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Strategic regional water resource solutions: accelerated gate two draft decision for Desalination

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1. Introduction

The purpose of this publication is to set out our draft decision in respect of the desalination strategic regional water resource solution submitted for the accelerated gate two assessment by solution owner Southern Water¹.

This publication should be read in conjunction with RAPID's [letter](#) issued to Southern Water on 9 December 2021 following its request to remove the desalination solution from RAPID's gated process. Both this document and RAPID's letter have been published on our website.

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 have reviewed the environmental sections of the submissions and provided feedback to RAPID. The Consumer Council for Water provided input to the assessment on customer engagement.

Given that the desalination solution has already left the programme, RAPID assessed evidence on the quality of the work undertaken until the point when Southern Water recommended its removal, in order to decide whether a delivery incentive penalty should be applied, and the efficiency of Southern Water's gated allowance spend.

The solution owner and other interested parties can now respond to the draft decision. Representations are invited by email to rapid@ofwat.gov.uk and the representation period will close at 6pm on 12 April 2022. All representations will be considered before our final decision is published at 10am on 17 May 2022.

We will publish representations on our website at www.ofwat.gov.uk/regulated-companies/rapid, unless you indicate that you would like your representation to remain unpublished. We will also share representations with our partner regulators, Ofwat, the Environment Agency and the Drinking Water Inspectorate and with Natural England. Subject to the following exceptions, by providing a representation to this consultation you are deemed to consent to its publication.

If you think that any of the information in your response should not be disclosed (for example, because you consider it to be commercially sensitive), an automatic or generalised confidentiality disclaimer will not, of itself, be regarded as sufficient. You should identify specific information and explain in each case why it should not be disclosed (and provide a redacted version of your response), which we will consider when deciding what information to publish. As minimum, we would expect to publish the name of all organisations that provide a written response, even where there are legitimate reasons why the contents of those written responses remain confidential.

¹ Referred to in PR19 final determination as "Fawley Desalination"

In relation to personal data, you have the right to object to our publication of the personal information that you disclose to us in submitting your response (for example, your name or contact details). If you do not want us to publish specific personal information that would enable you to be identified, our [privacy policy](#) explains the basis on which you can object to its processing and provides further information on how we process personal data.

In addition to our ability to disclose information pursuant to the Water Industry Act 1991, information provided in response to this consultation document, including personal data, may be published or disclosed in accordance with legislation on access to information – primarily the Freedom of Information Act 2000 (FoIA), the Environmental Information Regulations 2004 (EIR) and applicable data protection laws.

Please be aware that, under the FoIA and the EIR, there are statutory Codes of Practice which deal, among other things, with obligations of confidence. If we receive a request for disclosure of information which you have asked us not to disclose, we will take full account of your explanation, but we cannot give an assurance that we can maintain confidentiality in all circumstances.

2. Solution Background

2.1 Solution summary

In its submission, Southern Water presented two options for a desalination treatment plant at Fawley.

Option A1 consists of 75 mega-litres/day (Ml/d) desalinated water direct to Testwood Water Supply Works (WSW). Option A2 consists of 61Ml/d desalinated water direct to Testwood WSW.

Option A1 was the preferred strategy 'base case' option from the water resources management plan 2019 (WRMP19). Fawley was the identified location in the base case, but Southern Water had identified the need to extend the search envelope for construction sites due to the number of land and marine environmental sensitivities.

Both Options A1 and A2 comprise seawater abstraction via an offshore submerged and screened intake; a pre-treatment stage; the main desalination plant; treated water conditioning; waste discharge; and transfer to Testwood WSW for potable treatment and distribution.

Figure 1. Desalination schematic



2.2 Solution context

The Section 20 agreement with the Environment Agency sets out how Southern Water will use “all best endeavours” to implement the long-term solution for alternative water resource in order to address deficits arising from reductions in the volume of water that can be abstracted on the River Test and River Itchen, which are reflected in changes to abstraction licences made in March 2019.

The alternative water resource will enable the company to no longer require drought orders from the River Itchen and the Candover boreholes and only to require a drought order or permit from the River Test in extreme drought events (1 in 500 year drought severity).

Southern Water’s WRMP19 set out the proposals to deliver alternative water resource to meet the Section 20 agreement which include: a 75MI/d desalination plant at Fawley (this solution); water efficiency and leakage reductions; new bulk supplies from Bournemouth Water (20MI/d) and Portsmouth Water (9MI/d); construction of Havant Thicket reservoir and a further 21MI/d bulk supply from Portsmouth Water; extensions to the existing water grid; and water quality schemes.

Two alternative solutions to desalination for meeting Southern Water’s needs are included in the accelerated gated process: water recycling and a raw water transfer from Havant Thicket.

Further information concerning the background and context of the Southern Water Desalination solution can be found in the desalination publication document on the [Southern Water](#) website.

2.3 Solution update

Southern Water provided an interim submission on 6 September 2021 requesting the removal of the desalination solution from RAPID's gated process on the basis that it was not feasible at this location at the current time. RAPID issued a letter to Southern Water on 9 December 2021, which was a joint response from RAPID and its partner regulators. This agreed Southern Water's proposal that the desalination solution in this location should not be funded to further progress its investigation and development at this time and its removal from the RAPID programme.

3. Assessment of accelerated gate one remediation action plan

Southern Water received a 10% delivery incentive penalty for failure to make sufficient progress at gate one on the desalination solution. This delivery incentive penalty was conditional on whether or not it took prompt action to address the issues we identified with its submission.

The company had the opportunity to mitigate the delivery incentive penalty by addressing the issues identified and listed in the Appendix to the gate one decision that needed to be completed by 26 July 2021 ('priority actions').

If the company addressed all of the priority actions satisfactorily by this date, then the 10% delivery incentive penalty in respect of this solution would not apply. If the company failed to address one or more of the issues by this date, then the 10% delivery incentive penalty in respect of this solution will apply in full.

Southern Water published progress against their [remediation action plan](#) on 26 July 2021. We have assessed progress against the priority actions and find that some had been addressed satisfactorily but others had not. We have decided to exercise our discretion in not applying the accelerated gate one 10% delivery incentive penalty to support Southern Water in focusing on progressing investigation and development of solutions remaining in the RAPID programme. Further details of our assessment are provided below.

Table 1: Assessment of remediation action plan

<p>Consider whether your WRMP19 needs amending and if so how. Explain the reasoning for this in light of potential changes to your best case plan, delivery times and costs for the solution.</p>	<p>Southern Water published its annual review of its WRMP19 on 3 December 2021, which set out a proposed change in the base case from desalination at Fawley to a recycling plant and transfer from Havant Thicket reservoir. Southern Water propose to update and consult on this change to their WRMP through their WRMP24.</p>
<p>Provide information about why the timeline for delivery has slipped from 2027 to 2028. Provide a plan for recovering the programme slip, including a revised plan with mitigation measures to deliver alternative water resource by end 2027. This should include:</p>	<p>Southern Water has confirmed that it cannot deliver a solution by the end of 2027.</p> <p>The base case solution has changed from desalination at Fawley to water recycling and raw water transfer from Havant</p>

<ul style="list-style-type: none">• the measures that are needed to meet the 2027 timescales• more detail of pre-construction activities and critical path activities (such as DWI engagement on membranes approvals (if applicable) and site location confirmation) and decision points• a clear statement to confirm any missing information and the potential impact this could have on the programme• consideration of solution delay impacts with reference to having an operational solution by the end of 2027• details of regulator engagement and review points	<p>Thicket. Southern Water has published its annual review of its WRMP reflecting this change. The earliest date provided for a solution delivery as documented by Southern Water is Q4 2028 / Q1 2029. Southern Water have stated that they cannot provide a programme to recover the slip but it will endeavour to minimise the overrun period.</p> <p>Southern Water is in discussion with the EA regarding the mitigation measures it plans to put in place until a new source is operational.</p>
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4. Solution assessment summary

Table 2. Draft decision summary

Recommendation item	Desalination
Solution owner	Southern Water
Should further funding be allowed for the solution to progress to accelerated gate three?	N/A as has already left the programme
Is there evidence all expenditure is efficient and should be allowed?	No
Delivery incentive penalty?	No
Is there any change to partner arrangements?	N/A
Are there priority actions for urgent completion?	No; the solution is not progressing

4.1 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 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 accelerated gate two activities results in an allowance for this solution of £4.78m (of £5.25m claimed). We note that Southern Water has claimed costs for early gate three activities of £1.18m. As this solution left the RAPID gated programme before accelerated gate two, there is no gate three allowance for this solution, and we do not allow any of the £1.18m claimed.

We have made adjustments to the accelerated gate two costs claimed totalling £0.47m, and we explain our reasons for these below.

Table 3. Accelerated gate two cost adjustments

Activity	Claimed expenditure	Allowed expenditure	Adjustment
Programme & Project Management	£622,000	£310,756	-£311,244
Legal	£270,000	£107,667	-£162,333
Total	£892,000	£418,423	£473,577

We have identified two areas where we consider submitted evidence has not been sufficient to justify efficient and allowed spend within the accelerated gate two programme of works. These are programme and project management and legal costs.

In query response SRN003, Southern Water indicates it has claimed £622,000 in programme and project management costs for this solution (£93,000 for project management, £263,000 for Project Management Office (PMO) activities, and £266,000 for Southern Water senior delivery management).

We do not consider that enough evidence has been provided to show that these costs were incurred efficiently, indeed there is evidence to suggest significant duplication of work and inefficiency. For example, costs have been incurred for "authoring support" or "submission development" of £151,000 (taken from Table 7 in Annex 6 and allocated on an equal basis across the three Southern Water solutions). According to query response SRN003, these costs do not include the costs of the actual technical content produced by the technical teams, and do not include the costs for developing the procurement and commercial analysis sections of the submission (a further £75,000 for each solution). Additionally, Table 7 of Annex 6 indicates that approximately £85,000 was incurred in assurance costs as a subset of PMO activities for each solution, which are separate to the £105,000 incurred for external assurance listed in query response SRN003. Furthermore, Table 7 of Annex 6 shows that £83,000 was spent on "programme sponsor support until interim update" and £34,000 on "programme sponsor support post interim update" (calculated by allocating the total amount listed in the table on an equal basis across the three Southern Water solutions). Given that the "post interim update" period was less than two months, this implies a large and unexplained increase in cost per time of programme sponsor support activities.

We find that an efficient benchmark for programme and project management costs for this solution are the costs for programme management and company activity incurred as part of the London Effluent Reuse solution gate one submission, totalling £310,756. We have selected this as a benchmark for all three of Southern Water's solutions because both the solutions that Southern Water proposes for progression include recycling within them and we therefore believe the complexity of the solutions is comparable. While we recognise these costs are for different gates, we do not believe the project and programme management costs for the solutions should show such a large step change between gates one and two. We

replace the costs presented by Southern Water the London Reuse figure, resulting in a downward adjustment of £331,244.

The second category in which we make adjustments to claimed costs is some of the legal costs.

In query response SRN003, the companies indicated that £346,000 for legal activities described as legal advice inputting into the gate two deliverables, reviewing and assisting with Interim Update and gate two documents, attendance at peer review meetings, legal input into matters arising out of Gate 1 Final Determination. The gated allowances are for the purpose of developing the solutions – these activities form regulatory advice for Southern Water and do not relate to solution development. A further £1,000 is claimed for "attendance at RAPID meetings." In general, we do not expect companies to require external legal representation at meetings with RAPID.

Query response SRN003 also lists £93,000 for "strategic advice in relation to the consenting, regulatory approval, and delivery of the SROs." It is not clear what the purpose of this advice is; to the extent that it relates to the delivery of the solution (i.e., consenting, procurement, and contracting), we would expect it to have been allocated to one of the other categories of spend. There is an additional £47,000 listed for "attendance at project meetings." Again, it is not clear what the purpose of the attendance at project meetings is; to the extent that this is to provide regulatory advice to Southern Water on their submissions to RAPID or otherwise, this is not expenditure on the delivery of the solution.

The total legal expenditure reported in query response SRN003 for the three Southern Water solutions for gate two is £810,000, or £270,000 per solution. The legal activities detailed above total £487,000 across the three Southern Water solutions. The desalination share of this is £162,333 and we reduce the amount claimed for the desalination solution claimed expenditure by this value.

Our adjustments detailed above for project management and legal costs reduce the amount allowed to £4.78m.

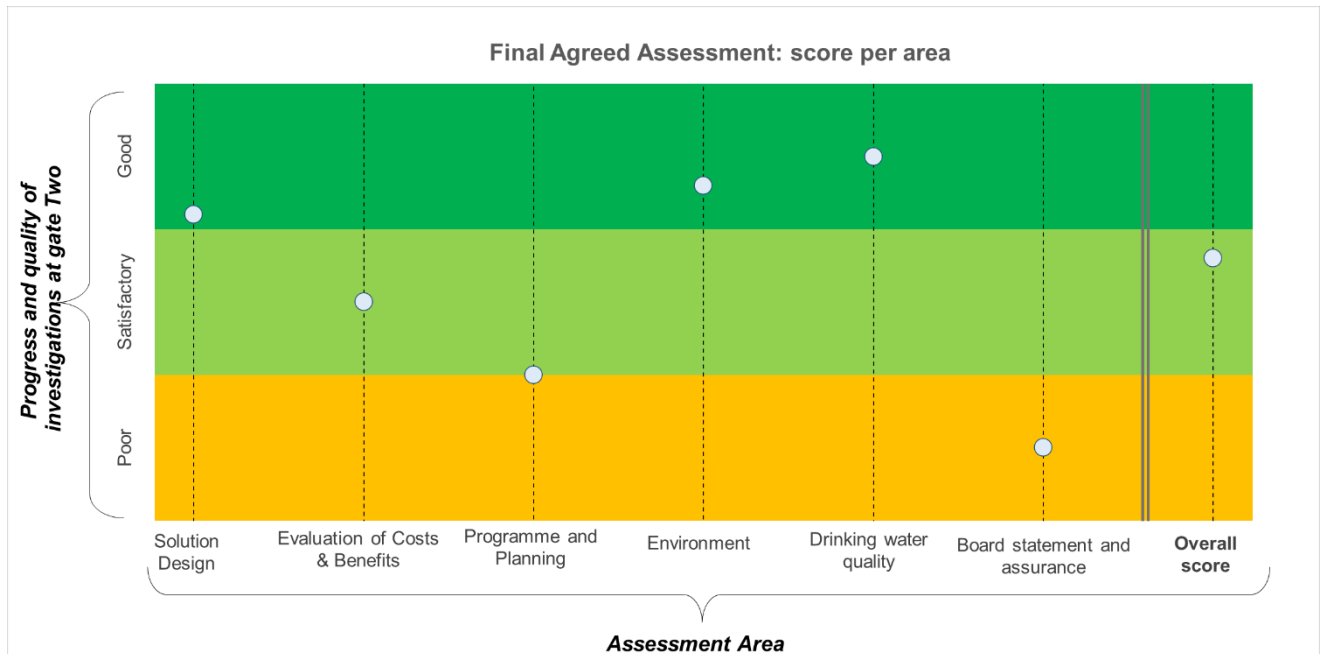
4.2 Quality of solution development and investigation

The aim of the assessment was to determine the quality of the work undertaken in progressing the solution until the point when Southern Water recommended the solution's removal from the programme.

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 [accelerated gate two guidance](#) published on 22 February 2021 and updated in June 2021. We also assessed the Board assurance provided.

Figure 2. Assessment of progress and quality of investigation



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

4.2.1 Solution Design

Our assessment of the solution design considered the quality of the evidence provided on the solution and 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, including plans in draft.

We consider that the progress and quality of the investigation completed by Southern Water in developing the solution design has been good.

The evidence of programme on solution design is adequate. However, whilst we consider Southern Water to have provided sufficient evidence of progress in developing the solution design until its removal from the programme, had the solution progressed, the solution owner would have needed to refine and reassess utilisation in a 1:500 year drought resilience using outputs from regional modelling.

Stakeholder engagement for this option was satisfactory as it had been promoted as the base case for Water for Life Hampshire.

4.2.2 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 Southern Water's evaluation of the costs and benefits of the solution for accelerated gate two has been satisfactory (falls short of meeting expectations in some areas). There was a lack of evidence to support consideration of wider resilience benefits, particularly for the 1 in 500 drought resilience scenario, and how this contributes to the solution providing best value to customers beyond least cost.

4.2.3 Programme and Planning

Our assessment of the programme and planning considered whether Southern Water presented a programme with key milestones and whether its delivery was 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 progress and quality of the accelerated gate two investigation completed by Southern Water regarding the programme and planning, risks and issues and the procurement and planning route strategy for desalination has been poor (falls short of meeting expectation in many areas). Procurement and planning route strategy had not been sufficiently developed and evidenced for accelerated gate two.

4.2.4 Environment

Our assessment of environment considered the 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 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 submission provided by Southern Water regarding the environmental assessment, potential mitigations, future work programmes and embodied and operational carbon commitments was sufficient to

evidence that the solution should leave the programme. There is a lack of adequate environmental monitoring as required by accelerated gate two. Whilst some desk studies have been completed these are insufficient for this stage in the programme and should this solution have continued would have fallen short of the requirements for accelerated gate two.

4.2.5 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 accelerated gate two was sufficient to evidence that the solution should leave the programme. However, concerns would have remained had the solution progressed in terms of availability of approved membranes for potable water treatment.

4.2.6 Board Statement and assurance

The evidence provided relating to assurance has been assessed as poor.

Southern Water has provided an assurance statement that applies across its solutions rather than to each individual solution. We consider the following parts of the statement to be relevant to the desalination solution:

- it is satisfied that expenditure has been incurred on activities that are appropriate for accelerated gate two and are efficient; and
- it is satisfied that any expenditure incurred for accelerated gate three activities have been clearly flagged and discussed with RAPID prior to submission. Expenditure is relevant to the All Best Endeavours (ABE) requirement for s20 and is efficient.

Southern Water has provided information regarding its governance structure and its board oversight of its obligations under the Section 20 agreement, which was a requirement in our gate one final decision. It indicates that its full board was accountable for this and that this was also considered by a sub-group of its board to provide deeper oversight and challenge.

It is very disappointing, that Southern Water has been unable to provide assurance that one or more solutions will be in place and operating by the end of 2027. We allowed funding in our final determination at PR19 for solutions likely to provide Southern Water with supplies by the end of 2027 in order to support Southern Water in meeting its environmental obligations under its Section 20 agreement. The provision of this assurance was included as an action to

be addressed in the gate two submission and we have taken its omission into account in our assessment of the assurance provided by Southern Water at gate two.

Southern Water has put in place external technical assurance of its gate two submission documentation. The external assurance identified material issues with Southern Water's submissions in a number of areas, including in relation to its gate two expenditure, and there is no confirmation that the issues identified in external assurance have been addressed. We have also seen evidence within the submissions to suggest these issues were not resolved prior to submission. For example, gate expenditure amounts for the three solutions in Annex 6: Efficiency of Expenditure are inconsistent across different tables in the document and also differ from those provided in query responses.

We do not agree that expenditure incurred for accelerated gate three activities have been clearly flagged and discussed with RAPID prior to submission. The gate three expenditure as a total across the solutions was discussed at an early stage, however the expenditure split out for each solution was only shared with RAPID on 26 November 2021, a few days before the accelerated gate two submission on 6 December 2021, despite an earlier request for this information during solution checkpoint meetings. As noted above, we were surprised that early gate three activities were claimed for this solution given that Southern Water proposed its removal from the RAPID programme on 27 September 2021.

5. Actions and recommendations

No priority actions, actions or recommendations have been identified for desalination, as this solution has left the gated programme and funding has ceased.

6. Next steps

Following publication of this accelerated gate two draft decision the solution owner and other interested parties are invited to respond to the draft decision. Representations can be made by email to rapid@ofwat.gov.uk and will close at 6pm on 12 April 2022. All representations will be considered before our final decision is published at 10am on 17 May 2022.

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is a non-ministerial government department.
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