enhance our Water Network Storage Assets customer research appendix"

Figure 4: Summary of network storage research background and approach



The survey covered:

- An introduction to network storage;
- An explanation of the proposed investment; and,
- A description of the expected benefits and a view of the potential timing of additional investment.

This research did not explicitly assess willingness to pay for the Network Storage Asset Health Cost Change as we believe that the bill impact would be too small to derive meaningful conclusions.

- Customers overwhelmingly supported investment in service reservoirs (89 per cent) and wider water infrastructure (92 per cent), with four in five (80 per cent) agreeing with the option that United Utilities should invest now rather than later as shown in Figure 5 below.

Figure 5: What do you think United Utilities should do? (1141)

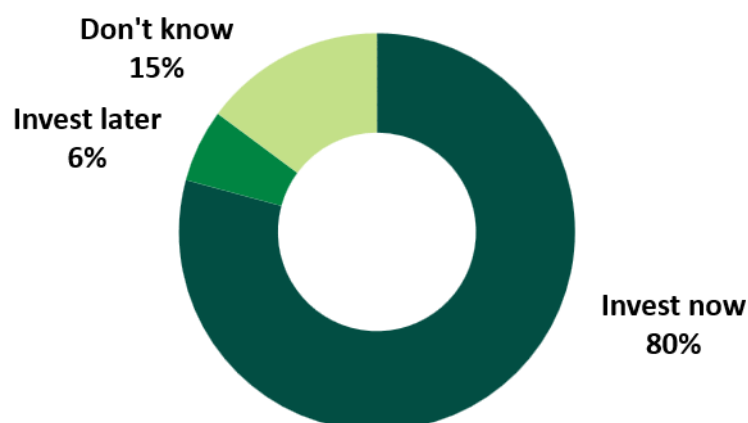
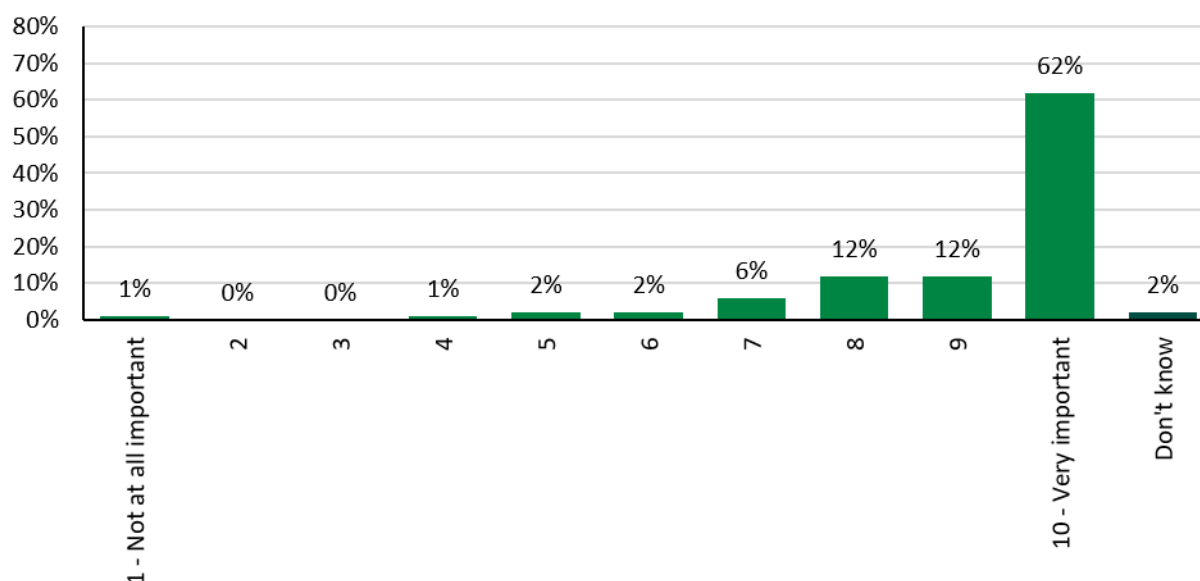


Figure 6: Selected customer quotations from the research project



Investment was seen as highly important, scoring 9.2 out of 10 on average across the survey. Support was strongest among older customers, vulnerable households, priority service customers and metered customers.

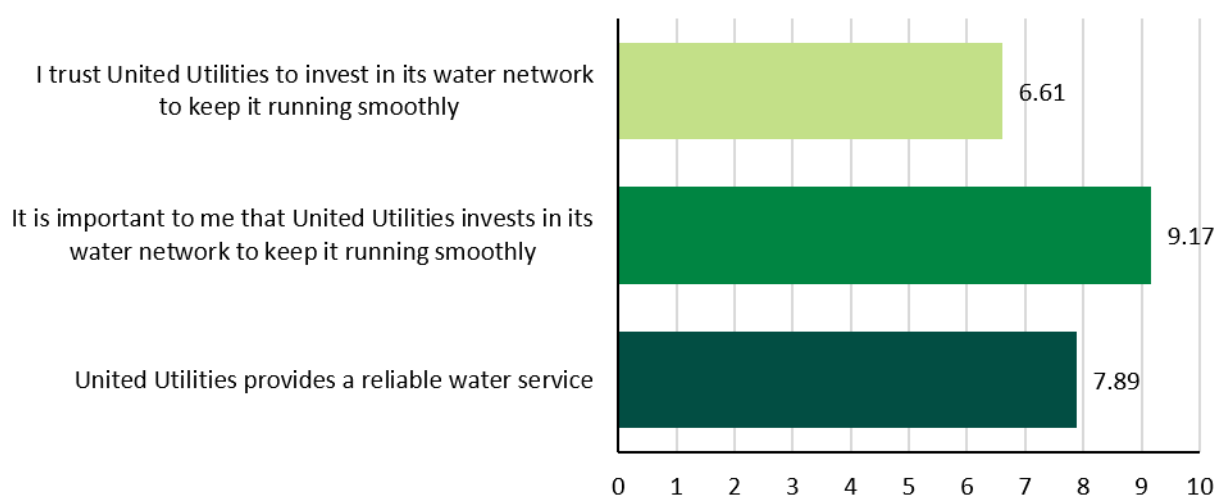
Figure 7: On a scale of 1 to 10, how important is it to you that United Utilities invest in their Service Reservoirs to reduce the risk of them failing? (1141)



The initial awareness of service reservoirs was relatively low (43%), but support remained high once customers understood their purpose.

Overall, the need for investment is well understood and widely supported. The greatest challenge raised by customers is in building confidence that United Utilities can deliver the investment effectively - this was reflected in a lower trust score (6.6 out of 10), compared with the stronger importance (9.2 out of 10) and acceptability (8.3 out of 10) scores.

Figure 8: On a scale of 1-10, where 1 is strongly disagree and 10 is strongly agree, how far do you agree with the following statements - mean scores (1141)



We believe these key findings provided sufficient and convincing evidence on our asset level proposal, and customer support for them.

4.3 [REDACTED] feasibility

Effective delivery is central to our planning processes and as our solutions have matured, we have carried out further operational resilience assessments to validate the designs. At submission, the [REDACTED] scope and estimate reflected the identified asset health need, proposed engineering intervention and level of design maturity available at that stage. Given the complex nature of taking network storage assets out of service, we recognised that the outage and construction methodology required further validation as the design matured. These assessments have established that the solution at [REDACTED] cannot be implemented as originally planned. The original design assumed both compartments could be isolated simultaneously to enable their full separation. However, subsequent review identified that this would present an unacceptable risk to customer supplies during the outage given the local network configuration and operation. Additional storage is therefore required to manage the risk to supply during project delivery.

4.3.1 Options assessed

We have developed the following feasible options to support the investment need:

- Option 1 – a full height dividing wall and a temporary 3MI bypass tank; or
- Option 2 – a permanent third 6.9MI tank (retaining the half height wall as it currently is).

Each of these solutions provides a tolerable level of service risk during the project delivery as the current asset supports [REDACTED] and a minimum storage volume is required to prevent immediate loss of service in event of failure of the feed pumping station to the area.

Option 1

This option involves temporary storage of 3MI, equivalent to the currently available storage during maintenance of the existing tanks. The additional costs and scope are associated with the rental of the land parcel, groundworks, temporary pipework, hardstanding to enable the project. This option is costed at £6.9 million.

Option 2

This option involves building new storage adjacent to the existing tank but not carrying out the work to fully split the tank. The new storage would be 6.9MI, equivalent to the storage of an individual compartment of the existing tank. This option is costed at £9.9 million.

We have carried out our best value assessment across these two options using our value selection tool, consistently with our original submission and our existing value framework assessment. Table 3 below summarises the cost benefit ratio of the two solutions.

Table 3: Comparison of two options for [REDACTED]

Site	Capex (£million, 2022-2023 CPIH)	Cost Benefit Ratio
[REDACTED] Option 1 (tank division and temporary storage)	6.879	3.66
[REDACTED] Option 2 (new storage)	9.903	2.48

Source: UUW internal analysis

We have selected option 1 as the most cost-effective solution that delivers the original scope, but with temporary storage and associated enabling works. While this option is relatively more expensive than the original proposed solution, the additional scope is required to manage the service risk during the construction period.

5. Approach for final determination

We request that Ofwat reinstates in the scope our proposed £4.9 million investment at [REDACTED] on the basis that this asset was not out of service at the October 2023 PR24 business plan submission date. Unlike the other excluded reservoirs, we have provided evidence to show that this asset:

- is not long-term out of service;

- has a clear asset health driver; and,
- is intended to be returned to service following refurbishment.

As such, its inclusion is consistent with the scope and objective of the asset health cost change process.

We also request that Ofwat confirms in full its allowance of £48.4 million. The additional evidence provided demonstrates:

- how risk scores and deterioration forecasts have informed intervention timing;
- the asset health risks associated with individual assets; and,
- customer support for the proposed investment.

We also request additional allowance of £5.5 million for [] for enabling works and temporary storage in light of more up-to-date feasibility information and deliverability considerations.

On this basis, we propose that the overall allowance for the Network Storage programme should be £58.8 million as show in Table 4 below.

Table 4: UUW's AMP8 totex final determination request for Network Storage (£million, 2022-2023 CPIH)

	AMP8
Draft determination allowance confirmed in light of additional evidence (as per Table 2)	48.417
Network storage asset requested to be brought back into scope – []	4.885
Additional cost following feasibility evidence – []	5.512
Final determination request	58.815

Source: UUW estimates

For completeness, we have included a full list of the 15 network storage projects that make up the £58.8 million totex final determination request as set out in Table 5 below. Table 5 shows the capital expenditure for each network storage project and the associated opex saving.

Table 5: UUW's AMP8 totex final determination request for network storage assets split by project (£million, 2022-2023 CPIH)

Project	Section in "UUWR26-06a Representation - AH business case – Enhance our Water Network Storage Assets appendix"	AMP8
Capital expenditure:		
[]	A.10	10.258
[]	A.1	14.251
[]	A.2	2.850
[]	A.15, A.16	0.295
[]	A.5, A.6	0.278
[]	A.3	0.190
[]	A.17	0.805
[]	A.18	2.339
[]	A.11 – A.14	7.068
[]	A.9	0.759
[]	A.8	4.885
[]	A.19	1.946
[]	A.7	4.750
[]	A.20, A.21	6.879
[]	A.4	1.425

Project	Section in "UUWR26-06a Representation - AH business case – Enhance our Water Network Storage Assets appendix"	AMP8
Total capital expenditure		58.979
Opex saving		(0.165)
Final determination request		58.815

Source: UUW estimates

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