Cambridge Water

South Staffs Water

South Staffordshire Water PLC

Fens reservoir – our approach into AMP8

Contents

1. Purpose

We have been working with our regulators for the last three years to try and resolve the challenge that meeting the environmental ambition set out by DEFRA poses us at Cambridge Water. While we have had constructive discussions with Ofwat, the right solution for dealing with this is still uncertain.

We are fully committed to reducing our abstraction from the chalk aquifers, but it is not without financial consequences, for our investors and more importantly our customers. For a company our size, with our smaller customer base, developing large scale strategic resource options have significant consequences, impacting customer bills and financial resilience. Therefore, we need to be certain on the levels of investment needed, and clarity on regulatory approach.

The purpose of this document is to firstly provide Ofwat with the evidence to support why Fens Reservoir is the right solution for Cambridge Water. We understand that there is still some debate within Ofwat about this, and recognise that in an enhancement deep-dive business case this would be needed. This section will rely heavily on the work we have done with Water Resources East (WRE) and further developed in our Cambridge Water Resource Management Plan (WRMP).

While we firmly believe in Fens Reservoir as the right, no regrets solution for ensuring environmentally sustainable economic growth in Cambridge, we do not think current regulatory approaches effectively enable smaller companies to bring these opportunities into fruition, mostly due to scale of investment required. In addition to this, the cost certainty we currently have is not sufficient enough to be included within our plan. So, the second part of this document builds on recent conversations we have had with both Ofwat and Anglian Water Services, and presents our thoughts on how best to make schemes like this affordable for all.

2. Foreword

Our Cambridge region is lucky enough to have a number of the most significant chalk streams in England.

We have always ensured that we protect these valuable environmental assets – from investing to ensure we encourage and stimulate river flow, helping to reduce invasive non-native species and supporting native species through habitat improvement, through to developing new sources so we can stop abstracting from the precious chalk aquifers to improve aquifer health. In addition to this, Cambridge is a key intellectual growth area for the UK – with science parks featuring strongly in our emerging local plans.

Up until now we have been able to manage these competing pressures on our own – successfully reducing our abstraction capacity by 20 Ml/d in the last 15 years, reducing leakage levels, recovering household consumption back down to pre-covid levels and investing over £100,000 in community environmental improvement projects during AMP7. However, the scale of growth expected within the Cambridge region over the next 25 years, coupled with the levels of abstraction reduction that are now required to enable us to enhance the chalk aquifers, means that the scale of the problem can no longer be solved by us alone.

The only way a problem of this scale can be solved is to look regionally, collaborating with other water companies and key stakeholders. We have played an active part in regional planning, including seconding key strategic leads from our business on to the project team. The whole of the east of England has been classed as water stressed, and we can already see the effects of climate change in the weather patterns we are experiencing – with record breaking daily demands been seen in the last two years. The regional planning approach validated our thoughts that we could not resolve this by just looking at options internal to our boundary – being landlocked, and exclusively supplied by ground water limited our supply side options, and even if we could get to zero leakage levels, it still would not be enough to meet the scale of challenge we are seeing.

We, together with Anglian Water, have been developing a strategic resource option – Fens Reservoir, and have successfully taking it through the RAPID gated process this planning period. We are committed to this scheme, and firmly believe that we have evidenced it as the right no regrets solution for us, our customers and environment in the longer term. This solution brings us, as a small water only company many challenges, which we have been actively working through with our regulators in the run-up to our PR24 submission. However, at this stage, while we are confident in the solution, we do not have either enough cost confidence or clarity on the appropriate regulatory treatment to include this within our core PR24 submission.

We fully understand that not including Fens Reservoir in our core PR24 submission may appear to not comply with the methodology, however as the table below outlines, there is still too much uncertainty in how to approach this. We firmly believe we need a change in regulatory approach to allow us to develop this option.

Area	Certainty
Solution	• Certain – a no regrets solution from both WRE and our own WRMP
Yield	• Certain for public water supply as sized in the local plans • Not certain for accelerated growth projections • Not certain from a multi-sector approach
Costs	• Development costs of the Direct Consent Order – AMP8 estimated costs are currently aP50 cost confidence, therefore not certain, and that level of uncertainty is too great for a company of our size
Bill	• We have been actively seeking regulatory support through both RAPID and Ofwat on the best regulatory approach to make the development of this option affordable • We have explored regional funding, funding through tax, proportional allocation between AWS and CAM (including a cost alignment model of the life of the asset to bring parity on both company's clean water bills) • Collectively no resolution to this has been met – therefore impact on customer bills remains uncertain
Water Scarcity Group	• Accelerated growth scenario – suggesting the need for an additional strategic resource option e.g. de-salination plant • Early suggestions of changing regulatory approaches to enable development to be accelerated – may bring discounted options back into consideration and/or reduce projected costs for DCO application
Regulatory Approach	• Regulatory treatment of how the investment is delivered, either through capex or opex – uncertain at this stage • SIPR is the preferred approach – Thames Tideway is the only precedent for costs required to develop this approach which is a different asset type and size, therefore leading to cost uncertainty

We have evaluated many options to try and include Fens costs within our business plan (including costs at only P50 confidence, changing cost treatment from opex to capex, negotiating the 50:50 splits with Anglian, phasing, removing other essential investment as the scale of Fens crowded out other options) but in the time available have had no choice but to conclude that there is no solution that would adequately protect our business and our customers from undue risk, whilst ensuring that the development of this essential project can continue in the long run.

By not including these costs, we are making it clear that the standard PR24 funding approach does not work for small companies partaking in large scale projects that require flexibility/adaptability outside of the 5-year price review process.

This AMP, we have struggled to absorb the Fens development costs as they were not accounted for within the Price Control. Our credit agencies do not recognise True-Ups in our ratings, therefore Fens Reservoir investment has put our metrics under significant pressure. It has further prevented us from accelerating other investment on metering through the Defra fund, as supporting another true-up funded investment was not possible. We believe that Fens is the best value solution, and therefore prioritized this investment despite the challenges it caused. However, we cannot continue to support this approach going forward with the long-term requirements of the project.

We also do not believe spreading the costs 50:50 between the two customer bases is the fairest solution for our customers, as this would result in a c£100 bill increase per annum from 2025/26 (£500 over AMP8) for Cambridge customers, whereas due to the number of customers Anglian have it would be just c£6. We have a further cost uncertainty regarding customer bills due to our two supply regions. Usually, we split the costs of investment across both our supply regions, for example our Long-Term Plan investment in South Staffs in AMP7, subject to customer support. Historically, this has been fair as investment across the regions has been proportionate over time. However, Fens is likely to cause significant weighting towards Cambridge investment with no plausible benefits for South Staffs customers. We do not believe it is fair to charge them these additional costs, but this causes further cost pressure on the small customer base of Cambridge Water. We know that climate change will make the future for water providers different, and significant investment will be needed across the sector to ensure we are resilient, but this needs to be done in a fair and proportionate way – not a customer lottery based on

geographical boundaries, in our case established over 170 years ago. Regional planning has proved successful, and we need to consider regional funding to enable large scale infrastructure to be developed.

We understand Anglian have taken a different approach by including an early view of the development costs and an assumed cost treatment in their plan. We were concerned about putting anything forward at the current level of confidence in both the scale and treatment of costs due to the significantly higher risk for our business to be able to absorb any changes, and the affordability of the current cost treatment approach for our Cambridge customers.

We are completely aligned in our views on the need and the solution and are committed to continuing to work in joint partnership with Anglian on the project. We are also both in agreement that this project must sit outside the Price Control due to the remaining uncertainty, and to avoid delays to building this essential resource for the east of England from financing challenges.

In addition to this, the recent announcement by the Secretary for Levelling up, Michael Gove, to "supercharge" the growth in Cambridge has put our draft Water Resource Management Plan (dWRMP) back under the spotlight by suggesting an even more aggressive growth ambition. We are supportive of the attention; as stated earlier we recognise this isn't something we can fix in isolation, and we are working collaboratively with Peter Freeman and his team who are aiming to resolve the barriers that are in place for this level of growth. Early discussions have raised the challenge that a multi-sector approach can bring, i.e. agricultural needs, peat wetting to drive net zero targets and wider societal benefits – to date Fens has been funded by water company customers, and the current yield is fully allocated to public water supply. These very recent developments, arising since July 2023, have added additional uncertainty around the timescales and multi-sector benefits for Fens, both of which will impact AMP8 costs.

By introducing the RAPID process for Strategic Resource Options, Ofwat have been able to significantly break down barriers to large infrastructure projects and speed up their development significantly. We have been pleased with the engagement with the RAPID team around this issue, and their understanding of the challenges we face in the run up to PR24.

However, this process and engagement must also directly link into the Price Review process in order to be enable us to continue the development of these projects at flexibly and at pace, recognising the significant differences between the usual investment covered by price reviews and these projects of unprecedented scale.

We simply need more certainty on how we deliver this in a fair and sustainable way – and have been actively trying to resolve this in the run- up to our submission. However, we have reached the full remit of our area influence and need regulatory support to resolve this. We may be the first company to be in the position, but it is unlikely we will be the only one, therefore regulatory change will be a necessity for the sector to develop.

3. Fens Reservoir – why this is the right option for Cambridge Water

We are committed to ensuring that Cambridge can continue to be the UK hub for intellectual growth. Covid brought significant increases to the non-household growth in Cambridge due to the expansion of biomedical research and development facilities, laboratories and technology centres.

This growth could not be foreseen when we undertook our last water resource management plan, and is set to continue in line with the Department for Housing and Levelling up of Communities (DHLUC) ambition to make Cambridge the "science capital of Europe". We take our role as environmental stewards seriously, and this must be done in a sustainable way. Cambridgeshire is one of the fastest growing regions in the country. It is also one of the driest. This presents us with significant challenges, including:

- substantial growth in population and properties driving demand upwards; with non-household growth in 2038 increasing by 55% when compared to 2020 levels. Together with a growth in household demand as properties increase in support of employment levels.
- environmental pressures to ensure that our abstractions do not cause deterioration to the environment, and measures to further improve the status of the environment; for our last water resource management plan, the agreed licence caps with the EA were 6Mld, since then these have increased 27Mld by 2030, with another 30Mld before 2050.
- customer expectations regarding our approach to demand management.

We cannot solve a problem of this scale in isolation and have worked extensively with Water Resources East on the regional plan for the whole of the east of England. We have reviewed the regional challenges we face and the scale and complexity of them through an exercise of problem characterisation and have explored least cost and best value planning solutions. Through this work we have identified the most appropriate, no and low regrets, mix of demand and supply options going forward for our customers and the environment.

3.1 Regional Planning - Water Resources East

As soon as the Environment Agency confirmed the scale of licence caps for us in Cambridge, we knew that being able to deliver on these and meet the levels of growth forecast for our region could only be solved by looking outside of our area of supply. There are limited available surface water resources within or close to our area of supply.

The majority of chalk rivers typical of the area are unsuitable for large public water supply abstractions and already are subject to environmental impacts. And reducing customer demand and leakage, while certainly supporting, could not offer enough volume to close the resource gap. So, we actively welcomed the move to regional planning, we see this as the most effective way to solve the resource challenges currently being faced in the East of England.

WRE took a multi-sector approach to ensuring there was enough water in the East of England for all sectors, however at this stage the project outputs focus primarily on public water supplies (PWS). This is primarily due to the lack of funding opportunities for other sectors to actively engage in the process. Using a sophisticated multicriteria analysis tool to ensure a thorough appraisal of all options, tested against numerous scenarios to ensure a robust, no regrets portfolio of supply and demand side options.

WRE followed a traditional resource planning approach by factoring in how much water can cost-effectively be saved through leakage and other demand-side measures such as water efficiency campaigns and installing smart meters in order to support the delivery of both the final and interim Environment Act targets are met. Noting that demand management and leakage control become disproportionately more difficult and expensive the more that performance is improved. With the scale of the challenge in the East of England it was inevitable that new supply options will also need to be brought online at the right time to avoid deficits emerging during the 25-year planning period.

WRE stress tested how well each portfolio of supply-side options perform in a range of future growth, climate change and demand scenarios and this is how we can evidence the options included in the final portfolio are robust and provide a no regrets solution. The options proposed in the plan are those that would make sense to implement almost regardless of what the future might bring.

WRE also consider whether more water could be transferred between the region and adjacent regional planning areas. The merits of such transfers were tested with the other four groups as part of a 'regional reconciliation' process. The regional groups took turns to present their respective options and plans to make sure all groups' plans complement each other in the national interest. As a result of that process, WRE's plan is based on no additional transfers of water to other parts of the country given the region's water-stressed status and a preference for Water Resources South East to receive water from the Water Resources West region.

The reservoir is selected by regional WRE modelling under most, if not all future scenarios. The simulator picks the earliest start date possible of being on site 2029, meaning Fens Reservoir could be in supply between 2035 and 2037. Fens Reservoir is an embanked winter storage reservoir, with 55Mm3 of storage providing a useable volume of 50Mm3 with a proposed yield of 88 Ml/d, shared equally between ourselves and Anglian water.

The regional simulator tested combinations of feasible options and operating regimes over a wide range of potential scenarios for 2050, reflecting uncertainty in demand forecasts, climate change, weather patterns, and also different environmental destination scenarios. In nearly every simulation the strategic resource option Fens Reservoir was picked – proving to be the best value way of securing the regions water future. In addition, the regional best value plan also concluded that the new reservoir will lead to a net increase in habitat units across the region, whereas other supply options led to a loss of habitat units.

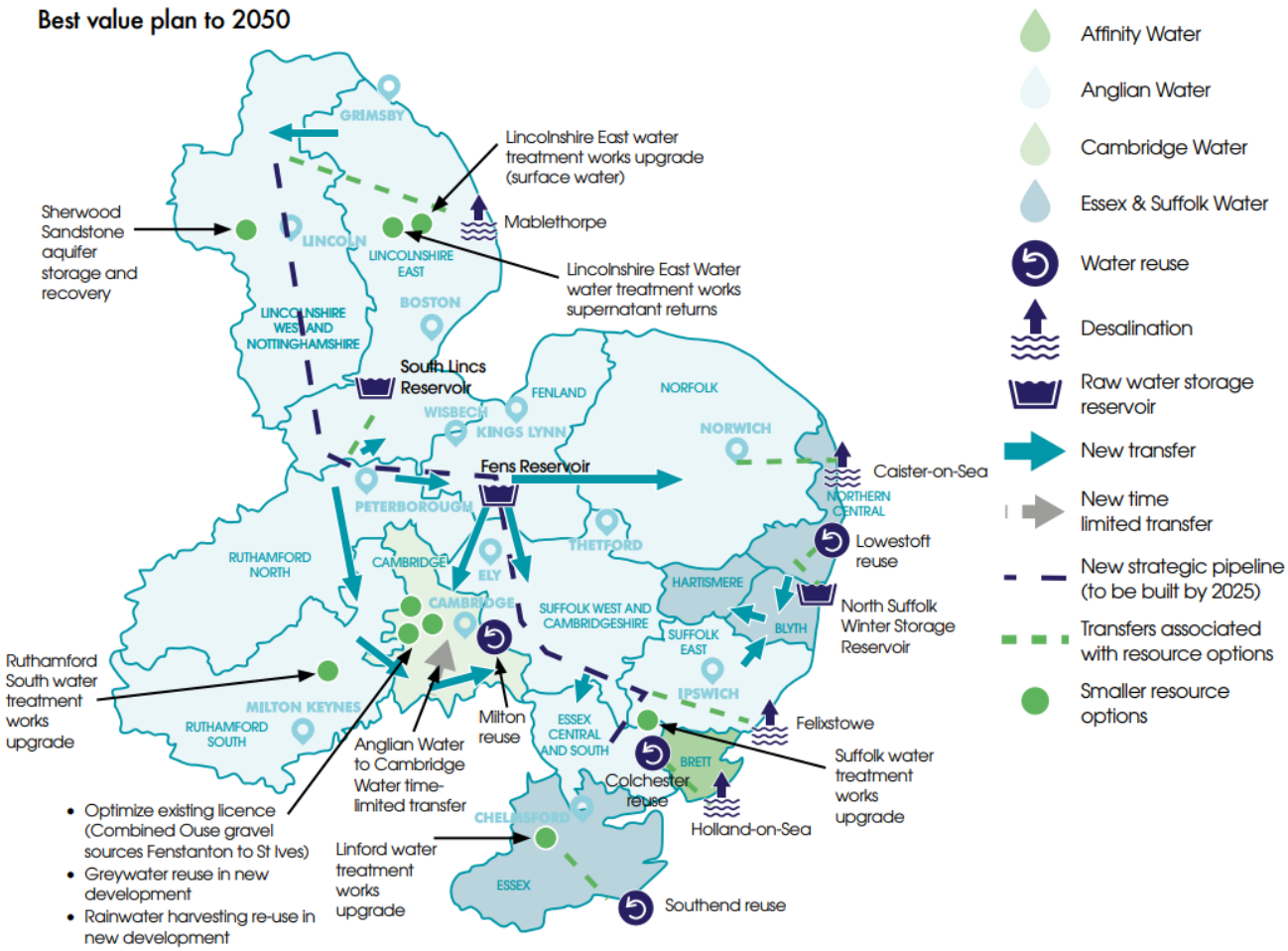
The table below details the other supply side options that were considered and why they were discounted, more detail on these can be found in both the regional and our own dWRMP.

Option	Reason
Desalination	• These options have a far greater whole-life cost than any reservoir option, high in carbon and perform significantly worse in key SEA metrics. If we bring 10% net gain into the assessment criteria, de-sal solutions do not score well when compared to reservoirs. • Technological advances, especially in terms of operating costs, could make these options more cost beneficial – they are also easier to scale – both suggesting that these are options to be delivered later in the planning period once the scale of environmental destination is confirmed.
South Lincs Reservoir	• The length of the pipeline required to transfer the water from the reservoir to the Cambridge region, as well as the ongoing operational costs and environmental impacts of this transfer means water from the South Lincs reservoir would be more costly for Cambridge Waster than water from Fens Reservoir, and has a higher environmental impact. • From a regional perspective the full output from Lincs reservoir is required to meet AWS needs, but isn't enough fully satisfy all the deficits and the AWS plan also includes a number of desalination plants as well as 50% of Fens output. If Lincs reservoir was allocated to Cambridge, AWs would need the full Fens output plus desalination capacity. • It also has a longer construction period and would not be available until 2039/40 compared to Fens from 2036.

Option	Reason
Grand Union Canal	• This is an enabling option for us, it requires water quality investment at Minworth treatment works, to enhance the raw water quality envelope leaving the work, which in turn enables the Grand Union Canal to provide a raw water source to Affinity, which means they can then release their current take from Grafham. • There is no additional water available, greater than the transfer we already have in our dWRMP. In addition, post 2040 this volume of water is required by Affinity Water and therefore no longer available to us. • The transfer relies on network capacity in Anglian Waters strategic grid network – this capacity is only available until 2040, as Anglian will need the water to meet their own growth requirements. • Our enhancement programme includes the infrastructure for a 26Mld transfer from Anglian water's Grafham reservoir. This is a no regrets solution as it is essential for meeting the short term demand needs in our Cambridge region, and our licence caps

Through WRE and also our own analysis we have stress tested the costs around the delivery of Fens, to understand at what point the scheme is no longer the most cost beneficial option – current analysis has this as an economic solution until the costruction costs breach c£3b.

3.1.1 The regional plan on a page



3.2 How WRE has informed our plan

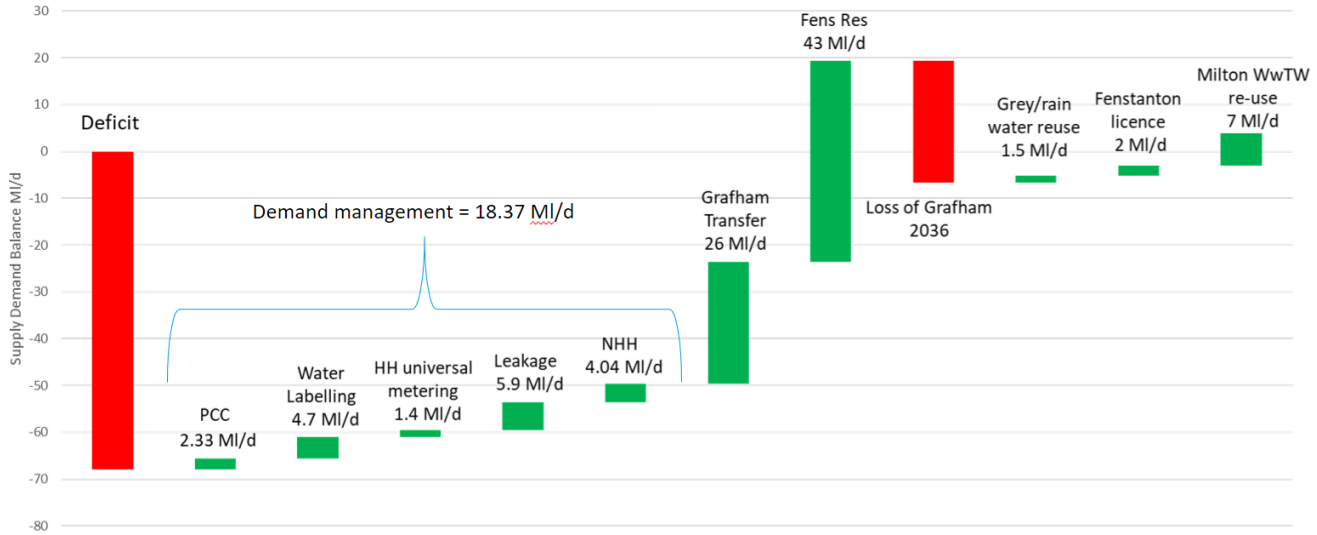
As stated in the previous section, Fens Reservoir has been identified as integral to the WRE regional plan and therefore is a key supply side option in Cambridge Water's draft WRMP24 best value plan.

These plans have been developed following the WRMP24 best value guidance and full details can be found in section 9.3 of our revised draft WRMP, but in summary;

- We identified 130 different supply side options, following consultation with the EA and Natural England and completion of environmental screening reduced this down to 18 feasible options. Many of these options were deselected due to our unique chalk geology.
- The Fens Reservoir is identified as a low regret option as part of the WRE Multi-Objective Robust Decision-Making process (MORDM) and the regional modelling has informed the size of the reservoir.
- Fens Reservoir is incorporated as a "must-do" option in our draft WRMP24, reflecting the regional plan. It also features in our best value, least cost and best environmental plan.
- Metrics associated with the Fens Reservoir are included in the WRMP24 best value assessment, which evaluates the strategic resources options alongside other water resource options to form overall plans for analysis and comparison (including sensitivity testing and adaptive planning). This sensitivity testing included confirmation that the reservoir would be selected independently in our own WRMP modelling.
- The final WRMP24 "best value plan" has established the need for the strategic reservoirs and defined the timing of the options. The Fens reservoir can also provide multi-sector benefits, contributes to addressing supply demand deficits and increasing drought resilience.
- As part of the iterative modelling process between the WRE Regional Plan and the WRMP, the timing of the reservoir need was confirmed as being required into supply by 2035-2037 to support the delivery of abstraction licence cap reductions.

The chart below shows the level of deficit we face in our Cambridge region over the planning period, and the best value plan interventions to mitigate it.

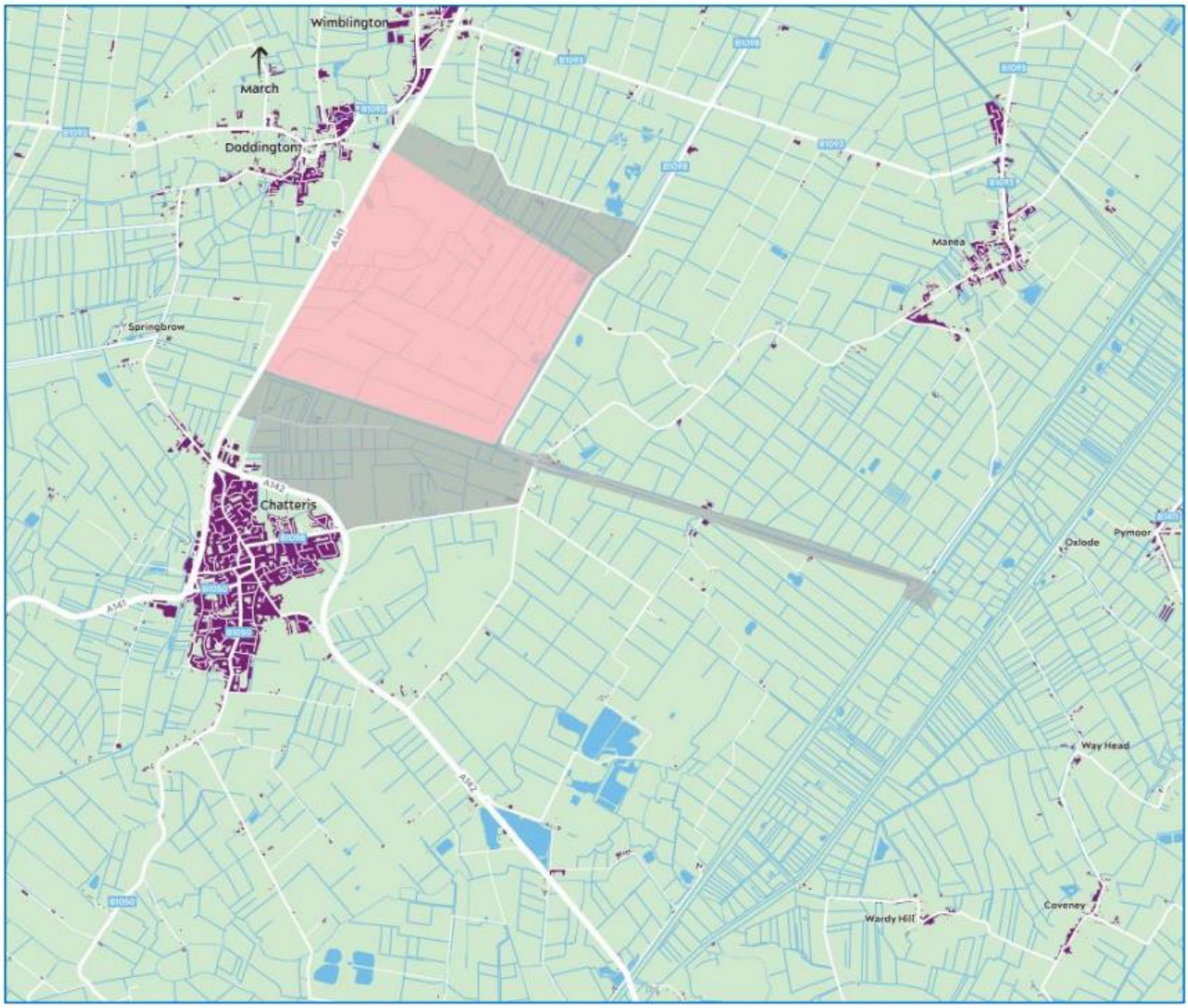
Demand management vs supply side options



3.3 Fens

Following a comprehensive site selection process, the best performing site located east of the A141, between the town of Chatteris in the south and the village of Doddington in the north.

The site, shown below, covers 5 square kilometres, and is dominated by arable fields, drainage ditches and minimal tree cover. The new embanked reservoir is designed to be 55 million m3 with a useable volume of 50 million m3, supplying c.250,000 households.



The water will be abstracted from a range of potential sources including the River Great Ouse, River Nene, Middle Level, Ouse Washes and Counter Drain (Nene). Water will only be abstracted when river flows allow.

The estimated cost of the reservoir is £1.96 billion. The project follows the same long-term programme as the South Lincolnshire Reservoir with efficiencies to be gained in delivering two DCOs in parallel. However, the earthworks programme for the Fens Reservoir is shorter than for the South Lincolnshire Reservoir, and therefore a start-on-site date of 2029 would enable the Fens Reservoir to enter supply between 2035 and 2037.

There are significant multi-sector benefits that could be unlocked by the Fens Reservoir. These include water for agriculture, new habitats and nature connectivity, navigation, amenity and recreation, flood protection and

water level management. Reservoirs give the opportunity to provide outdoor spaces and recreation opportunities, something desalination (and water reuse) does not. This has been verified using an independent study which used a range of methodologies and economic impact modelling. The review found that the key socio-economic benefits delivered by reservoirs stemmed from recreational activities and public access to green space. These benefits include mental and physical health, education, tourism and wider economic benefits due to increased visitors to surrounding areas.

Based on an initial economic impact assessment we believe that reservoir development and construction has around 30% greater potential for localised employment opportunities and economic activity compared to desalination. This is because it is expected there would be a lower need to recruit staff and other specialists from elsewhere in the country or abroad.

Health benefits are associated with reservoirs. These outdoor areas also have the opportunity to improve mental wellbeing, providing people with the opportunity to participate in shared social activities, providing a sense of belonging.

Access to reservoirs can provide educational benefits for members of the public. This could be in the form of formal educational benefits, such as hosting school trips, public events and classes, or through informal visits which stem from visitors undertaking their own exploration and investigation of surroundings.

4. Costs – and why they are still uncertain

4.1 Development costs

As detailed later in this document, the procurement route for the Fens Reservoir Strategic Resource Option is currently proposed as under the Specified Infrastructure Projects Regulations (SIPR), a vehicle used only once to date for the Thames Tideway Tunnel by Thames Water. The project is being developed through the Rapid regulatory framework process.

Fens Res programme for the remainder of AMP7 and AMP8 is driven a number of key workstreams;

1) Design for Development Consent Order (DCO)
2) Design for delivery procurement of design and build contractors.
3) DCO submission (Rapid Gate 4 May 2026) and examination phase (Rapid Gate 5 August 2027).
4) Procurement of the design and build contractors.
5) Creation of shadow Investment Provider (IP) organisation to provide investment to deliver and become the licensed operator for the Fens Reservoir.
6) Creation of the Programme Management Consultancy organisation to manage delivery of the Project on behalf of the IP.

Current estimates for Anglian Water / Cambridge Water Fens Res co-sponsor project costs for AMP8 are £140.6m.

These costs break down as follows;

Prices are 2022/23 and show PR24/AMP8 only.

Cost Element	£m
RAPID G4	
Project Management, Commercial, PMO, Assurance	0.5
Site Investigation, Design and Option Development	4.3
EIA, Data Collection, Sampling, Surveys	8.0
Procurement Strategy	1.5
Planning & Stakeholder Engagement	0.9
Land Options & Early Property Support Scheme	10.5
Overhead, Risk, Inflation, Legal, etc.	6.1
	31.8
RAPID G5	
Project Management, Commercial, PMO	11.3
Site Investigation Design, Environment, Technical	1.6
Constructability Advisory	0.9
Planning & Stakeholder Engagement	1.9
Procurement Strategy	7.3
Overhead, Risk, Inflation, Legal, etc.	5.3
	28.3

Cost Element	£m
Client Integration	
Client-Side Operations Team	1.4
Client-Side Integration (PMC)	1.5
Constructability Advisory	2.5
	5.4
Shadow IP & Project Management Consultancy (PMC)	
Shadow IP Establishment (Executive, Governance, VDD	38.6
PMC (Directorate, Project Controls, Quality, etc)	36.5
TOTAL	140.6

Cost estimates for RAPID Gate 4 are based on internal Anglian Water major capital project models and benchmarked against AW 'major projects' and against known costs to date. This element of the estimates has a high degree of confidence.

Gate 5 DCO post submission work supporting the submission through the examination phase is harder to estimate, on the basis that the activity is, to a large degree, reactive. Procurement activity cost estimates have been benchmarked against recent Anglian Water major projects and TTT with support from KPMG and Jacobs drawing on experience gained on TTT.

The forecast development costs represent less than 4% of the total scheme value including costs to date, when compared in the same price base. As such they are deemed to represent good value to the scheme, and considerably lower than the notional 6% cost that such schemes might be expected to attract in development. The cost for gate three is forecast to be £23.8million and the forecast cost for gate four is estimated to be £31.3million, all in 2017/2018 price base.

The Procurement Strategy and process requirements is significant due to the necessary and extensive engagement with the market, management of contract liabilities, and development of assurances needed to engage contractors and the Infrastructure Provider (IP) providers and satisfy relevant legislation. Following the development of the costs for Gate 2, Cambridge Water engaged PwC to undertake third party assurance on how the costs had been developed to ensure that the methodology used is robust and appropriate. This report provided some recommendations for improvements which have been incorporated by the core project team.

For AMP8 most of the proposed costs relate to the final development and design work for the reservoir, as well as costs involved with preparing and submitting a Development Consent Order (DCO). These costs are to be shared 50:50 between Anglian Water and Cambridge Water as joint scheme proposers. However, from this point, the delivery model will need to change.

As part of Ofwat's 2019 price review (PR19) methodology, Direct Procurement for Customers (DPC) was introduced. DPC should be considered where it is likely to deliver the greatest value for customers and promotes innovation and resilience by allowing new participants to bring fresh ideas and approaches to the delivery of key projects.

For PR24 DPC will apply by default for all discrete projects above a size threshold of £200m whole life totex. This applies to all parts of the water and wastewater value chain, apart from bioresources. Companies will need to:

- Identify all schemes that are over £200m (whole life totex);
- Assess the extent to which these schemes are "discrete", using the updated Ofwat technical guidance from Feb 2023; and
- Undertake a robust value for money assessment of delivering the project through DPC

Specified Infrastructure Projects Regulation (SIPR) legislation was introduced in 2013 to enable delivery of Thames Tideway Tunnel (TTT) by a third party

Infrastructure Provider (IP), rather than Thames Water Utilities Ltd(TWUL), given TWUL's owners at the time:

- Did not want the construction risk (i.e. tunnelling through Central London) and financial risk (i.e. £4bn project would have been c30% of TWUL's RCV); and
- Did not believe that the industry wide WACC would appropriately compensate them for these risks

For PR24, if companies believe that SIPR may be appropriate and offer best value for money to deliver a given project, they will need to assess the project against the requirements set out in the legislation. SIPR should be considered where:

- An infrastructure project is of a size or complexity that threatens the incumbent undertaker's ability to provide services for its customers; and
- Specifying the infrastructure project is likely to result in better value for money than would be the case if the infrastructure project were not specified

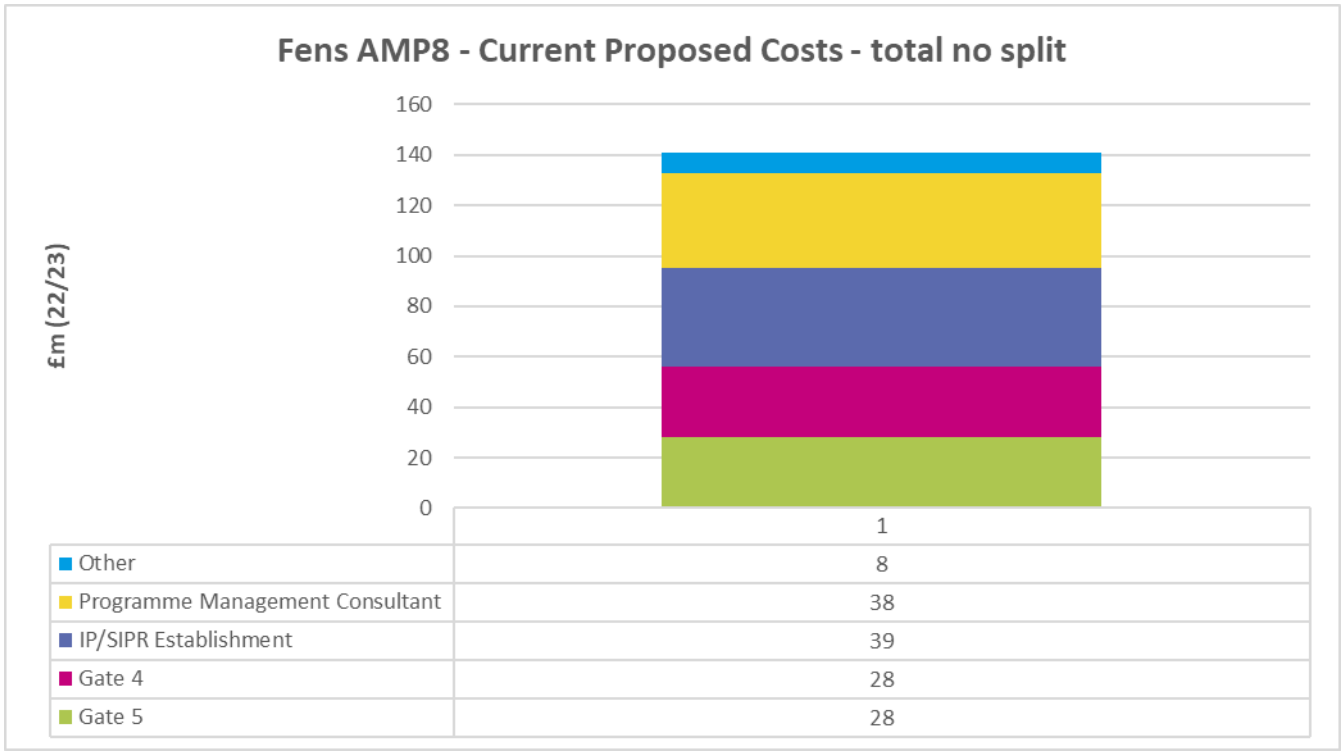
Due to the proposed size of the Fens Reservoir, delivery of the scheme will be via one of these two routes. Assessment has been undertaken by Cambridge Water and Anglian Water to identify which mechanism is the most appropriate for a reservoir, and hence are proposing SIPR as the preferred route.

The reasons for this include:

- The lifespan of the Fens Reservoir will be 100+ years and as such does not align directly with a concession agreement of 25-40 years as proposed in DPC. Uncertainty regarding options at the end of the agreement period with the Competitively Appointed Partner (CAP) and financeability of companies to purchase a high cost asset following a short period of depreciation in relation to whole life of asset. Under SIPR, the Infrastructure Provider (IP) owns the asset for its operational life.
- SIPR is appropriate for projects where the size or complexity could threaten the ability of an existing company to provide services to its customers. This would be applicable for Cambridge Water where the total cost of the scheme is >400% of South Staffs Water's (known as SSC, Cambridge Water parent company) RCV.
- Likewise, the size and rapidity of expansion of capital expenditure would put significant stress on SSC's management and governance.
- Construction duration will extend beyond a single regulatory period. Without adaptations to the regulatory regime being made, commitment to a substantial proportion of the investment would be needed without knowing what return could be expected.
- Under DPC there are concerns regarding an unlicensed third party organisation operating and maintaining a Water Treatment Works – under SIPR, the IP is licensed – this passes the risks associated with delivery failure of the IP to Government rather than customers

As such, a proportion of the costs included in AMP8 are for developing the IP. Construction work on site is forecast to begin in 2029. It should also be noted that, to date, it has not been possible to apply a Monte Carlo analysis to the cost estimates for AMP8 expenditure, with risk being built in at a circa 10% contingency.

On the basis of the above it is estimated that although the estimate is considered a P50 estimate, we have used this in our financial resilience stress testing.


Fens AMP8 - Current Proposed Costs - total no split
£m (22/23)
160
140
120
100
80
60
40
20
0
1
Other 8
Programme Management Consultant 38
IP/SIPR Establishment 39
Gate 4 28
Gate 5 28

5. What our customers think

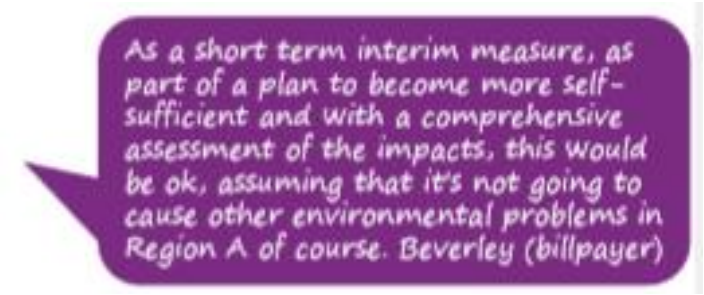
At the time of our PR24 Affordability & Acceptability testing, the proposed costs for developing Fens was at £30m – we included this as enhancement capital expenditure within the bill the profile, and also as a "big ticket" item within our engagement.

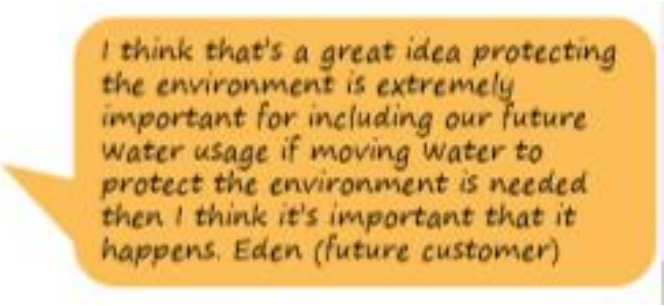
The significant change in costs were identified too late to be included, and we were unable to include this in further customer engagement prior to our submission. However, we are committed to engaging with our customers, once the costs are more certain, and we have agreement with Ofwat on how best to fund this option.

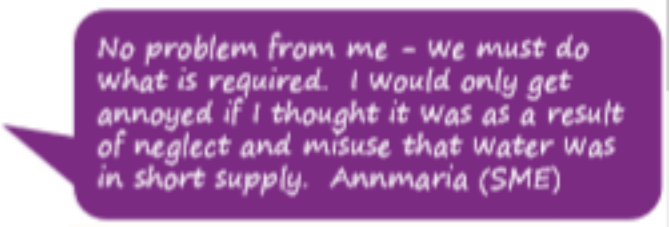
We have, however, done significant engagement through the regional plan and our water resource management plan, and can evidence that customers are supportive of the reservoir as a supply side option.

As part of the development of our draft WRMP24 we have shared our plans with customers to understand priorities, affordability and preferences. As part of this, we have explained our need for new supply options and shared the type of options, as well as our preferred plan. Following our initial customer engagement several customers raised concerns around water transfers, and so we undertook some additional deep dive research into this activity. The outputs of all of customer and stakeholder engagement were published as appendices to our draft WRMP24.

Water Transfers: Most of the customers that we engaged with are in favour of water transfers for environmental reasons (if region A suffers no detrimental environmental impact as a result). However, some questioned the viability of this as a long term strategy and others wanted further information on the possible adverse environmental impacts of water transfers in terms of carbon. Below are some direct customer quotes:







We also help stakeholder roundtable events as part of the development of our WRMP24 and shared the prospect of water transfers with attendees. Some stakeholders saw them as an essential component of Cambridge Water's WRMP; transfers would boost water supplies faster than a reservoir so would help to fill the deficit in the medium term. However, they did feel that transfers would only be one piece of the overall plan. Given the time for transfers to come online, a range of demand management measures would have to be relied on until then. Also given the size of the deficit, a reservoir would also be needed in the long term.

New Reservoir: From our direct customer and stakeholder engagement on the whole, participants saw a new Fenlands reservoir as an essential component of the plan. However, they recognised that it would take some time to come online, and this meant other measures would be needed in the meantime. They also understood that there was likely to be local opposition and hoped that Cambridge Water was preparing to deal with it by considering how to make a reservoir more popular (e.g. make it open for recreation). One stakeholder raised the issue of smaller-scale reservoirs for farmers' local on-site use. It was felt that collaborative working with Cambridge Water and other parties would be needed to promote them.

Stakeholder and customer engagement has been at the heart of the development of the Fens Reservoir and specific engagement has been undertaken. We have adopted an iterative approach as presented below which has enabled stakeholder and customer voices to influence the development of the project, ensuring consultation and engagement is meaningful.

Our approach to customer engagement has been developed to ensure a clear line of sight between preferences and the decisions made in the plans and to be in line with RAPID's gate two guidance. Specifically, Anglian Water and Cambridge Water have both undertaken research studies, following best practice guidelines, into customers' preferences for supply and demand options for water resource planning. These robust qualitative and quantitative research studies, undertaken at both a local and regional level since gate one, highlight that reservoirs are the preferred supply side option of the options tested. This view on why reservoirs are preferred as a supply side option is predominately driven by:

- Feeling reservoirs are a familiar, tried and tested option
- Ability to hold large volumes of water in an efficient way to meet future demand challenges
- Being seen as environmentally friendly, including helping reduce the amount of water taken from rivers, streams and underground aquifers
- They can help reduce flood risks if planned correctly
- Delivering an attractive community asset.

Examples of this support include a number of independently run studies commissioned by Anglian Water and Cambridge Water among household (HH) (including future customers and those in vulnerable situations) and non-household (NHH) customers:

A multi-stage qualitative WRE water company club research study into the optimal regional approach to delivering a 'best value' plan found that reservoirs were the third highest ranked option when customers were asked to pick their top three (37%) and gained the most votes of the supply option listed. Only 15% selected it in their bottom three.

- A Cambridge Water quantitative study highlighted that from nine demand and supply side options presented, building a new regional storage reservoir was ranked 3rd, behind leakage and universal water metering.
- Cambridge Water has run a year-long deliberative customer Forum (Water Resources Advisory Panel). The overall preference among this engaged audience was that reservoirs were the most popular supply side option and an in-depth focus group found that a shared reservoir asset with a transfer to Cambridge Water customers was the preferred option. It was viewed as providing sufficient security and control, whilst being lower cost than others.
- An Anglian Water quantitative study showed that from twelve demand and supply side options presented to customers, a new raw water storage reservoir was ranked 5th, behind demand management measures such as leakage reduction. Reservoirs were the second most preferred supply-side option, behind water reuse. Further engagement has confirmed Anglian Water customers' preference for reservoirs as a supply-side option.

The key opportunities, threats and assumptions to the current estimate for Fens Reservoir are summarised as:

- A significant threat to the scheme is that the cut and fill balance and availability of site won material is more onerous than estimated, resulting in additional costs and vehicle movements.
- Threat that inflation significantly outstrips the Anglian Water cost models causing affordability challenges in the future. Current construction section inflation

tracks higher than CPIH and therefore is a significant and likely risk.
- Opportunity to utilise alternative water transport options to alleviate road transport cost and disruption.

In addition, the following apply:

- The estimate is priced based upon current market values in Q3 – 2022. The estimate does not infer any forward indexation or potential outturn cost. The cost estimate presented for gate two is deflated to a price base dated as September 2020 (20/21) to allow comparison of costs across all SROs.
- There has been no engagement to date with the market for project specific data.
- The estimate does not include any element of costs realised to date.
- Relevant methodologies and green book guidance.

6. The Water Scarcity Group

Currently in Cambridge, the Environment Agency has been objecting to development coming forwards (on water scarcity and environmental impact grounds), even where it has been identified in the Adopted Local Plans for Cambridge City and South Cambridgeshire.

This is affecting over 9,000 proposed dwellings currently, and 300,000 m2 of research space. In addition to the concerns raised about the existing published and adopted levels of growth, in July 2023 the Government announced its plan for Cambridge as part of the levelling up work being undertaken by the Department for Levelling Up, Housing and Communities (DLUHC). These proposals "will see Cambridge supercharged as Europe's science capital" and include development of life science facilities, technological and laboratory spaces as well as additional housing to support the increase in employment.

In order to deliver this, a Cambridge Delivery Group, chaired by Peter Freeman and backed by £5 million, has been established. This group has taken immediate action to convene; the Water Scarcity Working Group, the Environment Agency, Ofwat, Cambridge Water, central and local government and innovators across industries to identify and accelerate plans to address water constraints. The announcement of this also stated "The Group will include all relevant partners to understand what it would take to accelerate building the proposed new Fens Reservoir and enabling Cambridge to reach its economic potential."

Homes England engaged Arcadis to deliver a report into the water scarcity in Cambridge, identifying potential options and solutions. In this report, Arcadis state the potential government ambition is to build an additional 200,000 – 250,000 new homes in the Cambridge Region by 2040 or 2050, which would more than double the size of Cambridge (there are currently circa 140,000 homes in Cambridge). There is also non-household growth in addition to this in order to achieve the ambition regarding science and technology. This report was issued to the water scarcity group on 20th September and discusses various options for Fens reservoir such as:

- Changing the percentage split between Cambridge Water and Anglian Water to enable additional water into the Cambridge Water area
- Acceleration of the Fens reservoir either through streamlining the DCO process and/or including Fens in the accelerated RAPID gate process

Include a bolt on to Fens reservoir to increase storage and yield without delaying the current development

The water scarcity group is moving at pace with recommendations required in time for the Autumn budget which is scheduled for 22nd November. With Fens playing such a key role in the future water resources of the region and the additional aspirations of the Government to significantly increase housing above the current WRMP plan, it is uncertain at this stage what impact this will have on timescales, and therefore costs, for Fens Reservoir until the water scarcity work is completed later in 2023.

7. Our Approach – and why it is fair to customers

As stated previously, due to the current levels of uncertainty we are not including the funding requirements to progress with Fens Reservoir in our core PR24 submission.

We hope that in our dialogue with regulators and stakeholders we have evidenced our commitment to the scheme. Cambridge is one of the fastest growing regions in the country, together with being one of the driest. We are firmly in the view that a surface water storage system is the most sustainable way to supply Cambridge and the region as a whole.

We are confident that with the support of our regulators we can collectively resolve this before the start of the next AMP, therefore still achieving the ambitious delivery timeline for the reservoir.

There are a number of areas which we need Ofwat's support in resolving, but we outline our thoughts on how these can best be addressed below.

Treatment of costs – how we treat the costs, either as capex or opex. From an investor point of view, due to the scale of these assets they will be delivered and owned by an infrastructure provider – they will not increase our company regulated capital value. Therefore, why would any shareholder want to the bare the financial risk of having to fund the capital for the development costs? To date we have treated the £18m of AMP7 spend as capital, our investors have funded this through debt, and this has further stressed our financial resilience – with FFO/Net Debt decreasing by x and AICR. This has meant that our ability to deliver on other initiatives has been challenged, such as defra accelerated spend initiative.

AMP7 Spend	FFO/Net Debt	AMP8 Spend	FFO/Net Debt
Base Metric	9.1	Base Metric	8.3
Metric had we not spent £18m	9.6	Metric with £70m (P50)	7.3
		Metric with £105m (P10)	6.8

We have noticed that across the RAPID schemes, companies are approaching this differently – with a range of capex and opex being proposed. If we treat it as opex there is obviously no impact on our financial resilience as the costs are recovered as they are expensed, as passed through directly into customer bills.

Funding – we believe the reservoir should be funded regionally. With just over 140k bill paying customers in Cambridge funding half the reservoir, both development and ultimately build costs are disproportionately large when compared to what Anglian customers will be paying. A scale factor of over 16 times more. While we appreciate the Cambridge water clean bill is lower than Anglian's, that is a function of history, geography and water sources.

Company	Properties	Ave DI	Current Ave Bill	Impact 50:50	Impact Regionally
Cambridge	140,000	87Mld	c£150	c£100	c£11
Anglian	2,300,000	821Mld	c£202	c£6	c£11

We need think about how our customers will be able to afford the costs post development, and what support mechanisms will be in place. With current construction costs projected to be over £2bn, even regional funding will still pose a significant unprecedented impact on bills, which leads to discussion on national funding models for all critical national infrastructure projects.

Price Control – regardless of the above, we believe this expenditure should be treated outside of the price control – to ensure any uncertainty doesn't affect the core services we provide.

Cost Uncertainty – our experiences this AMP, of unbudgeted cost increases impacting our ability to deliver on other key areas of investment, has made us think hard about the uncertainty we see currently in the AMP8 forecast costs. While we fully understand and subscribe to the need for Ofwat to protect customers and ensure efficient scheme delivery, we are also aware of the pressing need to bring new resources into Cambridge. We believe that an extension of the existing RAPID gate process, with in-period funding adjustments, would enable these projects to be delivered at pace, while still protecting customers through a rigorous gated assessment.

As we have stated we are committed to the project and keen to deliver it at pace that is necessary to enable growth while protecting the environment, whilst also been aligned to the findings of the newly appointed water scarcity group. We appreciate that these are just suggestions on how we could collectively resolve this known challenge. We are keen to maintain the supportive dialogue we have been having with Ofwat on this matter, hopefully, as we have not included within our core PR24 business plan, there are barriers for Ofwat in carrying on with dialogue, i.e. not having to wait until draft determination stage. Once we have some viable options, we will be happy to go out and talk to our customers on this matter, and we will be happy to schedule this in as soon as possible.

Ultimately this significant project is likely to benefit from Government intervention. We see the opportunity to support the progression of this key project through innovative ways which will allow us to provide the water resource required; however, does not burden customers. The development of a Company Limited by Guarantee (CLG) in the mid term may provide the vehicle needed to take this project forward. Whilst customer bills would need to increase to accommodate initially, returns could be shared with customers post the sale of such CLG to a third party for the construction phase post Development Consent Order (DCO).

Appendix 1: Why SIPR is the right delivery vehicle

This section aims to provide an overview of the two key delivery model options, DPC & SIPR, together with views on procurement models. We have worked closely with Anglian Water to get to a collective view on the best delivery vehicle for our strategic resource options.

Direct Procurement for Customers (DPC) was established by Ofwat at PR19 as an alternative delivery approach for large capital schemes. It involves the procurement of a Competitively Appointed Provider (CAP) to Design, Build, Finance, Operate and Maintain (DBFOM) the required infrastructure. The standard length of a DPC contract is around 25 years and after this period the assets are brought back in-house, the CAP is paid through a fixed payment mechanism much like under PFI projects.

The Specified Infrastructure Project Regulation (SIPR) was introduced in 2013 to allow the competitive delivery of the Thames Tideway Tunnel (TTT). Under this model an Infrastructure Provider (IP) develops the asset and owns it for the duration of the asset life, remunerated under a regulatory model. SIPR establishes a new names party for regulatory and legal purposes.

Features	DPC	SIPR	In-house
Scheme eligibility	Discrete projects above £200m whole life totex. Both reservoirs easily pass eligibility.	Of a size and complexity which threatens the undertaker's ability to provider services.	If schemes are not eligible for DPC then they are eligible for in-house delivery.
Legal framework	Licence amendments Allowed Revenue Direction CAP Agreement	SIPR secondary legislation Infrastructure Provider (IP) Project Licence Side legal agreements between the appointee and the IP e.g. Interface Agreement	Normal construction contracts No additional requirements
Contract format	Contract – CAP agreement	Project licence is granted to the IP by Ofwat or Defra.	Normal construction period
Revenue period	25-30 years	Entire asset life	Constructor paid over construction period
Revenue profile/Financing Implications	Fixed Tender Revenue Stream (TRS) (including financing costs) which is paid for by customers and passed to the CAP from the Appointee via the Allowed Revenue Direction (ARD). Provides a flatter bill profile to customers. Residual Value through RCV financed on a 45/55 debt equity basis by sponsors and recovered from customers in the remaining life of the asset.	Development Costs paid for under PAYG basis prior to SIPR appointment, Regulatory building blocks – RCV model. Bill profile will be higher at the start and decline. Cost of Capital and determined through the tender process.	Likely the same as for SIPR. High at the start and declining as per the regulatory building blocks. Owners of the sponsors to finance the construction, 45/55 equity to debt with Cost of Capital consistent with all other PR24 funded capital. Residual Value through RCV financed on 45/55 debt equity basis by sponsors and recovered from customers in remaining life of the asset.

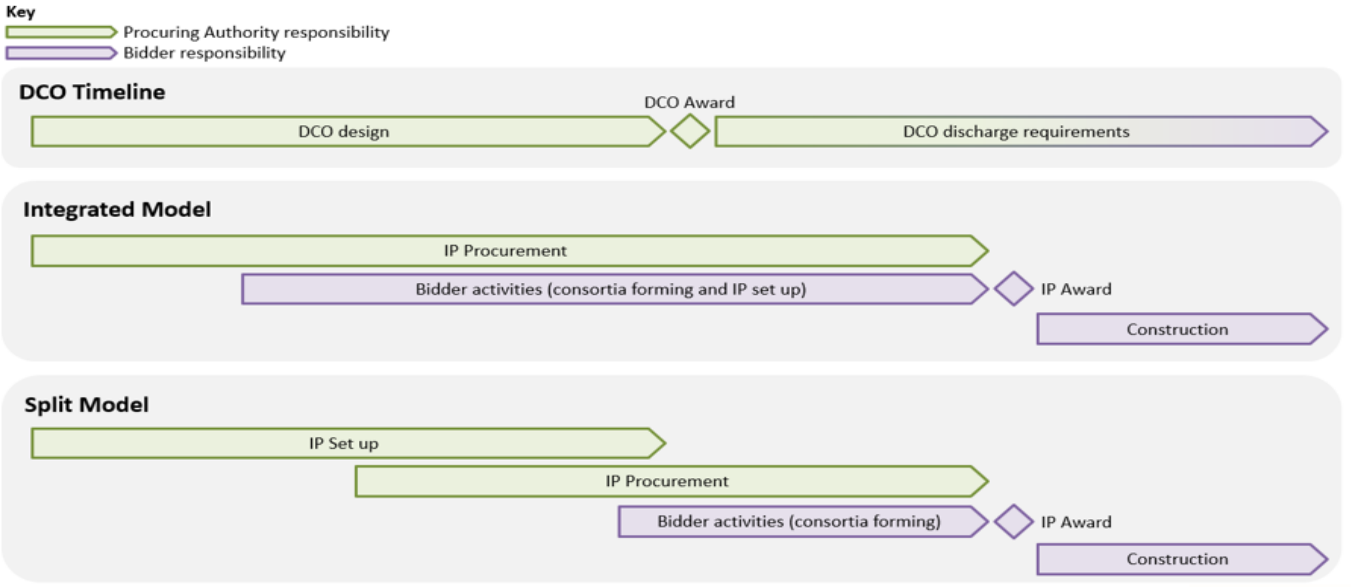
Features	DPC	SIPR	In-house
Residual value payment	Paid at hand back. Could potentially represent a large proportion of the total cost of the project as reservoirs have an asset life much longer than the typical DPC contract length.	N/A	N/A
Tender	Run by the Appointee	Run jointly by the Appointee and Ofwat	Run by the Appointee
Risk profile for Appointee	The Appointee cannot pass their statutory duties to the CAP. Some scope for risk mitigation through contractual arrangements.	IP is totally separate licenced provider who will take on many licence obligations (note: currently undertaking legal analysis to determine if there are any licence obligations which cannot be transferred to the IP).	Assets would be entirely under Appointee control. All obligations would sit with the Appointee. Some scope for risk mitigation under the type of contract used for the build but likely less than for DPC or SIPR.
Accounting treatment	Likely to be recognised as a debt on the balance sheet (operating lease). A great level of control over the CAP may be consolidated in balance sheet.	Payments are made to the IP from the undertaker on a pay when paid basis.	Recognised as an asset on the statement of financial position, with associated depreciation expenses and capital allowances for tax, i.e. unchanged from existing capex.
Market precedent	Complete = None – HARP is going through tender process currently Underway = two more projects nearing tender launch and a large number, 10 to 20, expected to be identified as part of PR24	Complete = TTT – largely viewed as a success and a proven model by Ofwat and the market Underway = only AWS/CAM and Thames have identified schemes suitable for SIPR	Complete = A project of this size has not been completed in house for in recent years Underway = only the Havant Thicket Reservoir

Several options were considered for the delivery of the reservoir. Each option had their own risks and opportunities; however, it was considered that an in-house approach would likely be unallowable from an Ofwat perspective or financeable by current owners. Therefore, only DPC and SIPR options were considered further.

Based on the above, principally due to the size and complexity it was considered that SIPR was the most appropriate model and the suitability case was submitted to Ofwat in Autumn 2022

The late tender model is the precedent for this type of project. The main benefit for using the late tender model is that it allows the Appointees involvement in the development of the project, thus reducing risk and expenditure. However, the early model would be entirely bespoke and come with its own set of issues, some of which are unknown. Therefore, we have assumed that a late model will be progressed for PR24 costing and programme planning. The late model more appropriately recognises the Appointee's ambitions and objectives.

The other decision around what is the best, most effective procurement model is whether to take an integrated or split approach. The diagram below identifies the key stages of each.



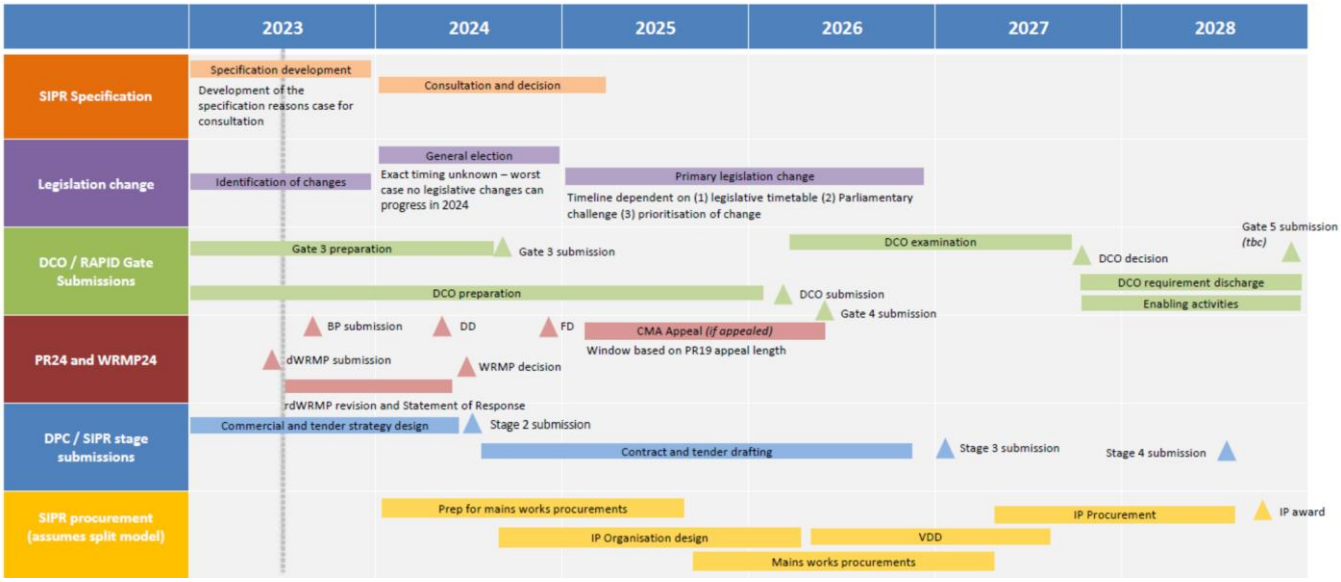
The key difference between the two models is that under the split model there will be a requirement to set up a project company prior to tender and there will be two procurements. Whereas under the integrated model this is not required which reduces the need for vendor due diligence, however it will require bidders to form consortia with financing to participate in the tender.

Features	Integrated	Split
Procurement timeline	Both models can be structured to achieve the same IP award date and therefore model selection will not impact on delivery timelines	
Development cost and cost recovery	Bidders will bear some development costs through completion of IP set-up activities, developing cost estimates, procurement of key contracts and conducting VDD	The Appointee completes the IP set-up activities, develop its own cost estimates and procures all key contracts. The estimated allowance required to deliver these activities maybe ~26% more than the integrated model. The method of cost recovery for development costs is uncertain but may require additional debt and equity to be raised. This may be unfavorable alongside AMP8's sizeable capital programme.
Control	Bidders will package construction activities, procure key contracts and build the IP. The bidders have greater influence over the project capability, governance and values of the IP, which can lead to greater efficiencies.	The Appointee completes the IP set-up activities and can select individual bidders (rather through a consortia) through the IP procurement. Through this, the Appointee can better align the IP's values with its own, and ensure the IP is capacitated. Better alignment of values may support collaboration for future network improvements and transformational initiatives such as Future Fens. The IP will be closely associated with the Appointee's reputation. The ability to select individual bidders can help mitigate reputational risk.

Features	Integrated	Split
Risk allocation	Bidders completes more development activities (see above) and risk allocated away from the Appointee	The Appointee completes more development activities and bears greater development risks. However, the Appointee is likely well placed to manage these risks and can take steps to mitigate their realisation. The Appointee bearing greater development risks will de-risk the project for bidders. In theory, this should result in a lower cost of financing and great value for money.
Value to customers	A single tender is expected to result in fewer transaction costs than under the split model.	In TTT, the split model was believed to generate greater competition by expanding the number of eligible contractors/consortia and therefore deliver greater value to customers. This may or may not be the case for LR and FR.
Market/bidders	Model is widely understood as a structure for PPP. Large contractors and financiers may prefer the integrated model as it allows IP contractors to take a stake in the project company.	The split model has one precedent (TTT), but this is understood and viewed as a success for regulators and investors. It is expected that SESRO will also proceed via the Split model which will support market awareness.
Regulatory engagement	The integrated approach is well understood by Ofwat. The Appointee would need to demonstrate customer value prior to IP award. Having a single scoring system would more easily allow for value to be demonstrated	Ofwat should recognise the split approach from TTT. The Appointee would need to demonstrate customer value prior to IP award. Combining at least two scoring mechanisms may add complexity.

Based on this analysis – that we have undertaken with Anglian Water - we are proposing to progress with Fens SRO as a SIPR scheme, with split later tender model. We believe there is precedent across the sector for this type of approach, and is likely the quickest way we can bring Fens into service.

Current view of timeline



Appendix 2: SUP12

SUP12

South Staffordshire Water

Direct procurement for customers (DPC)

SUP12.1	SUP12.2	SUP12.3	SUP12.4	SUP12.5	SUP12.6	SUP12.7	SUP12.8					SUP12.9							SUP12.10	SUP12.11	SUP12.12	SUP12.13	SUP12.14				
Project name	Relevant control	Base or enhancement?	Business plan table reference	Business plan reference	Assessed as suitable for DPC	Wholelife totex (£m)	Total AMP 8 Project development costs (£m)					Total construction costs (£m)							Annual opex (£m)	Asset type	Asset life (years)	Year operation begins	Total AMP8 DPC related costs (£m)				
							2025-26	2026-27	2027-28	2028-29	2029-30	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP9	Total AMP10					2025-26	2026-27	2027-28	2028-29	2029-30
Fens Reservoir	Bespoke control	Enhancement	n/a	SSC03	SIPR - Yes	3016.190	30.702	6.992	8.835	5.202	0.000									Reservoir	80	2036	6.248	32.752	28.931	19.558	1.425
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Cambridge Water

90 Fulbourn Road
Cambridge
CB1 9JN

Tel: +44 (0)1223 706050

www.cambridge-water.co.uk

South Staffs Water

Green Lane
Walsall
WS2 7PD

Tel: +44 (0)1922 638282

www.south-staffs-water.co.uk