OXFORDSHIRE COUNTY COUNCIL RESPONSE
ON WATER RESOURCES CONSULTATION
DRAFT REGIONAL PLAN FOR THE SOUTH EAST
Consultation closing date: 20th February 2023

Introduction

1. The County Council is responding to the following consultations:
   - Water Resources South East (WRSE) draft regional plan consultation[1] (this response)
   - Water Resources West (WRW) draft regional plan consultation
   - Water Resources East (WRE) draft regional plan consultation
   - Affinity Water's draft Water Resource Management Plan 24 (WRMP24) consultation
   - Thames Water's draft Water Resource Management Plan 24 (WRMP24) consultation

2. This response on the WRSE draft regional plan follows the Oxfordshire County Council response on the emerging regional plan which was sent in March 2022 and is available on the County Council's website with a press release[2]. The County Council also sent officer responses on several earlier consultative documents. Oxfordshire County Council has consistently questioned the water company attempts to progress a proposal for a strategic reservoir in Oxfordshire. In addition to this response, we would refer you to our previous reports and responses and the County Council's resolutions of 10th July 2018 and 2nd November 2021.

Executive Summary

3. Our responses challenge this draft plan and the other draft water resources plans. Some of the bases of future water need calculations are questioned, for example the future population figures. We consider that the draft plans have not prioritised the available options correctly. We are asking that the plans take a 'resilience first' approach recognising the benefits of water catchment management, given climate change, and have policies indicating a preference for low carbon and least environmentally damaging water supply solutions. Existing infrastructure should be used wisely and refurbished. We seek more attention to reducing leakage and reducing demand. We recognise that proposals to bring water into the South East region should be progressed, such as the Grand Union Canal transfer (GUC) and the Severn Trent Transfer (STT) and ask that there be provision for them being brought forward quicker. Water transfers, together with water recycling,

[1] https://wrse.uk.engagementhq.com/
[2] Oxfordshire County Council calls for giant reservoir plan to be scrapped again

desalination and smaller water storage schemes should make up the package of new infrastructure measures needed. We conclude that there is no need for a South East Strategic Reservoir Option (SESRO), which would be environmentally damaging due to its size and location; it would be unduly costly and take overly long to construct, in the meantime 'crowding out' more rapidly-deliverable, climate resilient schemes. Importantly, we also question whether such a reservoir is an effective proposal, given that it would be unlikely to be filled in times of prolonged drought. We consider that provision for the SESRO should be removed from the plans.

4. Oxfordshire County Council's vision is 'working in partnership to make Oxfordshire a greener, fairer and healthier county'[3]. We seek a holistic approach to water management, with solutions that are based in nature and are readily adaptable to the reality of an increasingly water scarce environment.

Key Concerns

5. We find this consultation deeply flawed, through unrealistic assumptions about population and climate change; a lack of clarity over both costs and benefits, particularly of the largest single item, abstraction reduction; and proposals which indicate an uncritical acceptance of wasteful interventions with poor cost-benefit ratios. The regional plan does not reflect what should be an integrated approach to water management and supply.

6. We regard it as unacceptable for WRSE, regulators and water companies to use outdated population projections. Using the 2022 ONS projections based on the 2021 census, we calculate that achieving the population for the preferred pathway modelled in the draft WRSE plan would now require the entirety of the predicted population growth for the whole of England to 2050 to be located in the South East and on top of that for over half a million people to move in from other regions. We have not found it possible to cross-check the projections using the figures given for population, climate and environment in the main document and this lack of clarity is a shortcoming of the consultation.

7. We regret that bill-payers seem effectively to be being asked to sign a blank cheque, with no clear cost-benefit analysis or justification behind the selection of the 'preferred pathway'. We understand the priority to reduce abstractions from chalk streams, but the extent of that needs to be considered in the round with other environmental issues, for example the rest of the river network where there are discharges of raw sewage. It may be that the cost-benefit ratio for the 'high' versus 'medium' environmental pathway is very poor. There is a limit to the amount bill payers can be expected to fund and using those funds to maximum impact is vital. We judge that there will be vast environmental benefits achieved through not discharging sewage into rivers.

8. We are facing a climate emergency. We note the rapid and unexpected acceleration of extreme climate events, in the UK and across the world. We are

[3] See Oxfordshire County Council's vision and strategic plan: https://www.oxfordshire.gov.uk/council/our-vision-0

concerned about resilience of water supplies resulting from an early reliance on the giant reservoir, which is not scheduled to complete until 2040. This crowds out much more resilient and environmentally intelligent projects for the first part of the plan. We consider that the plan should prioritise the transfer of water to this severely stressed South East area from less stressed regions to the North and West. We note that all of the transfer schemes from the North and West connect at least in part to water recycling schemes, giving both geographical and water source resilience. The repurposing of Vrynwy reservoir adds even more geographical resilience, as the west coast of Wales is likely to retain high rainfall even in extreme climate scenarios.

9. We add to our long-term scepticism about the value of the South East Strategic Reservoir Option (SESRO), very serious questions on the proposal to embed an early decision to progress the reservoir. The UK is currently in a situation of historically high levels of uncertainty over both climate impacts and population. It is baffling that such a destructive scheme, both environmentally and in its impacts on local people, should ever have been ranked highly enough to be pre-selected, when the consultation itself notes other schemes such as the Severn Trent Transfer (STT) could deliver more water and earlier, and with greater resilience.

10. Of the 1,150 responses to the emerging WRSE regional plan consultation earlier in 2022, we understand that about half of the responses indicated opposition to the SESRO[4], and we understand that is the unanimous position of those with a local interest, yet this has not resulted in its removal from the draft plan. Too much weight is given to customer surveys indicating that customers might generally prefer reservoirs to some other forms of new infrastructure. We observe across the UK an increase on direct action as a form of protest and are concerned that might happen if the SESRO is progressed. We note an increasing level of frustration among sections the local population which has resulted in destructive and threatening behaviour within Oxford, including some directed at local politicians. We note also that the area whose residents' lives will be blighted by the SESRO is already experiencing a lot of development.

11. Finally, we are disappointed that 'best value' appears to put a very low weighting on public amenity, negative impacts on local people, environmental impacts (except where mandated by other bodies) and use or reuse of existing assets. We believe the plan needs to move from 'best value' appraisal to an approach of 'least risk and least environmentally damaging'.

Key points above:

- The consultation documents and evidence are flawed in their assumptions about population and climate change, there is a lack of clarity over costs and benefits, and the resulting proposals are not sound.
- The draft regional plan does not take on board the outcome of the previous consultations which indicated substantial direct opposition to the SESRO.

[4] See https://www.wrse.org.uk/media/wbdj0jdd/wrse-emerging-regional-plan-consultation-response-document-may-2022.pdf e.g. paragraph 10.16, 14.4.

- The ‘best value’ approach of the draft regional plan is not supported and instead there should be an approach that is ‘least risk and least environmentally damaging’.

Calculation of water need and policies

Need calculations

12. The South East is the most water-stressed region in England and faces bigger issues than the other four regions required to prepare regional water resource plans following a recent government guideline[5]: North, West, East, and West Country.

13. The WRSE six water companies together currently supply some 6 billion litres of water to customers each day. The draft regional plan estimates an additional need for between 1 billion litres and 2.8 billion litres of water per day by 2075. The ‘reported pathway’ is defined as the ‘best value way of meeting the regulatory and policy guidance’ and requires finding an additional 2.7 billion litres of water to supply per day by 2075[6]. We do not accept these figures which appear to be skewed and reflective of much greater population growth than is likely. We consider that the ‘reported pathway’ should be towards the lower end of the estimates at 1 billion litres.

14. Oxfordshire County Council expects the water companies to plan for sufficient water supply. We recognise the absolute need to get the ‘right answer’ and the potentially desperate consequences of failure to do so. We note again our concern that no consideration seems to have been given around ensuring early resilience to unexpectedly rapid climate breakdown. The Oxfordshire Infrastructure Strategy (OxIS) and Local Plans in the county recognise that reliable future water supply is needed. The issue is urgent, exacerbated by historic underinvestment and the climate change emergency. However, the difference between low and high estimates, and their progressive drift out of ONS population ranges we consider to be unacceptable. It seems that the amount of additional water need being forecast is excessive.

15. The WRSE forecast water need figures are based on four drivers, comments on each are as follows:

    - Population growth: We understand these figures were derived by an independent specialist company. However, models are only as good as the input assumptions. The forecast used is outdated and we disagree with its use. The choice of the ‘housing plan’ appears to assume an extra 4.5m people in the South East between 2020 and 2050, whereas the Office of National Statistics 2018 estimates an extra 1.9m people over the same period and the lowest estimate is for only an extra 0.4m people living in the area by 2050. The

[5] Water Resources Planning Guideline Water resources planning guideline - GOV.UK (www.gov.uk)
[6] Page 20 and 21 of the draft WRSE regional plan https://wrse.uk.engagementhq.com/

2021 Census / 2022 ONS projections are for only 4.1 million extra people by 2050 in the whole of England. These differences are further exacerbated in the WRSE plan looking out to 2075. Our view is that it is high time the industry, regulators and government cut through the confusion by publishing models based on the most recent three Office of National Statistics (ONS) projections. It is our reluctant view that a responsible, non-monopoly industry that could not rely on captive customers, would long since have rejected any other figures.

- Environmental improvement through abstraction reduction: There should be a focus on ecologically important chalk streams and reducing abstractions to enable those environments to be rehabilitated. However, we understand that the ratio of the marginal cost and utility of the highest of the three environmental options is very poor, and believe bill-payers would expect this to be weighed against the benefit of an equivalent shift in resources to reducing raw sewage discharges in other rivers. We consider that this plan should push back on any narrow focus and maximalist expectations from regulators. We would be interested in working together or convening interested parties to derive evidence-based recommendations to optimise the health of all rivers. The water companies need to carefully calculate how much water can still be abstracted from rivers, streams and underground sources in locations which are not environmentally sensitive. The draft plan contains unspecified totals for groundwater abstraction and storage; (17 schemes with order of magnitude ranges 0.5 - 5/ 0.5 - 9 Ml/d), making it difficult to assess their potential total impact. These would appear to be schemes which have low impact and high resilience, but which seem scheduled as an afterthought. A ‘resilience first’ approach would reverse that. The table below shows an indicative pathway, derived by bringing forward low impact, high resilience schemes.

- Increasing resilience to severe drought events: The government has a target for a 1:500-year resilience level by 2040. It is accepted that the water company plans must provide for this, but the amount of water needed will be less if individual household water use is reduced and pipe leakage is reduced further from that anticipated by WRSE. Given the acceleration of extreme weather events from climate change (see below), we are extremely concerned about the wisdom of plans that take this length of time to develop resilience. By 2040, global temperatures will be well past 1.5C over preindustrial levels under any feasible emissions pathway. Given the level of extreme weather disturbance including multi-year droughts at the current 1.1C above preindustrial, we urge a complete re-evaluation and reordering of schemes to prioritise those maximising resilience. We find it irrational to contend that a vital component of resilience proposed in these plans is building a reservoir in a seriously water stressed area and hoping reliably to fill it from within that same seriously water-stressed catchment. We fail to understand how such a scheme passes ‘best value’, never mind ‘least regret’ calculations when set against increased recycling or transfers from out of area.

- Climate change: The escalating and unexpectedly severe impacts of climate change are a key reason to provide a more resilient water supply network. The natural world responds in a non-linear manner to temperature change and the rate of heating is likely to increase in this decade for a number of reasons. We

are already seeing 1000+ year events regularly across the world. One of them, the heat dome that affected British Colombia in 2021, would have been a 1 in 150,000-year event before climate change, and will be, globally, a 1 in 10 year event at 2C. The critical resilience test will be dealing with prolonged extreme events such as a sequence of exceptionally dry winters followed by extreme droughts and hot summers. There is no sign that the draft plan has considered what we believe would be the appropriate prioritisation of climate-resilient schemes (especially recycling, water transfers that include recycling / connection to existing reservoirs, aquifer management, and, to a lesser extent, given its high power demands and environmental impacts, desalination). We see this as a fundamental flaw and regard the de facto 'bet' on reservoirs delivering in the late 2030s/ 2040s as complacent, short-sighted, and backward-looking.

16. The combination of the above leads us to conclude that the draft plan fails adequately to address major, glaring risks for three main reasons:
    a. The first is the persistent folly of greatly overestimating population growth.
    b. The second, that of badly underestimating the pace, unpredictability and degree of climate change in the period out to 2040. This leads to prioritisation errors and failure to prepare early enough for extreme weather disturbances.
    c. The third (related to the second) is prioritising a 'best value' over a 'lowest risk' or 'least regret' way of assessment. We believe that the potential for crystallisation of catastrophic risks strongly militates towards a risk-based methodology.

17. This leads to two serious potential outcomes in future:
    a. First, that water needs will be greatly over-estimated, and the cost of completely unnecessary infrastructure loaded onto fewer bill-payers.
    b. Second (and conversely) that there is a potentially catastrophic and difficult-to-quantify risk of unpredictable extreme climate-related disruption to supplies in the next two decades.

18. If realistic water need estimates and risk-averse climate projections are used, there will be (i) less need for a significant amount of additional infrastructure, with all its associated financial costs and environmental costs including carbon costs, and (ii) a very different build-out schedule, emphasising early delivery of the most resilient sources of water as indicated in the table below.

19. We have some sympathy for the industry in its attempts at prediction at the current juncture. We note that the uncertainties around both population growth and climate change are currently very great: (i) The next set of local plans, which are in development across the region, will factor in the impacts of Brexit, the pandemic, supply chain disruption from the Ukraine war, other geopolitical and climate-related realignments and the last four ONS reports, which have serially decreased estimates of population growth; (ii) The latest climate models suggest a wetter future for the UK and the next generation climate models, added to other advances in predictive and explicative analysis, will reduce the uncertainties around likely weather patterns as well as provide much sharper understanding of the probability and nature of extreme events. However, despite the draft plan

being badged as an ‘adaptive plan’, it does not appear to be adaptive to the changes predicted.

Table – Example comparing bringing forward schemes for additional water supply resilience						
Example of the WRSE resilience pathway (Ml/d)				Example of a ‘Resilience Max’ scenario (Ml/d)		
	By 2035	2035-2075		By 2035	2035-2050	Notes
Water use	700			700	-	As the proposed target is already demanding, no change is proposed in this scenario.
Water recycling	50	162		212	-	The targets are brought forward in time to before 2035 in this scenario. This will rapidly maximise resilience and is a low regret path, as increased recycling is anyway envisaged in the draft plan.
Desalination	0	102		35	-	In this scenario, desalination is not relied on as much before 2050, but some schemes are brought forward earlier.
Transfers	50	198		210	130	Transfers such as the Grand Union Canal and Severn Thames Transfer are prioritised early in this scenario, and the total amount of the transferred water is increased.
Groundwater	18	51		69	-	The targets are brought forward in time to before 2035 as the groundwater schemes are considered to have low negative impacts.
	Total by 2035 = 818 Ml/d			Total by 2035 = 1,226 Ml/d		

Policies

20. Oxfordshire County Council sought at the emerging regional plan stage that WRSE adopt principles or policies to prefer low carbon and least environmentally damaging water supply solutions. This draft ‘best value’ plan does not include such policies, and indeed flies in the face of them. Over the intervening period, our understanding and concern about climate risks has greatly increased. The plan should explicitly prioritise solutions that give maximum resilience to unexpected and unpredictably severe water shortages in the short as well as medium term. Secondary to this, we repeat our preference for policies to use existing or refurbished infrastructure, followed by a preference for infrastructure which is underground, as the environmental effects tend to be limited to construction. Restorative and low-impact schemes should also be prioritised over complex engineering solutions.

21. The consequence of not including these policies is a reliance on individual strategic resource options put forward by water companies, rather than a whole-system approach which is adaptive to change.

Key points above:

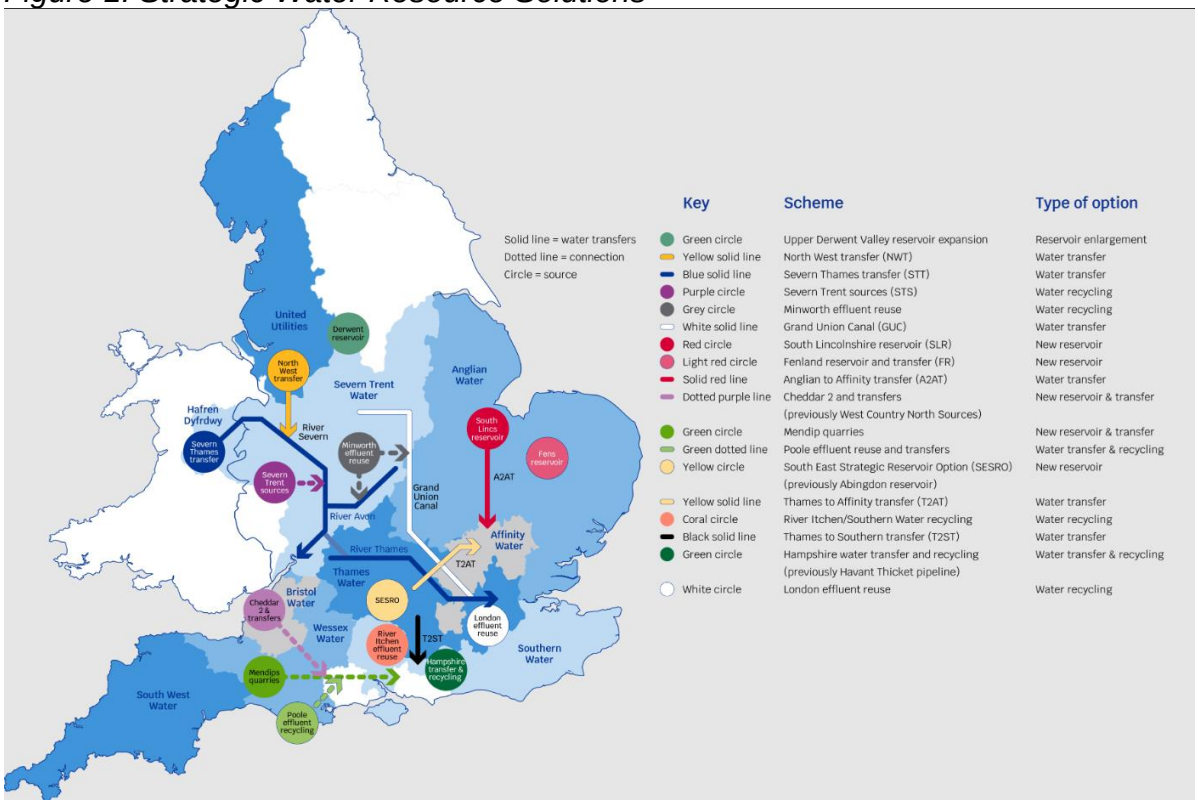
- The WRSE draft regional plan water need calculations are too high. All the pathway options should include lower figures and the selected pathway in the plan should be for close to the lower end of the current estimates at 1 billion extra litres per day by the end of the plan period.
- The plan fails to factor in the possibility of severe disturbances to weather patterns before 2040 (by which time we would expect global average

temperatures to be significantly beyond 1.5C over preindustrial). We are of the opinion that conditions of 'Radical Uncertainty' strongly militate towards a 'resilience first' approach.

- The plan should have policies indicating a low carbon approach with a preference for existing or refurbished infrastructure, followed by a preference for infrastructure which is underground. Restorative and low-impact schemes should be prioritised over complex engineering solutions.

Strategic Water Resource Solutions

Figure 1: Strategic Water Resource Solutions[7]



Key	Scheme	Type of option
Green circle	Upper Derwent Valley reservoir expansion	Reservoir enlargement
Yellow solid line	North West transfer (NWT)	Water transfer
Blue solid line	Severn Thames transfer (STT)	Water transfer
Purple circle	Severn Trent sources (STS)	Water recycling
Grey circle	Minworth effluent reuse	Water recycling
White solid line	Grand Union Canal (GUC)	Water transfer
Red circle	South Lincolnshire reservoir (SLR)	New reservoir
Light red circle	Fenland reservoir and transfer (FR)	New reservoir
Solid red line	Anglian to Affinity transfer (A2AT)	Water transfer
Dotted purple line	Cheddar 2 and transfers (previously West Country North Sources)	New reservoir & transfer
Green circle	Mendip quarries	New reservoir & transfer
Green dotted line	Poole effluent reuse and transfers	Water transfer & recycling
Yellow circle	South East Strategic Reservoir Option (SESRO) (previously Abingdon reservoir)	New reservoir
Yellow solid line	Thames to Affinity transfer (T2AT)	Water transfer
Coral circle	River Itchen/Southern Water recycling	Water recycling
Black solid line	Thames to Southern transfer (T2ST)	Water transfer
Green circle	Hampshire water transfer and recycling (previously Havant Thicket pipeline)	Water transfer & recycling
White circle	London effluent reuse	Water recycling

22. Figure 1 is a diagram dated August 2022 of the strategic water resource options being considered in England. Strategic water resource options are large schemes designed to deal with more than local water needs. Submissions have been made to the Regulators' Alliance for Progressing Infrastructure Development (RAPID) as part of a gated process. The most recent submissions were made in November 2022 at 'gate 2'[8]. Some of these are discussed further in this response below. The gate 2 submissions listed on the RAPID website at the time of writing are:
    i. Anglian Water to Affinity Water Transfer (A2AT)

[7] Diagram of proposed solutions as at August 2022 https://www.ofwat.gov.uk/regulated-companies/rapid/the-rapid-gated-process/

[8] 12 strategic water resource solution submissions at gate two are available at: https://www.ofwat.gov.uk/regulated-companies/rapid/the-rapid-gated-process/gate-two/

ii. Fenland Reservoir
iii. Grand Union Canal Strategic Transfer (GUC)
iv. London Water Recycling
v. Minworth Water Recycling
vi. Severn to Thames Transfer (STT)
vii. Severn Trent Sources (STS)
viii. South East Strategic Reservoir Option (SESRO)
ix. South Lincolnshire Reservoir
x. Thames to Affinity Regional Transfer (T2AT)
xi. Thames Water to Southern Water Transfer (T2ST)
xii. North West Transfer
xiii. Poole effluent recycling and transfers (not available at the time of writing)
xiv. Cheddar Two Reservoir (not available at the time of writing)

The South East Strategic Reservoir Option (SESRO)

Size

23. Figure 2 is an indicative masterplan for the South East Strategic Reservoir Option (SESRO) taken from the gate 2 main report lodged with the Regulators Alliance for Progressing Infrastructure Development (RAPID) on 14th November 2022. The indicative masterplan is for a bunded reservoir capable of holding 150 million cubic metres (Mm^3) of water. It would be located, as shown on the figure, between East Hanney, Steventon, Drayton, Marcham and Abingdon and cover an area of almost 7 km^2.

24. The draft WRSE plan sets out proposals for a SESRO in each of three alternative defined 'pathways' at a size to hold 100 Mm^3 of water. This size is less than that in the emerging plan consultation earlier in 2022, and the size on which the gate 2 reports to RAPID were prepared in respect of, where 150 Mm3 was referred to.

25. The possibility of some reduced effects from the reduction in size is welcome. There is a conceptual design drawing of the 100 Mm3 option contained as A.3 in Appendix 3 of the gate 2 SESRO concept design report. In that conceptual design the reservoir covers less land than the 150 Mm^3 option. Significantly less land is indicated in the conceptual design for a 75 Mm^3 option, contained in the same appendix.

26. At 100 Mm3 this remains the largest reservoir being proposed anywhere in the country and the scale is of concern. These concerns are not new as 100 Mm3 was the size proposed at the time of the public inquiry in 2010. The next largest reservoir proposals are The Fens and South Lincolnshire proposed reservoirs in the Water Resources East (WRE) area, discussed later in this response, which are both identified for 55 Mm^3. The other five new reservoir proposals in the WRSE area are comparatively small. While the 100 Mm^3 option is clearly better than the 150 Mm^3 option, we consider that the 100 Mm^3 option remains as an overly large size, covering too much land close to East Hanney and Steventon, and continue to question whether, were more realistic and evidence-based input assumptions used, there would be any need for a reservoir at all.

Figure 2: SESRO 150 Mm³ Indicative masterplan[9]

Effectiveness

27. The 100 Mm³ reservoir would be designed to provide for up to 185 Ml/d of water into the network, partly via pipeline and partly via return to the River Thames and subsequent abstraction. (The option of a 150 Mm³ reservoir has been referred to as providing for up to 270 Ml/d of water.)

28. Reservoirs such as this fill in the winter and are used in the summer. This reservoir will not be able to be filled during periods of prolonged drought which continue through a winter. At times the reservoir could be rapidly emptied. The SESRO is therefore unlikely to be able to reliably provide a source of water and be an effective option in terms of resilience to future drought.

Time to construct

29. We are extremely concerned that the opportunity cost of the water companies making an early choice for this massively destructive prestige project, is that risks to water supplies remain at unnecessarily high levels throughout its development, as it 'crowds out' multiple smaller, and / or much more resilient, more diverse, more

[9] Indicative masterplan as shown on page 10 of the Gate 2 SESRO main report available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/regional-water-resources/south-east-strategic-reservoir/gate-2-reports/SESRO-Gate-2-Main-Report-FINAL.pdf

rapidly deliverable schemes. This can be clearly seen in the consultation document schedules, where highly resilient, low environmental impact recycling, natural enhancement and transfer schemes are delayed or scheduled almost at random. We note a global trend towards unexpectedly severe events, sometimes over multiple years. We note the expected acceleration in global temperature rises through this decade and the 'Radical Uncertainty' associated with the departure of our Earth system from any conditions in recorded (or even unrecorded) human history.

30. A Development Consent Order (DCO) needs to be sought through the National Strategic Infrastructure Project (NSIP) process and, should consent be granted, construction will then commence. The SESRO project delivery plan[10] anticipates baseline survey work and EIA scoping in 2023 leading to a DCO being awarded in 2028, construction commencing on site in 2029 and continuing to around 2037 with the project completed and commissioned by 2038.

31. Given the complexity of the consent process, the need to purchase land, likely opposition to the proposal, and the lengthy construction timeline, the SESRO does not offer an early solution to water supply issues. Indeed, the water companies will likely have their time and financial resources inappropriately directed to this project when other options could more quickly and sustainably meet the need for future water supply.

Completion date

32. The WRSE draft plan requires the SESRO to be built ready to provide water from 2040. Given the consent process and construction time, this means that a very early decision must be taken to proceed with this massive project, and therefore the plan is not adaptive or responsive to change on this point.

33. The 2040 completion date also means that the SESRO will have a higher carbon footprint than if it was constructed at a later date, because the national electricity network has not yet been decarbonised, and construction vehicles will still be petrol or diesel powered.

Environmental Effects

34. The SESRO is located in an area adjoining two settlements (East Hanney and Steventon), and in close proximity to other settlements (e.g. Drayton, Marcham and Abingdon) and therefore will impact on many more people than more rural reservoirs.

35. Oxfordshire County Council has formed some views on the SESRO over the several years that it has been proposed. In addition to concerns about the carbon footprint, including the embodied carbon of construction materials and activities, environmental concerns include:
    - Significant disruption in the area due to construction effects over a long period.

[10] See F-1 Project Delivery Plan for SESRO https://affinitywater.uk.engagementhq.com/strategic-resource-options

- Impacts on the landscape e.g. as a result of bunds of 15 to 25m above ground.
- Impacts on the amenity of those living nearby.
- Impacts from traffic including congestion and air quality issues.
- The need for active travel and public right of way connections.
- Whether it is possible to create and use a railway siding to reduce road impacts.
- How the Hanney Road / Steventon Road will be diverted.
- What the proposal means for flood risk in the area.
- Water quality including potential for algae growth.
- Impacts on archaeology.
- Impacts on biodiversity, including protected species.
- The level of biodiversity net gain to be provided for.
- How recreational benefits would be secured.
- How the Wilts & Bucks canal might be restored.
- The potential to replace existing solar farms on the land.

36. These environmental effects mean that obtaining a Development Consent Order for the SESRO through the NSIP process run by the Planning Inspectorate should be difficult to achieve.

Cost to construct

37. The huge cost of the SESRO and the related pipelines (some £2 billion) is disproportionate to other lower cost options. The opportunity cost in failure of resilience both during and following construction is also high.

38. The SESRO cost report indicates that the SESRO would cost approx. £1,244m to construct[11]. Transfer pipelines to Affinity Water and Southern Water would cost an additional £368m to £455m[12] and £340m to £590m[13] respectively.

Ongoing operation costs

39. Although the SESRO is reported by the water companies as having lower running costs than some other options, it will have ongoing operation costs such as for pumping water and maintaining the facilities. A full examination of the ongoing operation costs is likely to show that the SESRO is not a good option compared to many other options. It is not clear, for example, that the ongoing costs of maintaining facilities at the reservoir have been fully accounted for. Conversely, it may be that the ongoing operation costs of some of the other options have been over-inflated, for example the Severn-Trent Transfer (STT) may have lower ongoing costs than estimated due to the likely usage being less than accounted for.

[11] Base capital cost in Table 2.1 of SESRO cost report https://www.thameswater.co.uk/media-library/home/about-us/regulation/regional-water-resources/south-east-strategic-reservoir/gate-2-reports/A-2---SESRO-Cost-Report.pdf
[12] Cost in Table 3.1 of A2a-T2AT cost report https://www.thameswater.co.uk/media-library/home/about-us/regulation/regional-water-resources/water-transfer-from-thames-water-to-affinity-water/gate-2-reports/A2a--T2AT-Cost-Report-LTR.pdf
[13] Costs in Table 2.1 and 2.2 of T2ST cost report https://www.thameswater.co.uk/media-library/home/about-us/regulation/regional-water-resources/water-transfer-from-thames-water-to-southern-water/gate-2-reports/T2ST-Gate-2-Annex-A4---Costs-and-Carbon-Report.pdf

Lack of clarity on how the water will be shared and effects of related pipelines

40. The SESRO is a joint proposal from Thames Water and Affinity Water. Operating decisions on how the water would be shared are not clear.

41. The SESRO proposal involves a pipeline for some 3km from and to the River Thames at Culham from where the water will be abstracted at times of high flow and returned at other times to be re-abstracted closer to London for Thames Water customers there.

42. The proposal has in the last few years, also been identified to serve Affinity Water customers in London, with a pipeline further east on the River Thames. This transfer is known as the Thames to Affinity Transfer (T2AT) and is anticipated to provide for up to 100Ml/d. The gate 2 documents submitted in November 2022 indicate that the likely location of a pipeline between the River Thames and the Affinity Water area dependent on SESRO, would be from a location near Slough, travelling then 14km north to the Harefield area.

43. More recently, a proposal has been developed to transfer water south in a pipeline starting at the pumping station for the reservoir i.e. near Drayton on the west side of the A34. A new water treatment works would also be located here to treat the water prior to transfer. This transfer is known as the Thames to Southern Water Transfer (T2ST) and is anticipated to provide the Southampton area with up to 120 Ml/d. However, such a transfer would not normally be required, instead the pipeline would normally only be operated at a minimum flow[14]. This 50-mile carbon intensive construction, designed only for occasional use running from the centre of England to a sea port begs the question of how it can possibly be seen as preferable to local desalination and further water recycling schemes being developed close to where the water is needed. Oxfordshire County Council would also have local concerns given construction effects, not least as we understand the pipeline would route through an Area of Outstanding Natural Beauty.

44. Thames Water has also identified potential spur connections from T2ST to provide support to areas around Newbury, Reading and Basingstoke and although these are not included in the WRSE draft regional plan, it is understood that potential will be kept under review[15].

45. There is a possibility that some of the water from the reservoir might be used in Oxfordshire, if there is additional infrastructure to enable that.

46. Thames Water, Affinity Water and Southern Water customers might be seen as competing for the water. It is clearly not possible to have a transfer of 100Ml/day to Affinity Water, 120Ml/day to Southern Water and some 100Ml/day returned to the river for Thames Water customers in London all at the same time, sourced by

[14] See Section 4 scheme operation of T2ST https://www.southernwater.co.uk/media/7734/t2st-gate-2-annex-a3-concept-design-report.pdf
[15] Paragraph 3.4.1 of T2ST https://www.southernwater.co.uk/media/7734/t2st-gate-2-annex-a3-concept-design-report.pdf

the SESRO, given the suggested capacity is 185Ml/day. Even if the figures are interpreted to understand that there might be differing amounts of water transferred depending on which company has more need at a particular time, there would remain an issue of competing demands particularly in times where drought affects more than one area.

47. Other options can be progressed to provide water elsewhere. These are discussed below in this response.

Key points above:

- While the 100 Mm^3 size is better than the previously suggested 150 Mm^3 size, it is still much bigger than other reservoirs and too large in this location.
- The SESRO effectiveness is queried, given that in times of drought it will be difficult to fill and rapidly emptied.
- The lengthy construction timeline means that the SESRO does not offer an early solution to water supply issues. It's pre-selection crowds out early prioritisation of more resilient, lower risk options.
- Building the SESRO before other options means the plan is not adaptive or responsive on this point, and it will have a higher carbon footprint than if it was built later.
- The SESRO will have significant and potentially unacceptable environmental effects.
- The build cost of the SESRO and associated infrastructure is high.
- The SESRO will have ongoing operation costs, which appear not to have been factored in correctly or accurately compared with other options.
- The SESRO is designed to enable transfers of water to other areas in the South East, but it may be that those areas have other better options to utilise.
- Given the concerns, the SESRO should be removed from the WRSE regional plan and the company plans, and not pursued as a strategic resource option.

Options that don't involve new infrastructure

Reducing leakage

48. WRSE is aiming to reduce leakage by 51% between 2017 and 2050 in accordance with the 50% reduction expected by the National Framework for Water Resources 2020[16]. Significant water savings will be achieved from this. However, there remains scope to reduce leakage faster and by more.

[16] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/872759/National_Framework_for_water_resources_main_report.pdf

49. The information provided in the WRSE draft regional plan[17] indicates that the leakage rate for Thames Water will still be high in 2050. With five companies in the South East, the anticipated leakage reduction between 2017 and 2050 leads to rates of between 32 and 42 litres per property per day, but for Thames Water it still leaves a rate of 66 litres. If Thames Water were to achieve a lower rate there would be a quantifiable reduction in the need for new strategic water resource options. We understand that the Group Against Reservoir Development (GARD) has prepared calculations of the possible water savings, and they should be considered for inclusion in a revised regional plan.

Reducing demand

50. The National Framework for Water Resources 2020 requires the regional water resource groups to contribute to a national ambition on average per capita consumption of 110 litres per person per day (l/p/d). The WRSE draft regional plan has an overall target of 115 l/p/d at 2050. The targets of the six companies are as follows: Affinity Water 113 l/p/d, Portsmouth Water 109 l/p/d, SES Water 106 l/p/d, South East Water 107 l/p/d, Southern Water 106 l/p/d, Thames Water 121 l/p/d. If Thames Water were to do more to help customers reduce their water use to achieve around 110 l/p/d there would be a quantifiable reduction in the need for new strategic water resource options and GARD has also prepared calculations of this. The other regions in England have addressed this matter in their draft regional plans as follows: West – assumes that the 110 l/p/d target will be met; East – assumes that government policy support will help reduce household per capita consumption to 110 l/p/d; North – indicates they are set to achieve the 110 l/p/d target; West Country – assumes that the 110 l/p/d target will be met. The WRSE regional plan should be based on achieving an average per capita household consumption of 110 l/p/d soon.

51. In September 2022, Ofwat published a review of the water companies' environmental incentives to support more water efficient new homes. The review indicates that much more can be done by companies[18]. Reducing the average household use of water by a substantial amount quickly can be achieved through a combination of factors; our comments on some factors are below:

- Products that use less water: The government has recently carried out a consultation aimed at mandatory water labelling[19]. There is scope for water companies to do more, for example by providing information about and supporting the use of the most water efficient taps, showers, toilets, dishwashers and washing machines.

- Regulation to ensure that new homes and retrofits are built with the most water efficient appliances: There is scope for water companies to do more to lobby

[17] See page 26 of WRSE draft regional plan https://wrse.uk.engagementhq.com/our-draft-best-value-regional-plan
[18] Ofwat review of environmental incentives to support more water efficient new homes https://www.ofwat.gov.uk/wp-content/uploads/2022/09/Environmental_incentives.pdf
[19] Government consultation on mandatory water efficiency labelling, closed 25 Nov 2022 https://www.gov.uk/government/consultations/uk-mandatory-water-efficiency-labelling

government to bring about measures such as tighter water efficiency requirements in building regulations.

- Innovative garden towns and other strategic developments: There is scope for water companies to support more innovation, for example with developments having a circular water strategy with water being cleaned, recycled and reused within the development.

- "Net-Zero water" developments and water storage: There is scope for water companies and local authorities to work together on planning requirements for storage in or around new homes and to retrofit existing dwellings. They can also help supply containers for storing rainwater for use in public parks as well as individual gardens.

- Education and information: People can change propensities to lengthy showers, deep baths, half-empty washing machines etc through the receipt of good information detailing ways in which to save water. There is scope for water companies to undertake public information campaigns and support the take up of smart water meters to identify levels of water use.

- Tariffs: Charges structured to penalise those who use excessive amounts of water could help to reduce such demands. There is scope for water companies to investigate the potential for such structured tariffs and for collaboration with local authorities and MPs to lobby the government for changes in legislation required.

52. Oxfordshire County Council is willing to play its part in helping encourage a reduction in water use and would be prepared to explore opportunities to work with local authorities and the water companies. We know that Thames Water runs an exemplary scheme to persuade developers to reduce water demand, improve onsite storage and even aim for water neutrality by contributing to retrofit of existing dwellings and is also rolling out compulsory smart meters with commendable rapidity, and taking an innovative and aggressive approach to tracing and fixing leaks. We believe that a committed partnership approach across the entire region would be effective in reducing demand for water, improving the robustness of the projections used in this process.

Temporary Use Bans

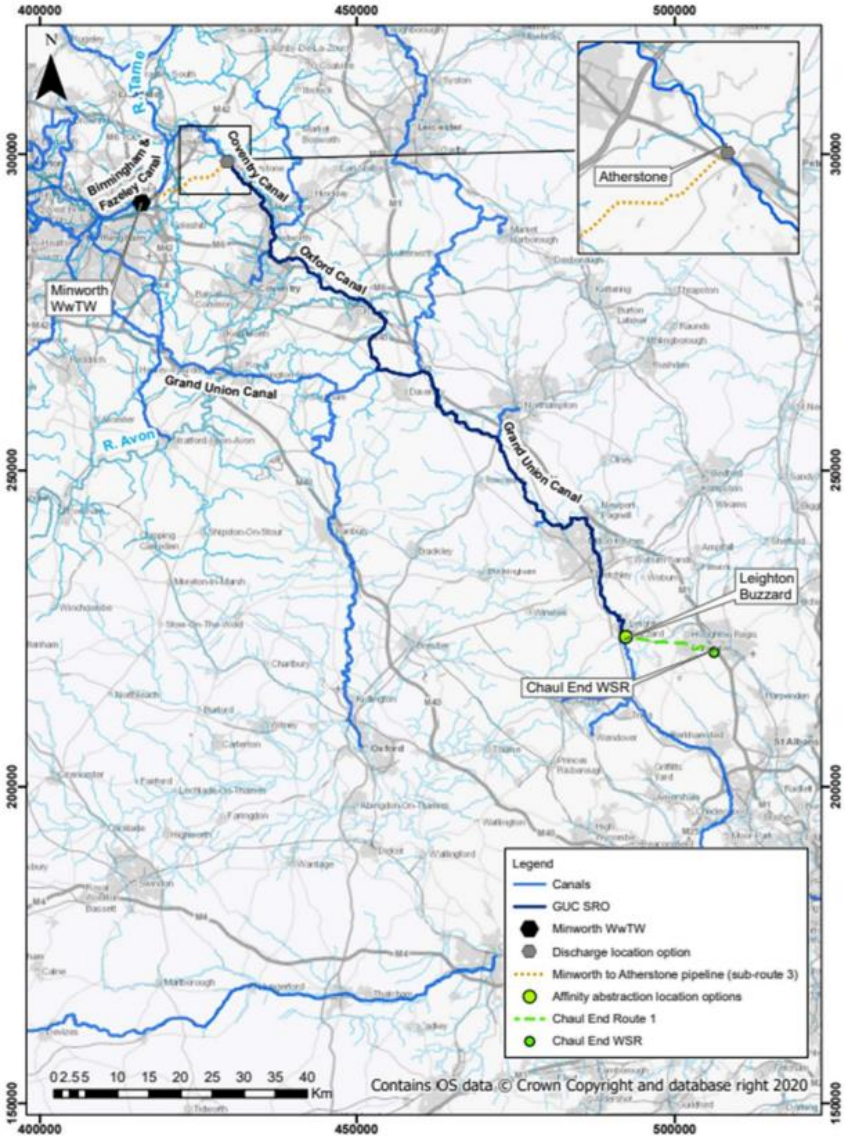
53. It can be appropriate to constrain water use at certain times, reflective of the need for behaviour change during extraordinary events. Temporary use bans, or 'hosepipe bans' can be largely accepted by the public during drought.

Key points above:

- The WRSE regional plan should require Thames Water to reduce leakage further and faster and amend its targets accordingly.
- The WRSE regional plan should be based on achieving 110 l/p/d on average by 2050 rather than 115 l/p/d. Additional work should be done to ensure that can be achieved, particularly in the Thames Water area.

The Grand Union Canal Transfer (GUC)

Figure 3: Map of Grand Union Canal Transfer[20]



54. The WRSE draft plan requires a scheme to transfer water from the West region to the South East via the Grand Union Canal. Oxfordshire County Council strongly advocated for further consideration of this option in our response to the emerging regional plan. We are pleased that the proposed Grand Union Canal transfer has been given greater priority and an earlier start date in this draft regional plan than in the emerging regional plan where it was provided for only post-2040 and only in the high pathway.

[20] Scheme layout from November 2022 Gate Two GUC submission https://www.severntrent.com/content/dam/sros-gate-2-documents/guc/GUC-Gate-Two-Submission-111122-Redacted.pdf

55. The GUC scheme now involves transferring water from Minworth wastewater treatment works in the West via the Coventry Canal, Oxford Canal and Grand Union Canal to Affinity Water in the South East, supplying Affinity Water customers with up to 50Ml/d by 2031 and a further 50Ml/day by 2040 to 2050 as shown on Figure 3.

56. The detailed information available on the strategic resource option indicates that that if demand management targets are met across the South East region, the Grand Union Canal transfer is required in a phased approach. If they are not met, the full proposal providing for 100Ml/day is likely to be required in a single phase[21]. The same information also indicates that the phased scheme would have a construction timeline of four years for the first phase and two years for the second phase, making it a relatively quick win. The proposal is said to be on schedule to go through the Development Consent Order (DCO) process and be construction ready by 2027 therefore enabling water transfer by 2031.

57. Elements of the Grand Union Canal would be upgraded as part of this, for example increasing canal bank and towpath levels at certain locations, and there would be new pipeline connections at either end.

58. The GUC option sensibly uses an existing canal resource to get water from the Midlands to London. It is understood that the option is supported by the Canal & River Trust and there would be benefits from upgraded facilities, flood alleviation, habitat creation etc.

59. The proposed location for new abstraction and treatment facilities at the southern end is in Leighton Buzzard in Hertfordshire.

60. Severn Trent Water and Affinity Water are jointly promoting this water supply option. The route does not go through Oxfordshire. It enables Affinity Water to have a different new source of water than that from a pipeline from the River Thames i.e. the Thames to Affinity Transfer.

61. Given that the source of the water is to be treated wastewater from the Minworth Waste Water Treatment Works, it is an option which is resilient to drought because wastewater is produced and fed into the Works under all conditions.

62. Oxfordshire County Council supports the GUC proposal.

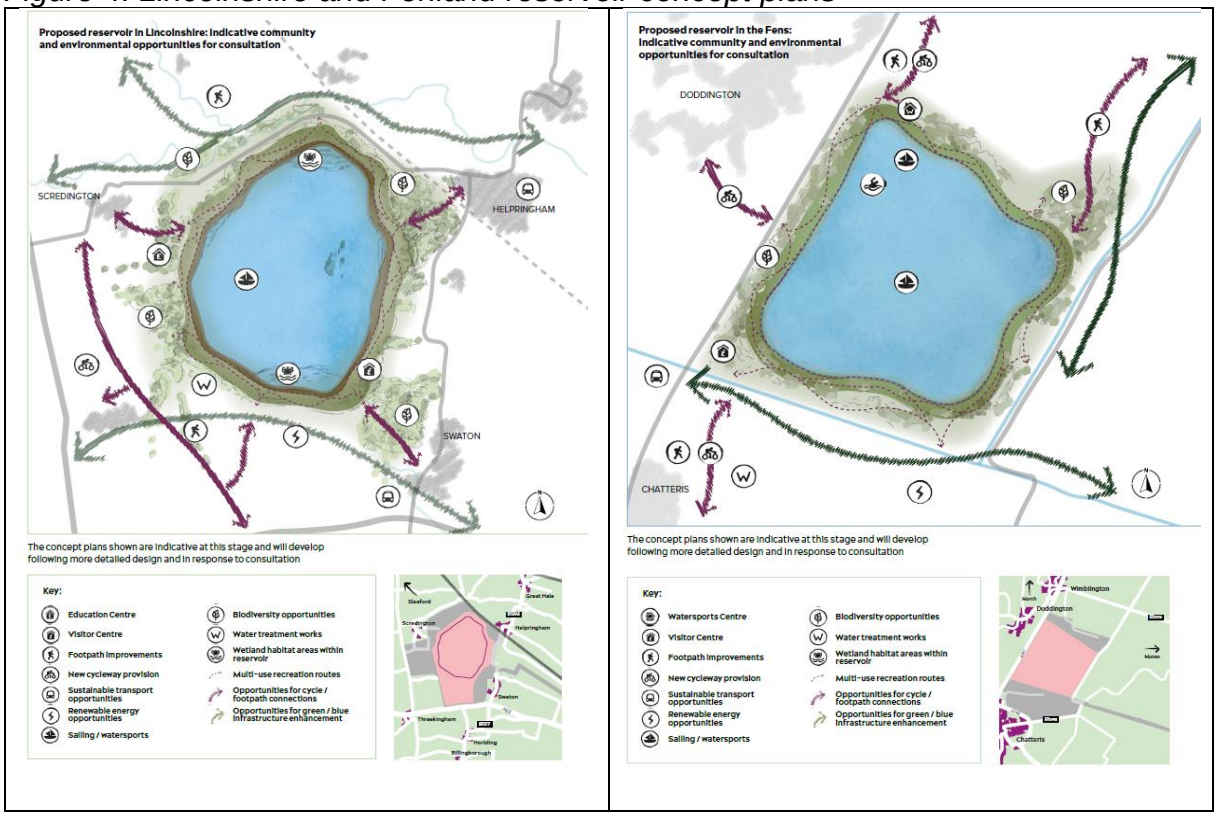
Key points above:

- The GUC proposal is supported as it brings new water into the South East, utilises existing canal infrastructure, can be constructed quickly, is resilient to drought, and is an alternative for Affinity Water to sourcing water from the River Thames via SESRO. The early timeline is also supported.

[21] Information from paragraph 4.13 of GUC Gate 2 submission: Strategic Resource Options | Affinity Water Have your say (engagementhq.com)

Reservoirs in Lincolnshire and Fenland and transfers from them

Figure 4: Lincolnshire and Fenland reservoir concept plans[22]



63. Two reservoir proposals in Lincolnshire and Fenland have progressed significantly since the emerging Water Resources East (WRE) regional plan consultation early in 2022. The individual proposals have been subject to consultations to 21st December 2022 which include the concept plans shown in Figure 4.

64. Both new reservoirs are identified as having the capability to hold 55 Mm^3 of water and the sites are in rural areas. The proposed Lincolnshire reservoir location is south-east of Sleaford in North Kesteven District, the water surface area to be some 5 km^2, and the deployable output some 166 Ml/day. The proposed Fens reservoir location is north of Chatteris in Fenland District, with a water surface area also of some 5 km^2, but a deployable output of some 87 Ml/day.

65. Both reservoirs are expected in the WRE draft regional plan to be in supply by 2040. A Development Consent Order (DCO) application is expected to be made in 2025 to enable this timeframe.

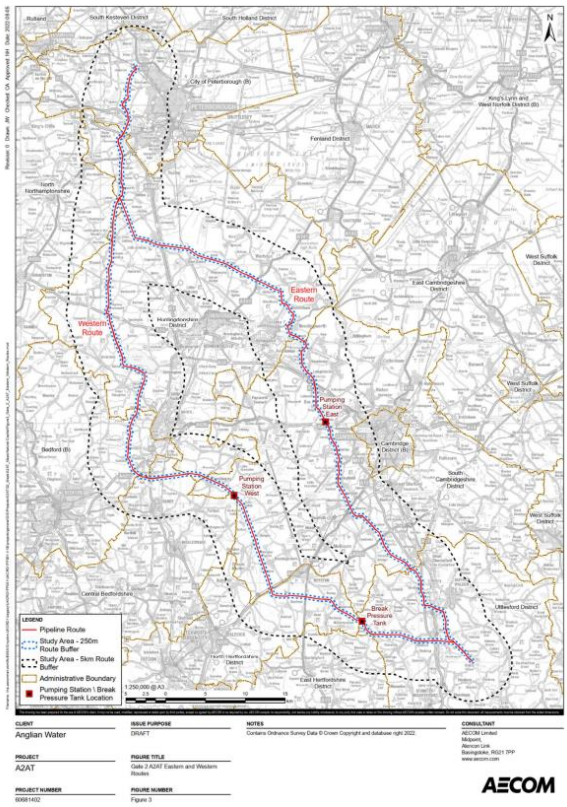
66. Oxfordshire County Council asked at the emerging WRE plan stage that there be a pipeline from Eastern England to Affinity Water in the South East in recognition

[22] See: https://www.fensreservoir.co.uk/our-proposals/our-proposed-site/ and https://www.lincsreservoir.co.uk/our-proposals/our-proposed-site/

of these new reservoirs, in particular the ability to transfer water from the Grafham Water reservoir once the new South Lincolnshire reservoir is constructed. Such a pipeline, transferring between 50 Ml/d and 150 Ml/d of potable water is reflected in the strategic resource option known as the Anglian to Affinity Transfer (A2AT) referred to in Figure 1 of this response. However, the gate 2 submission from Anglian Water made public in November 2022[23] makes it clear that they do not want to proceed with the option to transfer water to Affinity Water's London area. Instead, they want to keep the water in the Water Resources East region. It is therefore the intention that Affinity Water will cease to be a partner, and a pipeline proposal be developed for gate 3 only as far south as Grafham Water in Cambridgeshire. This proposal is reflected in the WRSE and WRE draft regional plans as well as the draft company WRMP24s.

67. However, such a pipeline would give Affinity Water another potential source of water and reduce the reliance on the schemes delivering water from the Water Resources West region and/or the SESRO. The A2AT gate 2 submission report acknowledges that a pipeline to Affinity Water would enhance the connectivity and resilience of Affinity Water's overall supply network. Two route options were considered for gate 2, a western and an eastern route, with the western, which links with Grafham Water, appearing to be favoured. Figure 5 shows the two route options.

Figure 5: Map of Anglian to Affinity Transfer pipeline route options[24]



[23] See A2AT Gate 2 Submission Report final https://affinitywater.uk.engagementhq.com/strategic-resource-options

[24] See Figure 3 of A2AT Natural Capital Assessment report https://affinitywater.uk.engagementhq.com/strategic-resource-options

68. The recommendation for a shorter pipeline between Peterborough and Grafham Water is estimated to cost some £276m. The full pipeline proposal had a cost estimate of some £317m to £532m and the work done to gate two indicates that the pipeline to Affinity Water's reservoir hub near Thaxted in Essex is a feasible option. It appears that cost and technical feasibility have not been the reasons for the recommendation not to proceed with the full length of the pipeline. Instead, it appears that the water companies and regional bodies have decided in favour of the SESRO and STT to help with Affinity Water's requirements rather than the A2AT. (In all cases Affinity Water also requires the GUC transfer of water.) For the reasons set out in other parts of this response, Oxfordshire County Council does not agree with the proposal to progress the SESRO. The A2AT could be part of a solution to avoid the need for the SESRO as some of Affinity Water's needs could be met from this source. The A2AT pipeline evaluations should be completed as the pipeline might be needed, if not in the short term, then longer term as part of an adaptive plan. The regional and company plans should be amended to provide for the possible need for the A2AT north-south transfer all the way to the Affinity Water hub.

Key points above:

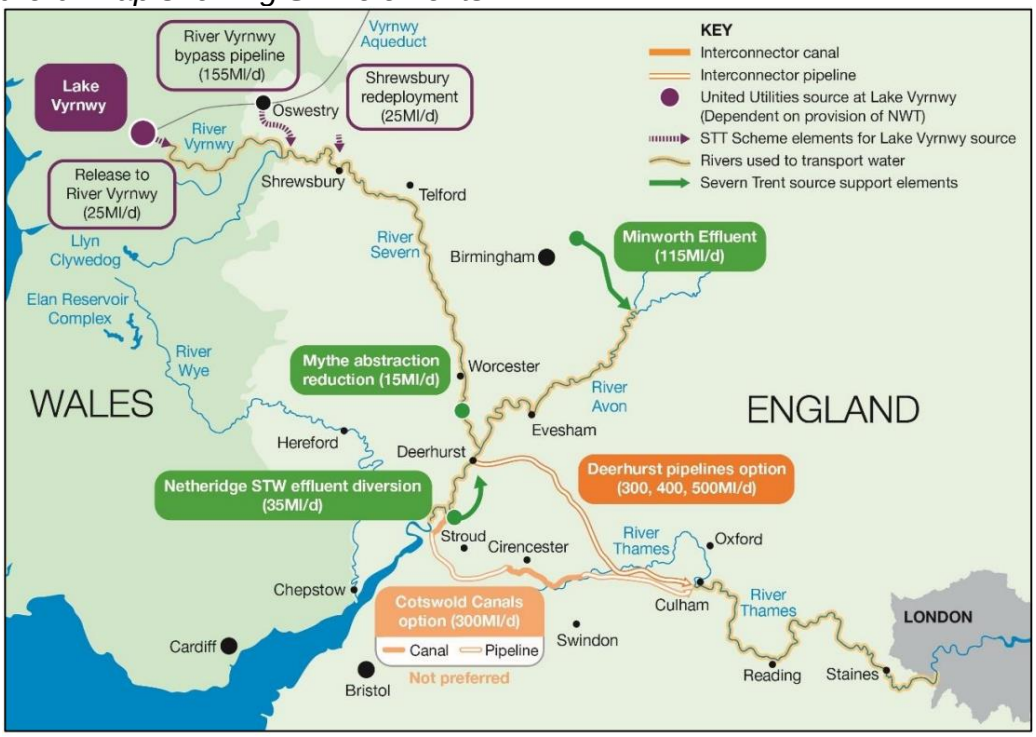
- Evaluations of pipeline route options north-south from the Water Resources East area to the Water Resources South East area should be completed so that, if needed, this can be progressed enabling a transfer of water between Anglian Water and Affinity Water (A2AT), to supply water from around 2040.

Severn to Thames Transfer (STT)

69. The WRSE draft regional plan requires a Severn to Thames Transfer (STT), which is a proposal to transfer water from the River Severn in the Water Resources West region to the River Thames in the Water Resources South East region, as shown on Figure 6. By 2050 this is envisaged to provide 160 Ml/d, utilising water available in the River Severn and water from a new water recycling scheme at Netheridge. By 2060 a further 130 Ml/d is envisaged, using further water sources including the Minworth water recycling scheme and enhancements to Lake Vyrnwy in Wales. (Lake Vyrnwy is a reservoir in Wales which is functionally part of the supply system for England and the abstraction is licenced to United Utilities.)

70. There are two sub-options for the route of STT: a new pipeline (from Deerhurst in Gloucestershire to Culham in Oxfordshire which could provide for up to 500 Ml/d); or to reinstate parts of the Cotswold Canals and augment that with pipelines (from Gloucester Dock to Culham which could provide for up to 300 Ml/d). The draft regional plan indicates that it is the 500 Ml/d pipeline Deerhurst to Culham which is preferred. The total of 160 Ml/d by 2050 and 130 Ml/d by 2060 is 290 Ml/d - the 500 Ml/d pipeline is stated in the November 2022 RAPID gate 2 main report as enabling only a deployable output of up to 354 Ml/d on average.

Figure 6: Map showing STT elements[25]



71. The transfer is being jointly promoted by Thames Water, Severn Trent Water and United Utilities.

72. The STT pipeline proposal includes water treatment works at the intake locations to mitigate potential impacts on water quality or from invasive species on the River Thames. A discharge outfall structure would need to be constructed within the banks of the River Thames at Culham.

73. The emerging regional plan for the South East early in 2022 indicated a need for STT post-2040 in the two higher pathways, with the highest pathway involving a greater transfer of water. The draft regional plan requirements for STT at 2050 and 2060 are later than earlier thought, and it is still only anticipated in the two higher pathways, not in the lowest of the three.

74. The draft WRSE plan favours SESRO being built before STT because the STT is seen as being a 'more expensive and carbon intensive option'[26]. It is noted that 'if SESRO is not developed, the Severn Thames Transfer would be required by 2040, along with other additional schemes.'

[25] Map from November 2022 Gate 2 main report for STT available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/regional-water-resources/water-transfer-from-the-river-severn-to-the-river-thames/gate-2-reports/STT-G2-S1-001-STT-Detailed-Feasibility-and-Concept-Design.pdf

[26] See page 10 and page 28 of the draft WRSE plan https://wrse.uk.engagementhq.com/our-draft-best-value-regional-plan

75. Provision is being made for the possibility of STT being provided by 2040. The November 2022 RAPID gate 2 main report for STT indicates that STT could be construction ready by 2028 and completed in 2033 if needed. This meets our 'resilience first' preference. The pipeline would be a Nationally Significant Infrastructure Project (NSIP) and therefore a Development Consent Order (DCO) would be sought.

76. The cost estimate for STT is £1,270m. This is a similar cost to the SESRO cost of £1,244m.

77. It is understood that the STT pipeline is considered to be more carbon intensive than SESRO due to its ongoing pumping costs; however, electric pumping will benefit from a decarbonised grid in future, and will mostly occur in summer, when solar power will be plentiful and cheap. By contrast, most of the SESRO pumping will be in winter, when demand is higher and electricity both higher carbon and more expensive.

78. It is queried whether the ongoing operation costs are higher for STT than SESRO, considering all matters such as ongoing management and maintenance. The operational costs of STT are likely to be lower than estimated in the water company reports as those costs are based on it being operated 'flat out' for long periods, whereas such levels of pumping are unlikely to be needed.

79. Oxfordshire County Council noted in our response to the emerging WRSE regional plan early in 2022 that there are some environmental concerns with the STT. A key concern relates to the effects of construction over such a long distance, and by comparison the Cotswolds Canals option appears better given that there would be less pipeline construction and this option would use and enhance existing infrastructure. However, either sub-option would better meet policies about bringing in water to the South East and preferring underground infrastructure compared to a complex bunded reservoir such as SESRO.

80. The WRSE draft regional plan eventually requires both SESRO and STT but requires that the SESRO is built first. Oxfordshire County Council considers that STT should be pursued first for a range of reasons including that of 'resilience first'. As noted in other parts of this response, the SESRO should not be needed at all.

Key points above:

- The WRSE regional plan should bring forward the STT earlier than indicated in this draft plan.

Water Recycling

81. The draft WRSE plan has more proposals for water recycling than in the emerging regional plan earlier in 2022. Six water recycling schemes are proposed before 2035 with a further 7 to 12 identified between 2035 and 2075.

82. Oxfordshire County Council indicated in its response on the emerging regional plan, that there are clear opportunities for more water recycling to meet future needs and supports the increased number of proposals, as recycling is one of the most resilient methods of supplying water.

Desalination

83. There is one existing desalination plant in London. Only one additional desalination scheme in the Sussex Coast area is envisaged in the draft regional plan for the South East by 2035. The number of desalination schemes envisaged increases to between 7 and 14 new schemes depending on pathway between 2035 and 2075.

84. Oxfordshire County Council supports the inclusion of relatively small-scale desalination schemes as an innovative response to water supply issues.

Consultation Questions

Our draft regional plan looks 50 years ahead. It plans to increase resilience to drought and address the potential shortfall in water as a result of climate change, population growth and increased protection of the environment, by taking an adaptive planning approach. Do you think the draft regional plan addresses the scale of the challenge we face in the future through our adaptive planning approach?

85. Please see our full response. We disagree. We do not consider that the adaptive planning approach in the draft regional plan is appropriate.

Our draft regional plan has considered the needs of other sectors and how their demand for water could be met in the future. Do you support us continuing to work with other sectors so our regional plan fully embeds their future needs and includes appropriately-funded solutions to meet them?

86. Please see our full response. The draft regional plan needs to be revised. This will require work with other sectors including local authorities such as Oxfordshire County Council.

The draft best value regional plan includes investment in new water supplies and activity to reduce the demand for water. The draft plan identifies that nearly 60% of the water needed by 2075 could come from demand management activities. This includes reducing leakage by at least 50%; extensive water efficiency through smart metering, customer behaviour change and new government policy; and the continued use of temporary restrictions on water use during periods of drought. The rest needs to come from a mix of new supplies. Do you think the draft regional plan strikes the right balance between reducing demand for water and developing schemes to provide new water supplies?

87. Please see our full response. We strongly disagree. We do not think the draft regional plan strikes the right balance. There needs to be more attention to reducing demand for water and reducing leakage. The SESRO should be deleted from the plans.

The draft best value regional plan promotes increased collaboration between water companies in the development of new water sources and the construction of more transfers to move water around the region and share it between companies. Do you support the increased collaboration between the water companies in the South East and other regions, through the development of shared resources and an enhanced network to transfer water around the region and between regions?

88. Please see our full response. We support increased collaboration between the various water companies and an enhanced network to transfer water.

Conclusion

89. The key points noted above are repeated as follows:

- The consultation documents and evidence are flawed in their assumptions about population and climate change, there is a lack of clarity over costs and benefits, and the resulting proposals are not sound.
- The draft regional plan does not take on board the outcome of the previous consultations which indicated substantial direct opposition to the SESRO.
- The 'best value' approach of the draft regional plan is not supported and instead there should be an approach that is 'least risk and least environmentally damaging'.
- The WRSE draft regional plan water need calculations are too high. All the pathway options should include lower figures and the selected pathway in the plan should be for close to the lower end of the current estimates at 1 billion extra litres per day by the end of the plan period.
- The plan fails to factor in the possibility of severe disturbances to weather patterns before 2040 (by which time we would expect global average temperatures to be significantly beyond 1.5C over preindustrial). We are of the opinion that conditions of 'Radical Uncertainty' strongly militate towards a 'resilience first' approach.
- The plan should have policies indicating a low carbon approach with a preference for existing or refurbished infrastructure, followed by a preference for infrastructure which is underground. Restorative and low-impact schemes should be prioritised over complex engineering solutions.
- While the 100 Mm^3 size is better than the previously suggested 150 Mm^3 size, it is still much bigger than other reservoirs and too large in this location.
- The SESRO effectiveness is queried, given that in times of drought it will be difficult to fill and rapidly emptied.
- The lengthy construction timeline means that the SESRO does not offer an early solution to water supply issues. It's pre-selection crowds out early prioritisation of more resilient, lower risk options.
- Building the SESRO before other options means the plan is not adaptive or responsive on this point, and it will have a higher carbon footprint than if it was built later.
- The SESRO will have significant and potentially unacceptable environmental effects.
- The build cost of the SESRO and associated infrastructure is high.
- The SESRO will have ongoing operation costs, which appear not to have been factored in correctly or accurately compared with other options.

- The SESRO is designed to enable transfers of water to other areas in the South East, but it may be that those areas have other better options to utilise.
- Given the concerns, the SESRO should be removed from the WRSE regional plan and the company plans, and not pursued as a strategic resource option.
- The WRSE regional plan should require Thames Water to reduce leakage further and faster and amend its targets accordingly. The WRSE regional plan should be based on achieving 110 l/p/d on average by 2050 rather than 115 l/p/d. Additional work should be done to ensure that can be achieved, particularly in the Thames Water area.
- The GUC proposal is supported as it brings new water into the South East, utilises existing canal infrastructure, can be constructed quickly, is resilient to drought, and is an alternative for Affinity Water to sourcing water from the River Thames via SESRO. The early timeline is also supported.
- Evaluations of pipeline route options north-south from the Water Resources East area to the Water Resources South East area should be completed so that, if needed, this can be progressed enabling a transfer of water between Anglian Water and Affinity Water (A2AT), to supply water from around 2040.
- The WRSE regional plan should bring forward the STT earlier than indicated in this draft plan.