

Strategic Solution Gate 1 Submission:  
Draft Decisions - Statement of Response

# Fens Reservoir

October 2021



This is the Statement of Response (SoR) from Anglian Water and Cambridge Water for RAPID’s draft decision on the gate one submission for the Fens Reservoir. The SoR addresses the actions and recommendations highlighted by RAPID, as well as further refinements detailed in RAPID’s draft decision. This document accompanies our representation letter for the Fens solution.

### Actions to be addressed in the gate 2 submission

SOLUTION ASSESSMENT AREA	DETAIL	RESPONSE
<p><b>Solution Design</b></p>	<p>A number of candidate locations must be identified, and the implications must be evaluated. The implications that are evaluated should include financial costs (Capex and Opex), carbon cost, flood risk benefit, environmental, and social benefits. A clear table comparing these for the sub-options will be helpful.</p>	<p>A Multi-Criteria Decision Analysis (MCDA) process is currently being undertaken as part of the site selection process. This will aid evaluation and provide rigour to the site selection process by identifying constraints (such as financial and carbon costs) associated with the candidate locations. It will also evaluate the candidate locations against opportunities such flood risk mitigation and environmental and social benefits.</p> <p>This MCDA process will enable Anglian Water and Cambridge Water to work with stakeholders to consider the implications of each of the candidate locations, and their associated trade-offs.</p> <p>This process is currently ongoing with a shortlist of sites expected to be reached by end of November, with a preferred site in Spring.</p> <p>The identified final candidate locations will be demonstrated for the gate 2 submission, along with the justification and evaluation process for the chosen site.</p> <p>When the preferred site location has been identified, the MCDA process will also be utilised to develop the concept design introduced in gate 1. This will be conducted with stakeholders and will aim to provide rigour to the decision-making process by considering the implications of the concept designs.</p>
<p><b>Solution Design</b></p>	<p>Ensure utilisation is determined, including uncertainty and sensitivity. Provide detailed explanation of the methodology for defining utilisation from the regional modelling.</p>	<p>The regional modelling process currently being undertaken by Water Resources East (WRE) is indicating that Fens Reservoir is being selected in most of the robust portfolios, as well as the South Lincolnshire Reservoir.</p> <p>These portfolios are robust to scenarios including enhanced climate datasets which demonstrate a greater variability of hydrological conditions. Multiple climate change scenarios will also be used in the stress testing. The use of climate (as well as demand) scenarios will enable the utilisation of Fens Reservoir to be established.</p>

		<p>It is expected that the yield and size of reservoir required will be confirmed for the initial draft regional plan in January 2022.</p> <p>Anglian Water and Cambridge Water will also start their own Water Resource Management Planning (WRMP) modelling shortly which will enhance and corroborate the outputs from the regional modelling process.</p> <p>Both the regional and company modelling processes, and their interactions, will be detailed in the gate 2 submission. Additional works will also be undertaken to establish draw down profiles for the reservoir.</p>
<p><b>Solution Design</b></p>	<p>Provide a clear discussion of Fens reservoir's interaction with other sources and state which other water companies will be involved in the conjunctive use of this solution. Provide more detail about the proposed transfer to Cambridge Water</p>	<p>Anglian Water and Cambridge Water jointly submitted the Fens Reservoir proposal for gate 1. Currently both companies are working on the premise of a 50:50 deployable output split, based on projected demands and yet to be confirmed abstraction reductions.</p> <p>Once the exact split is confirmed through regional and company modelling processes, the proposed transfer to Cambridge Water will be further developed, building on the high-level route submitted for gate 1, as well as confirming conditioning requirements and any associated infrastructure.</p> <p>Fens Reservoir is being considered as a potential source of water for the Anglian Water to Affinity Water transfer. This option, in comparison to the South Lincolnshire Reservoir and Rutland Water options, provides a lower supply at a higher cost.</p> <p>WRE's modelling process, as well as the Regional Reconciliation process, is working on the assumption that there will be no export of water from WRE to Water Resources South East (WRSE). This would exclude the further development of an Anglian Water to Affinity Water transfer.</p> <p>The regional position will be confirmed over the coming months. Until then Affinity Water remain an interested party in Fens Reservoir.</p>
<p><b>Environment</b></p>	<p>Assess carbon impacts and the solutions alignment to net zero for operational emissions by 2030. Explain how the solution is aligned with the ambition of the All Company Working Group on carbon.</p>	<p>Anglian Water and Cambridge Water are committed to the water sector's commitment for operational emissions to net zero by 2030.</p> <p>Carbon is being considered during the regional and company modelling processes with the carbon for potential supply-side options being discussed as part of the decision-making processes. For example, this is showing that the operational carbon for Fens Reservoir is lower than that of a comparable desalination plant.</p>

		<p>MCDA processes for site and concept design selection will also consider carbon. Opportunities such as open water transfers and locality to abstraction points will be considered to minimise pumping energy consumption. Nature based solutions will also be explored to offset operational and capital carbon.</p> <p>Operational carbon neutrality will be met by 2030 using energy generated via renewable and/or green energy sources.</p>
<p><b>Solution Design</b></p>	<p>Investigate the integration of flood risk management opportunities and how these will interact with water resource management requirements under appropriate climate change scenarios.</p>	<p>Anglian Water and Cambridge Water are actively engaging with flood risk related stakeholders to explore flood risk management opportunities. These will be considered through the site and concept design selection programmes of work.</p> <p>A combined hydrological study is also planned which will look at flood and drought scenarios simultaneously. This will aim to determine how beneficial the reservoir could be to areas such as the Ouse Washes.</p> <p>Both companies, alongside WRE, will also work with the Future Fens initiative to develop holistic water management schemes.</p>
<p><b>Evaluation of costs and benefits</b></p>	<p>Develop biodiversity net gain and natural capital assessments as a priority together with amenity and landscape impact reports.</p>	<p>Biodiversity net gain and natural capital assessments have been completed for the long list of site locations. These will be fed into the MCDA analysis being undertaken as part of the site selection process. They will be repeated when a final site has been selected.</p> <p>Both Anglian Water and Cambridge Water, as well as its stakeholders, have an aspiration that the Fens Reservoir should provide nature and amenity benefits to its local community. These benefits may also be enjoyed by wider areas.</p> <p>However, it is also recognised that the reservoir could have a negative impact on the landscape of the Fens. To recognise this the embankment height is one of the factors being considered during the site selection phase.</p> <p>Once a final site location is confirmed and a concept design developed, a detailed visual impact assessment will be undertaken to understand any mitigation measures.</p> <p>Both companies will also continue to explore further biodiversity and natural capital opportunities.</p>

<b>Environment</b>	The Habitats regulation assessment should consider the functionally linked habitats and screening of the Breckland Special Areas of Conservation (SAC).	<p>The Breckland SAC is more than 10km away from the indicative site chosen for the gate 1 concept design and was not included in the Habitats Regulation Assessment for this reason.</p> <p>The nearest long listed site is 8km from the Breckland SAC.</p> <p>Once a preferred site has been identified, Anglian Water and Cambridge Water will work with the Environment Agency, Natural England and other identified stakeholders to ensure all functionally linked habitats are included in environmental assessments.</p>
<b>Evaluation of costs and benefits</b>	Engage third parties who will benefit from the solution to contribute a fair share of the development costs, particularly where this significantly increases solution costs.	<p>The Fens Water Partnership includes stakeholders from different sectors who have worked collaboratively to establish aspirations for the scheme.</p> <p>Third parties are aware that Anglian Water and Cambridge Water will not be able to fund multi-sector benefits beyond those needed for the scheme's primary purpose. Discussion has started at the Fens Water Partnership, and with WRE, as to how these benefits could be funded. The scheme will also benefit from similar conversations that are developing on the South Lincolnshire Reservoir scheme. The outputs from the RAPID study assessing multi-sector legal and commercial model frameworks, being undertaken by CEPA, will form a critical input to realising a multi-sector multi-beneficiary design.</p>

## Recommendations

RECOMMENDATION	DETAIL	PROGRESS NOTES
<b>Evaluation of costs and benefits</b>	Ensure wider resilience benefits are fully investigated and quantified as part of the submission for all options	<p>Potential wider resilience benefits have been discussed with stakeholders. This is an ongoing process.</p> <p>These wider resilience benefits will also be incorporated in the concept design stages as metrics. These may include providing flood risk reduction, water for irrigation and delivering environmental and social outcomes.</p> <p>Once the preferred concept design has been selected, modelling will be undertaken to quantify these benefits. These will be presented in the gate 2 submission.</p>

<p><b>Evaluation of costs and benefits</b></p>	<p>Include which option is considered best value (rather than just least cost) for customers and the environment and the criteria and method used for best value.</p>	<p>The costings for the gate 1 submission were only indicative of the public water supply part of the scheme.</p> <p>An allowance for multi-sector features was made in an alternative costing to show Anglian Water and Cambridge Water’s commitment to delivering wider benefits. However, as shown in the gate 1 submission, this is an area which will need to be further developed between gate 1 and gate 2.</p> <p>The MCDA process will be utilised to supply a robust decision-making process. This will be used to select a preferred site and concept design. This facilitated process will consider both constraints (i.e. financial cost and carbon) as well opportunities (i.e. improving flood risk and delivering social and environmental benefits).</p> <p>The Fens Water Partnership and other technical stakeholders are collaborating in this process, with the aim of achieving best value as opposed to concentrating on the least cost.</p> <p>Customer engagement is also planned, building on work undertaken for gate 1, to determine what customers would like to see from a reservoir like Fens.</p>
<p><b>Environment</b></p>	<p>Prioritise the identification of environmental risks, impacts and propose mitigation requirements where necessary.</p>	<p>The criteria used in the site selection process includes minimising impacts to environmental and social receptors, with the aim of having to complete limited mitigation on the final site.</p> <p>Anglian Water and Cambridge Water will continue to work closely with the Environment Agency, Natural England and other regional and local stakeholders to identify environmental risks, potential impacts and any associated mitigation requirements.</p> <p>During this collaborative working, the mechanism for capturing these risks (i.e. risk register) can be discussed and agreed.</p> <p>Potential benefits to the environment, such as at the Ouse Washes, will also be explored.</p>
<p><b>Environment</b></p>	<p>Prioritise the development of environmental modelling, monitoring plans, and approach to in-combination assessment</p>	<p>Following liaison with the Environment Agency, Natural England and other regional and local stakeholders, Fens Reservoir has started a year’s worth of water quality monitoring. Environmental monitoring has also recently been undertaken. These will help inform further modelling and monitoring requirements.</p> <p>Further work will also be undertaken prior to gate 2,</p>

		<p>aided by the water quality and environmental monitoring programmes. The proposed hydro-ecological monitoring will focus on potential impacts on key species and what flows are needed to support them.</p> <p>These packages of work are likely to identify further works required between gate 2 and gate 3. They will be discussed with the Environment Agency, Natural England and other stakeholders.</p> <p>Environmental in-combination effects will be included as part of the environmental assessment. The WRE regional plan will also include an Integrated Environmental Assessment that will pick up in-combination effects.</p>
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### Additional points in RAPID’s draft decision

DRAFT DECISION	DETAIL	RESPONSE
<p><b>Funding allowances</b></p>	<p>A funding allowance of £24.55m has been allocated for Fens Reservoir, for gates two, three and four.</p>	<p>Anglian Water and Cambridge Water believe that the proposed funding allowance awarded by RAPID will not allow them to develop Fens Reservoir to the extent that it is comparable to the other Strategic Regional Options</p> <p>We believe there is an error in the calculation in the treatment of the Anglian Water PR19 Adaptive Planning allowance. Based on option DO, the Adaptive Planning allowance provided just over £1M for the Fens Reservoir. However, in the funding allowances (Table 3 of the Draft Decision), £943k is removed to account for this, with very little funding therefore assumed for Gate 1. We recognise the need to make an adjustment for funding already received at PR19 to develop the Fens Reservoir, but the adaptive planning programme covers several solutions including desalination, re-use and Aquifer Storage and Recovery (ASR). We propose a more appropriate reduction would be to subtract £1M from the total required budget including an allowance for Gate 1. Alternatively, having paid for Gate 1 from the Adaptive Planning budget, any further reductions should be removed from the allowance. We would welcome the opportunity to discuss this further.</p> <p>In addition to the calculation error, we would also welcome the opportunity to discuss the overarching approach for determining the appropriate allowance</p>



		for Gate 2. We have developed a bottom up programme of works, which has been benchmarked against the South Lincolnshire Reservoir (SLR).
<b>Funding allocation</b>	Funding will be shared equally between the solution sponsors, Anglian Water and Cambridge Water, unless sponsors agree and notify RAPID of alternative cost sharing proportions before the end of the representation period.	<p>Considering likely demand scenarios and environmental needs, it is proposed that RAPID funding is shared as follows:</p> <ul style="list-style-type: none"> <li>• The reservoir costs to be shared on the projected deployable outputs to each of the companies</li> <li>• This will result in Anglian Water receiving 50% of the funding and Cambridge Water 50%</li> <li>• For the Fens Reservoir to Cambridge Water transfer, it is proposed that Cambridge Water receives the full allocation of this funding</li> </ul> <p>This allocation of deployable output is based on current working assumptions about growth projections and environmental ambition. The detail for each of these elements will be confirmed prior to Gate 2 through work undertaken at a company level, through WRE and in conjunction with the local planning and OxCam planning teams. As a result, this allocation may change prior to Gate 2.</p>
<b>Solution design</b>	Stakeholder engagement plans for this solution should include the Consumer Council for Water.	Anglian Water and Cambridge Water will share their stakeholder engagement plans with the Consumer Council for Water.
<b>Drinking water quality</b>	We expect to see further development of DWSPs, water quality monitoring, including for emerging contaminants, and wider stakeholder engagement with ongoing dialogue with the respective water quality teams in gate two.	<p>A Drinking Water Safety Plan will be developed in conjunction with the learning from the other Strategic Regional Options and regular liaison with the Drinking Water Inspectorate.</p> <p>Ongoing water quality monitoring will also inform any further monitoring that may be required.</p>
<b>Proposed changes to partner arrangements</b>	We note that the submission states that Essex and Suffolk Water is also a key stakeholder and that it is actively involved in the solution's development and that it will consider if / whether to join ahead of gate two. We would like to understand in more detail how Essex and Suffolk Water will be involved between gate one and gate two and request that this information is provided during the representation period.	<p>Essex &amp; Suffolk Water is an active stakeholder in the Fens Water Partnership and associated technical workshops. It's initial baseline supply demand balance forecasts (August 2021) show supply deficits in both its Essex and Suffolk supply areas. These are driven by likely Water Industry National Environment Programme (WINEP) sustainability reductions, climate change, the need to provide 1 in 500-year drought resilience, population growth and the impact of the Coronavirus pandemic on per capita consumption.</p> <p>Additionally, if the current Environmental Destination sustainability reductions (equivalent to ~50% of its Deployable Output) were to be included in its baseline supply forecasts, supply deficits would increase significantly from 2050 and would likely need strategic</p>



		<p>resource options, such as the Fens Reservoir, to restore supply headroom.</p> <p>Essex &amp; Suffolk Water is committed to working with Anglian Water, WRE, the Environment Agency and other stakeholders over the coming months to understand the raw water needs of the Essex Water Resource Zone (before new Ely Ouse resource is licensed) and to explore the potential conjunctive benefit of using River Ely Ouse water as a source to fill the proposed Fens Reservoir as well as the Company's Essex Water Resource Zone.</p> <p>As part of these investigations, Essex &amp; Suffolk Water will run scenarios through its system models to confirm the effect on its Essex system deployable output and on refill of the Fens Reservoir. Essex &amp; Suffolk Water will continue to refine its supply demand position over the coming months which will determine whether it becomes a partner in the Fens Reservoir at Gate 2.</p>
<p><b>Additional benefits</b></p>	<p>Detail whether Fens Reservoir will have additional benefits, other than those noted in the gate one submission.</p>	<p>As well as the level of planned growth in the east of England, one of the key drivers for the additional water supply requirement is to deliver significant improvements to the chalk streams within our region.</p> <p>Both Cambridge Water and Anglian Water currently abstract from the chalk aquifers, and the information from the Environment Agency clearly shows that the current level of abstraction is not sustainable and needs to be reduced.</p> <p>Both Cambridge Water and Anglian Water are reducing their abstraction from chalk aquifers through AMP7 and AMP8, but to deliver the larger reductions required to restore these waterbodies, larger supply options are required.</p> <p>The Fens Reservoir would enable targeted reduction of chalk aquifer abstractions across both water companies and enable the delivery of the regional environmental destination goals.</p>