Stakeholder comments - Demand Management Options

Final 1 February 2017

Comment Reference Number	Stakeholder	Date	Topic	Consultee representation	Thames Water Response
1	Chris Binnie	23/10/2016	Demand forecast	Brexit could result in a significant reduction in the population growth rate. This would need to be taken into account when projecting population and water demand.	A low migration Brexit scenario is being included as part of our demographic work with University of Leeds. The details of this scenario will be published and made available to stakeholders after completion of the study in March 2017 and will be included in WRMP19. Central estimates will continue to be based on Local Authority forecasts as required by the Water Resources Planning Guidelines (WRPG).
2	Chris Binnie	23/10/2016	Metering	Current situation. Currently 35% metered. Considering the great supply/demand balance shortfall, the slow progress in metering penetration, 35%, is disappointing. Further although with probably the largest supply/demand balance shortfall in the 4 years 2010-11 to 2014-15, TW meter penetration increased by only about 5%, the lowest percentage increase of any of the water companies except for Welsh Water with their plentiful water supplies. Similarly for Non-household properties Thames Water has the lowest meter penetration of any water company, bar Hartlepool, at 83.4 % compared with an industry average of 90.2% and Anglian at 97.8%.With its large future supply/demand balance shortfall Thames should be appreciably above the industry average not substantially below.	The Thames Water area was designated as being in an area of serious water stress by the Secretary of State for the Environment Food and Rural Affairs in 2007 and so we were required to consider the case for progressive (previously termed as selective and compulsory) water metering as part of the statutory water resources management plan (WRMP09). Legal powers were granted for compulsory metering in 2012 (AMP5) on approval of WRMP09. The WRMP14 plan (2014) made the case for smart metering or Automatic Meter Infrastructure (AMI). AMI will deliver more benefit than Dumb metering or Automatic Meter Reading (AMR). The WRMP14 plan included for 937,615 progressive meters and 306,860 optant meters in 15 years to enhance billing metering penetration to 72% in London and 91% in Thames Valley by 2030 (77% TWUL). The plan also included for additional bulk metering of shared supplies to improve our understanding of demand and target leakage on private mains networks. Since 2012 approx. 140,000 progressive meters and 3,000 bulk meters have been installed in London. The current installation rate is approx. 10,000 meters per month. The key challenges are access rates to install internal meters in flat properties, network coverage for the AMI solution and unmeterable properties typically associated with complex streetworks permits. We are currently consulting with other water companies to learn from their experience with flats, busy traffic routes, unmeterable properties and an effective resolution to network coverage issues. We are also working to develop a policy to enable meter installation at all properties with a change in occupancy. Consequently, we forecast a meter penetration of 55% by the end of AMP6 and 77% by 2030.
3	Chris Binnie	23/10/2016	Metering	Implementation “Progressive metering is underway to roll out “smart meters” to all households between now and 2030 starting in London” This is somewhat ambiguous as we were told that blocks of flats will only have a bulk meter and flat holders will not pay on a metered basis. Thus the proportion of metered properties by 2030 may well be only about 75%.	Progressive metering involves the installation of meters on all properties within an area. This includes the installation of internal meters in flats. However, access to flats is proving challenging with less than 10% of planned work being progressed successfully to-date. This is due to both issues with access and complexity (i.e. there is also a level of unmeterable internal properties once access is gained). We are currently consulting with other water companies to learn from their experience with flats and unmeterable properties. We are also working to develop a policy to enable meter installation at all properties with a change in occupancy including flats. However, to improve our understanding of demand and leakage on the private mains network while the internal access to flats for billing purposes is progressed, we are also targeting bulk metering of supply pipes to large blocks of flats. This is known as the bulk metering programme. In AMP6, we plan to enhance the bulk metering programme to capture 10Ml/d of Customer Side Leakage (CSL). To date, we have installed 3,000 bulk meters in London and achieved a CSL saving of 6.5Ml/d across the Thames Water area.

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4	Chris Binnie	23/10/2016	Tariffs	Previously variable financial tariffs, such as rising block or seasonal, were to be trialled in AMP 6 and implemented in 2020-2025. However it would appear that all incentive financial tariffs have been screened out, Table 3 on page 20, for the whole WRMP 19 period i.e. to 2045. ... Considering that those in the south east are generally better off than those in the rest of the country, and the increasing cost and difficulty of obtaining new water resources for London, this soft incentive seems surprising and may not result in significant water use reduction. Since the reason why variable financial tariffs were screened out was “insufficient meter penetration” to be socially acceptable, it is proposed by me that TW consider variable financial tariff would be trialled, and if successful, introduced once a certain percentage meter penetration had been achieved, say 60%.	In WRMP14 we proposed the introduction of innovative tariffs from 2022/23 as a measure to ensure a sustained demand response by metered customers. We planned to undertake a trial of tariffs, between 2015-2020, to understand and quantify customers’ responses to alternative tariffs. Over the past 18 months, we have completed a desk based review of tariffs, both in the UK and internationally, to understand the types of tariffs in use, the methods of implementation and the effectiveness of the tariffs (where this information is available). We have also completed research with customers. This indicated that customers’ are sceptical of tariffs; to be fair, everyone should be on a meter before tariffs are introduced; and education on water use is needed as a precursor for tariffs to work effectively. In response to the feedback received from customers we have developed a reward based incentive scheme and are currently trialling this in Reading. We plan to extend the trial to parts of London in 2017. The scheme is a positive intervention, to help customers understand their water use and encourage the efficient use of water through rewards. The effectiveness of the scheme will be assessed, using both quantitative and qualitative data, to inform our future strategy on incentives. We have not screened innovative tariffs out from consideration in our long term programme of potential measures but want to understand the effectiveness of positive interventions, which are supported by customers, prior to measures which are considered to be punitive. We also consider that meter penetration needs to be sufficiently high, prior to the introduction of tariffs, to be fair to all our customers. CCWater has stated their support the need for a progressive approach to the implementation of meters and additional measures, evidence has shown that customers like to take these things gradually. Incentive and Innovative tariffs will be included as options for WRMP19.
5	Chris Binnie	23/10/2016	Metering & tariffs	Effect of proposals No data was given on the assumed benefit of metering or of the assumed meter penetration by year ahead, or of the assumed effectiveness of tariffs. Thus there is too little information available to assess the WRMP 19 proposals for metering. Should not Thames Water be more ambitious in WRMP19 in metering penetration of both household and non-household properties, in financial tariffs and in using metering to manage water use.	In WRMP14 we included assumptions for demand reductions as a result of metering and wider demand management activities. We are currently rolling out the progressive metering programme in London and are evaluating the programme as it is implemented, in respect of the costs and benefits. Customers are offered a 2-year period during which they can switch to a metered bill. At present we do not have a representatively lengthy data set on which to re-base our assumptions on the usage benefits of customers switching to a metered bill. We will share this information with stakeholders when we have a robust data set. Our methodology for reviewing the benefits of metering is being peer reviewed by an external 3rd-party in Spring 2017. We report on progress against the WRMP14 programme in the Annual Review which is published July/August.
6	Chris Binnie	23/10/2016	Leakage	Leakage The CCW report Delving into water 2015 shows that all 10 water and sewerage companies set a target for leakage reduction from 2010 to 2020. 5 have already achieved that by 2015. Thames Water has a leakage target to get from 665 Ml/d in 2010-11 to 606 Ml/d in 2020. However in 2014-15 it was still at 654 Ml/d. Considering the high cost of new resources and the appreciable progress by the peer group, this limited progress by TW is very disappointing.	TW has reduced leakage by over 30% in the last 10 years. After consultation with stakeholders the WRMP14 plan went beyond the Sustainable Economic Level of Leakage (SELL) reduction. SELL refers to the level of leakage that is economically achievable. It depends on the 'value of water'. That is, if a higher value is attached to water, then it will be economic to reduce leakage to lower levels. WRMP14 leakage reduction programme for AMP6 is 59Ml/d with a target of 606Ml/d to be achieved by the end of the AMP (2019/2020). The total WRMP14 leakage reduction programme was 109Ml/d to achieve a leakage target of 556 Ml/d by 2039/2040. WRMP19 Customer Research has illustrated that leakage remains an important issue and hence the WRMP19 plan will consider scenarios to reduce leakage further.

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7	Chris Binnie	23/10/2016	Leakage	No evidence was provided on anticipated future leakage. Considering that AMI meters are being installed then there should be good scope for future leakage identification and reduction. Thus ALC and pressure management should be increased, and leakage reduced to be at least comparable in cost with new resources. In any case it is believed that leakage should be below that which can be justified on pure economics, especially considering the customer support for leakage reduction.	The WRMP14 plan included a total leakage reduction of 109Ml/d over 25 years which is beyond the SELL and was designed to meet customers expectations that leakage reduction be a high priority. However, the analysis illustrated that a strategic resource will be required in 2026/27 in addition to demand management to close the future supply/ demand gap. The Water UK Water resources long-term planning framework (2015 - 2065) report reviewed 4 alternative demand management programmes for the South East and also concluded that a strategic resource will be required for the region in addition to demand management. Leakage reduction is provided as part of an optimised best value plan which meets the expectations of the WRMP guidelines. Reductions below SELL were included in our last plan and will be considered in future plans taking into account the benefit of AMI metering. WRMP19 will be investigating innovative options such as the DMA Enhancement programme (see comment reference 27) to target and reduce leakage further in addition to traditional leakage solutions such as pressure management and mains replacement.
8	Chris Binnie	23/10/2016	Water efficiency	AMP6 includes free water efficiency goods, targeted domestic plumbing installs following metering, and commercial and non-household water audits and these are being carried into fine screening. These are supported. Figure 2 on page 10 shows water efficiency costs as about 50p/m3 compared with new resources at about £1/m3 thus water efficiency measures should be extended beyond those being carried out in AMP6.	The AMP6 Water Efficiency programme of 38.8 Mld is the largest in the UK water sector and is approximately double the size of the AMP5 water savings target which TW successfully delivered. New Water efficiency options are being developed further in AMP6 for inclusion in WRMP19. These include free wastage fixes, housing association fixes and intensive area based communications and marketing. These options are included in the Integrated Demand Model for consideration beyond AMP6.
9	Chris Binnie	23/10/2016	Water efficiency	Commercial tariffs. "majority of commercial use is not considered to be discretionary.” Many commercial buildings such as offices, hotels, cinemas etc. have centralised bathrooms. These would be similar to Clearwater Court where Thames Water achieved an 83% reduction in water use was obtained by changing the fittings. Similarly car washes and other such users can treat and recycle. Thus there could be appreciable potential savings to be had on commercial and industrial properties.	The element of commercial use that is linked with processes used by the company is typically considered to be non-discretionary. The element of general water use for companies such as toilet flushing, kitchen sink could be considered discretionary. The Smarter Business Visits (SBV) option has being developed to replace 'Commercial audits and fixes'. The SBV (see also comment reference 45) is similar to a Smarter Home Visit in that a representative attends the business to assess where they can make improvements to their discretionary water usage by installing water saving devices or fixing leaking toilets. The SBV option currently being trialled has shown to deliver cost effective savings. However, with Thames Water exiting the Non-household retail market in April 2017, the current savings shown to be delivered by SBV may be at risk. Thames will continue to offer the SBV service to Non household customers and monitor the water savings delivered to incorporate any changes if required.
10	Chris Binnie	23/10/2016	Water efficiency	Water efficiency. Pages 29 to 34 include list 46 water efficiency measures rejected in WRMP14 and all described as “ cost and benefit” cannot” be modelled for comparison with alternatives.” Considering that water efficiency measures in figure 2 are shown as about 40p/m3 these 46 measures would have been reconsidered. However it would be helpful to have a similar table setting out why those not carried forward were rejected.	The Demand Management Options screening document is being updated to detail the reason why each option not carried forward was rejected. This will be completed in the updated Screening Report for circulation in March 2017.
11	GARD	31/10/2016	Demand management - general	Overall, we welcome Thames Water’s comprehensive approach to addressing demand management as a means of substantially reducing future deficits, as described at the stakeholder meeting on 6th October. The target of a 200 Ml/d reduction, as quoted at the meeting, sounds reasonable, at least as a minimum. That said, we are surprised that there is no mention of demand management in the fine screening report, even if only to say what proportion it could provide of the projected future 800 Ml/d deficit.	The demand management programme is being reviewed as part of the preparation WRMP19. Work is currently underway using the Integrated Demand Management (IDM) model to generate a range of optimised demand management programmes to contribute towards the reduction in the supply/demand deficit. The outputs of the Integrated Demand Management model will be input into the Economics of Balancing of Supply and Demand (EBSD) to determine the contribution demand management will provide as part of the reduction of the projected future 800 Ml/d deficit. An overview of this process will be included in the updated Demand Management Options Screening document for publication in March 2017. The final contribution of demand management in the 'best value' solution for WRMP19 will be determined as part of the Programme Appraisal process in Summer 2017.

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12	GARD	31/10/2016	Demand management - general	The only document available for review was the Demand Management Options Screening Report-Phase 1 Executive summary, so we have only limited comments on the details of the proposals.	The WRMP19 demand management programme will be an extension of the WRMP14 plan. The Demand Management Options Screening Report will be updated and recirculated in March 2017. The Leakage, Metering and Water Efficiency feasibility reports (WRMP14 appendices) will be updated and published. The timeframe for the publication of these documents will be confirmed. A new feasibility report for Non-Potable Water Reuse will be published in February 2017 and work is ongoing on the Incentive Scheme feasibility report, for which a draft will be shared with stakeholders in May 2017.
13	GARD	31/10/2016	Metering	At the stakeholder meeting on 6th October, it was said that only 35% of Thames Water's supplies are metered. Considering the large supply/demand balance shortfall, the slow progress in progress in meter penetration is disappointing. With its large future supply/demand balance shortfall, Thames Water should aim to be substantially above the industry average within, say, the next five years.	The Thames Water area was designated as being in an area of serious water stress by the Secretary of State for the Environment Food and Rural Affairs in 2007 and so we were required to consider the case for progressive (previously termed as selective and compulsory) water metering as part of the statutory water resources management plan (WRMP09). Legal powers were granted for compulsory metering in 2012 (AMP5) on approval of WRMP09. The WRMP14 plan (2014) made the case for smart metering or Automatic Meter Infrastructure (AMI). AMI will deliver more benefit than Dumb metering or Automatic Meter Reading (AMR). The WRMP14 plan included for 937,615 progressive meters and 306,860 optant meters in 15 years to enhance billing metering penetration to 72% in London and 91% in Thames Valley by 2030 (77% TWUL). The plan also included for additional bulk metering of shared supplies to improve our understanding of demand and target leakage on private mains networks. Since 2012 approx. 140,000 progressive meters and 3,000 bulk meters have been installed in London. The current installation rate is approx. 10,000 meters per month. The key challenges are access rates to install internal meters in flat properties, network coverage for the AMI solution and unmeterable properties typically associated with complex streetworks permits. We are currently consulting with other water companies to learn from their experience with flats, busy traffic routes, unmeterable properties and an effective resolution to network coverage issues. We are also working to develop a policy to enable meter installation at all properties with a change in occupancy. Consequently, we forecast a meter penetration of 55% by the end of AMP6 and 77% by 2030.
14	GARD	31/10/2016	Metering	Southern Water expect meter penetration to be 92%, largely put in during the 2010 to 2015 AMP period. Similarly Essex & Suffolk Water expect to achieve 92% by 2040. It is true that London has a higher proportion of flats and that some of these have shared water supply pipes which would be difficult and expensive to split. However, with the ability to read meters by a drive-by system or to have the meter signal relayed to a TW control room, it is possible that a greater proportion of flats could be metered economically.	Progressive metering involves the installation of meters on all properties within an area. This includes the installation of internal meters in flats. However, access to flats is proving challenging with less than less than 10% of planned work being progressed successfully to-date. This is due to both issues with access and complexity (i.e. there is also a level of unmeterable internal properties once access is gained). We are currently consulting with other water companies to learn from their experience with flats and unmeterable properties. We are also working to develop a policy to enable meter installation at all properties with a change in occupancy including flats. However, to improve our understanding of demand and leakage on the private mains network while the internal access to flats for billing purposes is progressed, we are also targeting bulk metering of supply pipes to large blocks of flats using AMI technology. This is known as the bulk metering programme. In AMP6, we plan to enhance the bulk metering programme to capture 10Ml/d of Customer Side Leakage (CSL). To date, we have installed 3,000 bulk meters in London and enabled a CSL reduction of 6.5Ml/d across the Thames Water area.

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15	GARD	31/10/2016	Tariffs	The low levels of meter penetration are a particular concern as this has been given as a reason for screening out a number of water saving options, for example: • On page 20 of the feasibility report, most household tariff options, including rising block tariffs and seasonal tariffs have been rejected "Due to the current low level of meter penetration it is perceived as unfair to impose this tariff".	TW committed to undertake a trial of innovative tariffs in AMP6 to inform its future strategy. Work to date on this has involved desk based studies to understand tariffs applied in the UK and internationally to understand the options, risks and benefits. The views of customers have also been sought. Feedback from customers was clear that tariffs were considered to be punitive and meter penetration should be sufficiently high prior to introduction of tariffs for them to be perceived to be fair. In response to this feedback, we have developed a positive Incentive scheme to raise awareness of water conservation and to encourage reduction in water use, which could be implemented alongside metering to enhance the benefits. We will re-evaluate tariffs as meter penetration increases. This progressive approach is supported by CCWater. Incentive and Innovative tariffs will be included as options for WRMP19.
16	GARD	31/10/2016	Tariffs	The incentive scheme mentioned in the feasibility report and stakeholder presentation sounds reasonable as an initial measure for non-metered households, but cannot be expected to achieve the same benefits as a well-designed tariff structure for metered customers. It should be considered as only an interim measure, not as a substitute for the incentive tariffs and high meter penetration that are normal in much of the developed world.	To clarify the Incentive scheme is being trialled with metered household customers. The scheme has been designed to encourage customers to think about their water use and incentivise action to reduce water consumption. To do this effectively water use in the household must be metered and the consumption data clearly and regularly relayed to customers to retain interest and encourage on-going action. We will evaluate the costs and benefits of the scheme to determine how this would be integrated into our future strategy. Customers and stakeholders have indicated a strong preference for positive interventions and as such we consider it is important to explore such measures before measures such as tariffs, which are considered to be punitive, are introduced.
17	GARD	31/10/2016	Metering & tariffs	In the published 2013 response to GARD's comments for the consultation on draft WRMP14, Thames Water said: "We plan to trial tariffs during AMP6 which will provide information on the types of tariffs, customer reactions and water savings and this information will be taken into account in our next draft Plan (WRMP19) which will determine the investment programme required for the period 2020-2045 and set out if, and when, a new large resource scheme is needed." Three years on, Thames Water have withdrawn from this, using lack of meter penetration as a justification. We do not think this is acceptable. Whereas we appreciate the difficulty in metering urban areas, particularly with blocks of flats, we do not think this should be used as an excuse for low meter penetration. Thames Water should publish details of the % of customers in different types of community and accommodation, and set meter penetration targets based on each type, aiming to achieve industry best practice for each.	In WRMP14 we set out our plans to undertake a trial of tariffs, between 2015-2020, to understand and quantify customers' responses to alternative tariffs. Over the past 18 months, we have completed a desk based review of tariffs, both in the UK and internationally, to understand the types of tariffs in use, the methods of implementation and the effectiveness of the tariffs (where this information is available). We have also completed research with customers. This indicated that customers' are sceptical of tariffs; to be fair, everyone should be on a meter before tariffs are introduced; and education on water use is needed as a precursor for tariffs to work effectively. In response to the feedback received from customers we have reviewed our approach to tariffs and have developed a reward based incentive scheme which we are currently trialling this in Reading. We plan to extend the trial to parts of London in 2017. The scheme is a positive intervention, to help customers understand their water use and encourage the efficient use of water through rewards. The effectiveness of the scheme will be assessed, using both quantitative and qualitative data, to inform our future strategy on incentives. We have not screened Innovative tariffs from future consideration but want to understand the effectiveness of positive interventions, which are supported by customers, prior to measures which are considered to be punitive. CCWater support the need for a progressive approach to the implementation of measures to encourage the efficient use of water. Thames Water currently has a meter penetration of 34% within London and 53% within Thames Valley area. This is split 62/38 between houses and flats respectively. Metering is a key driver in addressing the water stressed region and so this is set to continually increase with the compulsory programme and bulk metering of selected common supplies.

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18	GARD	31/10/2016	Leakage	The demand management feasibility report does not appear to quote any targets for future leakage reduction, which is surprising. In response to GARD's challenges over leakage plans for dWRMP14, Thames Water said: "Our revised draft plan includes leakage reduction from 665 Ml/d in 2014/15 to 556 Ml/d by 2035 (149 – 152 l/prop/d), this represents almost doubling the leakage reduction included in the draft Plan." This seems reasonable, comprising just over half the total 200 Ml/d demand management target quoted at the 6th October stakeholder meeting. However, this does not appear consistent with the proposal to abandon active leakage control and pressure management, as quoted in the WRMP14 rejection measure in Appendix A of the demand management feasibility report. Figure 2 of the feasibility report shows active leakage control and pressure management as having a much lower AIC cost than development of new water resources. Therefore, rejection of these options seems unjustified.	Enhanced Active Leakage Control, DMA Pressure Management, full and partial DMA Mains Replacement and new innovative solutions such as DMA Enhancement are being included in the Integrated Demand Model for WRMP19. The rejection measure in Appendix A refers to select non-preferred variations of ALC (i.e. increase ALC by 20%) and Pressure management, rather than the elimination of the options altogether. A clear definition of the options being included in the IDM model and detail regarding the reasons for rejecting the WRMP14 versions will be included in the updated March 2017 Demand Management Options Screening Report. Reductions in leakage will be provided by the IDM model and the revised position of SELL.
19	GARD	31/10/2016	Leakage	Most of the mains replacement options also appear to have been screened out in Appendix A of the feasibility report. The report does not appear to take account of the long term need to replace pipe networks, many of which are over 100 years old. The pipes will not last indefinitely, so replacement is inevitable at some point. This should be taken into account in the economic assessment of mains replacement as a leakage reduction measure.	Full and partial DMA Mains Replacement options are being included in the IDM model for WRMP19. The rejection measure in Appendix A refers to select non-preferred variations of mains replacement. A clear definition of the options being included in the IDM model and detail regarding the reasons for rejecting the WRMP14 versions will be included in the updated March 2017 Demand Screening Report.
20	GARD	31/10/2016	Leakage	Also, we do not think that rigorous economic analysis should be the sole basis for decisions on leakage reduction. Thames Water's customers have expressed a strong desire for more leakage reduction and common sense supports this view.	The WRMP14 plan included for customers views and the demand management and leakage reductions were beyond the modelled Economic Level of Leakage. WRMP19 will review this analysis. We will also be seeking further understanding of customers views on the extent of leakage activity to inform WRMP19.
21	EA	07/11/2016	Demand management - general	EA 1Executive summary (page 1) It would be useful to describe the measures that are being included in the baseline for WRMP19 for completeness.	The committed AMP6 demand management programme will be included in the WRMP19 baseline. Optants are currently forecast to continue at average historical levels.
22	EA	07/11/2016	Demand management - general	EA 2 Executive summary (page 2) With reference to the black text options in the table, are the "existing options" baseline options or options that are not newly being considered?	The black text options are simply an extension of WRMP14 options. The green text options are new to WRMP19. A clear definition of these options will be detailed in the March 2017 Demand Management Options Screening Report.
23	EA	07/11/2016	Demand management - general	EA3 Figure 1. WRMP14 Baseline London WRZ supply demand graph – Dry Year Annual Average (DYAA) (page 5) Please can you explain why the baseline scenario has been used and not the final planning scenario?	The baseline figure on page 5 was presented as an example only. This will be updated in the March 2017 Demand Management Options Report.
24	EA	07/11/2016	Demand management - general	EA4 . Introduction – Demand Management Measures (page 5) The first paragraph describes the measures in WRMP14 being optimised to provide "best value". However, the following paragraph on metering states that compulsory metering must be "cost effective". How do these two objectives compare?	Best Value: This refers to a solution that has been appraised beyond simply least cost and includes for the assessment of environmental benefits and dis-benefits, deliverability, resilience, sustainability, customer preferences and adaptability. Cost Effective: refers to a solution that delivers a benefit which can justify the financial cost. It is a subset of 'best value'.
25	EA	07/11/2016	Metering	EA5 1.1 Metering (page 6) The bullet point on bulk metering mentions substantial savings from leakage reduction and targeting. Please can you provide details on the level of these savings?	Targeted bulk metering of large blocks of flats is progressing well to improve our understanding of demand and leakage on private mains networks. We are investigating enhancing the bulk metering programme to capture 10 Mld of CSL in AMP6. At present we have installed 3,000 bulk meters in London and enabled a CSL reduction of 6.5 Mld across the Thames Water area.
26	EA	07/11/2016	Water efficiency	EA 6 The text mentions the AMP6 water efficiency target. It would be useful to include the value of this for context.	The AMP6 Water Efficiency target is 38.8 Ml/d. This is the largest in the UK Water Industry and double the target achieved by Thames Water in AMP5.

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27	EA	07/11/2016	Leakage	EA7 1.3 Leakage reduction (page 8) How has future innovation been considered?	Innovation in leakage targeting is being investigated through programmes such as DMA Enhancement which refers to "Improved accuracy of leakage by better accounting for demand". This is done by systematically checking all the building blocks that enables a DMA to function and combing through data from the building blocks. This uncovers anomalies in the network, properties and property assignments, assets, systems & data for the selected DMAs. Corrections are made in respect to each task where it will in turn improve data quality for the three components (water supplied, water consumed and leakage). The interaction between these components will either reduce leakage directly or help narrow the search of leaks in reality.
28	EA	07/11/2016	Tariffs	EA8 1.4 Tariff controls (page 8) Can any information on the non-financial incentive scheme be provided, given the report states that it is commencing in 2016?	A trial of the Incentives scheme commenced in September 2016. The premise behind the trial is that customers receive points that can be converted into vouchers for their proven water savings. The purpose of the scheme is to understand if customers respond positively to a reward based scheme and if a sustained reduction in household consumption is achievable. Phase 1 was rolled out in Autumn 2016 where 300 properties were targeted and 110 properties signed up. Phase 2 was rolled out in Winter 2016 where a further 150 properties responded out of a target of 750 properties. This dataset is still small but we will continue to roll out this trial in 2017.
29	EA	07/11/2016	Demand management - general	EA9 Effectiveness of demand management options (page 10) The text refers to EBSD determining the cost effective balance of demand management. However, how is the best value programme being considered?	In this case, the text in the Screening Report has incorrectly been used interchangeably with reference to 'cost effective' and 'best value'. It should read that the EBSD model determines the 'best value' balance of demand management and resource options to remove the supply/demand deficit. This will be reviewed and corrected in the March 2017 screening report.
30	EA	07/11/2016	Demand management - general	EA10 WRMP19 Screening Process (page 11) The text mentions a generic options list – is this provided anywhere?	The generic options list refers to the high level list of demand management options. i.e. Leakage, Metering, Water Efficiency and some specific water efficiency interventions. The full list from WRMP14 has been provided in Section 7: Appraisal of Options but this will be reviewed and included in the updated Demand Management Option Screening Report for March 2017.
31	EA	07/11/2016	Demand management - general	EA11 Coarse Screening – Primary screening (page 13) Please can you provide further details around the quantification of these tests i.e. what is the criteria for a pass or fail? For example, for criteria 8, how much would the resilience need to be improved?	We recognise that we have provided limited detail for our screening decisions. This will be amended in the March 2017 report so that each rejected option is substantiated.
32	EA	07/11/2016	Demand management - general	EA12 Coarse Screening – Primary screening (page 13) Criteria 11 – how does best value get considered?	The purpose of this screening section is to determine whether the intervention is feasible. As part of this, the purpose of this question is to confirm whether this solution can be modelled. Once a solution passes both the Primary and Secondary screening it is submitted into the IDM Model. The IDM model generates alternative "cost effective" demand management programmes. These programmes are then submitted to EBSD which optimises for "best value" supply/ demand programmes as part of the programme Appraisal process.
33	EA	07/11/2016	Demand management - general	EA13 2. Coarse Screening – Secondary screening (page 14) How have advances in technology been considered, and how this affects options that form the WRMP14 constrained list?	Innovation in leakage targeting is being investigated through programmes such as DMA Enhancement. Innovation in metering has been incorporated by the commitment to the widespread roll out of Smart Meters. These are both included in WRMP19 under categories that were considered in WRMP14. Innovation in non-potable technology has introduced a new generic category (non potable water) and specific options in WRMP19.
34	EA	07/11/2016	Demand management - general	EA14 2. Fine screening and input into the IDM model (page 14) Would be useful to explain what IDM stands for.	Integrated Demand Model (IDM): options that have passed through the coarse screening stage, are input into IDM to optimise these interventions at District Metering Area (DMA) level. The purpose of the IDM model is to undertake cost and benefit optimisations of the feasible demand management options to produce demand management programmes. That is, each option shown in Table 1 is input into the IDM model by its cost (CAPEX and OPEX) and demand saving benefit (reduction in leakage and/or usage). Using this information together with the baseline leakage and usage , the IDM model can conduct alternative cost and benefit optimisations to produce a range of potential demand management programmes. Each programme will include a mix of demand management options to be conducted over each AMP (i.e. metering, water efficiency, and further leakage reduction), the total cost of that program and the expected demand reduction (broken down into leakage, usage and wastage) per programme.
35	EA	07/11/2016	Demand management - general	EA15 2. Fine screening and input into the IDM model (page 14) Is this optimisation independent of the supply options optimisation?	Yes, the output of IDM provides a set of demand management programmes for input into the Economics of Balancing Supply and Demand (EBSD) model where the demand programmes are optimised with potential supply options. EBSD optimises scenarios to produce the 'best value' solution.

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36	EA	07/11/2016	Demand management - general	EA16 . Fine screening and input into the IDM model (page 15) Does the IDM model re-optimise the programme if costs change during optimisation at DMA level?	Intervention costs cannot change during an optimisation. Costs for each option are part of the input to the Integrated Demand Management (IDM) model.
37	EA	07/11/2016	Demand management - general	EA17 Fine screening and input into the IDM model (page 15) The report mentions the IDM producing an optimised demand management programme to meet a specific target. However, does this limit / restrict / pre-judge the savings that can be achieved?	The limits imposed in IDM are tested prior to implementation to ensure they do not artificially restrict/pre judge the savings that can be achieved. i.e. a model run is conducted with no constraints to understand the savings that can be achieved without any cost constraints. The assumptions and limits that do go into the model are also peer reviewed internally prior to confirmation they can be included.
38	EA	07/11/2016	Leakage	EA18 Review of rejection register (page 18) Can an update be provided on the mains replacement activities that have been previously rejected?	The Demand Management Options screening document is being updated to detail the reason why each option not carried forward was rejected. This will be completed in the updated Screening Report for circulation in March 2017.
39	EA	07/11/2016	Demand management - general	EA19 Demand Options overview (page 19) This paragraph mentions both “best value” and “cost and benefit”. Please can you explain the difference?	Best Value: This refers to a solution that has been appraised beyond simply least cost and includes for the assessment of environmental benefits and dis-benefits, deliverability, resilience, sustainability, customer preferences and adaptability. Cost Effective: refers to a solution that delivers a benefit which can justify the financial cost. It is a subset of 'best value'.
40	EA	07/11/2016	Tariffs	EA20 Table 3. Coarse screening decision for new options (page 20) Winter IBT, Winter budget RS and Seasonal High Block IBT have been rejected based on currently low meter penetration and therefore unfair to impose this tariff. Given that the plan is for 40 years plus, when is a sufficient level of metering likely to be reached, and therefore this option could be considered?	Feedback from customers was that there should be a high level of meter penetration before Innovative tariffs are introduced. There will be properties that are difficult, or prohibitively expensive, to meter. We consider that a working estimate would be greater than 60% meter penetration but further work would need to be completed to confirm this. CCWater have stated their support for customers getting used to a meter prior to moving onto a tariff. In the interim we are trialling the Incentives scheme which will continue roll out throughout 2017.
41	EA	07/11/2016	Demand management - general	EA21 Provisional constrained options (page 21) Quite a few mentioned of update in October 2016. When will this be available?	An updated screening report will be published in March 2017 and updated again in May 2017.
42	EA	07/11/2016	Tariffs	EA22 Provisional constrained options – Tariff controls (page 22) As per comment EA20, when will sufficient metering be achieved?	Feedback from customers was that there should be a high level of meter penetration before Innovative tariffs are introduced. There will be properties that are difficult, or prohibitively expensive, to meter. We consider that a working estimate would be greater than 60% meter penetration but further work would need to be completed to confirm this. CCWater have stated their support for customers getting used to a meter prior to moving onto a tariff. In the interim we are trialling the Incentives scheme which will continue roll out throughout 2017.
43	EA	07/11/2016	Demand management - general	EA23 Fine screening and next steps (page 24) The last paragraph on this page mentions “minimum whole life cost solution”. How does this fit with best value or cost-beneficial approach?	The costs included in each intervention is the whole of life cost - it includes the cost to implement the solution and any ongoing maintenance costs. Therefore, the best-value solution already incorporates the whole of life cost. The use of terminology will be updated in the March 2017 screening report for consistency.
44	EA	07/11/2016	Demand forecast	EA24 Appendix A: WRMP Rejection Register – Generic option (page 27) For commercial tariffs, please can you provide further explanation for why commercial use is not considered to be discretionary?	The element of commercial use that is linked with processes used by the company is typically considered non discretionary. The element of general water use for companies such as toilet flushing, kitchen sink could be considered discretionary.

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45	EA	07/11/2016	Water efficiency	EA25 Appendix A: WRMP Rejection Register – Generic option (page 27) For commercial property water use audits, please can you provide further explanation as to which commercial businesses are not offered the audits, and why it would offer a competitive edge?	With the introduction of competition in the Non Household sector, Thames Water cannot commit to large scale commercial (i.e. involved in manufacturing) property water use audits beyond 2017 without the permission of the new retailer. Instead, this has been replaced with Smarter Business Visits (SBV) which target discretionary non-household properties (i.e. schools, hospitals, small businesses) using a geographical area-based approach. For those non-household properties interested, the following actions are included: • fitting of water saving devices (showerhead, showersave, showertimer, tap inserts, kitchen swivel, save-a-flush and EcoBetas) • identify leaking toilets and carry out a free one-off fix; and, • fit free urinal controls where practical Notwithstanding the introduction of non-household competition, Thames Water previously rejected large scale commercial property water use audits as this would assist some businesses in becoming water efficient and therefore have lower bills than those companies excluded. Companies involved in manufacturing should be making their own financial investment to reduce water consumption and therefore their water cost.
46	EA	07/11/2016	Water efficiency	EA26 Appendix A: WRMP Rejection Register– Generic option (page 27) Has more water efficient pipes in new builds been considered as an option? More control over the installation of these rather than assuming water efficient fittings have not been replaced?	Thames' Water Efficiency Manager was on the Government's working group to develop new water efficiency standards for new housing development. The new Housing Standards now contains a 'fittings' based approach' for local authorities and developers to prescribe specific flow rate and volume performance criteria for fittings. The GLA has since required the higher performance level of this new fittings based approach as a requirement for London's large developments. These device level performance criteria match the new Water Label being released into the market by the Bathroom Manufacturers Association.
47	EA	07/11/2016	Metering	EA27 Appendix A: WRMP Rejection Register – Generic option (page 28) Option to band high water use has been rejected, but is the option to insist a meter been included?	The option to move customers onto metered bills has been included in the WRMP19 demand management options. This comes under the Progressive Metering programme where customers have had a meter installed are given two years before they are moved onto a metered bill.
48	EA	07/11/2016	Demand management - general	EA 28Appendix A: WRMP Rejection Register – Unconstrained option (page 28) Many of the options have been screened out on criteria 11, but little explanation has been provided. This appears to be a critical test. Please can you provide further explanation for all of these screening decisions, including those against other criteria?	Yes, this will be provided in the Demand Management Options Screening report update in March 2017.
49	EA	07/11/2016	Demand management - general	EA29 Appendix A: WRMP Rejection Register – Feasible / constrained option (page 34) Again, please can you provide further explanation for the screening decisions?	Detail of our screening decisions and process will be provided in March 2017 update to the Demand Management Options Screening Report.
50	EA	07/11/2016	Water efficiency	EA30 Appendix B: Specific coarse screening answers for WRMP19 new and revisited options (page 38) For the water efficiency coarse screening, please can you explain why marketing and education has been given an overall score of “n” when all the primary screening questions have been given a score of “y”?	Marketing and Engagement is definitely part of our water efficiency efforts, and will evolve into a larger component going forward. This is a typo error and will be corrected in the revised version for circulation in March 2017.
51	ICE	06/10/2016 (TSM)	Non potable reuse	Have you considered opportunities for reuse beyond toilet flushing and irrigation.	A draft feasibility report for Non-Potable Water Reuse will be published at the end of February 2017. A separate feasibility report has being developed for Water Reuse as a potable water resource option and is available on the TW website.
52	GLA	06/10/2016 (TSM)	Tariffs	Have you got in mind a % meter coverage before tariffs could be introduced.	Feedback from customers was that there should be a high level of meter penetration before Innovative tariffs are introduced. There will be a number of properties that are difficult, or prohibitively expensive to meter, and as such we estimate greater than 60% meter penetration but further work needs to be complete to confirm this.
53		06/10/2016 (TSM)	Water efficiency	Results for the incentive scheme were requested and also the target for reduction in water consumption that TW is aiming for.	The purpose of the Incentive scheme is to understand if customers respond positively to a reward based scheme and if a sustained reduction in household consumption is achievable. The scheme in Reading was launched in Autumn 2016 and we will evaluate the scheme in terms of costs and benefits. We are also planning to roll out the scheme in London in 2017.

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54	North Wessex Downs AONB	06/10/2016 (TSM)	Metering	Could the current meter programme be rolled out faster?	We have an ambitious programme of meter roll out with over 400k smart meters planned to be installed as part of the progressive meter programme by 2020.
55	GARD	06/10/2016 (TSM)	Demand management - general	With a forecast deficit of 800 Ml/d by 2100 do you have a target for demand management ?	Over the next 10 years TW has a programme to deliver ~ 200 Ml/d via demand management which is ~ 50% of the whole programme. TW will determine the programme of demand management measures as part of the wider programme of measures in WRMP19.
56	WWF	06/10/2016 (TSM)	Tariffs	Have you considered the use of the incentive tariffs in dry periods ?	The Incentive scheme potentially provides an effective tool to communicate with customers and incentivise specific behaviours. Adaptation of rewards and incentives during dry period is one aspect.
57	CIWEM	27/10/16 (WRF)	Water efficiency	Requested the report produced by TW and Waterwise	TW agreed to publish this once finalised.
58	CIWEM	27/10/16 (WRF)	Tariffs	What level of meter penetration will you need to achieve to be able to introduce tariffs?	Feedback from customers was that there should be a high level of meter penetration before Innovative tariffs are introduced, otherwise it's unfair. Furthermore tariffs are considered to be a penalty and so to introduce tariffs too soon may discredit the metering programme. We expect to achieve 70% meter penetration in London by 2025 and consider this may be a reasonable point.
59	CCW	27/10/16 (WRF)	Demand management - general	Has there been any work to evaluate demand management options?	We continually review the cost and benefits of commissioned demand management projects. In 2012 we completed an Independent Review of the mains replacement programme which is published on the TW website. Work is currently in progress to review the benefits of progressive metering. Some 65k meters have being analysed for customer side leakage and wastage. The full benefits of progressive metering will be better understood after completion of the 2-year journey to transition customers to paying for their metered usage. The results of this analysis are used to update the Decision Support Tools used for WRMP19. Our methodology for reviewing these benefits is being peer reviewed by an external 3rd-party in Spring 2017.
60	EA	27/10/16 (WRF)	Demand management - general	There is a significant difference in PCC between Southern Water and TW and as such there was opportunity for TW to reduce PCC.	Thames Water's Per Capita Consumption (PCC) is 149 l/h/day (AR16). Southern Water's PCC is currently 133 l/h/day. TW is rolling out the progressive metering programme which will enable better targeting of leaks and also provide information and an incentive to customers to reduce their water use. TW has an extensive programme of water efficiency and is continuing to develop and trial new approaches.
61	Centre for Ecology and Hydrology:	05/07/16 (WRF)	Water efficiency	Customers take water for granted and are not well informed about where water comes from. Should TW be working with schools, and developing partnership projects such as the WWF "Save Water Swindon" project?	TW: We have an active education programme, we have 6 education centres, which are attended by over 600 school children every year, and we also run a community speaker programme with over 50 staff trained to give talks to school and community groups. TW is also involved in several partnership projects, for example TW is working with Groundwork to engage with customers as the metering programme rolls out and is also working well with Action for the River Kennet (ARK). TW is keen to replicate this type of project.
62	CCG	05/07/16 (WRF)	Leakage	CCG: You meet your leakage target ever year, are they sufficiently challenging?	TW: We can confirm that the leakage target is extremely challenging. The target is set as a rolling annual average, during the winter when water temperature falls leakage can increase substantially. Last year we were helped by a warm winter but when cold water enters our pipes it can be very damaging. We spend lots of time identifying and fixing leaks – if we stopped fixing leaks leakage levels would increase substantially.
63	TRT	06/05/2016 (TSM)	Water efficiency	TRT asked if there are opportunities to encourage the commercial building sector to integrate water efficient devices in new developments and if TW is active in this area.	TW agreed that new build housing presented opportunities to promote the efficient use of water however the legal and regulatory framework does not provide the support needed to encourage developers to take action. That said TW is working with GLA and other partners to explore opportunities. Other relevant information is provided in response to comment 46.
64	Royal Borough of Windsor & Maidenhead	06/05/2016 (TSM)	Water efficiency	How dies TW propose to promote rainwater harvesting, without a supportive legislative or regulatory framework, as the difficulty lies in the implementation.	TW agreed that a supportive regulatory framework would be helpful but TW is currently undertaking work with GLA and other partners in designated Opportunity Areas in London to examine a range of options, including rainwater harvesting, as part of the Integrated Water Management Studies (IWM) and this will help set a pathway for these types of interventions.

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65	GARD	06/05/2016 (TSM)	Demand management - general	How TW will estimate savings linked to demand management measures. And will there be a report to detail this information.	TW confirmed that it provides an annual performance report in the Annual Review which is published on TW's website www.thameswater.co.uk/wrmp in August each year. TW will also publish feasibility reports on new demand management options and an updated screening report in March 2017 and May 2017 to explain the pathway to the development of the constrained list of options.
66	North Wessex Downs AONB	06/05/2016 (TSM)		Are intangible benefits considered?	TW confirmed that it considers the costs and benefits of individual measures and then develops integrated programmes and considers the benefits of the integrated approach.
67	North Wessex Downs AONB	06/05/2016 (TSM)		Are any reductions in demand that may be achieved could be used to reduce TW abstractions from sensitive rivers?	TW explained that demand will continue to increase but demand management will help slow the rate of increase – Ricardo (Cascade) will be looking at wider benefits of strategic water resource schemes to potentially address abstractions from sensitive rivers as part of the catchment management work.
68	EA	06/05/2016 (TSM)		What assumptions are being applied for the transition to a meter and whether there were assumptions regarding "bounce-back" from meter programme demand reduction or if TW was planning on a continued demand reduction following meter installation.	TW confirmed it had assumed a 12% reduction in average household demand for smart meters in WRMP14 and it will analyse actual data from the current programme to inform WRMP19. TW confirmed that it had not assumed any bounceback.
69	GARD	06/05/2016 (TSM)		Is TW reviewing what other water companies are doing, and have achieved, and learning from good practice. TRT also referenced international good practice.	TW confirmed that it works with the wider industry and shares best practice on water efficiency, this is through an industry wide working group and also research projects via UKWIR. Collaborative working is also evidenced by the recent establishment of a south east regional water efficiency partnership. TW also takes account of international experience, and the recent droughts in California and Australia have provided some useful information and learnings.
70	North Wessex Downs	06/05/2016 (TSM)		How are changes in the ecological status of rivers is factored into this work.	TW explained that the IDM models are limited in scope to only take account of the costs and benefits of demand management measures to derive optimised demand management (DM) programmes and then these DM programmes are input into the programme appraisal models and at this stage environmental impacts are considered in the development of the overall preferred programme.
71	WWF	06/05/2016 (TSM)	Tariffs	What work had been completed on tariffs and why TW had decided to progress an incentive scheme in preference to tariffs.	TW outlined the work undertaken to explore tariffs which included work with RPS and NERA to explore tariffs used in the UK and internationally both within the water sector and more widely, and research undertaken with customers to understand their views on tariffs. Customer feedback indicated that tariffs were viewed as penalty measures and the focus should be on measures to help customers to use water efficiently. Furthermore customers clearly stated that meter penetration needed to be sufficiently high for the imposition of tariffs to be considered to be fair. Hence TW's current focus on the development of an Incentive scheme.
72	General	06/05/2016 (TSM)	Demand management - general	There was a discussion on the potential impact of retail competition on the efficient use of water and the promotion of demand management measures. This raised a number of points.	TW confirmed that this is an area it is continuing to explore.
73	GARD & North Wessex Downs AONB	06/05/2016 (TSM)	Non potable reuse	Questioned the benefit identified to date, surprised that it was so small (8.4Ml/d) and asked if reports will be prepared on this work which will provide further information on the derivation of this figure.	A draft feasibility report for Non-Potable Water Reuse will be published at the end of February 2017.
74	TRT	06/05/2016 (TSM)	Non potable reuse	**T**his is well established field in the US and that TW was previously involved with companies who are active in this area and queried whether TW is drawing on this experience.	TW confirmed that it will follow this up and further detail will be provided together with the publication of the draft feasibility report in February 2017

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75	Ofwat	06/05/2016 (TSM)	Non potable reuse	Ofwat asked if TW had ruled out household scale non-potable reuse.	TW confirmed that it had at this stage due to the risks of misconnection and management of the systems hence the focus was on community and managed properties.
76	GARD	06/05/2016 (TSM)		What proportion of demand in the TW supply area is non-household demand and that they considered that the commercial sector was the right target market to promote this and suggested a target could be set.	TW stated that ~ 500 Ml/d of London's demand is for the non-household sector, however retrofit of non-potable systems would be extremely expensive, so the focus is on new development which presents a smaller opportunity.
77	CCG	06/05/2016 (TSM)		IS TW proposing to develop its own systems for rainwater and grey water recycling and cited personal experience of operating such a system which was proving to be expensive in terms of maintenance costs.	TW explained that it was not intending to develop its own systems but was looking at existing systems on the market.