

Regulators' Alliance for Progressing
Infrastructure Development

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Strategic regional water resource solutions: Standard gate one final decision for United Utilities Sources



Contents

1.	Introduction	3
2.	Solution summary	4
3.	Summary of representations	6
3.1	Representations received	6
3.2	Our Response	8
3.2.1	Transparency in cost estimates	8
3.2.2	Deployable Output assessments and stochastic flow data	8
3.2.3	Carbon costing	9
3.2.4	Supporting solutions	9
3.2.5	Water resource benefit	9
3.2.6	Gate one actions and recommendations	10
3.2.7	Utilisation of gate one underspend at gate two	10
4.	Solution assessment summary	12
4.1	Solution progression and funding to gate two	12
4.2	Evidence of efficient expenditure	12
4.3	Quality of submission	13
4.3.1	Solution Design	14
4.3.2	Evaluation of Costs & Benefits	14
4.3.3	Programme and Planning	15

Standard gate one final decision for United Utilities sources
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4.3.4	Environment	15
4.3.5	Drinking water quality	16
4.3.6	Board Statement and assurance	16
5.	Proposed changes to partner arrangements	17
6.	Actions and recommendations	18
7.	Gate two activities	19
8.	Incentives for gate two	20
	Appendix: Actions and Recommendations	21

1. Introduction

The purpose of this publication is to set out our final decision in respect of the United Utilities sources strategic regional water resource solution submitted for the standard gate one assessment by solution sponsor United Utilities¹. The solution includes 27 varied source options, across United Utilities Water Resource Zones, that will offset supply from Lake Vyrnwy that will instead be used to support the River Severn to River Thames transfer. Further information concerning the background and context of the United Utilities United Utilities sources can be found in the United Utilities sources publication document on the [United Utilities website](#)².

This publication should be read in conjunction with the final decision letter issued to the solution sponsor. Both this document and final decision letter have been published on our website today.

The assessment process is overseen by RAPID, with input from the partner regulators Ofwat, the Environment Agency and the Drinking Water Inspectorate. The Environment Agency together with Natural England and, where a solution impacts Wales, Natural Resources Wales, have reviewed the environmental sections of the submissions, and have provided feedback to RAPID. The Consumer Council for Water provided input to the assessment on customer engagement.

The solution sponsors and other interested parties had the opportunity to respond to the draft decision during the representation period, which followed the publication of the draft decisions on 14 September 2021. We have taken all relevant representations into account in making our final decision.

We would like to thank United Utilities for the level of engagement, collaboration and innovation that they have exhibited during this stage in the gated process.

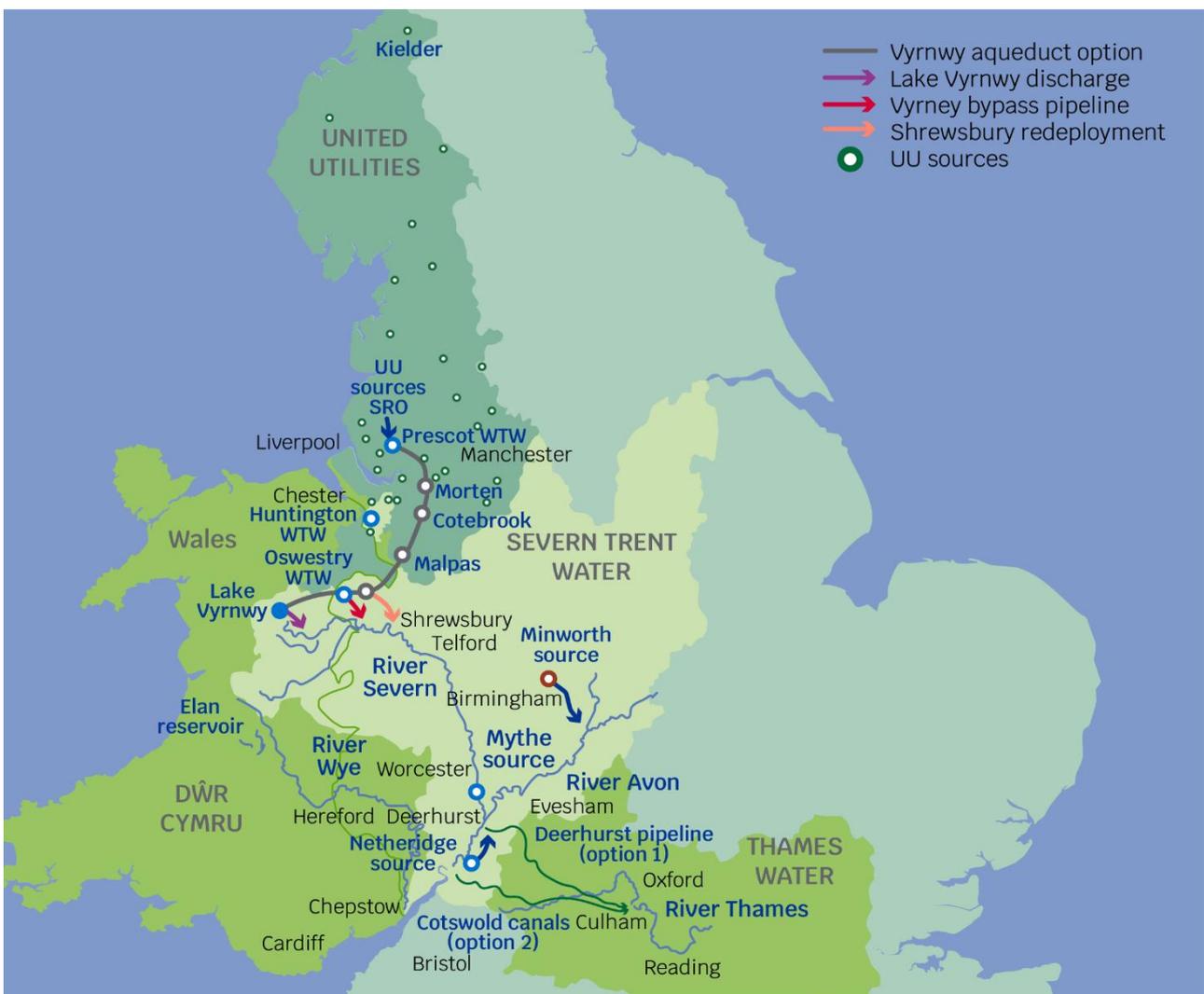
¹ Referred to in PR19 final determination as “United Utilities sources”

² https://www.unitedutilities.com/globalassets/z_corporate-site/about-us-pdfs/uu-sources/uus0002---preliminary-feasibility-assessment.pdf

2. Solution summary

The purpose of the United Utilities Sources (UUS) solution is to offset water transferred out of region to maintain resilience for customers in the North West. United Utilities have developed 27 feasible options, that preferred combinations of which will contribute to the offset water volumes required. The solution works in conjunction with the Vyrnwy Aqueduct solution, to protect and enable the resilience of customers' supplies and the environment from the impacts of water transfer. The solution also works in conjunction with the River Severn to Thames Transfer (STT) solution, which would utilise the water resource benefit enabled by United Utilities Sources solution, for its transfer.

Figure 1 UUS solution schematic



United Utilities can provide transfer volumes up to 180 MI/d and for regional planning purposes, United Utilities have developed 5 indicative water transfer volumes of 50 MI/d, 75 MI/d, 135 MI/d, 150 MI/d and 180 MI/d. Each transfer volume consists of a selection of various

source types. United Utilities have evaluated source options for their benefits, costs and risks, which has led to the selection of the 27 source options for gate one, geographically spread across the North West. There are various types of sources each with their own yield. There are three sources out of region which are the Kielder and Cow Green Reservoirs, operated by Northumbrian Water, and Shropshire Union Canal (Llangollen Canal), operated by Canal & River Trust (CRT). Additionally, there is also an in-region third-party source option which is Killington Reservoir operated by CRT.

3. Summary of representations

3.1 Representations received

We have received the following representations relevant to United Utilities Sources.

Table 1 Summary of representations

Representation from	Summary of representation
GARD	<p>Transparency of cost estimates GARD cites concerns over a lack of transparency in solution cost estimates generally, requesting further detail to the level that was included in the Fens reservoir gate one report.</p> <p>Deployable output and stochastic flow data GARD is also concerned about a lack of transparency in deployable output (DO) assessments, suggesting the evidence should be made available for scrutiny of the assumptions, data, and outputs of the modelling.</p> <p>GARD have concerns over the reliability of stochastic river flow data, such as: inaccurate weather data for groundwater-dominated catchments; the stochastic weather base period not containing any long duration droughts; the base period excluding weather since 1997; and the geological difference in catchments not being reflected in the generated Thames and Severn flows.</p> <p>Carbon costing GARD asserts that the gate one reports are poor on the subject of carbon costing of strategic options and have shortcomings in the data presented.</p> <p>Supporting solutions Considered it is unnecessary and confusing to have separate reports for River Severn to River Thames Transfer (STT) and its supporting solutions, which results in there being no clear picture of overall deployable outputs (DO) and costs of the solutions and sub options and suggested combining these into a single solution.</p> <p>Suggested that consideration should be given to an enhanced first phase of water resource supply support, by combining the unsupported transfer (phase 1) with Mythe (phase 2) and bringing in Vyrnwy regulation (phase 3) to a level that requires minimal new source development for United Utilities. This could be</p>

	<p>implemented rapidly and would 'buy time' while the actual future need and the effects of climate change can be observed, and facilitate early relief of chalk stream over-abstraction.</p> <p>GARD are also disappointed that the gate one report has no tabulation of the costs and deployable outputs for each phase of the development shown in Table 2-2 of the STT submission document and for the total cost and deployable output after each phase is commissioned. GARD propose that RAPID requires the water companies to provide this information in time for inclusion in RAPID's recommendation reports for Ofwat and for review by stakeholders in the 'representation period'.</p> <p>Water resource benefit</p> <p>Disagreed that Lake Vyrnwy releases (which impacts on the offset capacities from United Utilities Sources) should be limited to 180 Ml/d, as this assumes the reservoir is operated as a continuous direct supply. GARD state that as regulation release are required for only part of the year, even in severe droughts, Vyrnwy reservoir has the storage capacity to support much larger regulation releases than 180 Ml/d. GARD request RAPID recommend that releases of up to 400 Ml/d are considered in gate two.</p> <p>Disagreed with NRW limitations of 75 Ml/d direct releases to River Vyrnwy (which would also impact on the capacity options of United Utilities Sources), which has been set due to impact on Salmonid spans and juveniles. GARD have provided their own flow analysis to support their request that regulation releases up to 400 Ml/d should be considered direct into the River Vyrnwy.</p>
<p>United Utilities</p>	<p>United Utilities supported the draft decision and welcomed the actions provided for gate two but raised the specific points below.</p> <p>Costs</p> <p>United Utilities provided revised final gate one costs, which were £57,970 lower than their previously submitted costs, primarily due to lower than anticipated environmental regulator costs. Requested access to gate one underspend as a contingency measure.</p> <p>Actions & Recommendations</p> <p>United Utilities stated the wide range of options at gate one reflects needing flexibility of the inherent uncertainty at this stage in the wider water resources planning process. Will update at checkpoint meetings.</p>

	United Utilities indicated that its initial assessment shows that the UUS SRO options did not achieve the criteria for DPC, but will continue to reassess this.
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3.2 Our Response

We have taken the representations into account in our final decisions and set out below our response to the key points and issues raised.

3.2.1 Transparency in cost estimates

We do not consider information about solution costs to be material to gate one decisions. Gate one is a checkpoint and is the first opportunity to check the progress made by solution owners on investigations and development of solutions in the gated process. At gate one, all solutions were expected to progress to gate two and continue to receive ring-fenced funding unless there was a clear reason why they should not.

Solution costs will be considered further from gate two onwards and in regional plans and water resource management plans. We will provide companies with guidance on presenting and publishing solution costs in their gate two submissions.

3.2.2 Deployable Output assessments and stochastic flow data

We consider that the work completed on the DO assessment is sufficient for gate one. The water companies will continue to develop the solutions and evidence surrounding them. Guidance will be provided on our expectations for a more detailed examination of deployable output at gate two. The use of stochastic flow data reflects the requirement to test droughts larger than those observed in the historic record, such as drought events with 1:500 year return periods. Solutions generation of stochastic flow data is expected to follow Water Resource Planning Guidelines Supplementary Guidance: Planning to be resilient to a 1 in 500 drought (England), and Supplementary Guidance: Stochastics. We will pass on the specific points raised to solution owners for consideration as they develop their deployable output assessments further.

We will require any carbon assessment annexes to be published alongside the submission at gate two.

3.2.3 Carbon costing

Gate one assessment of solution submissions took account of the fact that assessments of the carbon implications of the solution would inevitably contain a significant degree of uncertainty given the stage of solution development. We consider that the level of information presented on carbon was sufficient for gate one. Solution development to gate two should follow the Water Resources Planning Guidelines for WRMP24 section 8.3.2 which states expectations for accounting for and reducing greenhouse gas emissions. The design should consider; build nothing, build less, build clever and build efficiently throughout the development of the solution, with offsetting only as a last resort. We expect all direct mitigations to be included in the solution costs. The solution should also be considered by the water company within their wider carbon plans.

We will require any carbon assessment annexes to be published alongside the submission at gate two.

3.2.4 Supporting solutions

We have decided that United Utilities Sources and other supporting solutions should continue to be developed separately to STT. As water resources planning and the gated process advances, these supporting solutions may provide resilience benefits to their own regions, to other solutions or to other regions beyond those served by the transfer. Linking supporting solutions development, and their ability to progress through the Gated Process, exclusively to STT, could hinder investigation of these alternate configurations and their benefits.

We consider the phasing of supporting solutions of STT should be determined by the solutions' utilisation assessments under future extreme drought, climate change and demand scenarios. RAPID will set out expectations for detailed utilisation assessments in its gate two guidance, and has included specific actions and recommendations in respect of these. This includes incorporating the cost and water resource benefit of supporting solutions, including United Utilities Sources, into phasing decisions.

3.2.5 Water resource benefit

The solution's water resource benefit calculation was assessed as sufficient for gate one. The water companies will continue to develop the water resource modelling and yield assessments and evidence surrounding them; considering drought, climate change, environmental and demand scenarios. We will provide guidance for further detailed water resource benefit investigations at gate two.

In response to GARD's comment that a release from Vyrnwy greater than 180 Ml/d should be considered (which would also influence the range of capacities tested in this United Utilities Sources solution), the capacities of options considered within the RAPID process were developed by solution owners taking into account feasibility, environmental assessments and water availability under abstraction licence limits, in order to progress delivery of water resource management plans at WRMP19. We expect that any larger capacity options would be identified and assessed through the regional and company planning process at WRMP24 and an update provided on option capacities at gate two.

The 75Ml/d release restrictions to Afon Vyrnwy have been set by the solution owners, based on their investigations to date, and further work needs to be undertaken to assess the in-combination impacts on the Afon Vyrnwy of STT releases, reservoir compensation releases and releases for River Severn regulation.

3.2.6 Gate one actions and recommendations

We acknowledge United Utilities' comment that the wide range of options is a reflection of the need for flexibility given the inherent uncertainty at this stage in the wider water resources planning process, and welcome its intention to work towards a smaller number through gate two.

We also welcome United Utilities indication that they will continue to review the applicability of DPC for delivering the solution as it becomes more defined.

We agree that there should be further investigation into DPC suitability as the solution progresses and develops through gate two.

3.2.7 Utilisation of gate one underspend at gate two

Some solution owners raised concerns in their representations regarding whether gate two allowances would be sufficient for completion of gate two activities and suggested that gate one underspend should be carried forward to gate two. The percentage allocations to each gate in our Final Determination at PR19 were inherently imprecise and were based on our understanding of likely profile of activities to be carried out in progressing the development and investigation of solutions taking into account companies' proposals in this respect. We now have an improved understanding of the activities to be carried out at gate two and consider that it will be beneficial to allow funding allowance that has not been used at gate one to be made available to solution owners for carrying out gate two activities.

We have therefore decided to merge gate one and gate two allowances for this solution. This will allow any underspend on gate one activities to be used for gate two activities. We will continue to scrutinise expenditure to ensure that it is appropriate and efficient. Companies remain responsible for management of cost risk to meet gate requirements.

4. Solution assessment summary

Table 2 Final decision summary

Recommendation item	United Utilities sources
Solution sponsors	United Utilities
Should further funding be allowed for the solution to progress to gate two?	Yes
Is there evidence all expenditure is efficient and should be allowed?	Yes
Delivery incentive penalty?	No
Is there any change to partner arrangements?	Yes
Is there a need for a remediation action plan?	No
Changes to partner arrangements are detailed in Section 3.	

4.1 Solution progression and funding to gate two

The evidence suggests that the solution is a potentially valuable way of supplying water to customers. Based on our assessment of the potential solution costs and benefits we have concluded that the solution should progress through the gated process to gate two, and that further funding should be allowed.

We are combining the funding of this solution with the Vyrnwy Aqueduct solution as proposed by United Utilities to enable efficiencies in work and reporting. This solution's total allowance and gate allowances have been amended from the final determination. The total allowance for the new combined solution will be £3,285,000. The name for the new solution will be North West Transfer.

We have decided to merge the gate one and gate two allowances. This results in a total allowance of £3.84m being available at gate two. Companies remain responsible for management of cost risk to meet gate requirements.

4.2 Evidence of efficient expenditure

The PR19 final determination specified that any expenditure on activities outside the gate activities for the identified solutions (or solutions that transfer in) will be considered as inefficient and be returned to customers. We will consider whether gate activity is efficient by considering the relevance, timeliness, completeness, and quality of the submission which should be supported by benchmarking and assurance.

Our assessment of the efficient costs as spent on gate one activities results in an allowance for this solution of £0.610m (of £0.610 claimed). This is the final reconciled spend.

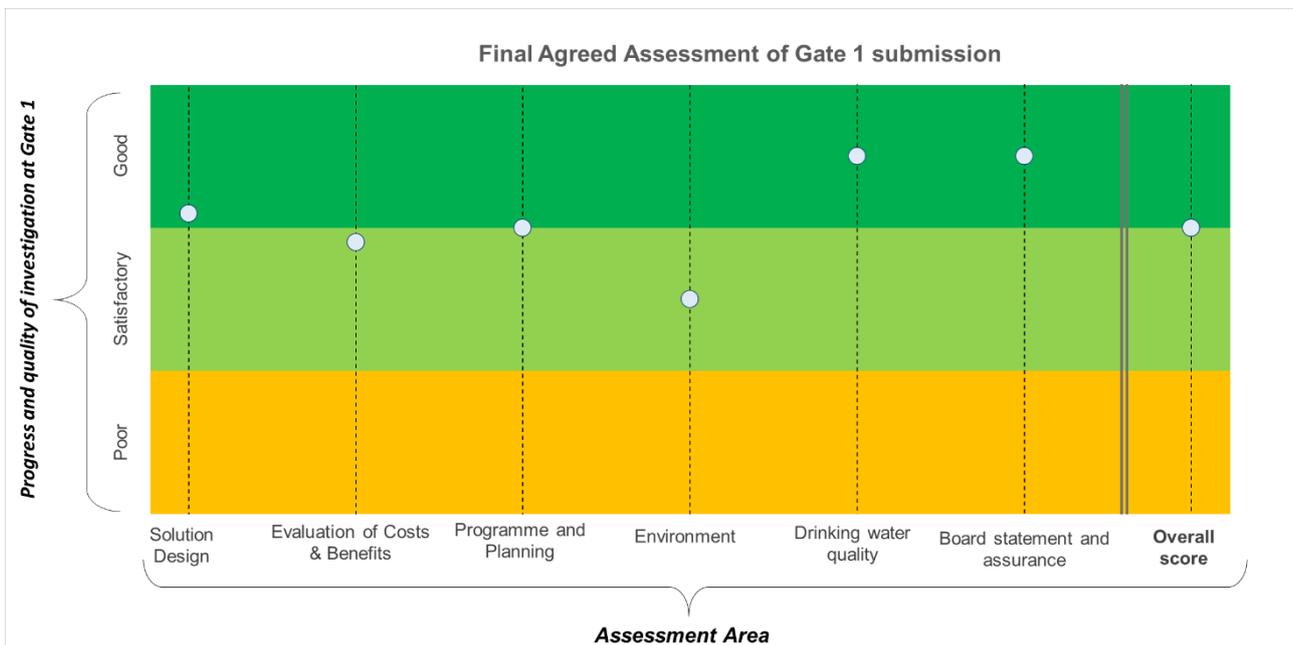
We have made no adjustments to the costs claimed.

4.3 Quality of submission

The aim of the assessment was to determine whether appropriate progress has been made towards delivery of the solution. We recognise at this stage solutions may be at different development points and the assessment takes this into account.

Figure 2 shows our assessment of the work completed on the solution, which was presented in the submission. Our assessment was made against the criteria of robustness, consistency and uncertainty to grade each area of the submission as good, satisfactory or poor in accordance with [our guidance published on 22 February 2021](#)³. We also assess the Board assurance provided.

Figure 2 – Solution Assessment



Our overall assessment for the solution submission is that it is satisfactory (falls short of meeting expectations in some areas).

³ [RAPID: Strategic regional water resource solutions guidance for 2021 - Ofwat](#)

We have decided not to impose a potential delivery incentive penalty. This reflects that progress on this solution falls short of meeting expectations in some isolated areas, that are best addressed by completion of actions and recommendations in gate two, see further in section 4. We will monitor incorporation of these actions into the solutions forward programme through regular checkpoint meetings.

4.3.1 Solution Design

Our assessment of the solution design considered the quality of the evidence provided on the initial solution and sub-options; the anticipated operational utilisation of solutions; the interaction of the solution with other proposed water resource solutions and stakeholder and customer engagement. The assessment also considered whether information was provided on the context of the solution's place within company, regional and national plans.

We consider that the progress and quality of the investigation completed by United Utilities in developing the solution design at gate one has been good. The submission evidence still fell short of expectations for some specific elements of solution design, including the depth of detail that has been investigated, or presented, given there are 27 options. We recognise that preferred portfolios are to be developed at gate two, which will comprise the yield for the 5 different supply volume options being developed – we consider this grouping has considerable merit as a way of developing source diversity which improves resilience for customers. Nevertheless, as a key theme for gate two, a decision on the preferred suite of options should be made as early as possible in the process. The solution should also further develop understanding of utilisation. We acknowledge that the submission highlights additional work to be undertaken in both these areas for gate two; actions and recommendations have been provided to help guide this.

4.3.2 Evaluation of Costs & Benefits

Our assessment of the evaluation of costs and benefits considered the quality of the information provided on initial solution costs; the societal, environmental and economic cost and benefits, water resource benefits and wider resilience benefits. The assessment also considered whether evidence was provided on how the solution delivers a best value outcome for customers and the environment.

We consider that the progress and quality of the investigation completed by United Utilities in evaluating the costs & benefits at gate one has been satisfactory. The submission evidence fell short of expectations in some areas, including lacking a detailed understanding of water resource benefits of each of the options, and wider resilience opportunities specific to each

of the options. We acknowledge that the opportunity for wider resilience beyond the resilience of the solution itself may be limited.

A key focus for gate two will be to prepare an assessment of costs & benefits that adheres to Welsh legislative requirements on ecosystem resilience, and the Well-being of Future Generations Act.

4.3.3 Programme and Planning

Our assessment of the programme and planning considered whether United Utilities presented a programme with key milestones and whether its delivery is on track. The assessment also considered the quality of the information provided on risks and issues to solution progression, the procurement and planning route strategy and subsequent gate activities with outcomes, penalty assessment criteria and incentives.

We consider the evidence provided by United Utilities' regarding the programme and planning, risks and issues and the procurement and planning route strategy for the solution to be satisfactory. The submission evidence falls short of expectations in some areas, including a need to provide more detailed evidence to support the programme plans and identified milestones included. Additionally, in the assessment of procurement model, given the range of options, the submission should more clearly evidence the sift of which sources may be more suitable for Direct Procurement for Customers and other competitive delivery models.

4.3.4 Environment

Our assessment of environment considered the initial environmental assessment; the identification of environmental risks and an outline of potential mitigation measures; the detailed programme of work used to address environmental assessment requirements and the initial outline of how the solution will take into account the carbon commitments.

We consider that the progress and quality of the work presented in the gate one submission in this area was satisfactory. The submission evidence falls short of expectations in some areas, including requiring a more detailed understanding of specific environmental risks that will come with a smaller preferred suite of options. The solution should also focus environmental assessments towards options that concern Water Industry National Environment Programme (WINEP) studies and Special Area of Conservation sites.

As a key theme for gate two, United Utilities should also develop and undertake monitoring programmes to fill in data gaps and modelling to inform the impact assessments.

4.3.5 Drinking water quality

Our assessment of drinking water quality considered drinking water quality and risk assessments; evidence that the solution has been discussed with the drinking water quality team and a plan for future work to develop Drinking Water Safety Plans (DWSPs).

We consider that the information provided in this submission on drinking water quality risks, stakeholder engagement and DWSPs for gate one was good. We expect to see further development of DWSPs, water quality monitoring, including for emerging contaminants, and wider stakeholder engagement with ongoing dialogue with the respective water quality teams in gate two.

4.3.6 Board Statement and assurance

The evidence provided relating to assurance has been assessed as good. United Utilities has provided a Board statement that indicates:

- its support of submission recommendations for solution / option progression;
- it is satisfied that progress on the solution is commensurate with the solution being construction ready for 2025-30;
- it is satisfied the work carried out to date is of sufficient scope, detail and quality as would be expected for a large infrastructure project of this nature at this stage; and
- that expenditure has been incurred on activities that are appropriate for gate one and is efficient.

This statement is accompanied by an explanation of the approach to assurance and a description of the evidence and information that the Board has relied on in giving the statement.

5. Proposed changes to partner arrangements

United Utilities propose to amalgamate the United Utilities Sources solution with the Vyrnwy Aqueduct solution to form a new single solution. This is due to the two solutions being intrinsically interdependent, with either solution becoming unfeasible if they both do not progress. The amalgamation will also bring working and reporting efficiencies.

The solutions both have one sole solution sponsor, United Utilities, under which the same team works on both solutions. Therefore, the proposal reflects a simple combining of work programmes under this team and solution sponsor.

The new solution's total allowance and gate allowances will be formed by combining the two solutions' total allowances and gate allowances from the Final Determination. The Final Determination's total allowance and gate allowances have been amended to reflect this.

We accept the reasoning behind the proposal to amalgamate the two solutions and agree that this takes place for gate two. The total allowance for the new combined solution will be £3,285,000 for gate two (and £21,900,000 across all gates).

6. Actions and recommendations

Where the submission has not been assessed as ‘meeting expectations’ we have provided feedback on where we will seek remediation of the issues. We have also identified specific steps that solution owners should take in preparing for gate two.

We have categorised these remediation issues and steps into priority actions, actions and recommendations.

Priority actions are those that should have been completed at gate one and must now be addressed on a short timescale in order to make sure the solutions stay on track. They require urgent remediation in full and for this reason directly relate to the assessment of delivery incentives set out in this publication. The response to the priority actions will determine whether a delivery incentive is imposed; and the extent to which the delivery incentives can be mitigated by the solution sponsors. If all priority actions are satisfactorily completed then the penalty will not be imposed. If one or more of the priority actions are not satisfactorily completed then the whole of the penalty will be imposed.

We have also identified actions that should be addressed in full in the gate two submission. The response to these actions will influence the assessment of the gate two submission.

Recommendations are issues where additional information or clarification could improve the quality of future submissions.

No priority actions have been identified for United Utilities Sources, therefore we do not require the solution sponsors to provide us with a remediation action plan. The full list of other actions and recommendations can be found in the appendix.

7. Gate two activities

The solution will continue to be funded to gate two as part of the standard gate track.

For its gate two submission, we expect United Utilities to complete the activities listed in the [PR19 final determinations: strategic regional water resources solutions appendix](#) as expanded on in Section 15 of its gate one submission.

8. Incentives for gate two

For gate two we maintain the same arrangements for incentives as applied in gate one – that is, a maximum penalty of 30% of company's total efficient gate funding that could be applied to solutions that have not made adequate progress, where work is of inadequate quality, or the submission deadline is missed.

Penalties will be determined on a case by case basis taking into account:

- the level of completeness and the overall quality of the work carried out in investigating and developing the solution based on the evidence summarised in the submission;
- the evidence and justification provided where aspects of the work carried out fall short of expectations; and
- the impact on the decisions and delivery of solutions, including the extent to which deficiencies adversely impact customers.

Penalties will be applied through the PR24 reconciliation mechanism, as described in '[PR19 final determinations: Strategic water resource solutions](#)'.

There will be no opportunity to remediate deficiencies identified at the assessment in order to defer penalties.

Appendix: Actions and Recommendations

Actions – to be addressed in gate two submission		
Number	Section	Detail
1	Solution Design	Refine the list of source options down to a preferred suite early in the gate two process, combining in portfolios as necessary for supply capacities. A manageable suite will allow for a full and detailed assessment to be completed during gate two. Progress and decisions on this action, including manageable numbers of preferred supply options, should be shared with regulators during checkpoint meetings.
2	Solution Design	Ensure that further detailed utilisation calculations are undertaken early in gate two in order to feed into the environmental assessment
3	Solution Design	Ensure Welsh stakeholders and customers are included in solution specific engagement.
4	Costs and Benefits	Further work is required on elements of the solution which impact on Welsh ecosystem resilience. This will achieve sustainable management of natural resources as well as helping to achieve goals set out in the Well-being of future Generations Act. Any proposal which has implications for Wales must meet the requirements of this Act and the Environment (Wales) Act. This is in addition to the natural capital and biodiversity net gain requirements for England.
5	Costs and Benefits	Priority modelling and investigations should be carried out in relation to the 10 source options that concern Water Industry National Environment Programme (WINEP) studies and those source options with an impact on the River Dee SAC.
6	Programme and Planning	Provide further detailed evidence to support the programme plans and identify key milestones.
7	Programme and Planning	Continue to develop assessment of Direct Procurement for Customers (DPC), including detailed assessment of suitability against technical criteria. The submission should consider whether elements of the system are suited to DPC, for example specific sources or bundles/phases of delivery.
8	Environment	Initial environmental assessment should prioritise the 10 source options that concern Water Industry National Environment Programme (WINEP) studies and those source options with an impact on the River Dee SAC.
9	Environment	Identify the specific environmental risks of preferred supply options. Ensure issues and mitigation measures are well understood.

Recommendations		
Number	Section	Detail
1	Solution Design	Stakeholder engagement at gate two should further explore customer acceptability into change of supply source
2	Costs and Benefit	Studies should update all source option yields and model Deployable Output values from these yields, using WRMP19 figures. This work should be completed prior to the conclusion of the best value portfolios of source options. This work should be completed, as planned, during gate two.
3	Costs and Benefits	Investigate source option-specific wider resilience opportunities at gate two. This will form part of the environmental resilience work planned for gate two.
4	Programme and Planning	Include how interaction with other strategic solutions (particularly the River Severn to River Thames transfer) will be managed in the programme plan, including any key check-ins and alignment and sharing of key investigation outcomes.
5	Environment	The main submission document needs to be clear on the methodologies and/or frameworks used to calculate, manage and mitigate GHG emissions. Clearly state how approach to carbon management is helping to deliver on WaterUK 2030 net zero route map and is aligned with the sector's ambition on carbon.



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