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Trust in water

PR19 draft determinations

**Strategic regional water resource
solutions appendix**

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PR19 draft determinations: Strategic regional water resource solutions

Contents

1	Background	3
2	Solution development funding	11
3	Solution identification	14
4	Gated process and deliverables	23
5	Customer protection	34
6	Decision making and governance	42

1 Background

In this appendix we outline our approach to strategic regional water resource solutions development funding. This includes the context for our interventions, what we proposed during the initial assessment of business plans, how the companies responded, our draft determination decisions and the interactions with the water Regulatory Alliance for Progressing Infrastructure Development (RAPID) unit.

Meeting the water resource supply-demand balance to ensure resilient supplies during droughts is becoming ever more challenging with increasing pressures from climate change, population growth, societal expectations and increasing environmental aspirations.

In response to this challenge we identify the potential for companies to jointly deliver strategic regional water resources solutions to secure long-term resilience on behalf of customers while protecting the environment and benefiting wider society. This requires the development of new infrastructure, such as storage reservoirs and strategic transfers, to manage water supplies at a regional and national level. This facilitates the movement of supplies from areas of water surplus to areas of water stress during drought providing benefits both now and for future generations.

All of the responses to the initial assessment of business plans, including the companies' revised business plans, provided by the 1 April 2019 are taken into account in our decisions where relevant. Where appropriate, we explicitly set out our response to points and issues raised by respondents. Our decisions also take into account the representations made on the fast track draft determinations where the points and issues raised are relevant to the slow track and significant scrutiny draft determinations. We will deal with the other elements of the representations to the fast track draft determinations as part of the final determinations. We have not necessarily been able to take full account of all late evidence, submitted after the 1 April 2019 business plans, and we will consider this information for the final determination.

1.1 Context to our decisions

We have given clear messaging throughout the water resources management plan consultations and the development of the PR19 methodology on our expectations for addressing drought resilience and protecting the environment.

One of the PR19 key themes is resilience in the round. Developing strategic regional water resource solutions contributes to this but also has close links to innovation,

environment and long-term affordability. In ‘Delivering Water 2020: Our final methodology for the 2019 price review’ we outlined that: ‘Customers expect reliable water and wastewater services supplied by infrastructure that can avoid, cope with and recover from, disruption. The water companies that deliver these services need to make the best long-term decisions about operations, maintenance and investment. Including to assess a wide range of options for securing water supply resilience including investment in new infrastructure, water transfers and measures to significantly improve water efficiency and reduce consumption.’

Water resources management plans (WRMPs) form a key component of the water company business plans, identifying the needs in order to maintain the supply-demand balance. As statutory consultees for water resources management plans, as well as contributing to the water resources planning guidance in 2016, we outlined our expectations for pre-consultation engagement in December 2016: ‘Water resources management and planning form a key part of your business activities and we expect companies to integrate the development of their WRMPs into their mainstream business planning. We are working closely together with Government and the regulators in both England and Wales to ensure that water resources planning outcomes, including long term, strategic and resilient solutions, are reflected through the price review process.’

We made our representations to the Secretary of State for the Environment, Food and Rural Affairs and Welsh ministers on companies’ draft water resources management plans. We provided individual representations for each company and produced an information note providing an overview of the individual representations, identifying common themes and areas of challenge ([Ofwat's engagement on WRMP19](#)). These key areas of challenge were: customer participation, resilience, leakage, water efficiency, third party options, water trading and regional solutions. In the information note published in June 2018 we identified that: ‘Despite some progress, we are disappointed that the plans in the south east are still highly dependent on supply-based solutions designed to serve individual company areas rather than developing an integrated approach to secure the long-term resilience of the region. We expect companies across all regions to seize the opportunity of regional and national solutions to address future challenges.’

We consolidate our findings with those of others, such as the National Infrastructure Commission, which identified in its 2018 report ‘Preparing for a drier future’ that additional supplies are required to maintain and improve drought resilience. As a result we have worked closely with other regulators and outlined our plans to address the water resources challenges in the joint letter ‘[Building resilient water supplies](#)’, published in August 2018, where we explained that: ‘While water companies need to own this challenge, we will work jointly to support and facilitate your efforts. We consider there is a need for: [...] Regional water resource planning

that transcends company boundaries and identifies optimum solutions for the region, and the nation as a whole; Clear, joined up direction from government and regulators; and a responsive regulatory approach to deal with issues as they arise.’ Part of the regulatory action has been the ongoing development of the water resources national framework, that we are contributing to, which will further promote consistency of assumptions between regions and identify the scale of regional water supply needs.

1.2 What our decision means

Our decision to provide an allowance of £450 million for companies to investigate and develop integrated strategic regional water resource solutions during 2020-25 further demonstrates our commitment to supporting long-term resilience and innovative approaches to the challenges the water industry faces. This requires water companies, regulators and other stakeholders to work together efficiently and constructively. We are working with other regulators to establish the RAPID unit, a new way of working and a route for addressing significant ‘barriers and gaps’ in the regulatory processes to ensure the solutions are developed in a consistent, timely and co-ordinated way.

We expect commitment from the industry to collaborate effectively and efficiently, to develop solutions on behalf of customers that are ‘construction ready’ for the 2025-2030 period, and that protect and enhance the environment and benefit wider society. Our funding allowance and customer protection mechanism, provides companies with the ability and certainty to further investigate, develop projects and engage with third parties through a flexible planning process to produce a selection of robust and deliverable solutions. Progressing with more solutions in parallel, rather than just one for a specific future scenario, enables flexibility to meet the uncertainty of challenges in the future, for example, if more solutions are required to meet a larger need or if issues arise with the preferred solution resulting in it not being deliverable. A broader range of solutions also allows further scrutiny and analysis to provide confidence in the selected programmes.

1.3 Our intervention at the initial assessment of business plans

We identified from the draft and revised draft water resources management plans, and the business plans, that the scale of the challenge to secure drought resilience over the long-term in the south-east is significant. Our conclusion was that at least one strategic solution is required over the next 10-15 years to secure long-term drought resilience in the south-east of England.

Some companies have proposed these types of solutions in their plans, but it is generally unclear why the companies' selected solutions are preferred over those they have not selected, or those that they select much further in the future. We also highlighted concerns with consistency of assumptions and inputs, and transparency of decision making across company plans. We raised these issues in our consultation responses to company draft water resources management plans. This highlighted a common issue, of regional groups focusing on company specific solutions within a regional context, rather than looking at all types (both company and third party) and scale (local, regional and national) of solutions, within a regional and national context. We expect to see improvements in this area going forward.

At the initial assessment of business plans we identified seven solutions from the business plans and draft water resources management plans that we considered suitable for including in this programme of work. We allocated £358.4 million across six companies which we considered should be involved in developing these solutions. We identified development activity as solution design, investigations and planning application.

This intervention and the overall supply-demand balance enhancement funding approach was described in the [Wholesale Water Supply-demand balance enhancement – feeder model summary](#).

Table 1.1: Development allowances in the initial assessment of business plans

Company	Maximum development allowance 2020-25 (£m)
Affinity Water	70.9
Anglian Water	10.3
Severn Trent Water	25.7
Southern Water	75.3
Thames Water	150.5
United Utilities	25.7
Total	358.4

1.4 Company responses to our initial assessment of business plans intervention

In response to the initial assessment of business plans, companies have revised their business plans, updating the list of solutions, development cost estimates, and

providing details of the proposed outcome delivery incentives for recovery of funding for solutions not proceeding or scope changes.

We expected information submitted on 1 April 2019 to be as accurate and complete as possible, but accepted that given the timescales and joint working implications, elements of these submissions may be in draft form. However, we required clarity on the costs relating to strategic regional water resource solutions and the solution scopes to be provided by 12 April 2019, with the final information covering the action submitted by 3 May 2019.

We received a large amount of individual documentation in this area with most of the material information submitted after 1 April. Even with the joint working and joint submissions, we identified inconsistencies of assumptions, including solution partners, for some proposals. The frequent submission of multiple documents leading up to the 3 May and the lack of cross-referencing has made the assessment and tracking of submissions difficult. We have reviewed all material submitted up to 3 May and taken these submissions into account for the draft determination decisions where relevant. We expect any material submitted by companies as part of the response to our draft determination to be more consistent and clearer in its presentation.

The submissions include a joint statement by six companies via Water Resources South East (WRSE). The joint statement by Affinity Water, Anglian Water, Severn Trent Water, Southern Water, Thames Water, United Utilities and WRSE considers:

- the principles for joint working; timing of the decision making gateways, based on whether or not the solutions are required to obtain a development consent order;
- increased detail of the work between the proposed gates;
- the requirement and principles of a change protocol to manage specific changes to solutions in the proposal and to change the current list of solutions when required; and
- development of the principles of an outcome delivery incentive type mechanism to allow allocated funding to be returned to customers in the event of a solution not progressing through each gate and for the non-delivery or late delivery of outputs.

In an addendum to the joint statement, submitted on 3 May 2019, the same companies specify key principles for a 'hybrid approach' outcomes delivery incentive mechanism, including:

- a uniform 50% totex sharing rate for all companies to ensure equivalent incentives for on-time and efficient delivery of joint solutions between companies;
- an allowance for flexibility to enable scopes of work to vary;
- end-of-period regulatory capital value (RCV) adjustment;
- consistent deadlines between companies to enable consistent decision-making;
- penalties applied to companies responsible for the delay or cost overrun; and
- definition of outcome delivery incentive performance commitments.

In addition to the joint statements, the companies provide specific submissions relating to their own solutions, joint solutions and individual outcome delivery incentive-type mechanisms. These documents include details of the engineering works required for each solution, solution lead-times, estimated development costs and allocations between companies over time, gate timings and associated deliverables, joint working approach, and company-specific outcome delivery incentive proposals.

Based on the submissions, we identify a total of £403 million requested across the six companies in 2020-25 to develop nine strategic regional water resource solutions. The companies propose an additional £300 million in development work (mainly related to development consent order applications and land purchase) for 2025-30, to be 'construction ready'.

In the company responses we note that Southern Water has not included £45 million for some joint solutions as assumed by its solution partners. We also note that Affinity Water assumes £11 million for the Grand Union Canal transfer between a Severn Trent Water source and Affinity Water will be shared between Anglian Water and Affinity Water, although Anglian Water does not request this expenditure.

Table 1.2: Company requested development allowances

Company	Maximum development allowance requested 2020-25 (£m)
Affinity Water	70.9
Anglian Water	27.0
Severn Trent Water	33.5
Southern Water	75.3
Thames Water	150.5
United Utilities	45.3
Total	402.5

1.5 Draft determination decision

We are committed to the long-term resilience ambition and build upon our initial assessment of business plans approach. We provide companies with allowances to develop strategic solutions, while we work to remove any regulatory barriers to achieving the best outcomes at a regional and national level. In an extension to our approach we increase the allowance and the number of solutions to be considered while detailing specific customer protection to return unrequired investment and ensure quality outcomes. We continue to see the direct benefits in this approach as described elsewhere in this document including to secure long-term resilience as identified above, but we recognise the wider benefits of our approach also include:

- Long-term planning – this approach significantly reduces the likelihood of sub-optimal solutions being progressed. A long-term and regional focus will avoid sub-optimal solutions for both customers, the environment and wider society, in both the short and long term.
- Sharing costs, risks and benefits – for trading solutions previously the majority of the costs to investigate development was primarily with the exporter. Ours approach shares this burden between solution partners. For the solutions identified, there are benefits to the exporter even if the trade does not progress, through improved confidence in available options to meet future challenges such as any future increase in resilience levels with respect to drought to 1-in-500 years.
- Transparency of costs and benefits – many of the solutions identified either feature in a company’s plans for 2020-25 investment (in supply-demand

balance enhancement), or as a longer-term solution in its water resources management plan. Therefore, investment in these solutions will have occurred either within a company's supply-demand balance programme with less transparency and less customer protection, or in future planning activities which risk leaving insufficient time to implement the most effective solutions.

We allow £450 million for development work involving eight companies (and third parties) identified across 15 solutions. The additional water provided by these regional solutions is in excess of 1000 MI/d (excluding transfer solution benefits that are mutually exclusive). This regional development is complemented by smaller short-term supply options (benefits delivered by 2025), local long-term options (benefits delivered after 2025), water efficiency programmes and leakage management. These company activities are funded through the supply-demand balance enhancement assessment, see 'Securing cost efficiency technical appendix'. This investment is set to deliver an additional 500 MI/d of supply by 2025, and 250 MI/d after 2025. In combination the capacity to be both delivered and investigated over the next five years is comparable to the National Infrastructure Commission findings that there is a need for 1300 MI/d in new supply solutions by the 2030s to maintain drought resilience, growing to an extra 3000 MI/d by 2050.

Given the joint nature of this programme and further information submitted, the updated allowances and interventions have an impact on the three fast track companies. We provide details of our decisions and funding allowances in the strategic regional feeder model which feeds directly into feeder model 4 - Wholesale efficient cost allowances.

1.6 RAPID

The water Regulatory Alliance for Progressing Infrastructure Development (RAPID) unit will help facilitate and oversee the delivery of this programme. The three regulators, Ofwat, the Environment Agency and the Drinking Water Inspectorate, working closely together, and addressing any regulatory gaps or barriers will help these joint solutions to progress where appropriate. These barriers may be perceived or real, and while we note that many will be resolved by our allowance of upfront development funding and having the cross-regulator unit in place, we expect some will need additional work by RAPID to resolve.

2 Solution development funding

2.1 Our intervention at the initial assessment of business plans

In the initial assessment of business plans we determined the development funding allowance by calculating 6.4% of the total solution construction cost. We assumed an equal split of development expenditure between each company associated with an individual solution. If any other water company or a third-party was identified at a later date, the allocated funding was intended to be used fairly to engage their involvement. The 6.4% of total costs was derived from PR19 direct procurement for customers' solutions as identified in table 2.1 below.

Table 2.1: Direct procurement for customers' solution development costs

Solution	Company	Development cost (£m)	Total project cost (£m)	Development cost as a percentage of total costs (%)
Abingdon reservoir	Thames Water, Affinity Water	237.1	1966	12.1
South Lincolnshire reservoir	Anglian Water	34.9	648	5.4
East Midlands raw water storage	Severn Trent Water	6.2	166	3.7
Deephams effluent reuse	Thames Water	15.5	352	4.4
Average				6.4

For some total solution costs we challenged the unit cost for construction with the solution-type costs from industry-wide option analysis based on the water resources management plans. This benchmarking applied to reservoirs, effluent reuse and desalination solution types. A minimum of the company requested and average solution-type costs was used. We applied our company specific efficiency factor, for each developing company, to the total solution cost.

2.2 Company responses to our initial assessment of business plans intervention

The development costs proposed by companies, at 4.7% to 15.8% of total solution delivery cost, are much higher than our 6.4% proposed at initial assessment of business plans. Severn Trent Water, Thames Water and United Utilities Water present a benchmarking assessment across seven large capital projects in the water industry showing a range in expenditure for the development phase as proportion of total costs from 4.4% to 21%.

Table 2.2: Company proposed solutions development allowances for 2020-25 (assumed pre-development consent order activity)

Solution	Development cost as percentage of total solution cost (%)
Abingdon reservoir	5.9 (excluding land)
Fawley desalination	15.8
London effluent reuse	7.7
South Lincolnshire reservoir	4.7
United Utilities sources	8.3
Anglian-Affinity transfer	4.7
Grand Union Canal transfer	6.0
River Severn to River Thames transfer	8.3
Thames-Affinity transfer	8.0

2.3 Draft determination decision

Excluding land costs, we conclude that the Thames Tideway Tunnel solution (considered a complex project) has development costs of 10% of the total solution delivery costs. In comparison, the development funding submission for Abingdon reservoir proposals (considered a relatively well scoped project based on its history), again excluding land costs, is 6% of total solution delivery costs. Comparative benchmarking from rail and energy infrastructure supports an efficiency challenge on the company proposals.

Based on the available data for water industry projects and the multi-sector benchmarking, we now cap the development costs for most solutions at 6% excluding land acquisition costs. The 6% also assumes that costs for some components of complex solutions requiring development consent orders are more likely to happen beyond 2025.

To calculate the 2020-25 development allowance, we apply the following rules:

- For all but three solutions we allow the company requested development costs up to a maximum of 6% of our view of efficient total solution costs.
- For the remaining three solutions we allow company requested costs (with an efficiency challenge). This applies to:
 - Southern Water’s Fawley desalination and River Itchen effluent reuse solutions, as the scope for this work in 2020-25 is greater to enable early delivery. We apply the company specific deep dive efficiency factor to these solutions.
 - The River Severn to River Thames transfer, which we consider is a more complex project (with three solution partners), involving a cross-catchment transfer (with two potential routes, pipeline and canal) and is relatively well-developed when compared to other solutions identified. We apply a 5% efficiency factor representing the model deep dive efficiency value for the three companies.

Table 2.3: Development allowances for the draft determination

Company	Maximum development allowance 2020-25 (£m)
Affinity Water	83.3
Anglian Water	25.3
Severn Trent Water	43.3
Southern Water	82.0
South West Water	1.3
Thames Water	179.2
United Utilities	34.3
Wessex Water	1.3
Total	450.1

3 Solution identification

3.1 Our intervention at the initial assessment of business plans

We identified six high level regional solutions incorporating six water companies. These were:

- Abingdon reservoir (two sizes)
- Regional transfer from Thames Water to Southern Water and Affinity Water
- Eastern regional solution/transfer
- River Severn to River Thames transfer (pipeline and canal)
- Teddington effluent reuse
- Fawley desalination/local trades

These proposed solutions already appeared in business plans, or the latest set of draft or revised draft water resources management plans. These appeared comparable in terms of scale and regional outputs so we saw benefit in their ongoing investigation and development to ensure confidence for future price reviews and water resources management plans.

3.2 Company responses to our initial assessment of business plans intervention

The companies submit proposals for the several new solutions not specified as strategic regional solutions in the initial assessment of business plans:

- River Itchen effluent reuse.
- Grand Union Canal transfer using effluent reuse from Minworth wastewater treatment works.
- South Lincolnshire reservoir (note that in the initial assessment of plans we allocated the development funding for this solution to the long term enhancement component of the supply-demand balance. For strategic regional water resource solutions we did identify the need for an eastern regional solution which this effectively becomes).
- London effluent reuse strategic solution (this replaces Teddington reuse as a less specific solution located at either Beckton or Mogden).

3.3 Draft determination decision

We identify the most likely solution set based on the information available from revised draft water resources management plans and business plans. We note that circumstances, such as levels of resilience and climate change scenarios may change the timing and scale of the need. However, we consider that there is a wide enough range of solution sizes (with scope to justify increasing or decreasing the solution sizes under consideration), solution types and solution locations to meet the need of the next 15 years as it is currently defined. At the initial assessment of business plans we did consider 50MI/d as a high level size threshold for considering strategic solutions. Although we do not want to set a size or benefit threshold for these solutions, all those proposed for draft determination deliver benefits of at least 25MI/d. We allow flexibility of solutions within the gated process but note that given the timing of deficits and construction lead in times, the preferred suite of solutions need to be focussed and rapidly filtered in the process to ensure delivery for the benefit of customers and environmental resilience.

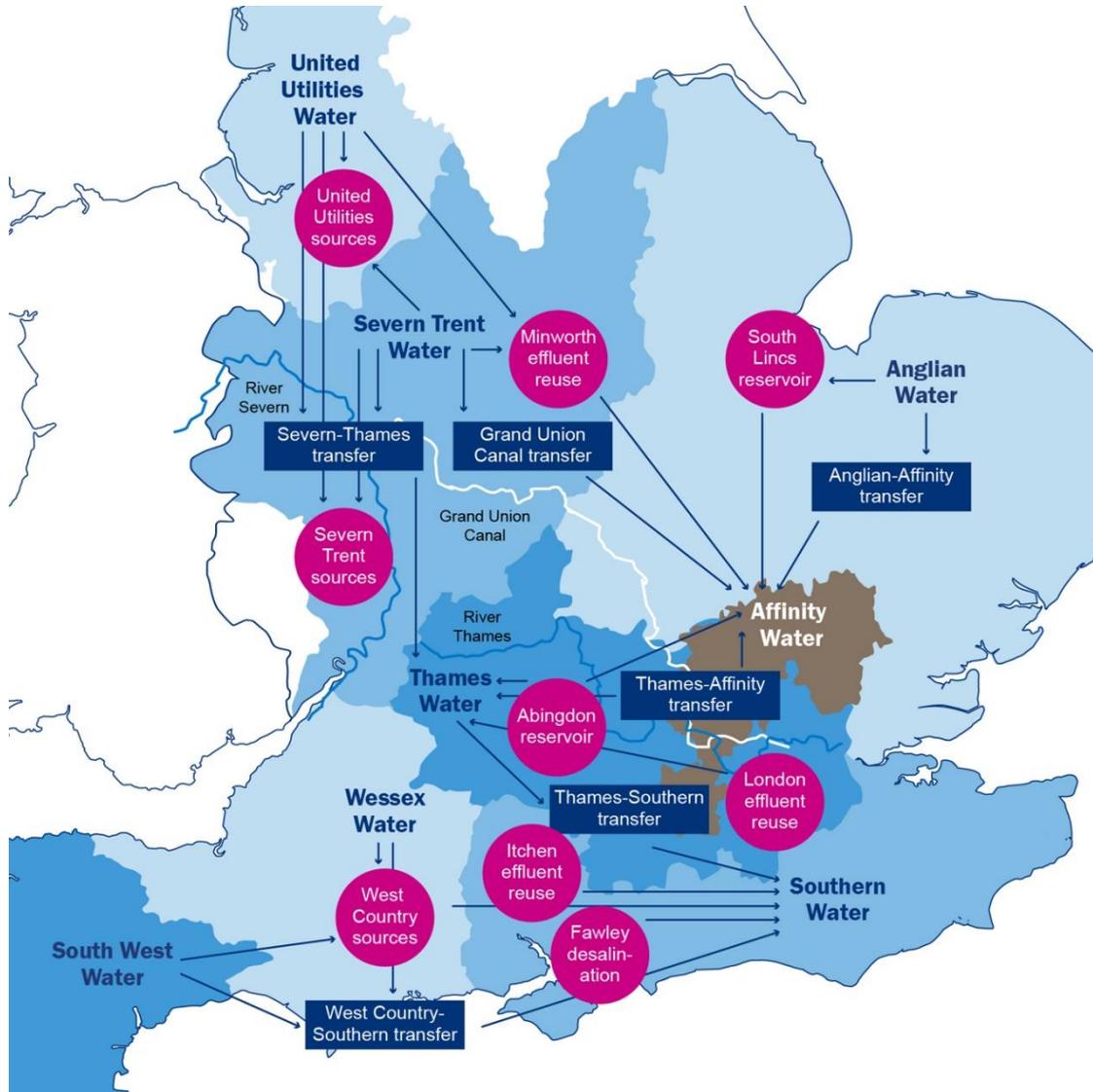
To support the assessment together with the delivery and reporting, we split some solutions into source and transfer components. We identify additional suitable solutions by a further review of water resources management plans and ongoing discussions with companies involved in regional groups. A West Country Water Resources regional transfer to Southern Water comprising 15 MI/d from Wessex Water and 10 MI/d from South West Water is identified. This is in addition to the 20 MI/d transfer from South West Water proposed in its revised draft water resources management plans. The companies in the West Country Water Resources group will further investigate how to effectively release existing surplus water and provide for transfer. This includes considering opportunities such as using non-potable supplies for non-household demand and developing effluent reuse source options.

Table 3.1: Draft determination funding allocation matrix

Solution name	Solution type	Affinity Water	Anglian Water	Severn Trent Water	Southern Water	South West Water	Thames Water	United Utilities	Wessex Water	Total
		Maximum development allowance (£m)								
Abingdon reservoir	Source	40.6	-	-	-	-	81.1 ¹	-	-	121.7
Fawley desalination	Source	-	-	-	37.4	-	-	-	-	37.4
River Itchen effluent reuse	Source	-	-	-	35.8	-	-	-	-	35.8
London effluent reuse	Source	-	-	-	-	-	62.9	-	-	62.9
Minworth effluent reuse	Source	3.0	-	3.0	-	-	-	3.0	-	9.0
Severn Trent Water sources	Source	-	-	2.7	-	-	-	2.7	-	5.3
South Lincolnshire reservoir	Source	19.3	19.3	-	-	-	-	-	-	38.6
United Utilities sources	Source	-	-	6.5	-	-	-	6.5	-	13.0
West Country sources	Source	-	-	-	0.5	0.5	-	-	0.5	1.4
Anglian-Affinity transfer	Transfer	6.0	6.0	-	-	-	-	-	-	11.9
Grand Union Canal transfer	Transfer	9.0	-	9.0	-	-	-	-	-	18.0
River Severn to River Thames transfer	Transfer	-	-	22.2	-	-	22.2	22.2	-	66.6
Thames – Affinity transfer	Transfer	5.5	-	-	-	-	5.5	-	-	10.9
Thames – Southern transfer	Transfer	-	-	-	7.5	-	7.5	-	-	15.0
West Country – Southern transfer	Transfer	-	-	-	0.9	0.9	-	-	0.9	2.6

¹ Abingdon reservoir costs allocated 2/3 to Thames Water which is more reflective of original submissions and of the scale of individual company needs

Figure 3.1: Strategic regional water resource solution map (arrows show indicative direction of water flow)



There are many ways of improving drought resilience and maintaining the supply-demand balance in the short and medium term, including leakage reduction, demand management, and smaller localised supply solutions, which we fund through the base and enhancement allowances. This means the benefits delivered, especially through the supply-demand balance expenditure, need to be considered as a factor when deciding which solutions are suitable to be selected to provide regional and long-term benefits. We take into account the individual company circumstances when identifying the scale of their requirements and the appropriate solutions for development. For context, the water resources need and investment summary per

company, as identified through water resource management plans and supply-demand balance enhancement investment, are as follows:

- **Affinity Water** – predominantly an importing company. It has a significant baseline planning deficit before any interventions, which include supply-side options, metering and leakage reduction that it plans to deliver in 2020-25, together with longer-term solutions with benefits post-2025. These interventions are delivered through both base and enhancement allowances. The company is likely to have a residual deficit in the longer term and identifies solutions for this in its water resources management plan, however, the strategic regional water resource solution development funding will help facilitate and provide part of the solution.
- **Anglian Water** – predominantly an exporting company with no strategic regional water resource solution need in its most likely planning scenario (alternative futures may require larger solutions than it currently has planned). The company plans a large interconnection programme to solve its local deficits and is capable of providing a strategic regional transfer with a supporting source. We note that there may also be efficiencies from integrating the north-south interconnector into a strategic regional water resource solution.
- **Severn Trent Water** – predominantly an exporting company with no strategic regional water resource solution need in its most likely planning scenario. The company is capable of providing strategic regional transfers and sources which is supported by its central location.
- **Southern Water** – predominantly an importing company. It has a significant baseline planning deficit before any interventions, which include supply-side options, metering and leakage reduction that it plans to deliver in 2020-25, together with longer-term solutions with benefits post-2025. These interventions are delivered through both base and enhancement allowances. The company is likely to have a residual deficit in the longer term and identifies solutions for this in its water resources management plan, however, the strategic regional water resource solution development funding will help facilitate and provide part of the solution.
- **South West Water** – an exporting company with no strategic regional water resource solution need in its plan. The company is capable of providing strategic regional transfers and sources which is supported by its surplus water position.
- **Thames Water** – predominantly an importing company. It has a significant baseline planning deficit before any interventions, which include supply-side options, metering and leakage reduction that it plans to deliver in 2020-25,

together with longer-term solutions with benefits post-2025. These interventions are delivered through both base and enhancement allowances. The company is likely to have a residual deficit in the longer term and identifies solutions for this in its water resources management plan, however, the strategic regional water resource solution development funding will help facilitate and provide part of the solution.

- **United Utilities** – predominantly an exporting company with no strategic regional water resource solution need in its most likely planning scenario. The company is capable of providing strategic regional transfers and sources which is supported by its surplus water position.
- **Wessex Water** – an exporting company with no strategic regional water resource solution need in its plan. The company is capable of providing strategic regional transfers and sources which is supported by its surplus water position.

Table 3.2: Solution descriptions

Solution name	Description	Maximum development allowance 2020-25 (£ million)
Abingdon reservoir	<p>Joint solution – Thames Water, Affinity Water.</p> <p>New bundled reservoir near Abingdon in Oxfordshire. Water would be abstracted from the River Thames in times of high flow and transferred to the reservoir by tunnel. Water would be released back to the River Thames, during periods of low flow for re-abstraction downstream. Development to consider at least two sizes (including the current proposed volume of 150,000 MI), and interactions with other solutions, such as the River Severn to River Thames transfer.</p>	121.7
Fawley desalination	<p>Company solution* – Southern Water.</p> <p>Desalination plant located at Fawley. The company considers modular construction options in 25 MI/d steps from 25 to 200 MI/d. Based on the supply-demand balance forecasts and investment in solutions during 2020-25 it is unlikely that more than 50 MI/d would be required by 2027, but larger options may be necessary for the longer term.</p>	37.4
River Itchen effluent reuse	<p>Company solution* – Southern Water.</p> <p>Transfer of effluent from a number of Southern Water's wastewater treatment works and discharge into the River Itchen, upstream of the tidal limit, to augment flows and enable</p>	35.8

Solution name	Description	Maximum development allowance 2020-25 (£ million)
	increased abstraction from the river. This solution ranges from 25 to 90MI/d.	
London effluent reuse	<p>Company solution* – Thames Water.</p> <p>Beckton effluent reuse will further treat and transfer discharge to the King George V reservoir to supplement the raw water supply to the Lee Valley reservoirs. There are alternative options both utilising Mogden and potentially a smaller option for indirect effluent reuse and river abstraction at Teddington. This results in three potential effluent reuse solutions in the London area with capacities ranging from 50 to 250MI/d.</p>	62.9
Minworth effluent reuse	<p>Joint solution – Severn Trent Water, United Utilities Water, Affinity Water.</p> <p>The Minworth effluent reuse option provides treated effluent from the wastewater treatment works. This can be discharged into the River Avon to support the River Severn to River Thames transfer or discharged into the canal network to support the Grand Union Canal transfer. This solution has a capacity up to 115MI/d.</p>	9.0
Severn Trent Water sources	<p>Joint solution – Severn Trent Water, United Utilities Water.</p> <p>In addition to the Minworth effluent reuse solution Severn Trent Water identifies three additional source options, Mythe WTW unused licence transfer, Netheridge effluent transfer, and redeployment of Shrewsbury abstraction. These options can be used to support the River Severn to River Thames transfer providing up to 80 MI/d of additional capacity.</p>	5.3
South Lincolnshire reservoir	<p>Joint solution – Anglian Water, Affinity Water.</p> <p>New reservoir with a volume of 50,000 MI constructed in South Lincolnshire with the potential for transfer to Affinity Water (see Anglian-Affinity transfer). This solution ranges from 50 to 100 MI/d.</p>	38.6
United Utilities sources	<p>Joint solution – United Utilities Water, Severn Trent Water.</p> <p>11 source options identified, comprising groundwater enhancement, improved reservoir release control, local interconnection and treatment, and river abstraction and support. Total potential capacity of 291 MI/d.</p>	13.0

Solution name	Description	Maximum development allowance 2020-25 (£ million)
West Country sources	<p>Joint solution – South West Water, Wessex Water, Southern Water.</p> <p>Development of source options, such as reuse to supply non-potable water to non-household customers, in the Wessex Water and South West Water areas to maximise available water for transfer to Southern Water. Solution capacity up to 50 MI/d.</p>	1.4
Anglian-Affinity transfer	<p>Joint solution – Anglin Water, Affinity Water.</p> <p>A transfer of water from Grafham reservoir to Affinity Water supported by the development of the South Lincolnshire reservoir. The proposed route for the pipeline would run in parallel to Affinity Water's existing main from Grafham. The capacity of this solution ranges from 50-100 MI/d.</p>	11.9
Grand Union Canal transfer	<p>Joint solution – Affinity Water, Severn Trent Water.</p> <p>A transfer of water from the West Midlands (see Minworth effluent reuse) down the Grand Union Canal to supply Affinity Water. This comprises a direct discharge into the canal network, canal transfer to a new abstraction near Hemel Hempstead, and the onward transfer of raw water to a new water treatment works and expanded reservoir. It is expected that this work is jointly managed in partnership between the water companies and Canal & River Trust. This solution ranges from 50 to 100 MI/d in capacity.</p>	18.0
River Severn to River Thames transfer	<p>Joint solution – United Utilities Water, Severn Trent Water, Thames Water.</p> <p>A transfer of water from Lake Vyrnwy (United Utilities) into the River Severn, with additional sources from Severn Trent Water (see Severn Trent sources solution), abstracted from the lower reaches of the River Severn and transferred by pipeline or restored Cotswold canal to the River Thames. This solution ranges from 50MI/d to 180MI/d.</p>	66.6
Thames – Affinity transfer	<p>Joint solution – Affinity Water, Thames Water.</p> <p>A transfer of water from the River Thames for treatment at a new treatment works or through expansion of a current treatment works. Solution capacity ranges from 50 to 100 MI/d.</p>	10.9

Solution name	Description	Maximum development allowance 2020-25 (£ million)
Thames – Southern transfer	<p>Joint solution – Southern Water, Thames Water.</p> <p>A transfer of water from Thames Water's area near Oxford to Southern Water. This can make use of current sources or one of the strategic regional solutions being considered for Thames Water. The funding includes a consideration of the source for the transfer but should also investigate a range of sizes and routes. Solution range up to 80MI/d.</p>	15.0
West Country – Southern transfer	<p>Joint solution – South West Water, Wessex Water, Southern Water.</p> <p>A transfer from Bournemouth Water's water treatment works on the River Avon to Southern Water's treatment works within the Hampshire Southampton West zone. This will utilise supplies from both South West Water and Wessex Water. There is an existing transfer between Wessex Water and South West Water's Bournemouth that can support this solution.</p>	2.6

* Although a company solution with no identified partner this has potential to interact with joint solutions and delivery will benefit from development funding and RAPID unit facilitation.

4 Gated process and deliverables

4.1 Our intervention at the initial assessment of business plans

This development funding aims to ensure that at least one strategic regional water resources solution will be ‘construction-ready’ by 2025. This includes sufficient development to have confidence in the benefits of incorporating the solutions in statutory processes including regional water resource plans, and company water resources management plans. At the initial assessment of business plans we explained that these solutions will be linked to gated project deliverables with associated funding releases. For example, following delivery of consistent option design, consistent costing bases, transparent option filtering and selection, and finally planning permission.

We proposed three main delivery gates and associated activities relating to design, decision making and planning as outlined below in Table 4.1:. These deliverables were designed to ensure that the processes and outputs are in place to enable regionally and nationally optimal solutions to progress.

Table 4.1: Initial assessment of business plans gates

Gate	Gate timing	Pre-gate activity	Gate outcome
1	By 2021	Preliminary work to determine consistent availability of water, environmental constraints, environmental and social benefits, for all options. Using consistent assumptions, undertake initial design and costing of solutions (common cost models and assumptions). Test solutions in high-level regional models to determine benefits in selected set of scenarios. Complete decision-making and filtering on outputs.	Initial design work completed (using agreed consistent assumptions) and decision-making outputs presented, and selected solutions carried forward.
2	By 2022	Detailed design with reduced uncertainty in costs and benefits. Re-tested in regional models and company models. Undertake updated decision-making and filtering on outputs including those that are mutually exclusive.	Detailed design work completed with outputs of decision-making presented and selected solutions carried forward.
3	By 2024	Work towards securing planning permission for remaining solutions applying further filtering where necessary.	Agreed solutions ‘construction-ready’ with planning permission granted.

We proposed to allocate the overall development allowances to each of the gates and associated activities. Cost allocations, as a proportion of the total gate

development allowance applied to each solution, for the three gates proposed in the initial assessment of business plans were:

- gate 1 – 15%
- gate 2 – 20%
- gate 3 – 65%

4.2 Company responses to our initial assessment of business plans intervention

In their response to our decisions, company submissions proposed four gates; one for design, costing and decision making, and three for various stages of planning permission. For all companies except Southern Water, these gates are later in the process compared to those we proposed in the initial assessment of plans. Southern Water propose earlier activities and associated gates to meet its earlier needs for water by 2027.

Companies make the distinction between solutions needing development consent orders and those that do not. Development consent orders are available for solutions that meet Nationally Significant Infrastructure Project thresholds (80MI/d source output or transfer capacity and 30,000MI storage for reservoirs which are currently under review) to streamline the planning application process. Based on these thresholds not all solutions within this programme meet the criteria for development consent orders or have to progress through this planning route.

Table 4.2: Company responses proposed gates

Gate	Gate timing	Pre-gate activity	Gate outcome
1	Q3 2022 (Southern Water - September 2020)	Agree high-level strategic environmental assessment. Develop consistent robust costs. Confirm the deliverability and feasibility of solutions. Cost benefit comparison with other solutions.	Assessment shows that solution meets need. Decision to proceed to development consent order or planning pre-application.
2	Q3 2023 (Southern Water - June 2022)	Start development consent order pre-application investigations or submit planning application. Revise strategic environmental assessment. Develop a procurement strategy. Land preparation.	Confirmation of the solution meeting an identified need. Decision to progress planning permission or continue development consent order pre-application.
3	Q3 2024 (Southern Water - April 2023)	Development consent order solutions: Continue pre-application investigations and direct procurement for customers' business case. Non-development consent order solutions: Request planning permission. Procurement implementation and land purchase	Development consent order solutions: Decision to proceed to development consent order application. Start procurement. Non-development consent order solutions: planning permission secured. Procurement completed, land purchased.
4	2026-27 (Southern Water - October 2024)	For development consent order only, start development consent order application. Procurement implementation and land purchase.	Procurement completed, land purchased. Development consent order permission secured.

Compiling the submissions, and excluding Southern Water's accelerated solution timelines, the companies proposed gate funding allocations for the four gates range from:

- 5% to 43% for gate 1;
- 19% to 53% for gate 2;
- 21% to 44% for gate 3; and
- up to 36% for gate 4.

This range of total development allowance proportions reflect different assumptions made by different companies, and the types of solutions being considered. However, we consider that this early work, particularly up to gate 3, as being common across all solutions. Some activities may be more prevalent for some solutions than others, but on a whole balance each other out at a gate level.

4.3 Draft determination decision

Based on our review of our initial assessment of business plan approach, the company responses and further consideration, we recognise that more gates specified up-front allows additional opportunities for regulatory intervention but also steer and support for solution progression.

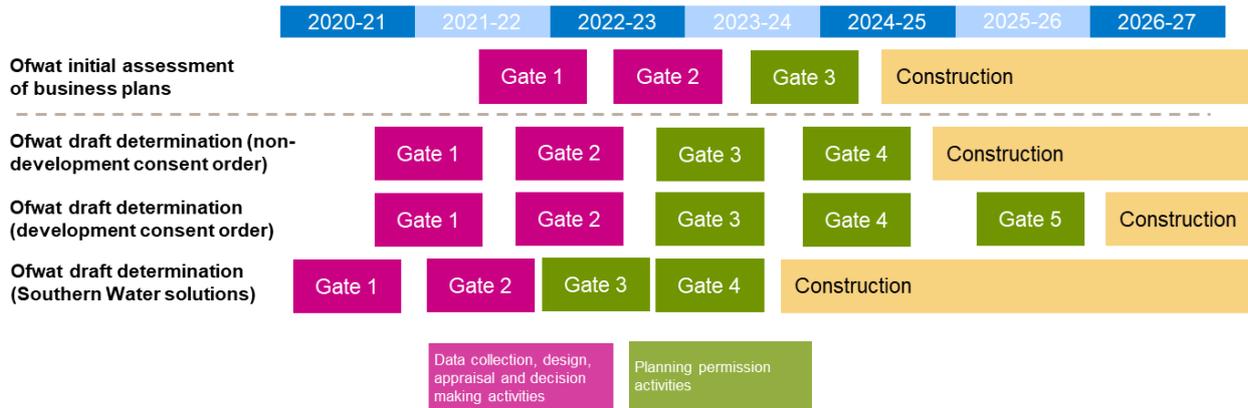
The companies split planning activities into three of the gates, with just one for feasibility and decision making analysis. We propose five delivery gates to enable clear, transparent and timely decisions and protect customers from unnecessary spend. We keep the original two gates relating to feasibility and decision making activity including solution design, costing, and environmental appraisal. We accept the additional planning gates proposed by companies; the two standard planning gates within the period, and one after 2025 related to development consent orders. A key activity in most of the gates, and linking to other policy areas in the draft determinations, is the consideration of direct procurement for customers as the delivery method for each solution.

Table 4.3: Draft determination gates

Gate	Gate timing	Pre-gate activity	Gate outcome
1	April 2021 (Southern Water – September 2020)	Preliminary work to determine consistent availability of water, environmental constraints, environmental and social benefits, for all options. Using consistent assumptions, undertake initial design and costing of solutions (common cost models and assumptions). Test solutions in high-level regional models to determine benefits in selected set of scenarios. Complete decision-making and filtering on outputs.	Initial design work completed (using agreed consistent assumptions), decision-making outputs presented and selected solutions carried forward. Able to input into regional plans for pre-consultation stage.
2	April 2022 (Southern Water – September 2021)	Detailed outline solution design with reduced uncertainty in costs and benefits. Re-tested in regional models and company models. Undertake updated decision-making and filtering on outputs including those that are mutually exclusive.	Detailed design work completed with outputs of decision-making presented and selected solutions carried forward. Able to input into regional plan and WRMP24 consultations.
3	April 2023 (Southern Water – June 2022)	Where required for solutions, start development consent order pre-application investigations. For solutions that are not subject to development consent order, develop and submit planning application. Revise strategic environmental assessment. Develop a procurement strategy and start land procurement preparation. Consideration and investigation of direct procurement for customers business case. Further decision-making assessments based on planning investigations and revised designs, costs and environmental assessments. Planning permission-related stakeholder engagement.	Updated detailed design work completed with outputs of decision-making presented and selected solutions carried forward. This includes outputs from pre-planning application investigations. Decision to progress planning permission or continue development consent order pre-application. Planning application submitted. Public hearing or inquiry completed. Able to input into draft WRMP24 and PR24 submissions.
4	June 2024 (Southern Water – April 2023)	Development consent order solutions: Continue pre-application investigations and direct procurement business case Non-development consent order solutions: secure planning permission. Procurement implementation and land purchase.	Development consent order solutions: Decision to proceed to application. Start procurement. Non-development consent order solutions: planning permission secured. Procurement completed and land purchased.
5	December 2025 (Southern Water – October 2024, if needed)	Development consent order application where applicable.	Development consent order accepted. Land purchase. Start construction

The diagram in figure 4.1 shows the initial assessment of business plans proposed gate timings and our draft determination view of the gate timescales. We note that gate 5 activities may only be necessary for solutions requiring development consent orders, but this will fall within the 2025-30 period.

Figure 4.1: Gate timings



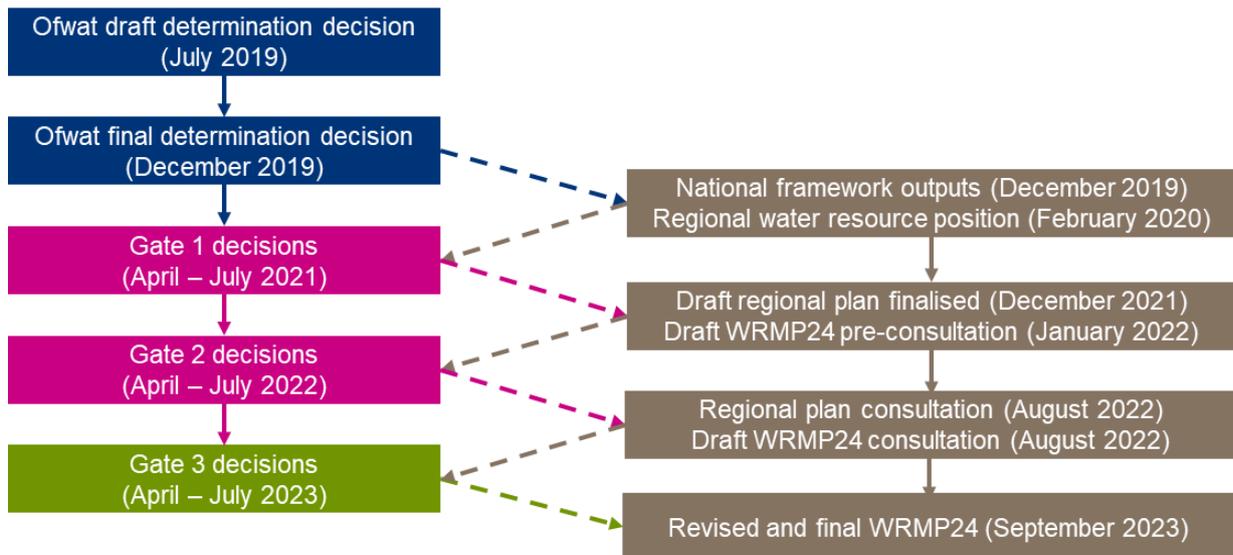
We accept earlier gate timings for solutions that involve Southern Water as a partner. This will enable it to proceed at a faster rate to meet its 2027 environmental obligations. Three of Southern Water’s solutions are joint in nature, but are not complex cross-catchment transfer solutions and are not directly reliant on other solutions to progress. This means that they will be able to progress more quickly and have suitable information available to pass decision making gates. Therefore, for all solutions which have Southern Water as a partner we propose that they follow the gate timings as indicated in Table 4.3: and figure 4.1.

Missing the gate timings not only impacts on decisions for future development funding and solution progression for this programme of work but will also impact the amount of information available and the certainty for input into processes running in parallel, namely regional water resource plans, company water resources management plans and company business plans. Gate timing alignment across the whole programme becomes less important as it progresses, in particular after gate 3, where most of the decisions on solutions not progressing will have been made and there is confidence that those progressing deliver the required benefits and form part of the optimum solution set. Beyond gate 3 the timings become even more dependent on external factors such as the planning application process.

Our decisions enable that gate outputs can both feed into and be influenced by other processes working in parallel. It is expected that this investment facilitates detailed design, costs and benefits for solutions, which reduces uncertainty allowing robust assessment for both the gated decision-making process, but also as part of future water resources management plans and price reviews. Just because a solution progressing this route may be submitted for PR24, this does not prejudice our decisions at that time, when potentially circumstances may have changed and information about other investment and activity is made available.

To illustrate how our revised gates enable links and feedback with parallel processes see figure 4.2 below. This shows the gate deadline for activity and deliverables, as well as the likely RAPID assessment and decision making ‘window’, which on completion provides clarity on the progression of solutions and the outputs that can feed into the parallel processes. This assessment window associated with each gate is likely to include company/solution submissions, consultations, assessments and decision-making. Although we do not expect significant changes to the solution list identified, a feedback from the parallel processes could include ensuring that the solutions reflect the national framework and water resource position findings. For example, a check may be necessary (and substitution solutions identified) that all potential exporting regions have at least one solution, that solutions outputs can meet the overall regional requirements, and a suitable range of solution types are being progressed (for example, reservoirs, effluent reuse, transfers, to balance the drought risk).

Figure 4.2: Gate delivery dates and links to parallel processes (dates vary for Southern Water solutions)



Not all water resources solutions are expected to follow this more structured investigation and development process, but this funding intends to support solutions that are expected to play a significant role in long-term resilience, and feature in future company business plans and water resources management plans.

We propose that the proportions of development funding related to each gate activity is common across companies and solutions. The maximum development allowance that is made in the draft determination and costs profiled to match the gate timings. The gate allocations (for those starting in the 2020-25 period, gate 5 where applicable is a post-2025 activity) as a proportion of total development funding are:

- gate 1 – 10%
- gate 2 – 15%
- gate 3 – 35%
- gate 4 – 40%

This reflects our view that there will be intense activity related to the later gates associated with planning permission and pre-development consent order applications. The feasibility, design and decision making activities can benefit from efficient industry wide approaches (supporting the consistency issue) and build on work ongoing for regional plans and water resources management plans.

Table 4.4: Industry level gate allowances

Company	Proportion of maximum development allowance (%)	Maximum development allowance (£m)
Gate 1	10	45.0
Gate 2	15	67.5
Gate 3	35	157.5
Gate 4	40	180.0
Total	100	450.1

We assess the submitted material and review our initial assessment of business plan approach to determine revised gate activities and outcomes. The outcomes for each gate deliverable as described, will be reviewed and assessed in-period, the results of which will form part of the end of period reconciliation mechanism decision process. The outcomes of each gate include the summary presentation of findings and comparisons based on costs and benefits. Detailed reporting and consultation requirements will be required as well as close working with the water RAPID unit which will be described in more detail, following further discussions with the industry, regional groups and other regulators. The following summaries include the likely activities and outcomes at each gate, but may change as the programme progresses and agreed following gate activity consultations.

The following gate 1 activities are described in detail below for draft the determination. However, we expect further development of these (with companies

and stakeholders) prior to final determinations. At final determination we will provide our updated expectations for gate 1.

Gate 1 activities**Initial feasibility, design and multi-solution decision making**

- Preliminary feasibility and data collection presented in a conceptual design report:
 - Initial outline solution design(s)
 - Consistent costing and cost report
 - Consistent deployable output benefit (water provided in a drought) analysis to the regional design standards
 - Consistent social, environmental and economic assessment (impact and benefits) and in-combination effects of solution within the same catchment
 - Consistent drinking water quality considerations
- Assurance report
- Procurement strategy for solution(s) including assessment for potential direct procurement for customers' delivery.
- Pre-planning application activity plan (land referencing, field surveys, environmental permitting/water safety plans)
- Regulatory risk report to identify potential regulatory barriers, guidance or changes required for the solution to progress
- Preliminary solution findings presentations for a range of audiences
- Cross-comparison of solutions costs and benefits
- Identify impacts of solution on current delivery plan with simple comparison to current programme solutions.
- Stakeholder engagement report including detail of customer preference studies
- Gate 2 activity and outcomes proposals
- Gate 2 penalty assessment criteria and contributions
- Identification of any changes in solution partner (other water company) or solution substitutions
- Solution development sufficient for its details to feed into regional plan pre-consultation considerations

Our suggested gate 2 to 4 activities are described below. However, we expect companies to submit more detail on the subsequent gate activities during each gate submission (starting at gate 1). These submissions will then form part of the gate assessment, decision making and consultation process

Gate 2 activities	<p>Detailed feasibility, design and multi-solution decision making</p> <ul style="list-style-type: none">• Detailed feasibility and data collection (increased certainty) in a detailed design report• Assurance report• Updated procurement strategy including assessment for potential direct procurement for customers' delivery.• Updated pre-planning application activity plan (land referencing, field surveys, environmental permitting plans)• Regulatory risk report to identify potential regulatory barriers, guidance or changes required for the solution to progress• Detailed solution findings presentations for a range of audiences• Identification of mutually exclusive solutions• Cross-comparison of solutions costs and benefits• Updated stakeholder engagement report including detail of customer preference studies• Gate 3 activity and outcomes proposals• Gate 3 penalty assessment criteria and contributions• Identification of any changes in solution partner (other water company) or solution substitutions• Solution development sufficient for its details to feed into regional plan pre-consultation considerations• Solution development sufficient for its details to feed into regional plan and company water resources management plan consultations
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Gate 3 activities

Finalised feasibility, pre-planning investigations and planning applications

- Updated detailed feasibility and data collection
- Incorporation of pre-planning investigations
- Revised detailed solution findings presentation
- Cross-comparison of updated solutions costs and benefits
- Common and transparent decision making
- Further consideration of direct procurement for customers delivery methods
- Planning application submitted
- Start development consent orders pre-planning application investigations
- Solution input into draft WRMP24 and PR24 submissions
- Planning permission-related stakeholder engagement completed

Gate 4 activities

Planning applications, procurement strategy and land purchase

- Updated detailed feasibility and data collection
- Incorporation of pre-planning investigations
- Revised detailed solution findings presentation
- Cross-comparison of updated solutions costs and benefits
- Common and transparent decision making
- Commence direct procurement for customers (where necessary)
- Continue planning application
- Finalise development consent orders planning application investigations
- Planning permission-related stakeholder engagement completed

5 Customer protection

5.1 Our intervention at the initial assessment of business plans

To protect customers, we requested that companies include an outcome delivery incentive-type mechanism associated with this development funding allowance. We identified that this investment requires protection for the solutions not progressing and for penalties to be applied if companies do not deliver the outputs to the timings required.

5.2 Company responses to our initial assessment of business plans intervention

In response, the six companies identified in the initial assessment of plans proposed both joint outcome delivery incentive mechanism principles and company/solution specific approaches. The following 'key principles' are proposed for the outcome delivery incentive in the joint company addendum:

- Companies should have equivalent incentives for on-time and efficient delivery of their joint solution(s). They propose that all companies should use the same totex sharing rate of 50% so they have the same incentives for efficient spend and avoid late delivery across all solutions. This would require ring-fencing of the allocated expenditure for these solutions (separate from company-specific totex sharing rates).
- A totex sharing rate of 50% promotes symmetry in the recovery from or return to customers of efficient totex. Otherwise if a solution is cancelled, a company may return more or less than 100% of the unneeded totex.
- The outcome delivery incentive should provide flexibility for the scope of work to vary: at each gate, companies will present evidence to RAPID (or Ofwat) on proposed scope changes for future gates for review and ultimately approval or rejection of inclusion in the outcome delivery incentive.
- The outcome delivery incentive should comprise an end-of-period RCV adjustment. This supports recovery of efficient costs incurred over the period for the optimal strategic solution, rather than an in-period revenue adjustment, given multi-year timescale for some of the deliverables and potential for scope changes during the period.
- An underperformance penalty should apply for late delivery of activities necessary for a gate decision: where solutions are linked, all companies need to achieve the same deadlines to enable consistent decision making.

- For solutions involving more than one company, penalties should only apply to the company (or companies) who are responsible for the delay.

The companies also submit their own specific proposals:

- Southern Water proposes two measures in its follow-up to SRN.CE.A3 action response:
 - Cost recovery to customers for options not progressed and development tasks not required. This measure is designed to protect customers from the uncertainty associated with this development programme. It would ensure that if, through the screening process, options are not progressed, future cost allowances associated with those options are returned to customers. It also protects customers from the risk of delay through a late delivery penalty.
 - The second measure is designed to allow progression of the selected solution within 2020-25 (construction start before 2025). It is required to provide funding for commencement of construction of the selected option within 2020-25, to ensure that Southern Water can meet the requirements of the Section 20 agreement, to ensure that it stops using drought orders by 2027, and maintains supplies to its customers in Hampshire.
- Thames Water proposes two measures in its company-specific initial assessment of business plans response:
 - 'PC1' addresses late delivery and is measured by delivery of activities against the scope and timescale agreed at the relevant gateway. The incentive rate is based on the development costs for each activity determined for each gate. The measurement unit is forecast months beyond the deadline agreed for each gate during 2020-25.
 - 'PC2' addresses scope change. The measurement unit is percentage of total development costs agreed at each gate during 2020-25 compared with the final determination. Each gate aligns with a solution delivery milestone.
- The joint submission by Thames Water, Severn Trent Water and United Utilities Water for the River Severn to River Thames transfer solution notes that costs exclude optimism bias and proposes an outperformance measure to mitigate risks. 'Our proposed outcome delivery incentive approach includes an 'outperformance' mechanism for adjusting costs to cope with agreed scope increases (and decreases). This mechanism is a means to manage the risk

that otherwise would be handled by optimism bias. If Ofwat decide not to include an 'outperformance' element to the outcome delivery incentive to allow for scope increase, then our ex-ante expenditure allowance will need to be increased to £100m to allow optimism bias as another way of managing this risk.'

5.3 Draft determination decision

We propose replacing the outcome delivery incentive mechanisms with an end of period reconciliation mechanism. We make this decision for an end of period reconciliation mechanism as opposed to an in-period adjustment mechanism or outcome delivery incentive based on the following reasoning:

- Although the gate 1 and gate 2 timescales may lend themselves to an in period mechanism or outcome delivery incentive, the impact of reporting delays means that any adjustment would be late in the 2020-25 period, potentially not until year 3 or 4. This results in extra complexity and limited customer benefit when compared with an end of period reconciliation mechanism.
- The early gates that can accommodate an in-period adjustment only represent a small proportion of the total development cost (maximum of 25% for gate 1 and 2 combined), again limiting the benefits of this approach.
- Although individual decisions are made in-period, aligned with the gates, an end of period reconciliation allows high level programme decisions encompassing multiple potential solutions to be made on the development allowance and the deliverables that have been achieved.

We design the mechanism to balance between the flexibility to make changes as more information becomes available and to ensure the mechanism is practical to implement and not overly complex. This will also enable efficient and timely delivery while providing the necessary customer protection for the potentially significant expenditure. The reconciliation mechanism will be an adjustment of company revenues rather than an RCV adjustment as proposed by companies in their responses.

This mechanism will allow the following:

1. **Solution discontinued** - returns future funding where a solution is cancelled partway. The funding will be returned through end of period reconciliation. Decisions will be made in-period and aligned with gate timescales.

2. **Solution substitution and reallocation** – allows transfer development funding to a substitute solution (up to gate 2), where it proves to be of better value than the rejected solution.
3. **Partner substitution and reallocation** - enables reallocation of funding for changes in solutions or solution partners, including those not identified at this stage, as part of the reconciliation.
4. **Delivery penalties** - applies penalties for late delivery (gates 1-3) or poor quality of outputs (all gates), where this jeopardises the decision-making process and/or the strategic regional programme timescales.

The reconciliation will allow spending up to the agreed maximum development allowance for each gate over the period 2020-25. We do not consider that the cost of investigations and feasibility will vary much because most of the cost uncertainty is associated with development consent orders, land purchase and construction activities that will all fall within the 2025-30 period. There will be no allowances or cost sharing for overspend. Early construction necessary to meet the supply-demand balance, where this is not covered by the development allowance, is unlikely to start before year 4 of the period. The funding of this construction phase can be covered by transitional expenditure for the next period (2025-30), where applicable. We note that this transitional spend requirement may be more pertinent for Southern Water with its early delivery timeframe.

Solution discontinued

The development funding is allowed up front in full to encourage companies to progress with the evaluation of these solutions. It is allowed on the assumption that the gate activities can be delivered with the allocated proportions. Any efficient spend on these activities up to a gate decision point is allowed, and is in general not subject to recovery (see penalties below). However, we propose that all unspent money or inefficient spend for each gate is returned to customers, or through agreement with Ofwat can be rolled into future gates or alternative solutions. This can be considered as full cost sharing with customers.

The solution non-progression element of the mechanism protects customers from paying for gate allowances for future activities that, following a gate decision, are no longer necessary due to the solution's discontinuation in the process. Although the decision for solution non-progression will be made transparently using the outputs of the gate activities in-period, the adjustment will not be made at this point. Future gate activity funding allocations will be returned to customers at the start of the 2025-30 period through the end of the period reconciliation mechanism.

The cost allocations to each gate are to reflect the future costs that can be returned to customers through the end of period reconciliation mechanism if solutions do not progress through this programme of work.

Solution substitution and reallocation

It is likely that companies may identify other solutions as a result of continued analysis and a more regionally focussed solution identification process. At present, a number of solutions considered for regional planning are company specific without the needs of neighbours being considered. Regional planning frameworks will need to broaden the scope of these solutions to recognise the wider benefits. It may be beneficial for such newly identified solutions to progress through this route to hasten their development and enable fair and transparent comparison with alternatives. Again, we note that not all water resource solutions need to be included within this process.

Where a solution is deemed to be unsuitable to progress at a gate decision (up to gate 3), the future development allowance for this rejected solution can be transferred, with agreement of Ofwat, if there is a compelling substitute solution. It is possible that the substituting solution has a higher or lower total cost. However, given the late stage of the substitution, we consider the development allowances are appropriate to cover remaining activities to gate 4, to the degree that decisions can be made prior to future business plan submissions. To understand if a solution is of better value than the rejected solution and on a level playing field with others still in the process, we expect that gate activity deliverables up to the point of substitution will be available for the transferring-in solution to allow us to make a decision that this is a suitable use of funds. This may require companies to carry on with development activities outside of the strategic regional water resource solution process until they make the substitution. It is expected that development cost is part of normal company activity, such as investigations for solutions for submission in water resources management plans and business plans would be. Therefore, this will not be recovered through the end of period reconciliation mechanism.

In the absence of a compelling substitute solution and Ofwat agreement to any substitution, the future gate allocations are fully returned to customers as described above.

Partner substitution and reallocation

Just as the solutions may change during the development process, the partners, such as other third party water resource providers or other water companies, involved in the identified solutions (and future ones) may change as well.

The mechanism will allow, with agreement from Ofwat, for an end of period adjustment to account for changes in the water companies involved in solutions identified at final determination and those that are not. This will allow an upward adjustment for companies that are not listed as part of this development allowance but join the solution as a partner (by gate 2) and a corresponding downward adjustment to other partners. Gate 2, April 2022 (September 2021 for Southern Water), is considered the deadline for substitutions within this process to make sure we progress the optimal potential solutions to meet customer and environment needs. It is unlikely that solutions progressing in parallel but outside this process will be sufficiently developed to be comparable with those within the process at gate 3. Solutions in the process will benefit from increased regulatory scrutiny including the identification of, and action to address, solution specific barriers.

Delivery penalties

Customer protection is necessary not only for non-progression of solutions but also to ensure that the gate deliverables are timely and of a suitable quality for decisions to be made and for the programme to remain on time. Late delivery will result in customers either funding sub-optimal long-term solutions or facing increased risk to drought.

At each gate, we will apply up to 30% of each company's total efficient spend (for that gate) as a penalty for late or poor quality deliverables. For example, poor quality can include outputs that are inconsistent (not using agreed common assumptions), have gate activity outputs that are missing (including assurance), are incorrect, or have general quality and presentation issues. The principles that we will apply for determining whether a penalty should be applied and the scale of the penalty are as follows:

- penalties for delay only apply for gates 1-3
- penalties for quality apply for gates 1-4
- penalties will reflect the scale of both delay and poor quality for any output
- maximum 30% total efficient spend (for each gate) penalty for delay and quality
- maximum penalty for delay is based on delays of more than 6 months
- the penalty will be proportionate to the potential impact of the failure in quality or timing of the deliverable to any associated decision(s)
- assurance report will be used to judge suitability of quality

We will continue to review these principles with companies prior to final determinations. For gate 2 to gate 4 activity penalties we expect companies to

submit updated principles and detailed criteria as part of gate delivery outputs (from gate 1) and these will form part of the gate assessment, decision making and consultation process.

We can apply this maximum penalty to all the development funding for that gate activity even if the company is penalised for only one of several solutions it is delivering. The 30% is a maximum and reflects the scale for both delayed and poor quality outputs. The need for a penalty and its resulting size will be decided by Ofwat with the advice of from the RAPID unit. The details of the test criteria for applying penalties and the proportion of maximum penalty applied to each of the tests will be developed jointly by the RAPID unit in collaboration with the companies and regional groups, with the principles to be agreed in the final determinations. The penalty proportion of the gate activity that has already passed, will be added to any future non-progression gate funding that will be returned to customers as part of the end of period reconciliation mechanism.

We will only apply penalties for delays on gates 1-3 which are important for timely decision making, and are less influenced by processes beyond the company's control such as planning applications.

Penalties will apply to the partner that causes the delay or quality issues. We acknowledge that this may be difficult to ascertain and expect that as part of the joint working agreements between companies, the process for identifying and agreeing the cause of any issues is described. In the event that it is still unclear which party or parties have caused any delay or quality issue for a solution then all partners involved will receive the penalty.

Figure 5.1: Reconciliation mechanism process - gate allowance recovery and penalties.

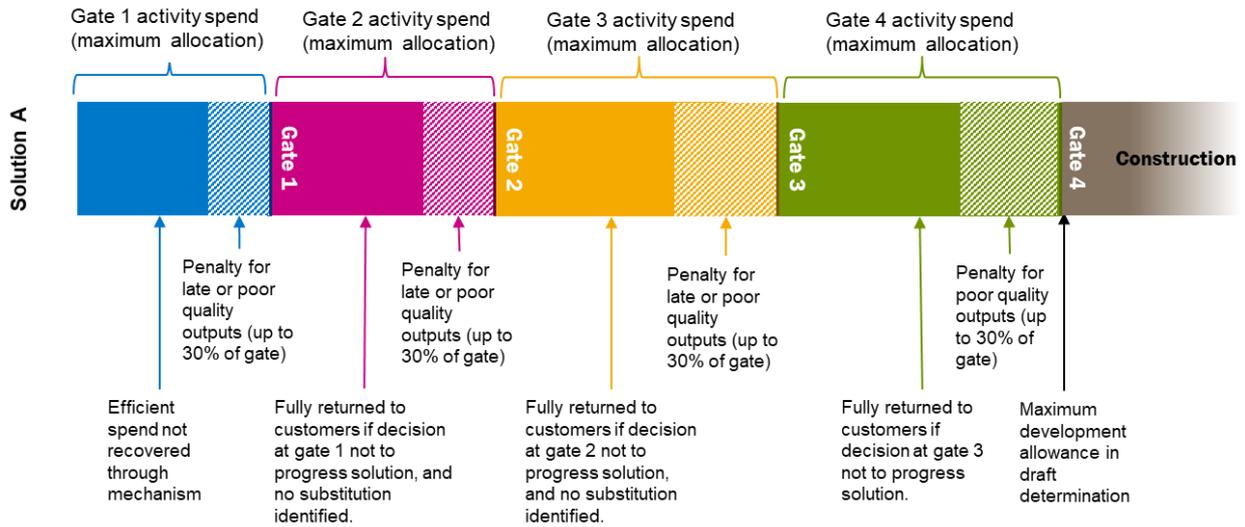
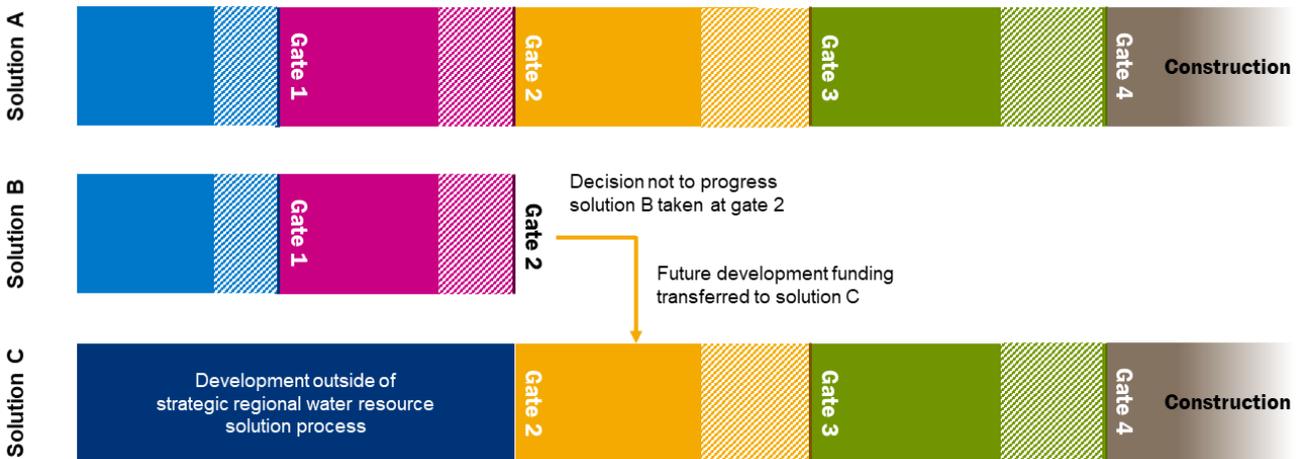


Figure 5.2: Reconciliation mechanism process – solution substitution.



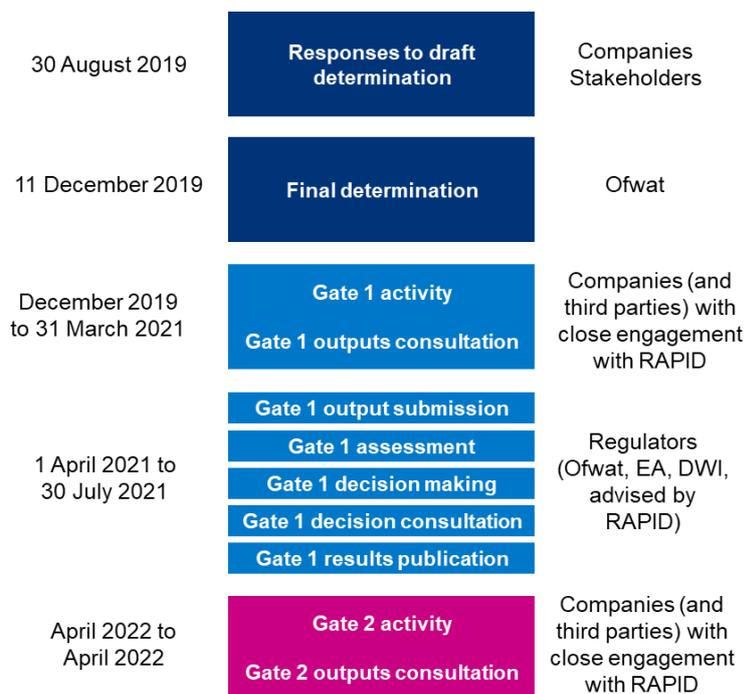
6 Decision making and governance

The governance for final gate decisions (including the quality and timing of outputs, and solution progression) will be taken by individual regulatory partner organisations (Boards) having regard to the advice of the water RAPID unit. The final end of period reconciliation mechanism decision will reflect these earlier decisions but ultimately be taken by Ofwat Board with advice from the water RAPID unit.

Processes and decisions that impact the gate 1 activities, and the gate 1 assessment and decision making process, are described in detail for the draft determination. However, we expect further development of these (with companies and stakeholders) prior to the final determinations. At final determination we will provide our updated expectations for all aspects of gate 1.

For the activities to be undertaken leading up to gates 2 to 4, and the likely penalty criteria and contributions applied to them, we expect the companies to build on our proposals at draft determination and present jointly agreed submissions at future gates (starting at gate 1). The suggested future gate activity and penalty criteria, will be assessed in parallel with the other gate activity outputs, and form part of the gate decision making and consultation process.

Figure 6.1: Submission and decision making process (Southern Water solutions have different deadlines)



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