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**Strategic regional water  
resource solutions:**

**Accelerated gate two final  
decision for desalination**

**Ofwat**

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

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# 1. Introduction

The purpose of this publication is to set out our final decision in respect of the desalination strategic regional water resource solution submitted for the accelerated gate two assessment by solution owner Southern Water<sup>1</sup>.

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. CCW 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 owners 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 1 March 2022. We have taken all relevant representations into account in making our final decision.

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<sup>1</sup> Referred to in PR19 final determination as "Fawley Desalination"

## 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 Hampshire Water Transfer and Water Recycling (the solution owners have confirmed that this is the name for the solution formerly named Havant Thicket Raw Water Transfer).

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 27 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. Summary of Representations

### 3.1 Representations Received

We have not received representations from stakeholders or customers relevant to the desalination solution as it has been removed from the RAPID gated process at the request of Southern Water. We did receive a representation from Southern Water, which is summarised below.

**Table 1. Summary of representations**

| Representation from                               | Summary of representation  |
|---|--|
| <p><b>Southern Water and Portsmouth Water</b></p> | <p>Southern Water and Portsmouth Water provided one representation for Hampshire Water Transfer and Water Recycling, Water Recycling and Desalination.</p> <p><b>Early Gate Three Expenditure</b></p> <p>Southern Water explained that they had undertaken some gate three work before the decision was made to stop work on the solution and work undertaken after their proposal to stop was made was already contractually committed.</p> <p><b>Other Cost Challenges</b></p> <ul style="list-style-type: none"> <li>• Southern Water is of the view that London Reuse SRO is not an appropriate benchmark for project management costs due to different stages in the project lifecycle</li> <li>• Southern Water has provided further clarity on legal costs, which were incurred reviewing the technical assessments and evidence making up the submission</li> <li>• Southern Water has reallocated common costs between solutions based on the proportion of allowed expenditure in our accelerated gate two draft decisions, which Southern believe is representative of proportion of activity undertaken for each solution.</li> </ul> <p><b>Board Assurance</b></p> <p>Southern Water do not believe that they could have provided assurance that one or more of the solutions could be delivered by 2027.</p> |

## 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 Gate Three Early Expenditure

In their representation, Southern Water provided justification for the work considered to be wholly disallowed as early gate three work. They clarified that some costs were incurred before their interim update. Further costs were incurred between October and December before we agreed that the work would stop. Some of this work was contractually committed before the interim update. This included ongoing sampling work on the wider catchment including sampling in the Solent and subsequent analysis to inform the design team of the source water planned for the desalination plant. We accept Southern Water's justification that some expenditure was incurred before the interim update and other expenditure was incurred during the decision period and was contractually committed. However, we consider that these activities were gate two activities. Given that there is space within the gate two allowance, we attribute the expenditure to gate two and accordingly allow it.

### 3.2.2 Cost Challenges

We accept Southern Water's proposal that common costs should be reallocated based on the proportion of allowed expenditure in our accelerated gate two draft decisions, which in the case of the Desalination solution is 52.6%.

We have therefore reallocated the programme and project management costs and legal costs in line with the reallocation proportions outlined in Table 6 of Southern Water and Portsmouth Water's representation. With this reallocation, the cost challenges are no longer applied equally across the three Southern Water solutions. As per Table 6 of their representation, 52.6% of the common programme and project management and legal costs have been allocated to the Desalination solution.

Following Southern Water's clarification with regard to legal costs, we accept that these costs are expenditure on delivery of the solution. We still have concerns regarding the magnitude of legal costs and the magnitude of programme and project management costs. We acknowledge Southern Water's representation that there are not appropriate benchmarks for comparison of spend at this point because these solutions are on the accelerated track rather than the standard track. We have therefore decided to maintain our cost challenge in relation to these two cost items at this point in time and to reassess the expenditure on these two cost items at standard gate two when we will have available to us information from the standard gate solutions.



### 3.2.3 Board Assurance

We allowed funding on our final determination at PR19 to allow Southern Water to investigate and develop solutions to be operational by the end of 2027. This date remains the basis on which funding was made available at PR19, irrespective of any amendment to the section 20 agreement. While the funding was made available for the purpose of supporting Southern Water in achieving its environmental obligations under the section 20 agreement, the basis of funding is independent of the provisions of that agreement and is as stated in our final determination at PR19.

In its gate one representations, Southern Water indicated that it would continue to take every opportunity to bring forward the delivery date to meet the 2027 timetable although it considered the timeline to be challenging. We therefore do not agree that it was the case that Southern Water made it clear that it viewed a 2027 delivery date as unachievable as early as gate one. We welcome the commitment of Southern Water's Board to ensuring that there is no delay beyond 2030 at future gates.

The assessment of this area as poor also took into account that Southern Water did not provide confirmation that material issues with its submissions identified in its external assurance had been addressed and there was evidence within the submissions to suggest that they had not.

For these reasons, we have not changed our assessment of this area. We welcome the commitment of Southern Water's Board to providing assurance at future gates that the solution will be delivered at the earliest possible date and that there is no delay beyond 2030 at future gates.

## 4. 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 the [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 2. Assessment of remediation action plan**

|  |   |
|--|---|
| <p><b>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.</b></p>   | <p>Southern Water published its <a href="#">annual review of its WRMP19</a> 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><b>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:</b></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"><li>• <b>the measures that are needed to meet the 2027 timescales</b></li><li>• <b>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</b></li><li>• <b>a clear statement to confirm any missing information and the potential impact this could have on the programme</b></li><li>• <b>consideration of solution delay impacts with reference to having an operational solution by the end of 2027</b></li><li>• <b>details of regulator engagement and review points</b></li></ul> | <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> |
|---|---|

## 5. Solution Assessment Summary

Table 3. Final 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   |

### 5.1 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 resulted in an allowance for this solution of £4.69m (of £5.56m claimed), including £1.06m of expenditure which Southern Water had accounted for as early gate three activities but which we consider gate two activities. We have allocated 52.6% of common costs including programme and project management and legal costs to the Desalination solution.

We have also made adjustments to the accelerated gate two costs claimed totalling £0.87m, and we explain our reasons for these below.

**Table 4. Accelerated gate two cost adjustments**

| Activity                       | Claimed expenditure | Allowed expenditure | Adjustment       |
|--------------------------------|---------------------|---------------------|------------------|
| Programme & Project Management | £991,510            | £310,756            | -£680,754        |
| Legal                          | £426,060            | £241,434            | -£184,626        |
| <b>Total</b>                   | <b>£1,417,570</b>   | <b>£552,190</b>     | <b>-£865,380</b> |

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.

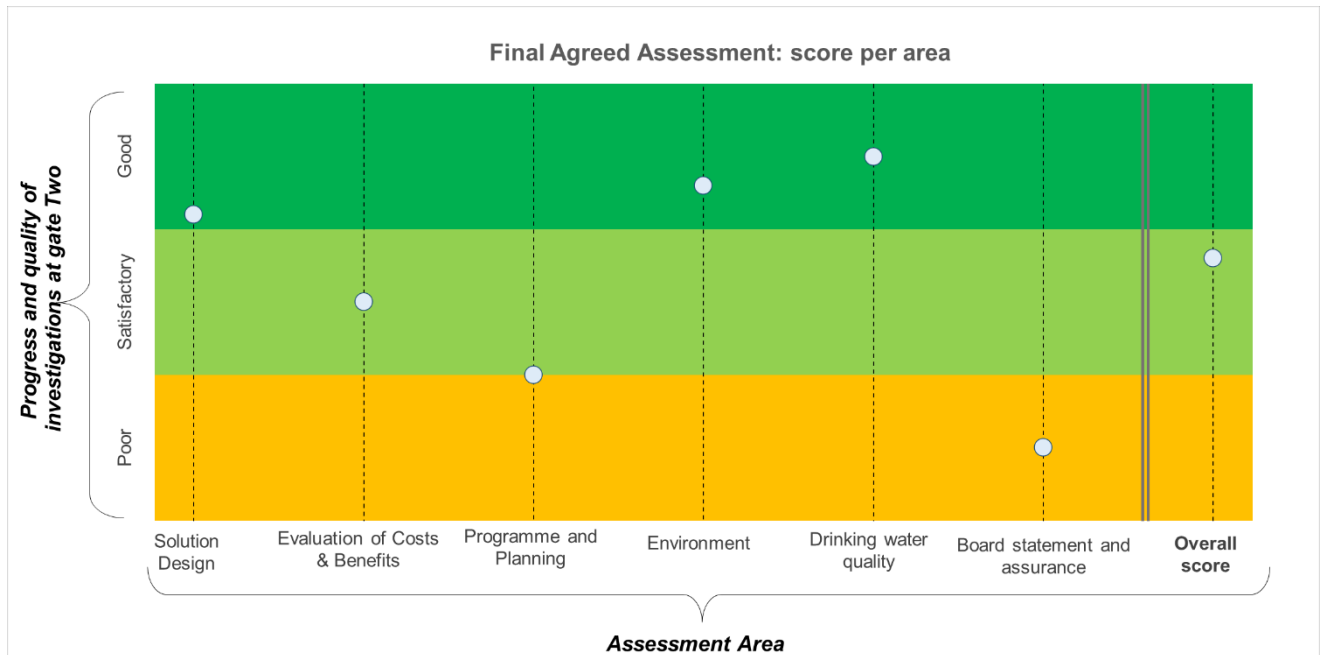
Our adjustments detailed above for project management and legal costs reduce the amount claimed and allowed to £4.69m.

We will reassess these adjustments at standard gate two when additional cost benchmarks become available from the standard gate solutions.

## 5.2 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).

### 5.2.1 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.

## 5.2.2 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.

## 5.2.3 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.

## 5.2.4 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.

### 5.2.5 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.

### 5.2.6 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.

## 6. 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.

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