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Secretary of State for Environment, Food & Rural Affairs
Water resources management plan consultation
Area 3D
Nobel House
17 Smith Square
London
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29 April 2018

Dear Secretary of State,

Thames Water – draft water resources management plan 2019

Thames Water published its draft water resources management plan 2019 on 9 February 2018 for consultation. This letter provides a summary of our assessment of the draft plan. It is our statutory consultation response, produced in accordance with our statutory duties and the Government's strategic policies and objectives for Ofwat. These views are without prejudice to any subsequent decisions that we may make at the next price review (PR19) in connection with the business plan that the company is scheduled to provide to us in September. Our assessment has considered:

- how adequately the draft plan follows the requirements of the water resources planning guideline and Defra's guiding principles for water resources planning; and
- how the draft plan helps achieve our vision of ensuring trust and confidence in the sector through the delivery of our key themes for PR19 of great customer service, affordable bills, resilience in the round and innovation.

Long term water resources planning is a key part of company business activities. We expect companies to integrate the development of their water resources management plans into their business plans which they submit to Ofwat. We also expect them to adopt the 'twin track' approach to improve water supply resilience through both increased supply and reduced demand. We will continue to work closely with Government and the other regulators in both England and Wales to ensure that a long term secure and sustainable supply of water is achieved.

Thames Water supplies water to a population of approximately 10.3 million people. It is the largest water company and has a key regional role in the south east of England. Its water resources are planned on the basis of six water resources zones.

Thames Water predicts that many of their water resource zones will be in deficit in the future, without additional action to reduce demand or provide additional supplies. This means there would be insufficient water to maintain supply to customers in some severe drought conditions. The London zone is forecast to enter a deficit in the early 2020s and is most at risk to severe drought events as population is predicted to grow rapidly. The scale of the challenge and complexity of the issues means that effective action is required to deliver for customers and the environment.

The Thames Water plan sets out a range of demand-side and supply-side options to meet future demands for water and ensure that customers receive a sustainable and resilient service. While aspects of Thames Water's plan are in line with our expectations and best practice, there are a number of important areas where the plan fails to provide convincing evidence that it delivers in the best interest of customers. In particular:

- Given the scale of the challenge faced, the plan has not demonstrated that there is an appropriate balance between supply and demand type options, consistent with a twin track approach. While the commitment to meet a 15% leakage reduction by 2025 is welcome, the explanation of how this will be achieved is not set out in the plan and there is no clarity on longer term ambition for leakage reductions after 2025. The reductions in average PCC are also less ambitious than the national average for other companies.
- The plan does not provide sufficient evidence that the proposed supply-side options are appropriate:
 - There is a lack of clarity on the assumptions made in the development of the plan, including the potential risks in deliverability, environmental mitigations and future uncertainties.
 - The evaluation of options raises concerns that there has not been equal consideration given to third party and transfer schemes compared with in-house options.
 - Given the early stage of option analysis for major new supplies, we also expect active work to continue on the proposed Severn-Thames transfer which could potentially displace or delay other large supply-side options, reduce the environmental impacts of new supply and enhance resilience.
- Considering the key regional role of Thames Water, we are disappointed that the draft plans in the south east appear to miss a major opportunity to secure

the long term resilience of the region. While we appreciate that this is not an issue for Thames Water alone, we expect Thames Water to urgently work to seize the opportunity of regional solutions to address challenges in the south east.

- We do not consider that the plan gives Ofwat sufficient assurance that it will deliver good outcomes for customers and the environment. Board assurance was part of Defra’s guiding principles for water resources planning. There are internal inconsistencies within the draft plan such as a leakage reduction target of 15% by 2025 included in the narrative, while data within the plan uses a target of 8%. While this may reflect a change in ambition during the plan development, it raises concern about robustness and Board assurance.
- We have concerns around the process adopted for plan development. We expect to see more transparency on how the final programme was selected to demonstrate that it represents an appropriate package of options, for both the company and region as a whole. There are also lots of unresolved uncertainties, such as the level of sustainability reductions. These raise concerns about the effectiveness of the consultation and the robustness of the draft plan.

Further details on these points are outlined in the annex to this letter alongside more detailed comments on different areas of the draft plan.

I look forward to seeing these points addressed in Thames Water’s statement of response and final plan.

Yours sincerely



David Black
Senior Director, PR19

Annex

In this annex we outline further details on the points raised in our main letter alongside more detailed comments on different areas of the draft plan. Our points reflect our assessment approach and cover:

- 1. Plan building blocks:** The overall approach to the development of the draft plan in line with the technical guidance and broader resilience issues.
- 2. Customer participation:** The type and quality of interaction with customers and the impact this has had on the draft plan formulation and proposals.
- 3. Demand forecast:** How the company has considered the impacts of population growth, leakage and water efficiency in its demand forecast.
- 4. Supply forecast:** How the company has considered climate change, abstraction licences changes and transfers in its supply forecast.
- 5. Forecast uncertainty:** The robustness of the draft plan in accommodating uncertainties in the demand and supply forecasts.
- 6. Supply-demand balance:** The robustness of the overall need for water, if any, and the scenario testing applied to this assessment.
- 7. Options:** The approach taken to identifying and screening options for both supply and demand, including identification of trades and third party options.
- 8. Decision making:** The decision making tools, preferred programme development process and accompanying assurance processes.
- 9. National and regional considerations:** The interaction and consistency with national studies and regional groups (where relevant).

1. Plan building blocks

Thames Water has used methods and data appropriate to the scale and complexity of the problem that it needs to address and has recognised the different problems across its area. There are significant changes from the approach used in preparing the plan in 2014 which are not fully articulated. Thames Water also faces an ongoing challenge in managing its relationship with its stakeholders. In particular:

- There are significant differences in the data, methods and assumptions used for the draft plan when compared with the previous plan in 2014. As this is not fully articulated in the narrative it is hard to track the delivery of the previous plan and understand the extent of the changes. For example, we would like to see more explanation of why, even with a plan in place, there are some deficits forecast in some zones very early in the planning period (2020-21).

- Thames Water has applied the resilience metrics developed by the Water Resources South East (WRSE) group to test 14 different event hazards, such as flooding, asset failure and water quality, against supply availability. This is an example of good practice and it would be helpful to expand this further to consider wider events, such as the impact of freeze-thaw.
- Thames Water has identified what it considers to be the main issues raised by stakeholders and has provided details of their response within the draft plan. The company's extensive contacts with third party pressure groups are listed and dialogue appears to be ongoing. We expect the company to continue to manage its relationship with its stakeholders and ensure that engagement is transparent and of high quality.

2. Customer participation

Thames Water has carried out a wide ranging approach to customer participation reflecting the significant challenges included in their draft plan. Examples of best practice include the use of customer participation to enhance the delivery of demand management projects. However, there is limited evidence provided to give confidence that customers fully understand and support the approach on areas such as resilience and bill impacts of potential solutions. We would expect to see further clarity on this and potentially further work reflected in the final plan. Further specific comments:

- The draft plan is comprehensive including 26 detailed technical appendices. There is a 13 page overview document and sections, like the executive summary, are written so that a non-technical audience can understand. However, further detail, particularly on decision making, is not easily accessible and this reduces transparency.
- Thames Water has discussed resilience with its customers, however, as this is a key plan driver, further evidence is needed on the extent of this engagement and customer support for the proposed change in level of service. Further considerations:
 - Appendix T of the draft plan states that there is a lack of customer understanding of resilience in general, for example, customers felt that the bill impacts for greater resilience required further explanation. Based on this greater transparency should be provided regarding how customers were consulted on current levels of resilience and the options for future resilience.
 - The research into resilience suggests that, in general customers appear to agree with the move to increased levels of drought resilience by 2030. However, we could find no evidence that customers have

been consulted on wider (non-drought) resilience issues and how lead in time for changing the level of resilience and its links to cost, deliverability, licence reductions and affordability were positioned.

- Customers appear to have been consulted regarding the selection and identification of options and this has fed into the programme appraisal methodology. Further considerations:
 - In the draft plan Thames Water has provided detail of performance and its proposed performance recovery plans where necessary for 2015-2020. However, it is not clear that customers were provided with this performance information during the research for the draft plan.
 - As an example of good practice there is evidence of customer participation being utilised to enhance the delivery of demand management and water efficiency projects. For example the use of Smarter Home visits and reward-based incentive schemes.
- Customers' views on general bill impacts has been explored. However, a key drawback of the studies presented is that they appear to have been undertaken on each attribute independently, such as leakage and water restriction frequency, rather than as a package. This drawback is recognised by Thames Water who already plan further work in this area and we note this could change customer support.
- Thames Water's Customer Challenge Group (CCG) has been involved in challenging the ongoing customer participation programme. The draft plan provides a description of this and we expect this to continue for the final plan.

3. Demand forecast

The demand forecast is well documented and reference to the industry guidance has been made and it appears to have been followed. However, insufficient evidence is presented on per capita consumption (PCC) trends, especially in London, non-household demand and the robustness of the population forecasts. In particular:

- In the long term, population growth is one of the key drivers of Thames Water's draft plan. Further assurance regarding both short and long term forecasts is required for the final plan, for example how the estimates compare with the latest Greater London Authority forecasts and other independent forecasts.
- PCC when coupled with population growth, is a significant driver for the draft plan. While historical evidence is provided to support the PCC forecasts, the reasons provided for London's PCC do not appear fully justified or as expected. For example, fewer gardens would be assumed to correlate with lower PCC, and higher forecasts due to changing demographics should not

be significantly different to changes in other urban centres impacting other companies. These variations should be further investigated.

- Non-household demand has been forecast using a statistical model, however, the draft plan does not mention engagement with specific larger users or retailers to enhance and validate this forecast. This is a gap and engagement here will help support the forecasting of non-household demand.

4. Supply forecast

Thames Water has calculated available supply in line with guidance and statistical approaches have been used to help determine low frequency drought yields with higher levels of confidence which is an example of good practice. However, further work is required on the approach to drought orders, the integration of future licence reductions and treatment process losses. In particular:

- Thames Water has excluded drought orders from their baseline forecasts with the rationale that these are not a long term sustainable option. However, the draft plan does not adequately set out the significance of these being excluded and this approach is an industry outlier. Further clarity for the reasons for their removal and its impact on the draft plan needs to be provided.
- The Water Industry National Environmental Programme (WINEP) abstraction licence changes have not been fully incorporated in the baseline forecasts and instead have been presented as three scenarios. In the London zone, which faces the largest challenge, the reduction could range from 25-125 MI/d. Given the potential significance of this impact, the discussion of these reductions and their impact on the programme is not presented sufficiently clearly in the draft plan.
- Process water losses from treatment works range from 3% to 14% of their output. Thames Water should investigate further the works which are outliers and have process losses greater than 10%. The relationship between the numbers represented in Appendix K and those included in Table 4-2 of the main plan also need to be clarified.

5. Forecast uncertainty

Thames Water has described a number of risks and uncertainties associated with the preferred plan together with mitigations which is an example of good practice. However, we would like to see greater evidence on how the risks were selected and that the draft plan is robust to accommodating all key uncertainties given their potential significance. Further specific comments:

- There is on-going work to improve the assessment of deployable outputs. It is noted in the draft plan that baseline supply increased by 6% due to modelling updates since the last plan, highlighting the sensitivity to these changes.
- There is uncertainty in the company selection of WINEP scenarios and decision not to use drought orders on the baseline supply forecast. These are compounded by long term uncertainty around potential future reductions.
- There is significant uncertainty related to the population growth, especially in London and the scale of potential demand needs of neighbouring companies.

6. Supply-demand balance

The supply-demand balance profile presented is in line with the assumptions of the individual supply and demand components and it appears to be consistent with the guidance. However, further transparency is required to fully understand the approach to sensitivity testing to be confident that the overall need assessment is robust.

Further specific comments:

- The main planning factors driving the deficit are clearly presented and include population growth, climate change and the move to be resilient to a 1-in-200 year drought event by 2030. The change in drought resilience results in a requirement for an additional 153 MI/d (140 MI/d for the London zone).
- A range of scenarios have been tested on the preferred programme which are described in outline together with their outcomes but further information is required to fully understand the approach. Further considerations:
 - The decision on scenario selection is unclear and would benefit from more information being provided. This should include an explanation of the approach to future supply reductions (based on WINEP) and scenarios which explore reduced demand associated with lower population forecasts in London.
 - The results of the scenario testing are presented at a high level and there is insufficient detail to understand whether the uncertainty has been adequately investigated, or what the likelihood is of these futures happening.

7. Options

Reflecting the scale of the challenge, Thames Water has considered an extensive range of supply and demand options. However, further work is required around a number of options, including the potential for large imports and environmental mitigation for the key early supply-side option (the Mogden-Teddington transfer

scheme). Looking longer term there also appears to be a lack of ambition in demand management, for example around leakage and PCC. Further specific comments:

- Thames Water has used what appears to be appropriate screening criteria and processes for developing lists of options. However, we would welcome further evidence to show how the criteria have been applied consistently. This should include the findings of the expert panel (set up to support plan development) on this point.
- Thames Water has engaged in discussions with third parties, including through the use of an Official Journal or OJEU to promote the need and generate third party interest. However, this is a necessary rather than sufficient condition to demonstrate fair and reasonable evaluation of third party with in-house options. Further considerations:
 - A range of options from third parties were included on the unconstrained list, though the focus of the options was on supply and the company should consider what it could do in order to promote further demand options.
 - For a number of third party options there is currently insufficient information to either confirm that the proposal is feasible, or reject it as unfeasible. For these options Thames Water should continue to actively engage with the third parties and provide support to ensure viable options are not unnecessarily screened out. Further, if any of the uncertainties are not resolved by the final plan we would expect to see a clear timeline for their resolution.
 - We expect Thames Water to demonstrate equal vigour in gathering data on third party as in-house options and to ensure equal treatment of these options. It should be careful to ensure that its in-house options are not unfairly or unduly favoured and that the [principles for company bid assessment frameworks](#) are followed.
- Water trading with other water companies is a feature of Thames Water's draft plan with the potential for significant future imports and exports. Further considerations:
 - There is the potential for a large trade via the River Severn and this has been included in the United Utilities draft plan. This option could potentially displace or delay other large supply-side options. It is unclear how Thames Water has derived its estimate of costs associated with this scheme from the information put forward by the parties. We would expect Thames Water to provide an explanation and reconciliation of any differences and third party assurance around their calculations in their further work for the final plan.

- The River Severn trade doesn't appear in Thames Water's preferred options and we expect all the companies involved in this transfer option to continue to actively engage on progressing its assessment prior to the final plans being published. If the uncertainty is not resolved by the final plan there may be merit in continuing to explore this option, given the large size of major supply schemes and the importance to customers of appropriate analysis and planning to support decision making.
- There is also the potential for a trade from Welsh Water, however, it is noted in the plan that there is currently insufficient information to confirm that these proposals are feasible. We expect Thames Water to continue to actively engage on this option and provide support to ensure viable options are developed in time for the final plan.
- Later in the planning period the draft plan notes that Thames Water will export water to its neighbouring companies, in line with some of the scenarios generated by WRSE. In finalising its plan the company should consult further with the other water companies involved in the proposed trades in order to ensure consistency as regards volumes and dates of trades.
- The narrative in the draft plan states an ambition to reduce leakage by 15% by 2025. However, how this will be achieved is not set out in the plan and there is no clarity on longer term ambition for leakage reductions after 2025. Further considerations:
 - The 15% target by 2025 does not match the information presented in the majority of the draft plan, for example a reduction of 8% is incorporated into the data tables and no scenario is shown with the 15% target.
 - This discrepancy means there is an incomplete representation of the leakage target in the draft plan, for example, how it will be met and the cost, the impact it has on the supply-demand balance and the potential impact on the phasing of other options. This is important in the context of the current challenges Thames Water faces in meeting its current leakage reduction target for 2015-2020 (10%).
 - The change in leakage target means there is a lack of clarity on long term leakage ambition. For example, the planning tables suggest that the 15% target would originally have been met later in the planning period (with 18% reduction met by 2045). The narrative does not suggest what the leakage targets will be after 2025 and whether further large ambitious reductions are planned.

- The metering strategy, which includes the rollout of smart meters, will represent a significant increase from current levels of activity (increasing from 46% to 61% meter penetration between 2020 and 2025). Given the challenge faced in the existing period of installing meters further detail should be provided on how Thames Water plan to deliver this and monitor implementation.
- The proposed long term target for average PCC at 125 l/h/d by 2045 is less ambitious than the average for other companies nationally (122 l/h/d) and lacking the ambition of leading companies. This is made more significant by the likely scale of the population in the Thames Water region by this time. The proposed reward-based incentive scheme, proactive water efficiency activities and working with housing associations are examples of good practice. Given the scale of the challenge Thames Water should consider whether further ambition in reducing PCC is required.
- A large number of supply options are presented however the plan does not provide sufficient evidence that the proposed supply-side options are appropriate:
 - Across the options we would welcome greater clarity on the assumptions made in the development of the plan. This should include greater detail on the potential risks in deliverability and uncertainty in timing.
 - The company should ensure that the proposed schemes mitigate any identified environmental issues and are deliverable. For example, we note there is environmental uncertainty concerns regarding the Mogden-Teddington transfer scheme in the preferred plan.
 - It is unclear why the option for schemes to be upsized or brought forward does not appear to feature in scenarios. For example, in scenario testing of the maximum abstraction reduction scenario for the River Lee a new option enters the plan rather than other preferred options being brought forward or upsized.
- General statements are provided on the cost estimating methodologies used but it has not been possible to assess the robustness of the cost estimates from the information contained in the draft plan. Thames Water should provide further explanation of its option costing process, including cost assumptions and their application to different scheme types and how methods will be consistently applied to PR19 business planning.

8. Decision making

Thames Water has adopted an enhanced aggregated economics of balancing supply and demand (EBSA) approach to develop their preferred plan consistent with their problem characterisation. However, there is limited evidence presented in the draft plan regarding the final decision making process and there is only limited description of how the preferred portfolio was selected. Alongside this further transparency is required on contributions of the expert panel and the metrics used in decision making. In particular:

- While there is a large amount of material provided on the decision support tools it is unclear how the final preferred portfolio was selected. Thames Water should further clarify the decision making process and explain how and by whom the preferred portfolio was decided on. This should also cover late changes made to draft plan, like the change in leakage target which is reflected in the narrative but not fully in the draft plan.
- Thames Water state that their decision making process has been reviewed and assessed by a panel of industry experts. While the use of an expert panel is positive, only very limited details of their contributions are provided in the draft plan. To address this the company should provide:
 - details of the expert panel's assessment and findings; and
 - further detail of how the outputs from the panel review impacted the preferred programmes.
- Given the high levels of uncertainty (especially with demand) the evaluation and selection of options should account for this ensuring that lower regret options are considered first by taking into account the higher option value created by the uncertainty, and the benefits of considering more flexible solutions (such as modular delivery).
- It is unclear how the scenarios tested have influenced the preferred plan. For example while the draft plan broadly outlines alternative solutions if the large schemes such as Mogden-Teddington or Abingdon are not progressed or delayed it does not explain how this testing was incorporated into the selection of preferred plan.
- The chosen planning period of 80 years is a good example of long term planning. However, the sensitivity of this decision is not fully reported and further clarity here would help show how the planning period impacts investment decisions and choices of programmes.
- We recognise that the draft plan is focused on best value solutions rather than least cost. However, there are a number of areas where the differences in

cost between the feasible and preferred options are significant and do not appear to be fully justified in the narrative:

- The feasible Oxford Canal transfer is planned to be delivered in 2060 and has a lower cost when compared to other options for the London zone that are selected for earlier delivery in the plan; and
- The feasible Beckton desalination solution for the London zone also has lower costs than some of the selected preferred options.
- Thames Water has developed a range of option metrics to support the identification of best value programmes. However, there is limited transparency on how these metrics have been used and applied. Greater transparency on the consistent application of metrics and the impact on decision making needs to be provided.
- The draft plan was subject to assurance including challenge from independent auditors, external consultants, the expert panel and other stakeholders and regulators. There is some evidence provided of engagement with the Thames Water Executive Management Team and the Board during the development of the draft plan and its approval. However, given the inconsistencies and late decisions in the draft plan (such as the leakage ambition policy) we have concerns about the quality of Board engagement and assurance.

9. National and regional considerations

Thames Water has worked closely with WRSE and is also engaged with WRE to ensure it has developed its draft plan within a regional supply context and this appears to be supported by the plan detail. However, there is significant uncertainty around the needs of neighbouring water companies, and whether more can be done in the near term. Further specific comments:

- The draft plan makes reference to the Water UK national project and the risk of supply restrictions, especially in London.
- The inclusion of trades of 130 MI/d appears to be in line with some WRSE scenarios, though it is noted that the trades occur later in the planning period (60MI/d in the mid to late 2040s, and a further 70 MI/d in the mid-2060s) and other scenarios predict a requirement for a greater level of trading.
- There is continuing uncertainty regarding the requirements of neighbouring companies. Further transfers have the potential to impact upon the delivery of major schemes within Thames Water's plan. Therefore the company should ensure it actively co-operates with other WRSE members in order to produce aligned final plans that benefit the region and its customers as a whole.

- We also that note that neighbouring companies are developing their own supply options such as smaller reservoirs/extensions and desalination plants. However, trades between these companies would appear to be feasible alternatives to consider, and the regional and national scaling of options could have the potential to reduce costs and improve resilience. We expect to see Thames Water work with other companies to pursue these opportunities in the development of final plans.