

Appendix 22: Group Against Reservoir Development (GARD)

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1.1	Representation	Affinity's forecast needs have become the main driver for early construction of Abingdon reservoir, so GARD's response to the revised dWRMP has gone into a lot more detail than our response to Affinity's first dWRMP.
	Our Response	No response needed.
	Summary of any change to our final WRMP	N/A
1.2	Representation	Affinity's has failed to address most of GARD's comments on their first dWRMP, particularly the proposal that Affinity should independently review Thames Water's assessments of the Abingdon reservoir and Severn-Thames transfer options.
	Our Response	<p>We do not accept that we have not addressed these comments. Our independent consultants have reviewed the costs, scopes and environmental impact of all scheme outline designs provided to us by third parties and our view of the costs, benefits and risks associated with all options forms the basis of our 'best value' appraisal. This includes the SESR and Severn -Thames Transfer options. We note that the operational costs associated with the unsupported Severn -Thames Transfer scheme are based on our own view of the amount of pumping that is likely to be required if we try to utilise Thames Water's storage to allow us to realise yield benefits from the unsupported flows.</p> <p>We have also identified where uncertainties lie and our fWRMP19, in Chapter 5, makes clear our commitment to continue to accommodate the possibility of large scale water trading, either through the Severn Thames Transfer (STT) or directly with Thames Water if alternative schemes (likely to be effluent re-use) are shown to be economic in the next round of regional modelling by the companies that are investigating those options. We have reflected this in our updated adaptive strategy. As with our rdWRMP19 we will also be investigating the Grand Union Canal Transfer and the South Lincolnshire reservoir in parallel to the SESR.</p>
	Summary of any change to our final WRMP	No substantive change to plan, but clarification of adaptive approach provided in Chapters 5 and 6 of fWRMP19.
1.3	Representation	Affinity has grossly over-estimated the magnitude of future deficits by inappropriate assumptions for population growth, meter penetration, PCC, leakage reduction, climate change and target headroom.
	Our Response	<p>Population Growth:</p> <p>We do not accept that population growth has been overestimated. In this regard we have followed best practice and guidance in planning for growth as per local authority plans. As for the draft GLA plan, we recognise that this draft local plan predicts particularly high growth. As a result, it is not included in the core adaptive pathways element of our decision-making process, so the EA has raised concerns that our growth forecasts are too low. However, this has been addressed through additional modelling and increased flexibility in the adaptive plan for the fWRMP19. Additional growth from the CaMkOx development corridor has not been explicitly included as no planning figures are available at the moment but we will continue to review our forecasts as new information becomes available as reflected in our adaptive plan.</p> <p>Based on the above, overall we consider that we have taken a balanced approach to growth forecasts</p> <p>Metering:</p>

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Our forecasts of meter penetration are based on our findings from the current water saving programme (WSP), where around a third of properties require internal installs, and two thirds of those are impractical under the current delivery approach. Therefore, although we are planning on delivering 80% meter penetration by 2025, which represents a lower target than at the dWRMP19, we still plan to achieve 90% penetration by 2045. At the time of the first strategic resource development (2038) we are only planning to deliver 3Ml/d less than the ultimate 2045 meter programme saving. We do not therefore consider that this contributes to a 'gross over-estimate' of demand. An explanation of the reasons for, and very limited implications of, the slower rate of metering as part of the Water Saving Programme are included, along with justification of the approach to smart metering rollout are provided in Chapter 6.2 'Our demand management strategy' in the fWRMP19. We have also provided quantification of the impact that the profile of smart metering rollout has on the supply/demand balance around the earliest strategic scheme delivery point, and shown that our proposed implementation programme does not have a material impact on our plan.

We refute the claim that our meter saving assumptions are too low. We have assumed 18% saving from the WSP (meter installations plus household visits), which is entirely in line with the figures used by Thames and Southern for their universal metering programmes. We have then extended this by a further 2.5% for smart metering behavioural change, plus further savings on supply pipe leakage from smart metering. We have also allowed for further savings from home visits that will incorporate well known initiatives such as 'leaky loos', within our 'Street level PHC' and 'concerted action on water efficiency' programmes. As a result we are planning to reduce our PCC to 129 litres per head per day (l/h/d) by 2025, from 152l/h/d in the base year. This is the largest PCC reduction in the industry for this period. Significant additional explanation and quantification has been added to Chapter 6 of the fWRMP19 to demonstrate how we will meet the 129 l/h/d AMP7 target and the strategy beyond that.

Leakage:

Our leakage reduction initiatives are entirely in line with water industry aspirations. The leakage targets we have set will achieve a 50% reduction between 2015 and 2045. This 30-year programme to reduce leakage by 50% is planned five years earlier than most other water companies because we started the process in 2015, and will already have delivered a 14% reduction by 2020.

Clarification of the 50% target and a potential stretch to 50% post AMP7 (57% overall) is included in the fWRMP19 along with clarification of how we have handled mains renewals for leakage and trunk mains schemes. Explanation of how we will achieve leakage efficiencies and details of our leakage reduction strategy are provided in Technical Report 4.8: Leakage Strategy Report and referenced in the fWRMP19.

Climate Change: In terms of climate change impacts in Central region, we have included a more detailed explanation of the vulnerability of the Clay Lane group of sources in section 3.4 of the fWRMP19. Any uncertainties that we have referred to represent and additional risk to the source, rather than any over-estimate of the risk under drought and climate change conditions.

Target Headroom:

We consider that GARDs analysis on this is not representative for two key reasons. Firstly, the percentages that it quotes are against Final Plan Distribution Input (DI). This makes our Target Headroom appear artificially high, as we have one of the largest reductions in total demand across the industry within the early years of the Plan – effectively GARDs analysis penalizes our position as a result of our demand management ambition. Secondly it ignores the fact that our Target Headroom is only high in comparison to other water companies at the start of the planning horizon. This is driven by the fact that our WSP is included in baseline demand, so the uncertainties are reflected in Target Headroom. The EA is aware of, and have no objection to, this being approach that we have adopted in our Plan. We have therefore included further explanation regarding our level of Target Headroom and included reasonable *like for like* cross company comparisons in the fWRMP19, which are based on baseline DI (even this is somewhat unfavourable, as we have

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		<p>incorporated our metering and Water Saving Programme within our baseline DI forecast, which is not the approach adopted by other water companies). This shows that by 2050, our headroom allocation is lower than South East Water, Severn Trent Water and Southern Water, whilst continuing to decline to less than 6% of Distribution Input (DI).</p> <p>Based on the above we refute the representation that we have ‘grossly over-estimated’ demand and consider that our demand forecasts represent a reasonable reflection of the pressures and risks that we face.</p>
	Summary of any change to our final WRMP	Chapter 3 and 6 Updated; Technical Report 4.8: Leakage Strategy Report and referenced in the fWRMP19. We have included the ‘stretch’ 57% leakage reduction within our ‘aspirational’ future in the adaptive plan.
1.4	Representation	With allowances for these factors that comply with national targets and align with other water companies’ plans, there would be a surplus over target headroom of at least 120 MI/d until 2080, without any need for Abingdon reservoir or any other major source.
	Our Response	We disagree with this calculation. The latest that we would expect the need for a strategic scheme is 2066, even with the stretch ambition on leakage and our aspirational demand management future. Our ambition is to defer the need to as close as possible to this date, but given the uncertainties that we face we need to adaptively plan for the risk that we may need a strategic option by 2038, or possibly event 2032 if GLA growth forecasts or higher levels of sustainability reductions are required.
	Summary of any change to our final WRMP	N/A
1.5	Representation	Affinity’s supposedly ‘adaptive plan’ would not allow the construction of Abingdon reservoir to be aborted in the likely event of their forecast deficit not materialising.
	Our Response	<p>We do not accept that the adaptive plan would not allow the construction of the SESR to be aborted if the forecast deficit does not materialise. Indeed, the whole point of the adaptive planning process is to provide for different options (including the postponement or abandonment of the SESR as appropriate). However, to make this even clearer our final WRMP includes further amendments to the adaptive plan, which clarify how we will monitor potential sustainability reductions, demand and the investigations into strategic schemes to make our key decisions at, and prior to, 2023.</p> <p>If our monitoring programme concludes that the need cannot be deferred, then the final choice of the preferred supply side development is also open to adaptation. Significant coordination has been undertaken between ourselves and other water companies when producing our respective WRMPs. This included coordination between the companies on approaches to adaptive planning, checking volumes of existing and proposed transfers and shared options to address deficits in supply-demand balance. As part of both the Business Plan and WRMP updates we have directly coordinated with Thames, Anglian, Southern, United Utilities and Severn Trent Water to ensure our proposals for AMP7 (2020 to 2025) strategic scheme investigations are fully aligned. The dates presented for our adaptive strategy and monitoring plan reflect that process.</p> <p>For the strategic scheme investigations, we will carry them out as co-developments with other water companies or the Canal and Rivers Trust (CRT). This will be delivered in two stages, or “gates”, with governance, including the decision whether or not to proceed beyond the first gate (Quarter 3, 2022), provided by our regulators (as described in the fWRMP19 Monitoring Plan).</p>

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		<p>Clear alignment with other company plans has been presented in the fWRMP19. Our alignment with Thames Water's updated revised draft WRMP19 is detailed in the Statement of Response and in Chapter 7 of our fWRMP19.</p> <p>We have added a 'rapid development' pathway to manage high growth and/or high levels of sustainability reductions, which potentially involves acceleration of the Grand Union Canal (GUC) transfer or a water trading option for delivery by 2032 (these are the only options with shorter development times).</p> <p>The above process will be closely scrutinised by our environmental and economic regulators, and schemes will only progress through the gated process if the need is still there. Regional modelling will be carried out in parallel with the investigations to confirm the appropriate choice of schemes during the gated process. The information and governance provided by this process means that we can stop investigations or development of any options at any of the gates with the full support of our regulators if they do not represent best value for customers.</p>
	Summary of any change to our final WRMP	Chapter 6 and Chapter 7 updated to provide additional details around timing, monitoring and associated decision making for the adaptive plan.
1.6	Representation	Affinity and Thames Water have not allowed for the effect on London's supplies of increased effluent returns from Affinity's extra supplies or enhanced chalk stream flows, which would increase water available for London – a major flaw in both dWRMPs.
	Our Response	<p>We disagree that this is a 'major flaw', but we do acknowledge that there may be a short to medium term risk to Thames Water's Deployable Output for London as a result of our proposed strategy, and that there may be additional benefits from supply side strategic options in the longer term if and when they are built.</p> <p>We have updated our Plan to include a description of how our strategy might affect downstream flows in Chapter 4, and explicitly include a qualitative assessment of the risks associated with this, plus a requirement for conjunctive use modelling in the regional assessments under the Adaptive Strategy and Monitoring Plan sections in Chapter 6. We show that this may marginally increase the risk to Thames Water prior to strategic scheme development, but creates additional benefits for a strategic scheme. As part of the AMP7 regional investigations we will also facilitate system simulation modelling and hydrological analysis through the WSRE group to quantify the risks and benefits associated with changes in Chalk stream flows due to reduced abstraction and changes in effluent returns. In short, therefore, we have carefully considered the effect of increased effluent returns.</p>
	Summary of any change to our final WRMP	Chapter 4 and 6 updated in fWRMP19.
1.7	Representation	If the demands exceed those expected by GARD, our proposed adaptive plan would address even Affinity's high forecast deficit, taking advantage of surpluses in local supply zones and the return flows to London from Affinity's extra supplies.
	Our Response	<p>The 'surpluses' identified by GARD appear to refer to the release of water from WRZ6, and the DYAA availability from Thames Water's SWA WRZ. In the first case our more detailed analysis provided in Technical Report 4.9. shows that the Supply 2040 bulk transfer proposals fully utilise any surplus before strategic developments occur. In the second case GARD are incorrect to assume there is a surplus. The way that Thames Water's hydrology is modelled for WARMS means that flows only take account of actual recent abstraction from the upstream sources, so if annual average abstraction were to increase as a result of any trading arrangement then this would derogate the London WRZ DO. We also note that there is no surplus under the baseline critical period condition for SWA, and limited surplus (10MI/d or less) forecast for the 2038+ period following Thames Water's preferred plan investments. We have both a DYAA and DYCP risk in the medium term, and do not have any raw water storage, so require that any new supplies are reliable throughout the summer and autumn period, which would not be the case for the SWA 'surplus'.</p> <p>With respect to effluent returns, as noted under response 1.6. above we fully acknowledge that there will be some benefit to Thames Water from strategic</p>

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		resource developments, but that will need to be viewed in the context of the risk to Thames Water's London WRZ DO during the first part of our Plan, when demand and hence effluent returns will be reducing. At this stage we cannot assume that there will be a net benefit to Thames even once our first strategic option has been developed. This will be the subject of the system simulation modelling referred to in response 1.6.
	Summary of any change to our final WRMP	Additional text included in Chapters 4 and 6 of the fWRMP19.
1.8	Representation	GARD supports Affinity's 'Supply 2040' proposal, which should be completed by 2030. This would allow earlier and larger chalk stream relief.
	Our Response	<p>GARD appear to have mis-understood the timing and purpose of the elements of Supply 2040, as there is no requirement to complete all elements by 2030, even under higher sustainability reduction scenarios. We have clarified this within the fWRMP Chapter 6, which includes details of the need and associated timing of development. We have also shown how Supply 2040 affects individual WRZ supply-demand balances under all of our modelled futures within our Technical Report 4.9: Economics of Balancing Supply and Demand Modelling and Decision Making Process. Because the plan allows us to balance supply and demand across all WRZs, any further investment is unnecessary for water resource management purposes and represents an unnecessary cost to customers.</p> <p>In summary, all of the proposed AMP7 developments, which are detailed in our Business Plan, are required to support the transfer of 17Ml/d out of WRZ6 into WRZ4, or enable the Grafham transfer enhancement. AMP8 (2025 to 2030) then contains our second stage transfer from WRZ6 to WRZ4, and finally we have a scheme to transfer water from WRZ1 to WRZ3 in the longer term. This is now more fully described in the main Plan document.</p> <p>Our Plan incorporates the individual elements of "Supply 2040" as early as they are needed to ensure that surpluses within individual WRZs are usefully transferred into other WRZs in the Central Region. The fWRMP19 supports the requirement to distribute water to areas of need, avoiding strategic deficits and surpluses. We will continue to plan investment as quickly as is necessary to avoid water deficits and surpluses, which will adapt in line with our adaptation in the timing of strategic options. We would only accelerate options beyond that where there is a clear benefit to customers – for example the low-cost Arkley North scheme has been brought forward to AMP7 to address intra zonal needs, even though it is not triggered in EBSD until later to meet WRZ level deficits. This was shown to be a cost effective solution that will better enable local flexibility at the same time as addressing the longer term, inter zonal supply/demand balance requirements.</p> <p>We have updated Technical Report 4.9: Economics of Balancing Supply and Demand Modelling and Decision Making Process to include the most up to date assessment of our supply demand balance for each future which supports the timing of the requirement for the transfers.</p>
	Summary of any change to our final WRMP	Clarification in the fWRMP19 plus updated Technical Report 4.9.
1.9	Representation	In the unlikely event of Affinity needing another major source, they should not select Abingdon reservoir, because of its associated increased flood risk to the local area downstream, lack of resilience to longer duration droughts and large impact on the environment and local communities.
	Our Response	As for flood risk, a number of comprehensive flood risk studies regarding the SESR are available. A review of flooding and the provisions made to mitigate effects on flood risk due to the SESR has been undertaken, available in Thames Water's Statement of Response No.2 Technical Appendix K. We have carefully reviewed this and concur with the conclusions. At this stage we have not seen any evidence to suggest that flood risk cannot be adequately mitigated, and in any

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		<p>event detailed proposals for flood risk mitigation would have to be provided before any DCO were granted.</p> <p>Thames Water have addressed the issues you raise around drought resilience in a number of technical documents, which we have carefully reviewed and it is clear that the SESR can provide the DO that is claimed across a wide range of drought severities for the Thames Water system. Our preliminary assessment indicates that we can also realise the required DO (100MI/d) from a one-third share of the storage. However, we fully acknowledge that we will need to carry out further conjunctive use modelling to confirm the DO that we can expect for Affinity Water's supply system under different types of operational and commercial arrangements, as our profile of drought stress is different to Thames. This work will need to be completed prior to our 2023 decision point.</p> <p>In order to generate the SEA and HRA we engaged separate consultants to Thames Water, who reviewed the information provided about environmental impacts, mitigation and amenity potential for the SESR option as part of their analysis. Their analysis, as described within the SEA report, generally concurred with Thames Water, and outlines the construction mitigation required for the scheme in a way that is cross-compatible with our other options. The SEA confirmed the potential for amenity improvements as part of the scheme assessment, along with the need to design these improvements as part of the planning application process.</p>
	Summary of any change to our final WRMP	N/A
1.10	Representation	Instead Affinity should look to one of the inter-regional transfer options that would bring new water to South East England (unlike Abingdon reservoir).
	Our Response	<p>We consider that this representation is meaningless, as the SESR stores water that would otherwise be lost from the catchment prior to a drought. All schemes need to be compared based on yield, in line with all accepted practices for water resources management.</p> <p>In response to EA representations we have also created a new 'stand alone' option based on the treatment and transfer (from the River Thames) elements of the SESR and Severn Thames Transfer (STT) schemes, but with an option that the source water may be provided by a trade with Thames Water if the regional modelling in AMP7 demonstrates that this is better value than the SESR or STT. We have clarified our position on the STT to show that we will be openly considering this as an alternative to the SESR based on water trading if it becomes a preferred regional option through the AMP7 investigation process that is being carried out by Thames, Severn Trent and United Utilities. Through this we have demonstrated that we are fully open to transfer options, if they represent a 'best value' solution following further investigations.</p>
	Summary of any change to our final WRMP	None required, although further clarity in relation to the investigations is provided in Chapter 6 of the fWRMP19.
1.11	Representation	GARD welcomes Affinity's recent work on the Minworth effluent and South Lincolnshire reservoir options, which should be reassessed taking account of the benefits of bringing 'new water' to Thames Water's London's supplies.
	Our Response	We are proposing to further investigate both the GUC transfer option and the South Lincolnshire option in AMP7, but do not agree that any fundamental 're-assessment' is required, as there is no difference between 'stored water' and 'new water', as detailed under response 1.10 above. Our investigations will focus on understanding the deliverability of the options, and on whether any changes are needed to the calculation of sustainable yield following further information gained, both for the SESR and the other options.
	Summary of any change to our final WRMP	None required, although further clarity in relation to the investigations is provided in Chapter 6 of the fWRMP19.

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