

Statement of Response to Representations

on the Draft Water Resources
Management Plan 2019



**Portsmouth
Water**



**STATEMENT OF RESPONSE TO
REPRESENTATIONS ON THE DRAFT
WATER RESOURCES MANAGEMENT
PLAN 2019**

**Neville Smith
Managing Director
Portsmouth Water Ltd
PO Box 8
West Street
HAVANT
Hants
PO9 1LG**

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STATEMENT OF RESPONSE TO REPRESENTATIONS ON DRAFT WATER RESOURCES MANAGEMENT PLAN 2019

This document is the Company's formal Statement of Response, as required by Section 37B of the Water Industry Act 1991, as introduced by the Water Act 2003 to the representations received on its Draft Water Resources Management Plan which was published for consultation on Monday 5th March 2018.

The Statement of Response takes account of the representations that Defra received on our Draft Plan. The document sets out where the Company has made changes to their Draft Final Water Resources Management Plan to reflect the representations made. The Company intends to submit a Draft Final Plan to the Secretary of State asking for permission to formally publish the Final Plan.

GLOSSARY OF ACROYNMS

	Term	Meaning
A	ADO	Average deployable output
	ADPW	Average day peak week
	AISC	Average Incremental Social Cost
	AMP	Asset Management Plan period
	AMP6	The current Asset Management Planning period, running from 2015–16 to 2019–20
	AMP7	The Asset Management Planning period, running from 2020–21 to 2024–25
	B	BL
C	CAPEX	Capital Expenditure
	CC	Climate change
	CCW	Consumer Council for Water
D	DAPWL	Deepest Advisable Pump Water Level
	DEFRA	Department for Environment, Food and Rural Affairs
	DFSE	Demand Forecasting in the South East
	DI	Distribution Input
	DMA	District Metering Area
	DO	Deployable output
	dWRMP	Draft Water Resource Management Plan
	DYAA	Dry year annual average planning scenario
	DYCP	Dry year critical period planning scenario
	DYMDO	Dry year minimum deployable output planning scenario
	E	EA
EBSA		Economics of Balancing Supply and Demand
F	FP	Final (Plan) i.e. The plan including all options
	fWRMP	Final Water Resources Management Plan

H	HH	Household customers
	HOF	Hands Off Flow
	HRA	Habitats Regulation Assessment
L	l/h/d	Litres per head per day
	l/prop/d	Litres per property per day
	LoS	Levels of Service
	LTA	Long Term Average
M	mAOD	Meters Above Ordinance Datum
	MDO	Minimum deployable output
	MI/d	Megalitres per day
N	NE	Natural England
	NEP	National Environment Programme
	NHH	Non-household – i.e. commercial and industrial customers
	NYAA	Normal Year Annual Average planning scenario
O	OFWAT	Office of Water Services
	ONS	Office for National Statistics
	OPEX	Operational Expenditure
P	PCC	Per capita consumption
	PDO	Peak deployable output
	PET	Potential evapotranspiration
	PHC	Per household consumption
	PR19	Periodic Review 2019
	PRT	Portsmouth Water
	PRV	Pressure reducing valve
	PUSH	Partnership for Urban South Hampshire
S	SDB	Supply demand balance
	SEA	Strategic Environmental Assessment
	SEAA	Severe Drought Annual Average planning scenario

	SECP	Severe Drought Critical Period planning scenario
	SELL	Sustainable Economic Level of Leakage
	SMA	Strategic Metering Area
	SoR	Statement of Response
	SPA	Special Protection Area
U	UKCP	UK Climate Projections
	UKWIR	UK Water Industry Research Ltd
W	WAFU	Water available for use
	WFD	Water Framework Directive
	WINEP	Water Industry National Environmental Programme
	WRMP	Water Resources Management Plan
	WRPG	Water Resource Planning Guidelines, produced and published by the EA
	WRSE	Water Resources in the South East group
	WRZ	Water Resource Zone
	WSW	Water Supply Works
	WWTW	Waste Water Treatment Works

1 INTRODUCTION

1.1 Background

This document is Portsmouth Water's (the Company's) Statement of Response (SoR) to representations received regarding its Draft Water Resources Management Plan, following a period of public consultation.

The Company prepared and submitted its Draft Water Resources Management Plan (Draft WRMP) to Defra in March 2018. The Draft WRMP was prepared in accordance with "The Water Resources Planning Guidelines" April 2017, produced by the Environment Agency and Natural Resources Wales in collaboration with Defra, the Welsh Government and Ofwat.

The Draft WRMP was made available for public consultation for a period of 12 weeks between 5 March 2018 and 25 May 2018. The plan was published in accordance with the Water Industry Act 1991, Sections 37 A to D, as amended by Section 62 of the Water Act 2003.

The Plan considers the options that are available to the Company for maintaining the supply demand balance in its area from 2020/2021 to 2044/2045 (the 'planning period'), and takes into consideration:

- The future demand for water from existing customers;
- Growth in demand arising out of new properties;
- Non-household consumption;
- The potential effect of climate change on resources and demand; and
- Demand management (leakage, water efficiency and metering).

The Plan proposes a twin track approach (a balance of resource development and demand management measures) to meet a forecast underlying growth in demand whilst maintaining a reliable supply of high quality water and protecting the environment.

1.2 Representations Received and Format of Response

As part of the planning process, all stakeholders were invited to submit comments on the Draft WRMP (representations) to Defra by 25 May 2018. Defra received a total of 14 representations which they forwarded to the Company. In addition, the Company also received a letter from Therese Coffey at Defra with comments on the Draft WRMP. The Water Resources Plan Management Regulations 2007 require the Company to prepare and publish a Statement of Response to representations received.

During the consultation period, the Company also consulted with over 38,000 customers and invited them to respond to an online survey. A total of 2,212 online questionnaires were completed, and the results have also been included in the Statement of Response.

This "Statement of Response" sets out our response to all representations received from Defra. As required by the Act, it details:

- a) The consideration that was given to those representations;
- b) Any changes made to the Draft WRMP following consideration of those representations and reasons for doing so; and
- c) An explanation where changes have not been made as a result of the representations.

In addition, it details:

- d) The consideration given to customer comments made as part of the online questionnaire;
- e) Any other changes that we have made to the Draft WRMP and the reasons for those changes.

1.3 **List of Organisations making Representations**

Representations on the Draft Plan were received from the following organisations:

- Environment Agency (EA)
- Office of Water Services (Ofwat)
- Department for Environment, Food and Rural Affairs (Defra)
- Natural England (NE)
- West Sussex County Council (WSSCC)
- Hampshire County Council (HCC)
- Partnership for Urban South Hampshire (PUSH)
- Havant Borough Council (HBC)
- Test Valley Borough Council (TVBC)
- Fareham Borough Council (FBC)
- Rowlands Castle Parish Council (RCPC)
- Sussex Wildlife Trust (SWT)
- Wessex Chalk Stream & Rivers Trust (WCSRT)
- Canal & River Trust (CRT)
- Hampshire and Isle of Wight Wildlife Trust (HIWWT)

The Company's response to each of the above representations are reported, by organisation, in Section 2 of this report.

1.4 **Customer comments**

Customer comments made as part of the online questionnaire have been analysed and grouped into generic issues such as leakage, metering and bulk supplies. The Company's responses to each of these key issues are included in Section 3 of this report.

1.5 **Supporting information**

In addition to the Statement of Response, we are also preparing a Draft Final WRMP that includes the changes we have made to the Draft WRMP as issued for public consultation in May 2018. The Draft Final WRMP is being prepared as a separate report and will be issued following our Statement of Response.

1.6 **Summary of Main Changes Made to Company's Draft WRMP**

The following table summarises the main changes that have been made to our Draft WRMP in response to representations and customer comments received.

Issue	Change made from Draft to Final WRMP
Customer and stakeholder engagement	<p>The Company has made significant changes to the Draft Final Plan to capture the customer and stakeholder engagement activities that have been and continue to take place. This is summarised in a new chapter.</p> <p>Consequence: There is a clear line of sight between stakeholder and customers' views and how they have shaped the final preferred plan.</p>
Outage	<p>Stakeholder feedback highlighted issues with the methodology for calculating outage in relation to accounting for changes to the supply system in the planning period, the impact of activities to reduce outage and potential double counting of pollution incidents.</p> <p>Consequence: The outage profile over the planning period has changed, and the Draft Final Plan has been amended to provide more visibility on the method of calculation.</p>

<p>Property forecast</p>	<p>The forecast of property growth within the supply area has been revised to take into account comments made by EA and Ofwat.</p> <p>For the Draft Final WRMP, Local Authority plan-based figures have been used. The changes may result in a less even profile for housing growth with a steeper increase in property growth in the early part of the planning period until 2030.</p> <p>Consequence: This change has increased demand requirements slightly in the early part of the planning period but has made little difference regarding the total demand for water over the 25-year planning horizon.</p>
<p>Leakage</p>	<p>Additional leakage options have been included in the Draft Final WRMP and text amended so that leakage options are presented more clearly.</p> <p>For the Draft Final WRMP, in addition to the traditional district metering approach, a more 'innovative' option of permanent noise loggers in a fixed network has been considered. This option uses telemetry to collect data continuously. The new option is selected in the preferred plan in preference to the district metering.</p> <p>Consequence: This change means that the Company has a more ambitious leakage target. In addition to meeting Ofwat's 15% leakage reduction target over the first five years of the plan, further leakage savings will be delivered throughout the planning period. In total there will be a 15% saving by March 2025 and a further 15% by March 2040.</p>
<p>Metering and Per Capita Consumption</p>	<p>The Company's metering programme has been updated as a result of the customer consultation and the views expressed by the Regulators.</p> <p>For the Draft Final Plan, the Company's metering programme comprises a baseline of Optant metering and New Build metering. The preferred plan includes Change of Occupier Metering, voids metering and the 'meters not for revenue' smart meter trial which is designed to increase the number of meter optants and will provide valuable information to customers on their usage. The preferred plan also includes water efficiency schemes which will assist customers in reducing their consumption.</p> <p>Although a programme of compulsory metering cannot currently be implemented, it has been costed, and the effect of implementing such a programme has been considered with the sensitivity testing undertaken on the preferred plan.</p> <p>Consequence: The Company's change of policy on metering will result in lower per capita consumption and a higher level of meter penetration in the early years.</p>
<p>Headroom</p>	<p>EA and Ofwat feedback highlighted double counting of oil spill shutdown events in the headroom and outage calculations and the EA asked the Company to revisit options to reduce uncertainty as well as clarifying its approach on Time Limited Licences (TLL).</p> <p>Consequence: Headroom has significantly reduced as a result of changes made to the calculation. The risk profile has been altered with a 1% fall in headroom probability every year, and oil pollution has been removed as a driver. The text on TLLs has been corrected.</p>
<p>Options appraisal</p>	<p>The Company's option appraisal and programme appraisal process has been updated as a result of comments from the Regulators.</p> <p>The Draft Final WRMP contains revised text that sets out the Company's options appraisal process more clearly and contains more information around how the final plan has been taken through programme appraisal.</p> <p>Consequence: This change helps demonstrate how the preferred plan has been selected and provides evidence that this is the best planning solution.</p>

<p>Havant Thicket Reservoir and Bulk supplies</p>	<p>In light of the comments received by customers and stakeholders, the text in the Draft Final WRMP has been revised to make it clearer how the strategic reservoir option will be used as well as addressing concerns raised on the impact on bills and environmental impacts.</p> <p>Consequence: The changes provide clarity on key drivers and benefits as well as addressing key concerns. It is clearly set out that there should be no direct bill increase because of the impact of the Southern Water trading agreement.</p>
<p>Sensitivity Testing</p>	<p>The Company's sensitivity testing has been revised following comments received from the Regulators.</p> <p>The Draft Final WRMP contains a section which outlines how the sensitivity testing has been undertaken and describes the scenarios considered. The results are presented and discussed in detail. The sensitivity scenarios consider the main areas of uncertainty concerning risk to supply and demand. The sensitivity scenarios include possible future sustainability changes including tighter flow standards on the River Itchen.</p> <p>Consequence: This change helps demonstrate how the preferred plan has been tested and provides evidence that it is a robust planning solution that is resilient to a range of risks.</p>
<p>Directions</p>	<p>A table demonstrating compliance with the Directions has been included. This signposts the location where each Direction has been addressed.</p> <p>Consequence: This change points the reader to relevant sections of text within the Draft Final Plan and demonstrates compliance with the Water Resources Management Plan (England) Direction 2017.</p>

1.7 Next Steps

After submission of the Water Resource Management Plan (WRMP), the Company proposes to undertake further work to ensure successful delivery of this Plan. This work will include:

- Commence the programme of works for water resource developments in the Draft Final Plan, including Havant Thicket Winter Storage Reservoir
- Work streams to improve confidence in the Draft Final Plan
- Delivering environmental enhancements including the provision of updates on the progress on the various environmental studies and uncertainties and their implications
- Continued collaboration to achieve regulatory ambitions

The Company will continue to work closely with the Environment Agency and other regulators and will inform the EA of progress against its preferred final planning solution through the Annual Review process on its WRMP.

2 RESPONSE TO REPRESENTATIONS FROM ORGANISATIONS

2.1 Environment Agency

2.1.1 R1.1 Programme appraisal and selection of options within preferred plan.

There is a lack of information around how the final plan has been taken through programme appraisal. Within the Economics of Balancing Supply and Demand (EBS) method is it not clear whether the preferred plan selected was optimal, required or best value. The Company states that the final plan is best value but it is not clear how the EBS least cost plan has been compared against the best value plan especially as: Nearly all of the options have been selected and some options have costs yet to be confirmed (such as R023a and R021a).

There is reference to the “decision making tool” by the Company in the plan but there is no description of what this is or how it has been used. As such regulators and customers cannot clearly understand what the alternatives to the preferred plan were, nor have they been provided with a clear justification as to why the Company’s final planning programme is the most optimal plan compared to these alternatives. The options appraisal does not clearly include all leakage options. The options appraisal presented within Appendix K appears to rule out a number of options on the basis they would not be economic in their own right, rather than in relation to other supply and demand schemes proposed to manage the significant deficit created through the transfers planned to Southern Water.

2.1.1.1 Company Response

The ‘decision making tool’ was shared with the regulators during pre-consultation but was not included in the main text of the Draft WRMP. In the light of the comments received, our Draft Final WRMP contains revised text that sets out the Company’s options appraisal process and programme appraisal more clearly.

In response to stakeholder comments and customer feedback, additional leakage options have been considered in the Draft Final WRMP (see response to R1.6 in section 2.1.6.1). The text has been amended so that leakage options are presented more clearly. All the feasible options have been fully costed.

The Draft Final WRMP sets out the least cost plan and the preferred plan and provides evidence to assure customers and regulators that the proposed final plan is the most optimal plan.

2.1.1.2 Changes to Draft Final Plan

The Draft Final WRMP text has been amended to contain more information around how the final plan has been taken through options and programme appraisal as outlined above. Within the text, the least cost plan has been compared to the preferred final plan.

2.1.2 R1.2 Clarity on how the SEA has influenced options selected.

It is not clear whether/how the SEA has influenced the preparation of the draft plan and selection of the preferred options and how the least cost plan was amended to include the best environmental options.

Currently there is limited information in Section 5 (baseline demand balance) and Section 6 (options appraisal) on how and to what extent environmental considerations from the stage 1 assessment (feasible option) have influenced the selection of the preferred options and the draft plan.

2.1.2.1 Company Response

The environmental information within the SEA contributed to, and was used within, the options appraisal process. Information from the SEA was used to screen the unconstrained list and

therefore directly influenced the selection of feasible options from the list of unconstrained options in the draft plan. For example, options relating to desalination (RO27 – 30) were screened out on mutual exclusion grounds as these are included within Southern Water's plan. It should also be noted that the potential locations considered (Portsmouth Harbour, Hayling Island, River Arun and River Itchen downstream of the tidal limit) would not be feasible on environmental grounds as these areas are within Special Protection Areas (SPAs). They may also pose risks to landscapes and heritage features. The SEA was then used to provide an environmental appraisal of those options remaining on the feasible options list.

The SEA was also used to assess the feasible options to identify any significant scheme impacts or cumulative scheme impacts, and this information was used within the options appraisal and the programme appraisal to inform the selection of the preferred options.

In light of the comments received, our Draft Final WRMP contains additional text in Section 4 to explain how environmental considerations have been taken into account in WRMP19 and how the SEA, WRMP and HRA preparation processes are integrated. The Draft Final WRMP also contains revised text in Section 7 which sets out the Company's options appraisal process and programme appraisal in more detail. The revised text makes it clear which options are considered to have the best environmental outcome. Together, these revisions ensure that the Draft Final WRMP more clearly demonstrates the interlinkages between the SEA and the options and programme appraisal.

These changes should provide reassurance to regulators and customers that the preferred plan is the best plan for the environment.

2.1.2.2 *Changes to Draft Final Plan*

The SEA Environmental Report has been updated to reflect changes between the draft WRMP and the Draft Final WRMP including Change of Occupier Metering and revised leakage options. These updates do not fundamentally change the conclusions of the SEA.

The Draft Final WRMP text has been amended to bring out the interlinkages between the SEA and options and programme appraisal as outlined above. These changes have also been brought through to the Executive Summary.

2.1.3 **R1.3 Assess costs of all options**

Cost associated with two options in the preferred plan; Deployable Output Recovery (R021a) and Deployable Output Recovery (R023a), have not been assessed/calculated within the plan. These options are planned to be implemented in 2019. Additionally, costs associated with Indirect Effluent Reuse Scheme (R060) have not been given. Even though this is no longer part of the preferred plan, as a feasible option, the costs should be provided. The plan states that these costs are to be confirmed by Portsmouth Water. However, we would expect to see them in the draft plan.

2.1.3.1 *Company Response*

Following the December 2017 submission of the Draft WRMP to Defra, Portsmouth Water provided more information on the two DO recovery schemes (R021a and R023a). This included financial costs, carbon costs and AISC's. Both options were included in the preferred option table published as part of the public consultation in March 2018.

The Indirect Effluent Reuse Scheme (R060) was based on one of Southern Water's wastewater treatment works. This option was changed to be 'Unfeasible' following discussions with South East Water and Southern Water. Southern Water's Draft WRMP 2019 included an effluent reuse scheme for the same wastewater treatment works in which the water was pumped to the River Itchen. Portsmouth Water can't utilise the same effluent for its own option as the effluent has already been accounted for.

The Draft Final WRMP text has been updated with respect to the Indirect Effluent Reuse Scheme (R060) which is no longer considered to be a feasible option. The Draft Final WRMP includes costs for all feasible options.

2.1.3.2 *Changes to Draft Final Plan*

The costs for the two DO recovery schemes (R021a and R023a) are included in the Draft Final WRMP. The Draft Final WRMP text and tables have been fully updated with respect to the Indirect Effluent Reuse Scheme (R060) which is no longer considered to be a feasible option.

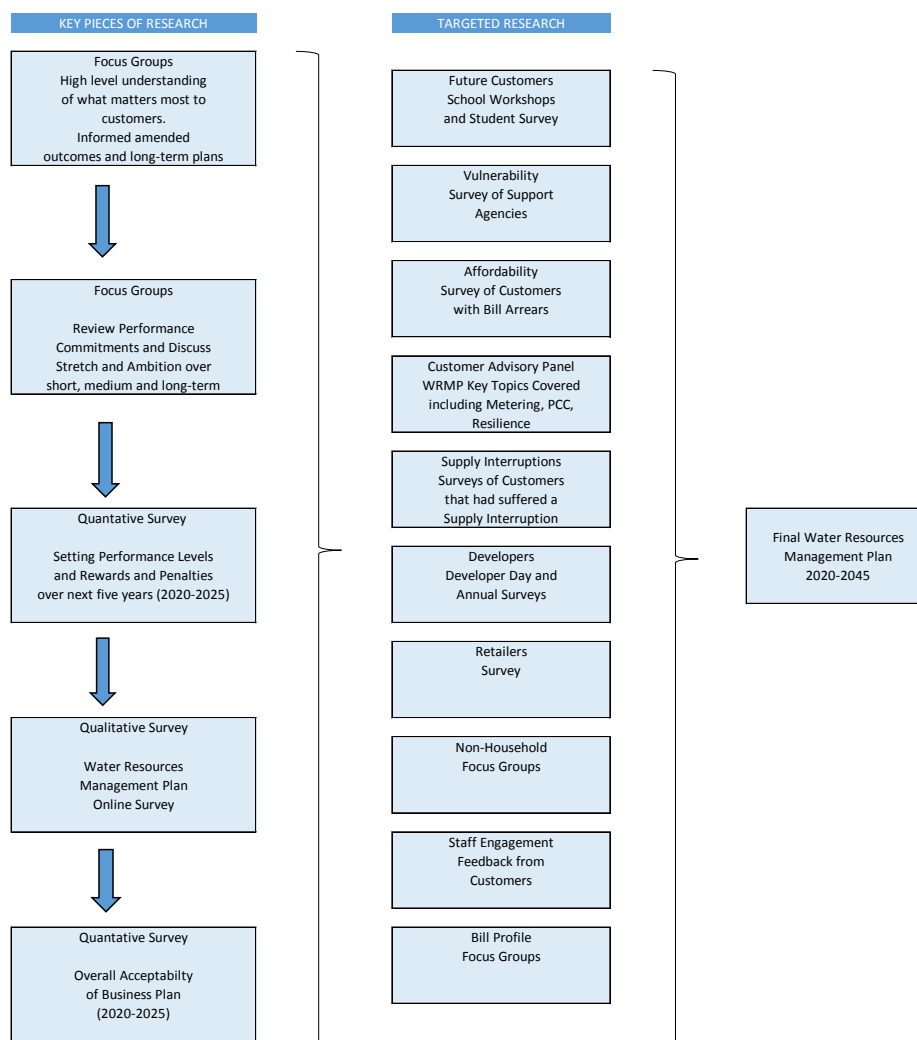
2.1.4 **R1.4 The Company has demonstrated limited stakeholder and customer engagement.**

The Company has not demonstrated how the customers' views have shaped its WRMP. For example, there is no consideration of customer's views on leakage or willingness to pay.

2.1.4.1 *Company Response*

Portsmouth Water engaged in pre-consultation with the Regulators and key Stakeholders including third party suppliers. This process followed the guidance set out by the EA and the results were summarised in Appendix 'Z' of the draft plan. Contact was made with other Regulators such as Natural England and customer groups such as the Consumer Council for Water and the Company's own Customer Challenge Group (CCG).

In light of the comments received, our Draft Final WRMP contains a new section which sets out the stakeholder and customer engagement undertaken and how it has shaped the Plan. The main customer consultation followed the publication of the Draft WRMP in March 2018 and key engagement activities are summarised in the diagram below. During the engagement process as a whole, thirty-eight thousand customers have been involved in the WRMP and Business Plan process. This includes an unprecedented 2,212 customers who responded to the online survey on 'Your water and its future', the non-technical public facing document summarising the Draft Water Resource Management Plan. The publication and online survey explained the role of Portsmouth Water in the regional solution and sought customer views on key issues and choices to address leakage, metering and per capital consumption. The Company also engaged consultants to establish customer priorities, satisfaction with levels of service and to develop valuation work which would allow the quantification of incentive rates consistent with customer preferences. This research covered matters relevant to the WRMP, including leakage, metering and service levels.



Following the customer and stakeholder engagement, the Company has made significant changes to the Draft Final Plan. This includes changes to metering and leakage policy and changes to the presentation of WRMP document. The public consultation demonstrated support for the bulk supplies, development of Havant Thicket Reservoir, the levels of service assumed and groundwater development. The summary of insight and impact of customer research and how it has shaped the WRMP have been included in Section 3 of the Draft Final Plan.

2.1.4.2 Changes to Draft Final Plan

The Draft Final WRMP includes a new section specifically capturing stakeholder and customer engagement, activities and findings and how these have shaped the Plan. It also contains revised sections that set out the Company's options appraisal process, programme appraisal and the final preferred plan more clearly. These describe how stakeholder and customer views have been taken into account.

2.1.5 R1.5 The customers are not informed of the impact of the bulk supplies.

It is not clear how the Company has been communicating with its customers about regional water resources needs. There is no clarity in the plan as to how the strategic reservoir option R013 will be used "In the future the bulk supply will also be supported by the development of Havant Thicket reservoir." (draft WRMP p48). For example, it is not clear in the plan whether option R013 is a replacement for the loss of supply to Company's customers resulting from

proposed bulk supply (Source A) to Southern Water or will it be used in addition to it to provide further supplies to Southern Water directly.

2.1.5.1 *Company Response*

As discussed in response to R1.4 (section 2.1.4), Portsmouth Water has undertaken stakeholder and customer engagement.

The main customer consultation followed the publication of the Draft WRMP in March 2018. This included publishing a non-technical public facing document entitled 'Your water and its Future' in which the role of Portsmouth Water in developing a regional solution was explained. As part of the consultation, customers were invited to complete an online questionnaire of 15 questions. Question 10 specifically refers to Havant Thicket Reservoir as part of a regional solution and Question 11 specifically refers to the provision of bulk supplies to Southern Water. This matter was also addressed in focus groups where customers were given information as to what was involved in the reservoir scheme.

The Draft Final WRMP contains a new section of text which describes how Portsmouth Water has communicated with customers regarding the provision of supplies to Southern Water and presents customers' feedback. Customers were overwhelmingly supportive of the plans. Their main concerns related to the impact on bills and environmental impact. The Company was able to address those concerns by demonstrating there should be no direct bill increase because of the Southern Water trading agreement as well as demonstrating the work which has been done to mitigate negative environmental impact related to the development of new assets.

In light of the comments received, the text in our Draft Final WRMP has been revised to make it clearer how the strategic reservoir option will be used. The proposed reservoir will be used to supply Portsmouth Water customers and is required to replace an existing source of water (Source A) which will instead be used for the bulk supply to Southern Water.

As discussed in relation to R1.1. (Section 2.1.1), the Draft Final WRMP contains revised text that sets out the Company's options appraisal process and programme appraisal more clearly. This describes the Havant Thicket Reservoir and how it is to be used and shows how customers' views have been considered in determining the final preferred plan.

2.1.5.2 *Changes to Draft Final Plan*

The Draft Final WRMP text has been amended to make it clearer how the strategic reservoir option will be used. Additional text has also been added to the Draft Final WRMP to explain how Portsmouth Water has communicated with customers regarding the provision of supplies to Southern Water and how customer's views have shaped the final preferred plan.

2.1.6 **R1.6 A number of innovations for leakage management do not appear to have been considered.**

Additional innovations in leakage management are not considered within the plan.

In Section 4.4.4.7 – Baseline Leakage Forecast, the Company comments that over the planning period it would anticipate 'improvements in efficiency and advances in leakage detection technology' although the nature of these is not clarified. The Company include an option (D004) for permanent noise logging – although this has not been taken forward in the preferred plan.

Similarly within Appendix K an option to look at supply pipe leakage using 'Stop:Watch' is considered although this was not included within the unconstrained options list and does not appear to have been included in the options appraisal (Section 6.7). The potential benefits of using 'Stop:Watch' are unclear. The reasons for these options not being selected within the final plan are not clear.

There are a number of other innovations in the leakage community that have not been directly mentioned such as the use of satellite imagery, in-pipe inspection methods and smart network analytics. It is suggested that an assessment of the potential for alternative ways of managing leakage could be more thorough than that undertaken.

2.1.6.1 *Company Response*

In response to stakeholder comments and customer feedback, additional leakage options have been considered in the Draft Final WRMP. Most notably, in addition to the traditional District Meter Areas (DMA's), a more 'innovative' option of permanent noise loggers in a fixed network has been developed and is included within the preferred final plan.

A version of the permanent noise logger option was included in the Draft WRMP, however for the Draft Final WRMP this has been replaced by a revised option which uses a fixed network of telemetry to collect data continuously from the permanent noise loggers rather than AMR technology which requires vans to drive around the area to collect data. The system uses real time data and low frequency WiFi. In effect it is a form of 'smart' network.

Some of the leakage management options mentioned in the SELL Report (Appendix 'K' of the Draft WRMP) such as risk based mains renewal and additional pressure management have now been included in the Draft Final WRMP options appraisal.

In summary, to achieve a more ambitious leakage reduction throughout the planning period (see R4.1, section 2.1.15), rather than focussing on District Metering to achieve SELL, Portsmouth Water has considered the more innovative option of permanent noise loggers in a fixed network.

Fixed networks have been used extensively by Affinity Water during AMP6, with successful results. Portsmouth Water and other companies have subsequently been investigating the different manufacturer products available. Trials at Portsmouth Water have seen similar positive results. During 2017/18 Portsmouth Water conducted successful trials with two fixed network manufacturers, proving that the new technology works on the Company's network.

In terms of improvements in leakage detection technology, the Company has been conducting satellite leak detection trials using satellite imaging technology, but it sees this as innovation to improve efficiency on baseline activity rather than an option in its own right.

2.1.6.2 *Changes to Draft Final Plan*

The Draft Final WRMP has been amended to include innovative leakage management options. The Draft Final WRMP text provides greater clarity in terms of alternatives for reducing leakage and the options appraisal considers additional leakage options.

Option D004a and D004b have been revised and replaced with a more 'innovative' option of permanent noise loggers in a fixed network. The new option is described within the options appraisal section of the Draft Final Plan and is selected in the preferred final plan. It will deliver leakage savings in AMP7 (to help achieve the 15% target set by Ofwat) and will continue to deliver leakage savings (5% per AMP) until 2040. This is shown in the Final Planning tables and described in the Final Planning section (Section 8).

2.1.7 R1.7 The reasons for scale of impact, or logic behind combining leakage policies is not explained.

A number of leakage options driven by different aspects of network management are included in Appendix K. Section 5.5 states how the Company has combined leakage options.

Upper end scheme costs have been selected however the reasons for this are not clear. The scheme costs are then doubled within the final AISC estimates. The reason for this is also not clear. This may have resulted in some options appearing less beneficial. Appendix K states

'the approach appears to be robust', however the report describing this (WRc report [UC12759.02 Sept 2017])' is not provided.

2.1.7.1 *Company Response*

The Companies Sustainable Economic Leakage Level (SELL) assessment (Appendix 'K' of the Draft WRMP) appears to have been misinterpreted. In order to identify the Short-Run SELL (i.e. the leakage level that would be optimum if no supply-demand issues or willingness to pay were to be included) the costs of different levels of Active Leakage Control (ALC), pressure management and mains renewal are assessed to identify a leakage level that minimises total costs. Other options for further ALC beyond the Short-Run SELL were investigated and then the options were combined in order to estimate the leakage reductions that would be possible beyond SELL. The leakage options need to be combined because some of the leakage savings will have already been accounted for in the SELL calculations (i.e. the other leakage options will already have an impact on supply pipe leakage).

The options and AISC ranges included in the SELL calculations are not directly translated into the leakage options and AISC which were included in the options appraisal. The Options included in the Options Appraisal were reported in Appendix R of the Draft WRMP, option costings including AISC's were provided to the EA in a separate confidential appendix.

For the Draft Final WRMP, the leakage options being considered in the options appraisal process have been set out more clearly in the main text. This includes options such as mains renewal, pressure management and the introduction of a fixed network of permanent noise loggers.

The preferred plan includes the adoption of a fixed network of permanent noise loggers. This is a holistic and ambitious option and the reported leakage reductions encompass all the benefits likely to be achieved through following this approach.

2.1.7.2 *Changes to Draft Final Plan*

As set out in response to R1.6 (section 2.1.6.2), the Draft Final WRMP has been amended and provides greater clarity in terms of alternatives for reducing leakage. The options appraisal considers additional leakage options.

Option D004a and D004b have been revised and replaced with a more 'innovative' option of permanent noise loggers in a fixed network. The new option is described within the options appraisal section of the Draft Final Plan and is selected in the preferred final plan. It will deliver leakage savings in AMP7 (to help achieve the 15% target set by Ofwat) and will continue to deliver leakage savings (5% per AMP) until 2045. This is shown in the Final Planning tables and described in the Final Planning section (Section 8).

2.1.8 **R2.1 Lack of Water Framework Directive (WFD) assessment supporting the plan.**

The Company has not undertaken a WFD assessment of all the options in its plan. It is noted that the baseline analysis outlines the current baseline status of river, coastal and groundwater bodies. The SEA Environmental Report, however, does not provide any specific explanation of the basis on which any potential effects on WFD objectives and waterbody status have been assessed for the options under consideration and their construction and operational phases.

In reporting on SEA objective 3 (water), the assessment matrices in places refer to previous WFD investigations/assessments/modelling (e.g. pages E5; E8; F8; F21), but the background to these references is not provided and it is unclear whether this previous work requires updating in the context of the draft WRMP 2019 and how any updates will be progressed. For example, in places the need for further modelling is highlighted (e.g. page E14; F41). The draft WRMP includes further details on activities under the National Environment Programme (3.3.6 and 3.3.7) and it is stated that abstraction at identified sites is considered by Portsmouth

Water to be sustainable as current licences have been varied. Elsewhere the draft plan (6.6.3 Maximise Deployable Output) highlights that the Environment Agency has raised concerns about WFD waterbody deterioration in relation to two options (Street R021a and R023a). It is not clear how potential impacts on water and in particular WFD requirements have been evidenced for options and the significance of effects assessed, including any risk to WFD compliance.

2.1.8.1 *Company Response*

The SEA Environmental Report has an assessment framework to assess the economic, social and environmental effects of the WRMP. Under Objective 3 “To protect and enhance water quality and surface and groundwater and the ecological status of water bodies”, one of the guide questions is “Will the option prevent the deterioration of Water Framework Directive (WFD) waterbody status (or potential)?” Section 3 of the SEA Environmental Report presents the baseline analysis of river, coastal and groundwater bodies, along with how these are likely to change in future. Section 5 of the SEA Environmental Report, presents the results of the feasible options assessment, with the full assessments contained in Appendix E. The full assessments and potential mitigation measures for preferred options are contained in Appendix F.

The feasible options assessment (section 5 of the SEA) makes it clear that no detrimental effects are expected with regards to SEA objective 3 (water) for the demand, water efficiency, leakage or drought options. Therefore, the potential effects on WFD status is only relevant for the supply side options.

For each of the supply options, any effects on SEA objective 3 (water) have been considered and presented. Information has been drawn from the collected baseline information presented in Section 3 of the SEA. This includes references to previous studies undertaken by (or on behalf of) Portsmouth Water for a variety of water bodies as well as information from the Environment Agency.

To address the comments received, the Draft Final Plan text has been revised. Section 4.3 sets out clearly the previous investigations which have been carried out under the Habitats Directive and WFD drivers, the assessments completed under the National Environment Programme (NEP) and the water resource investigations required under WINEP3 (one of which has a WFD driver). Other potential investigations which have been discussed with the Environment Agency are described and further explanation is provided to clarify how the SEA, WRMP and HRA preparation processes are integrated.

The Draft Final WRMP also contains revised text in Section 7 which sets out the Company’s options appraisal process and programme appraisal in more detail. This includes consideration of the potential environmental impacts of each of the feasible options. The potential WFD impacts from the preferred options are summarised in section 9 of the Draft Final WRMP. The preferred plan has been tested with different sensitivity scenarios including further sustainability reductions and specific considerations such as tighter flow standards on the River Itchen or options not being developed on environmental grounds. This is reported in section 9 of the Draft Final WRMP.

2.1.8.2 *Changes to Draft Final Plan*

The SEA has been amended and updated for the Draft Final Plan.

As described above, the Draft Final Plan has been amended to include a revised section which sets out clearly the previous investigations and assessments undertaken, water resource investigations required under WINEP3 and other potential investigations which have been discussed with the Environment Agency. The potential environmental impacts from options and any future investigations also considered in sections 7,8 and 9 of the Draft Final WRMP. Where the Company is awaiting the outcomes of investigations, any results will be published in the Company’s annual reviews of its WRMP.

2.1.9 R2.2 Lack of assessment on potential impact of licence changes.

The plan does not address the potential impact of the investigation of the Source J licence for the no deterioration in Water Industry National Environment Programme (WINEP) 3 pending investigation in Asset Management Plans (AMP7) nor potential need for investigation at Source F if increase from this source is required within the plan. The plan needs to account appropriately for licences within WINEP. Several other licences have been identified for possible investigation in AMP8 as agreed with the water company reflecting that their risk rating is low, these need to be taken account in the plan.

2.1.9.1 Company Response

As noted in response to issue R2.1 (section 2.1.8), to address the comments received on sustainability, the Draft Final Plan text has been revised.

The Draft Final Plan includes a revised section of text on sustainability reductions (section 4.3). This sets out the water resource investigations required under WINEP3 (which includes Source F) and other potential investigations which have been discussed with the Environment Agency (Source J).

WINEP3 includes an action to investigate and undertake Options Appraisal investigation at Source F for improvements to the hydrological regime to meet WFD objectives. Whilst the Company did consider a licence variation to increase abstraction at Source F (unconstrained option R023), this option was screened out as being unacceptable on the grounds of environmental objectives and regulatory constraints. It was not considered a feasible option in the Draft WRMP and similarly, there are no feasible options associated with Source F in the Draft Final WRMP. It should be noted however, that the results of the WINEP investigation would also provide information relating to Source H (feasible option R023a).

The Environment Agency's latest WINEP3 spreadsheet does not contain any information about other potential water resource investigations. However, Source J has been discussed with the Environment Agency. Portsmouth Water have considered maximising the DO of the source within existing licence limits by construction of a satellite borehole (Option RO22a). This option is selected as part of the preferred plan within the Draft Final WRMP. As part of the application process for a licence variation, the Company will need to undertake an assessment of any potential environmental impacts.

The Draft Final WRMP also contains revised text in Section 7 (options appraisal) which sets out the Company's options appraisal process and programme appraisal in more detail. This includes information on any sustainability concerns which have been raised in connection with the feasible options.

In addition, the Draft Final Plan contains a revised section (Section 9) on sensitivity testing which considers how uncertainty can be managed by the Company. The sustainability tests include potential future sustainability reductions and specific considerations such as tighter flow standards on the River Itchen or options not being developed on environmental grounds.

2.1.9.2 Changes to Draft Final Plan

The Draft Final Plan has been amended to include revised sections on sustainability reductions, options appraisal and sensitivity testing. The changes reflect the information from the latest WINEP3 list and make it clearer how Portsmouth Water has considered the potential impact on the plan from uncertain future environmental requirements.

2.1.10 R2.3 Incorrect WFD assumptions on Bulk Supply from the River Itchen to Southampton.

The plan currently is based on the assumption by the Company that because the River Itchen licence is Habitats Regulation compliant, it is also automatically WFD no deterioration compliant. However, this is not correct and a WFD assessment would be required if there is growth to that licence. The assumption that WFD no deterioration is negated by having been subject to Review of Consents is also incorrect.

2.1.10.1 Company Response

The Draft Final Plan has been amended and the text updated to better represent WFD requirements. As noted in response to Issue R2.1 and R2.2 (sections 2.1.8 and 2.1.9), the Draft Final Plan includes a revised section of text on sustainability reductions which sets out the water resource investigations required under WINEP3.

The bulk supply from the River Itchen was discussed with EA Area staff in relation to the Southern Water Public Inquiry and compliance with the WFD. Although Portsmouth Water plan to abstract more water than the recent actual volumes, Southern Water plan to abstract less or even no water upstream. This means that the bulk supply achieves higher flows in the River Itchen and no deterioration in the WFD status.

Although Portsmouth Water plan to abstract more water than the recent actual volumes, this will still be within the Company's existing abstraction licence. The Environment Agency have not included an investigation for WFD No Deterioration in WINEP3 as it has been agreed that Portsmouth Water will not be increasing their abstraction licence and in balance, the bulk supply will result in higher flows in the River Itchen.

WINEP3 does however, include two investigations at Source A (on the River Itchen). One is a Habitats Directive investigation based on Common Standards Monitoring Guidance (CSMG) which should be a joint investigation with Southern Water and South East Water. The other is an investigation based on biodiversity priorities and the NERC Act which the Environment Agency have suggested is linked to the CSMG Investigations.

The Draft Final Plan contains a revised section (Section 9) on sensitivity testing which considers the risk to potential security of supply from future environmental investigations. The sensitivity scenarios include tighter flow standards on the River Itchen and other potential future sustainability reductions.

2.1.10.2 Changes to Draft Final Plan

The Draft Final Plan has been amended and the text throughout the document updated to better represent WFD requirements. As noted in response to issue R2.2 (section 2.1.9), the Draft Final Plan includes revised sections on sustainability reductions, options appraisal and sensitivity testing. The changes reflect the information from the latest WINEP3 list and make it clearer how Portsmouth Water has considered the potential impact on the plan from uncertain future environmental requirements. Where the Company is awaiting the outcomes of investigations under WINEP3, any results will be published in the Company's annual reviews of its WRMP.

2.1.11 R2.4 Potential for future Sustainability Reductions not assessed.

The current plan does not address the risk appropriately from sustainability reductions. Through local discussion and WINEP the Company has been advised that it may be subject to a sustainability reduction (SR) on the River Itchen. The EA is required to consider a new target flow regime for the River Itchen by 2021. This may lead to a SR but the Company does not appear to acknowledge the risk within its dWRMP.

The Company does acknowledge that River Itchen Common Standards Monitoring Guidance investigation and Salmon 5 Point Approach investigation will be present in WINEP3 and that

it will have to work with Southern Water on this (as agreed in meeting on 7th March between EA and PW). The Company should update its plans to reflect the outcomes of investigations once they are completed.

2.1.11.1 *Company Response*

As noted in response to Issue R2.3 (section 2.1.10), the Draft Final Plan includes revised sections on sustainability reductions, options appraisal and sensitivity testing. The changes reflect the information from the latest WINEP3 list.

The WINEP3 investigation is not related to local environmental conditions but a proposed 'National Standard' based on simple flow percentages. This proposed standard is set out in the 'Common Standards Monitoring Guidance' (CSMG) document. The flow standards are not however, a current regulatory requirement. The issue of tighter flow limits on the River Itchen in the future will be the subject of a Regulatory Impact Assessment (RIA). The WINEP investigation seeks to calculate the likely cost of complying with a tighter standard so that the RIA can be conducted by Government. To address the comments received, Portsmouth Water have included a sensitivity test within the Draft Final WRMP to investigate the potential Sustainability Reduction on the River Itchen abstraction licence. The associated text clearly sets out the options that the Company would rely on in such instance.

2.1.11.2 *Changes to Draft Final Plan*

The Draft Final Plan has been amended to include revised sections on sustainability reductions, options appraisal and sensitivity testing. A sensitivity test has been included to investigate the potential Sustainability Reduction on the River Itchen. The Draft Final Plan sets out how Portsmouth Water will deliver secure supplies should Sustainability Reductions be proved to be required.

2.1.12 **R2.5 Assessment of in combination impacts of options comprising the preferred plan on the environment.**

In the revised submitted version of dWRMP (March 2018), it is noted that Option R060 has been removed and Options R021a and R023a have been included in the assessment (sections 5.2; 5.3; 6.2 and Appendix E). However, concern still remains around potential secondary, synergistic and cumulative effects of the options. Section 6.3 focuses on the potential in-combination effects with other plans, but has limited information on the potential cumulative effects of the preferred options that comprise the draft plan and whether any significant environmental effects are likely due their interaction.

2.1.12.1 *Company Response*

The SEA for the Draft WRMP presented the assessment of in combination impacts of the options included in the preferred plan. The results were reported in Table NTS.7 of the non-technical summary (the last two rows show the cumulative effects in construction and operation) and described on pages 20 to 25 of the non-technical summary.

The full results of the in-combination assessment were presented in section 6.2 (page 118 to 123) of the SEA Environmental Report. Section 6.3 of the Environmental Report (page 124–127) followed on from this assessment of cumulative impacts of options in the preferred plan and was a separate analysis which focused on the effects of the options that comprised the Draft WRMP preferred plan in combination with other plans and programmes.

The Draft Final Plan contains a slightly different combination of options and therefore the assessment within the SEA Environmental Report has been updated accordingly. The results from the updated analysis have been included within the options and programme appraisal section of the Draft Final WRMP. The programme appraisal considers the potential cumulative effects of the options in the least cost and preferred plan.

2.1.12.2 *Changes to Draft Final Plan*

The Draft Final Plan has been amended and includes a revised section which sets out the options and programme appraisal. The potential cumulative effects of the options are considered within the programme appraisal. This summarises the findings from the updated SEA and describes the environmental effects which might occur due the interaction of the preferred options.

2.1.13 **R2.6 Assumption that all licences will not change in the future.**

The plan is based on the assumption that all licences considered within its baseline will not change in the future and therefore the preferred programme and SEA do not adequately identify and address the risks. For example, Source F licence is in WINEP 3 for investigation in AMP7 will require WFD investigations, to ensure no deterioration if there is growth, and outcomes of each could have an impact on the deployable output.

“The Company believes abstraction within current licences is sustainable under the Water Framework Directive.” “Portsmouth Water believes that further sustainability reductions are unlikely and no allowance has been made in the current WRSE modelling.” (dWRMP section 3.3.4).

This assumption means that the dWRMP or SEA has not fully considered the risks which could have potential implications associated with providing additional bulk supplies to neighbouring company.

2.1.13.1 *Company Response*

As noted in responses to issues R2.1 to R2.4 (sections 2.1.8 to 2.1.11), the Draft Final Plan includes a revised section of text on sustainability reductions (section 4.3). This sets out the water resource investigations required under WINEP3 (which includes Source F) and other potential investigations which have been discussed with the Environment Agency (Source J).

The Draft Final WRMP also contains revised text in Section 7 (options appraisal) which sets out the Company’s options appraisal process and programme appraisal in more detail. This includes information on any sustainability concerns which have been raised in connection with the feasible options.

In addition, the Draft Final Plan contains a revised section (Section 9) on sensitivity testing which considers how uncertainty can be managed by the Company. The sustainability tests include potential future sustainability reductions and specific considerations such as tighter flow standards on the River Itchen or options not being developed on environmental grounds.

2.1.13.2 *Changes to Draft Final Plan*

The Draft Final Plan has been amended to include revised sections on sustainability reductions, options appraisal and sensitivity testing. Additional sensitivity tests have been included to investigate potential future risks to options in regard to possible licence changes which could pose a risk to security of supply and environment. The Draft Final Plan sets out how Portsmouth Water will deliver secure supplies in the event of potential future licence reductions.

2.1.14 **R3.1 Feasibility of the Deployable Output recovery (option R022a).**

The preferred plan selects an option to maximise deployable output within Source J licence (option R022a) to secure an additional 12.5 MI/d from early on in the planning period (2022/23). There is insufficient scoping of this early option and therefore concern over the feasibility/availability of an additional 12.5 MI/d from another borehole into the aquifer even if the nickel issues are resolved at Source J. This may be an issue for neighbouring water companies which are relying on bulk supplies from Portsmouth Water.

2.1.14.1 *Company Response*

In the Draft Final Plan, Option RO22a is still included within the preferred plan but is selected slightly later, in 2024–25.

Although the existing boreholes at Source J are currently being investigated for water quality (nickel) reasons, Option RO22a involves maximising the DO of the source within existing licence limits by construction of a satellite borehole.

This option does not involve any increase in licensed quantity. Whilst a licence variation will be required for the satellite borehole, the average licence volume will remain the same. The source originally produced the full licence volumes by abstraction from two boreholes. The satellite borehole will replace one of the existing boreholes where yield has been proven; the Company therefore has a reasonable level of confidence in the anticipated level of deployable output.

The neighbouring water company (Southern Water) is aware of the risks associated with developing groundwater sources. Southern Water included a scenario within their WRMP to reflect the potential risk that Source J was not available, limiting Portsmouth's ability to provide the agreed level of bulk supply.

Portsmouth Water has also included sensitivity testing within its Draft Final Plan. One of the sensitivity scenarios considers the effect if Option RO22a were not available.

The Company has set out a project plan for Option RO22a within the Draft Final WRMP and will establish regular communications with the regulator and recipient company to ensure this option is brought in on time.

2.1.14.2 *Changes to Draft Final Plan*

Portsmouth Water has included a Project Plan within the Draft Final WRMP which sets out the stages of work required and a proposed timetable (section 11).

The Draft Final Plan includes an amended section on sensitivity testing (Section 9). Further sensitivity testing has been undertaken with respect to Source J.

2.1.15 R4.1 Lack of ambition on leakage following the first 5 years.

The Company plans to meet Ofwat's 15% leakage reduction target over the first five years of the plan. However, the Company shows lack of ambition for the remainder of the planning period as no options are considered to decrease leakage after the first 5 years.

2.1.15.1 *Company Response*

Portsmouth Water has considered the views of the Regulators and customers and reviewed the options around leakage reduction. Additional leakage options have been considered in the Draft Final WRMP including a more innovative option of permanent noise loggers in a fixed network (described in response to R1.6, in section 2.1.6.1).

The Draft Final WRMP options appraisal has been updated and the preferred plan now contains more ambitious leakage reduction, extending throughout the planning period. The fixed network of permanent noise loggers will be used to reduce leakage by 15% in the first five years and then will continue to deliver leakage savings (5% per AMP) until 2045.

2.1.15.2 *Changes to Draft Final Plan*

The Draft Final WRMP has been amended to consider additional leakage options. The options appraisal and programme appraisal have been revised and the option of permanent noise loggers in a fixed network has been selected in the preferred final plan.

The fixed network of permanent noise loggers will be used to reduce leakage by 15% in the first five years and then will continue to deliver leakage savings (5% per AMP) until 2045. This is shown in the Final Planning tables and described in the Final Planning section (Section 8).

2.1.16 R4.2 Customer views on leakage are not clearly presented and their impact on the preferred plan is not clear.

Customer views on leakage not presented clearly, and impact on preferred plan not clear. Customer research is covered in Section 2.9.3 (Customer Research). Not very much detail is provided, although the Company states the results of the market research were 'support for reduced leakage'. Portsmouth Water comment on a number of customers' concerns that have been addressed, however these are specific items relating to the plan presentation and detail, rather than outcomes with regard to the preferred plan for managing water resources.

2.1.16.1 Company Response

The Company response on customer and stakeholder engagement as a whole is set out in response to issue R1.4 (section 2.1.4.1). Engagement activities which specifically addressed leakage included the Customer Advisory Panel (focus groups), customer consultation on a the draft WRMP (qualitative and quantitative results from 2,212 customers) and valuation research (quantitative research which shaped the rewards and penalties for Performance Commitments in the next AMP, including the leakage targets), as well as other activities such as the affordability survey and acceptability testing which indirectly influenced the level of investment for leakage and other proposed activities,

It was clear that customers wanted the Company to have a more ambitious leakage programme and this also mirrored the views of the Regulators.

The Draft Final WRMP has been updated to include the responses to customer consultation. The customer views on leakage have been presented clearly.

The Draft Final WRMP contains revised text that sets out the Company's options appraisal process and programme appraisal. This describes how stakeholder and customers' views have shaped the final preferred plan in regard to leakage reduction.

2.1.16.2 Changes to Draft Final Plan

The Draft Final WRMP text has been amended to present customer views on leakage more clearly and to provide evidence of how customer views have shaped the plan in regard to leakage reduction as outlined above.

2.1.17 R4.3 Sensitivity testing results require explanation or review.

Results of sensitivity analysis suggest that changing leakage outcome has no impact on supply-demand surplus / deficit.

PW plan to reduce leakage by around 14% (5 MI/d from 35.14 MI/d) through DMA creation within the preferred plan. PW also run scenarios showing additional leakage reduction (Section 8 of the main dWRMP) that indicates the impact on the overall S-D balance, but not costs of doing so.

The results presented in Section 8.2 – Sensitivity of the Plan – do not make sense as the supply-demand balance appears to indicate increased surplus regardless of whether leakage is increased or decreased from the planned 5 MI/d. No explanation is provided for this and it is not clear to the reader how the values presented in Figure 47 have been arrived at.

2.1.17.1 Company Response

In response to stakeholder comments and customer feedback, additional leakage options have been included in the Draft Final WRMP (see section 2.1.6.1). The final plan includes

two phases of installation of fixed network of permanent noise loggers connected to telemetry, which are expected to save 5MI/d in AMP7 and a further 5 MI/d from 2025/26 to 2044/45.

The Draft Final Plan includes a revised section on sensitivity testing. This provides additional commentary to explain the sensitivity results.

2.1.17.2 *Changes to Draft Final Plan*

The sensitivity analysis has been updated to reflect the robustness of the amended final plan which includes changes to the leakage options selected.

The Draft Final WRMP text on sensitivity testing has been amended to present the latest sensitivity testing results and an explanation of what the results are showing.

2.1.18 **R5.1 Plan is not based on local plan property forecasts.**

Portsmouth Water has chosen trend-based forecasts in preference to plan-based forecasts because they give a smoother profile for housing growth. However, the trend-based forecast has lower total properties than the plan-based forecast in each year until 2030.

2.1.18.1 *Company Response*

The Company considered both trend-based and plan-based forecasts for the Draft WRMP and these were shown to have the same overall impact with time. Local Authority housing numbers were used to develop these forecasts which were consistent with other Water Companies in the area.

For the Draft Final WRMP, the Company has used the plan-based forecasts without adjustment, to meet the Environment Agency's requirement.

2.1.18.2 *Changes to Draft Final Plan*

The demand forecast included in the Draft Final plan has been altered to the plan-based profile. The Company's demand forecast is now therefore based on the Local Authority plan-based figures without adjustment.

2.1.19 **R6.1 Compliance with Direction 3(a) Description of methodologies used for undertaking option appraisal**

The Company has not clearly set out its reasons for choosing EBSD method to appraise options.

2.1.19.1 *Company Response*

Portsmouth Water has followed the UKWIR guidance on investment appraisal and optimisation methodologies (WRMP19 Methods – Decision Making Process: Guidelines, UKWIR Report Ref No 16/WR/02/10). The Company undertook a Problem Characterisation Assessment and determined a score of medium under both strategic needs and complexity factors. The Problem Characterisation exercise suggested only a moderate level of concern as a result of specific issues and therefore the Company decided, in consultation with the Environment Agency, that 'current' EBSD decision making approaches were appropriate. Within EBSD, the Company has chosen to use AISC ranking plus 'expert judgement' as the decision-making tool (described in Table 8 of the UKWIR decision Making Process Guidelines).

To comply with Direction 3(a), the way the Company has implemented this guidance in the context of choosing the measures it intends to take throughout the planning period (i.e. its preferred final planning programme) is set out in section 7 of the plan.

As described in relation to issue R1.1 (section 2.1.1.1) the Draft Final WRMP contains revised sections of text that set out the Company's options appraisal process and programme appraisal more clearly, in sections 7.6 and 7.7 of the plan.

2.1.19.2 *Changes to Draft Final Plan*

The WRMP text has been updated. The Draft Final Plan now includes a clear explanation for the choice of method used to appraise options and a description of the method used. This is set out in section 7.

A table demonstrating compliance with the Directions has been included in section 2.3 of the Draft Final Plan. This signposts the location within the text where each Direction has been addressed.

2.1.20 R6.2 Direction 3(b) Describe the annual average risk of all restrictions as a percentage, and how they change.

The Company has not stated the average annual risk that it may need to impose temporary water use restrictions and ordinary drought orders as a percentage as required by Direction 3(b). It has expressed a percentage risk for emergency drought orders. The Company has not provided a description of how the annual average risk of all restrictions changes through its planning period.

2.1.20.1 *Company Response*

The Company's planned levels of service have been agreed with our customers and are set out in the plan. Average annual risk was set out in the associated Draft Drought Plan 2018 and the customer facing document 'Your Water and its Future'. Unfortunately, the percentages were not included in the main text of the Draft WRMP.

The relationship between levels of service and deployable output is set out in section 4.2. It is not anticipated that there will be any change with regard to the annual risk over the course of the planning period.

To comply with Direction 3(b), the information set out in this section has been included within the Draft Final WRMP.

2.1.20.2 *Changes to Draft Final Plan*

The WRMP text has been updated the Draft Final Plan now states the average annual risk that it may need to impose temporary water use restrictions and ordinary drought orders as a percentage (section 2.4 of the plan).

The Draft Final Plan also states that the annual average risk will not change over the planning period, in particular as a result of the options chosen in the preferred final plan (section 9 of the plan).

2.1.21 R6.3 Direction 3(c) Describe the assumptions it has made to determine the annual average risk of all restrictions.

The Company has not provided the annual average risk for temporary use restrictions and ordinary drought orders. It has not provided the assumptions used to estimate the annual average risk of imposing all levels of restrictions as required by Direction 3(c).

2.1.21.1 *Company Response*

As stated in response to issue R6.2 (section 2.1.20.1), although mistakenly not included in the main text of the Draft WRMP, average annual risks were presented in the associated Draft Drought Plan 2018 and the customer facing document 'Your Water and its Future' for all the levels of service. These include temporary restrictions, drought orders and emergency drought orders. These risks are not calculated but fixed by the assumed Level of Service (LoS).

LoS are set by customer preferences. They are agreed with customers and the Regulators as return periods and can also be expressed as a percentage risk. Both metrics (return periods

and percentage risks) are used to help customers understand the risks and the level of service they have received and are due to receive in the future.

Portsmouth Water's planned customer LoS has been mapped onto the Deployable Outputs (DO) calculated for Portsmouth Water's water resource zone (WRZ). A range of WRZ DOs for different drought return periods have been calculated. These have been used by the Company to understand the impact of drought and the investment costs, with or without drought plan measures (permits and orders). In this way, the Company has been able to provide evidence that the preferred final plan will not affect the existing levels of service and that the existing LoS (average annual risk) will not change over the planning period.

To comply with Direction 3(c), the information set out in this section has been included within the Draft Final WRMP.

2.1.21.2 *Changes to Draft Final Plan*

As stated in response to issue R6.2, the WRMP text has been updated. The Draft Final Plan states the average annual risk that it may need to impose temporary water use restrictions and ordinary drought orders as a percentage (section 2.4). The Draft Final Plan also sets out the assumptions made.

2.1.22 **R6.4 Direction 3(d) Describe the emission of greenhouse gases likely to arise as a result of each measure in its plan.**

The plan contains carbon emissions associated with most preferred options in AMEC SEA Appendix E. However, the plan does not clearly present greenhouse gas emission estimates associated with: R021a deployable output recovery, R023a deployable output recovery, Current operations.

2.1.22.1 *Company Response*

Greenhouse gas emissions have been calculated for Options R021a and R023a and were included in the February 2018 update of the SEA and the Options Appraisal documents.

To comply with Direction 3(d), the greenhouse gas emissions associated with each option in the preferred plan has been set out in the Draft Final Plan.

2.1.22.2 *Changes to Draft Final Plan*

The Company has evaluated carbon emissions for all feasible options in the Draft Final WRMP. The methodology is described in section 7.4.2 of the plan, with information presented in the Options Costing report (shared with the regulators) and in Appendix P (SEA).

The assessment of the likely emissions associated with the final planning scenario is set out in section 9.5.3 of the plan.

2.1.23 **R6.5 Direction 3(e)(i) Describe the assumptions made regarding the implications of climate change, including in relation to the impact on each of its supply and demand measures.**

The Company has provided an estimation of the impacts of climate change on its future demand and supply forecasts. However, it has not described the assumptions or the impacts of climate change on each of its options in the final planning scenario. This is required by Direction 3(e)(i).

2.1.23.1 *Company Response*

Calculating the impact of climate change on individual sources is difficult and calculating the impact on future source yields even more so. Portsmouth Water has estimated the impacts of climate change on its future demand and supply forecasts. The uncertainty is included in headroom.

To comply with Direction 3(e) (i), additional text has been added to the Draft Final Plan in the section on Final Planning. This sets out the climate change assumptions made around the measures in the preferred plan.

2.1.23.2 *Changes to Draft Final Plan*

In its Draft Final WRMP, the Company has assessed the impact of climate change on supply (section 4.4), demand (section 5.3.3) and headroom (section 6.2). The Company has considered the impact of climate change on each of its options in the final planning scenario in section 9.5.

2.1.24 **R6.6 Direction 3(f) Describe the costs associated with its metering programme.**

Section 1.3 p9 and 4.4.2 p73 describes the Company's metering programme which consists of Optant Metering combined with 'Not For Revenue' metering. No additional metering above baseline has been included in the preferred plan. No costs associated with the installation and operation of the Company's current metering programme has been provided in the plan. This is required by Direction 3(f).

2.1.24.1 *Company Response*

The metering programme has changed as a result of the customer consultation and the views expressed by the Regulators. In the Draft Final Plan, the Company's metering programme comprises a baseline of Optant metering and New build metering. The Preferred Plan includes Change of Occupier Metering, void household metering and a trial of 'not for revenue' smart metering.

To comply with Direction 3(f), the cost of the Change of Occupier Metering option is included in Table 5 which presents the Capex and Opex NPV of each of the options in the preferred final planning programme.

A further breakdown of the installation and operational costs is provided in the confidential appendices (supplied to Regulators but not available to Customers because of competition information).

2.1.24.2 *Changes to Draft Final Plan*

The Draft Final WRMP includes a different metering programme.

Section 5.3.2 sets out the assumptions the Company has made regarding metering in its baseline supply–demand balance (i.e. new properties and optant metering), whilst section 9.4.1.2 sets out its preferred final planning approach to additional metering over the planning period (change of occupancy and void household metering, plus a smart meter trial).

The costs of the metering programme are presented in the Options Costing report (shared with the regulators). Summary costs are also included in WRMP Table 5.

2.1.25 **R6.7 Direction 3 (h) Describe its assessment of the cost-effectiveness of domestic metering types.**

There are three feasible metering options assessed on cost effectiveness and compared with other options. These are all related to smart metering and are detailed within the Demand Options Appendix. The Company has chosen not to include any additional metering in the preferred plan (above baseline).

It is not clear how, or if, the Company has assessed metering option categories under Direction 3 (h) i – iv with regards to cost effectiveness. We would expect to see information on potential demand savings and costs for all these metering categories.

2.1.25.1 *Company Response*

As noted in response to issue R6.6. (section 2.1.24.1), the Company's metering programme has changed as a result of the customer consultation and the views expressed by the Regulators. In the Draft Final Plan, the Company's metering programme comprises a baseline of Optant metering and New Build metering. The preferred plan includes change of occupier metering, void household metering and a trial of 'not for revenue' smart metering.

In the Draft Final Plan, the potential demand savings and costs of its feasible metering options are included. Portsmouth Water has also assessed the potential costs of compulsory metering, despite being unable to use it currently. This information has been provided to regulators, although is not included in the Draft Final WRMP.

2.1.25.2 *Changes to Draft Final Plan*

The demand savings associated with optant metering and new property metering are included in WRMP Table 8. The Company has assessed the cost-effectiveness of metering options available to it (change of occupancy metering, void household metering and smart metering) against other options that could be used to balance supply and demand in the economic appraisal of options, section 7.6 of the Draft Final WRMP. Costs are provided in WRMP Table 5 to the extent that commercial confidentiality allows.

2.1.26 **I1.1 Variations in transfers/bulk supplies in drought.**

Section 5.3.1 p96 states that under the severe drought (1 in 200) scenario bulk supplies are 'assumed to be the same but in reality there may be a degree of pain sharing'. If bulk supplies are expected to be varied as a result of drought, this should be quantified within the plan.

2.1.26.1 *Company Response*

The text within the Draft Plan may have been misleading and the text within the Draft Final WRMP has been revised accordingly. Portsmouth Water has not agreed any pain sharing with Southern Water and the bulk supplies are committed for the full range of drought scenarios up to a 1 in 200 year event.

2.1.26.2 *Changes to Draft Final Plan.*

The text in section 4.7 of the Draft Final WRMP has been altered to remove references to pain sharing and make it clear that the bulk supplies are committed for the full range of drought scenarios up to a 1 in 200 year event.

2.1.27 **I1.2 Transfer from Portsmouth Water to Southern Water's Hampshire South Zone**

Portsmouth Water currently have a bulk supply agreement in place to provide Southern Water's Hampshire South Zone (in Southern Water's Plan this is called Hampshire Southampton East Zone) with 15 MI/d from its River Itchen Works. However, the timings of this transfer do not align between the Company's plans. Portsmouth Water's plan states it is to begin in 2018/19 and continue to 2045, whereas Southern Water's plan states it is to begin a year earlier in 2017/18 and will be reduced to 5MI/d from 2027/28 onwards.

The companies have agreed that this transfer will be increased by a further 9 MI/d, however the timing and water quality of this increase also differs between the two plans. PW's plan states that an additional 9 MI/d of potable water will be available from 2022/23, whereas Southern Water's plan states this will be a raw water transfer available from 2023/24.

Finally, there is an additional 21MI/d transfer to Southern Water in 2028/29 that does not align. Portsmouth Water state it is a potable water transfer whereas Southern Waters states this is a raw water transfer.

2.1.27.1 *Company Response*

Portsmouth Water's Draft Plan stated that the bulk supply agreement for 15 MI/d from the River Itchen would be supplied to Southern Water from 2018/19 and continue to 2045. This remains the case for the Draft Final WRMP, and the bulk supply is expected to become operational in 2018. The current agreement is to supply 15 MI/d at all times. The agreement only lasts ten years but has a renewal clause built in.

Portsmouth Water and Southern Water have agreed that the transfer will be increased by a further 9 MI/d from 1st April 2024. In Portsmouth Water's Draft Plan, this had been entered in WRP Table 2 under the year 2022/23 (i.e. between April 2022 and March 2023). This has now been amended to 2024/25.

The additional 21 MI/d of water will be available from 31st March 2029 when Havant Thicket Reservoir is full for the first time. In Portsmouth Water's Draft Plan, this had been entered in WRP Table 2 under the year 2028/29 (i.e. between April 2028 and March 2029). This has now been amended to 2029/30 to reflect the commencement of the scheme's operation.

The bulk supplies from Portsmouth Water to Southern Water are treated water, not raw water and go straight into Southern Water's distribution system.

2.1.27.2 *Changes to Draft Final Plan*

After further consultation with Southern Water, the timing of some of the exports included in the WRMP tables has been amended to ensure that both Company's plans align. The name has been changed to Hampshire Southampton East Zone to match Southern Water's current name for the zone.

2.1.28 12.1 Information on how the sensitivity testing was undertaken is outstanding.

Section 8 of the plan deals with the sensitivity testing undertaken by the Company to demonstrate the robustness of the plan. The scenarios against which the plan was tested are described as are the results. In Section 8.1 the following is stated "The sensitivity analysis considers the uncertainty of inputs across the plan such as demand and deployable output." However, there is no further explanation as to how this is done. As such it is difficult to understand how the sensitivity testing was undertaken and therefore the results are difficult to interpret.

Furthermore, there are no information presented on what action the Company would undertake to meet its commitments to its customers and neighbours should the early options not provide the full resource expected.

2.1.28.1 *Company Response*

To address the comments received, Portsmouth Water has revised the text on sensitivity testing. The Draft Final Plan text outlines the methodology used and provides a clear explanation of each of the scenarios and the sensitivity testing results. The text sets out the potential supply-demand impacts if uncertainty under different scenarios were to materialise. The outcome is likely to be that the Company would be unable to meet its bulk supply agreements to Southern Water. The options for addressing such a scenario are considered in Southern Water's WRMP19. It is important that this risk is not double counted.

2.1.28.2 *Changes to Draft Final Plan*

The Draft Final Plan includes a revised section of text on sensitivity testing: section 8.

2.1.29 13.1 Deficits in Supply Demand Balance for a 1 in 200 event.

The plan says that the Company is resilient to a 1 in 200 event however there are small deficits within the Tables provided both at the beginning and the end of planning period.

2.1.29.1 *Company Response*

Revisions to the demand forecast, plus the inclusion of additional leakage reduction and metering options and a revisiting of the options appraisal process for the Draft Final WRMP has resulted in a preferred final plan that leaves the Company in surplus throughout the planning period (from 2020/21 to 2044/45) under a 1 in 200 year event at both annual average and critical period.

2.1.29.2 *Changes to Draft Final Plan*

The Draft Final Plan has a different demand forecast (see section 2.1.18.2) and headroom has been updated (see section 2.1.38.1). Different options are included in preferred plan to ensure that there are no deficits in the supply demand balance within the planning period (sections 7 and 9).

2.1.30 I3.2 Plan is not based on worst historic drought and no justification for this is provided.

The plan produced by the Company is not based on the worst historic drought it has experienced. In cases where the Company choose a different drought to worst historic to base the plan on, it is required to provide justification for this decision and none has been provided. The current submission does not meet with the requirement of the WRMP guideline which requires the Company to plan on the basis of the worst historic drought event as a minimum design event (WRPG s3.1).

2.1.30.1 *Company Response*

The Draft Plan was based on a range of droughts from 1 in 40 to 1 in 200 and these were set out in Table 10.

As with the last WRMP, the 'Worst Historic Drought' is not considered severe enough for Water Resource Planning. The guidance states that as a minimum, water companies should plan for the worst drought in their historic record (WRPG s3.1).

The worst drought on record for Portsmouth Water was 1973. However, this only has a return period of about 1 in 40. In the Draft WRMP, this scenario was called 'Historic' (it is represented as Scenario 'A' in the Drought Plan). In addition to the worst historic drought, the Company chose to include an 'Extended' drought scenario (Scenario 'B'), a 'Serious' drought scenario (Scenario 'C') and a 'Severe' drought scenario (Scenario 'D') which represents the 'Reference Level of Service'. An extreme drought scenario was also investigated for the Draft WRMP.

The Draft WRMP was not based on the 'Worst Historic Drought' but on a full range of scenarios with a set of WRMP tables and a planning solution for each of them.

A summary of the range of scenarios is provided in the table below.

Draft WRMP Drought Name	Description	Return Period *
Historic 'A'	This is the worst historic drought on record. This was a two-year drought in 1972-74.	1 in 40
Extended 'B'	This is a two-year drought with one dry winter.	1 in 80
Serious 'C'	This is a two-year drought with two dry winters.	1 in 125
Severe 'D'	This is a three-year drought. This was the most critical drought in planning terms as was used as the 'Design Drought'.	1 in 200

Extreme This is an extreme drought, considered to be a 1 in 500 greater than three-year drought.

* Note this relates to the return period of supply-demand failures rather than the return period of rainfall or groundwater levels.

Portsmouth Water has selected the 1 in 200-year drought as its 'design drought' for the following reasons:

- The worst historic drought on record (identified from observed groundwater levels and hindcasting to 1880) has been identified as 1973. The worst historic drought on record is estimated to have a return period (based on supply demand failures) of between 1 in 40 and 1 in 83 years. This is not considered severe enough for Water Resources Planning.
- The Company has committed to providing a bulk supply to Southern Water with water available up to a 1 in 200-year event.

In summary, the Draft Plan considered a range of droughts and did consider the worst historic drought on record as the minimum design event but the design drought was based on a more severe drought. This was not presented very clearly in the Draft Plan and the text has now been revised to explain why the plan was not based on the worst historic drought on record and to explain that it is based on a more severe drought, calculated to have a 1 in 200-year return period.

2.1.30.2 *Changes to Draft Final Plan*

Section 4.2.3 of the Draft Final WRMP has been updated to reflect the reasons why Portsmouth Water did not use the worst historic drought as the basis for its plan, and also the rationale behind the selection of the 1 in 200 year drought as its design drought.

2.1.31 **I3.3 Worst historic drought is not presented.**

The worst historic drought presented in Table 10 is not the same as that presented within the deployable output appendix. The purpose of Table 10 is to show what droughts the Company has considered. This is divided into historic droughts and additional drought scenarios. It should include the Company's design drought, worst historic drought (if different from design drought) and any other drought scenarios considered by the Company. The expectation is that the design drought is worse than or equal to the worst historic drought. (For information: the Company can insert rows to enter further drought scenarios, see WRMP Table instructions p 44).

2.1.31.1 *Company Response*

As noted in response to Issue I3.2 (section 2.1.30.1) The 'Worst Historic Drought' for groundwater levels was 1973 and this event had a return period of 1 in 40. The worst historic drought presented in Table 10 is consistent with the deployable output appendix (the return period of the historic drought actually somewhere between 1 in 40 and 1 in 80 - it is not possible to allocate a precise return period to a given drought and all future droughts will be different in terms of rainfall and duration).

There appears to be some confusion in regard to the information which the Company presented in Table 10. The Company's design drought and worst historic drought were presented, together with the other drought scenarios considered by the Company.

In the Draft Final Plan, the Company has amended the nomenclature in both the plan text and the tables to make it clearer what the Company's worst historic drought is and what drought return period it has planned for.

2.1.31.2 *Changes to Draft Final Plan*

The nomenclature in both the plan text and the tables has been amended to make it very clear what the Company's worst historic drought is and that the design drought, which the Company has planned for, is the 1 in 200-year event. The Draft Final Plan also clearly states that the design drought is worse than the worst historic drought.

2.1.32 I3.4 Clarity around drought severity and return periods.

The Company appears to be confusing drought severity and return period within its assessment. It is also possible that the Company is confusing drought return period with customer levels of service;

The Company has submitted tables based on a 1:20 return period event and the 1:200 return period event.

The 1:20 event is less severe than the Company's "historic" event (estimated return period between 1:40 and 1:50 years).

Although text in Section 10.5 suggests the worst historic drought may be more equivalent to a 1 in 80 year drought (which is confusing).

However, the Company does state that the worst historic drought is similar to its Table 10 "Extended B" scenario which is estimated to have a return period of 1 in 80 years.

The Company could present information in Table 10 about drought durations and/or metrics like % LTA rainfall, Standardised Effective Precipitation Index (SEPI) or Standard Precipitation Index (SPI) that would allow customers and regulators to get a sense of drought severity.

2.1.32.1 *Company Response*

The text presented in the Draft Plan appears to have caused some confusion. The text has been revised to make the Company's assessment easier to understand.

The text and the tables have been reviewed to ensure that the scenarios are consistent. The text has been amended to make it clear that the Draft Final Plan is based on the 1 in 200-year event.

2.1.32.2 *Changes to Draft Final Plan*

As noted in response to Issue I3.4 and I3.5 (sections 2.1.32.2 and 2.1.32.2), the Draft Final Plan text and tables have been amended to provide greater clarity regarding drought severity and return periods and to ensure that there is consistency between the appendices and the main plan.

2.1.33 I3.5 Deployable benefit during drought for R068 drought permit.

The Company includes benefit of R068 drought permit in Table 10 scenarios of 1 in 125, 1 in 200 and 1 in 500 year return period. It is assessed as providing 8.5 MI/d benefit to deployable output under all 3 of these severe/extreme drought scenarios. It is not clear from Table 10 how the Company has estimated this benefit.

In the SEA / main report it appears the Company has just assumed a "one for one" benefit to deployable output based on a permit that allows them to abstract 11 MI/d compared to the base licence condition of 2.5 MI/d. In general, the approach of assuming a 1:1 benefit is simplistic and may not be representative of yield achievable during drought conditions.

2.1.33.1 *Company Response*

Option R068 is based on Source 'S' which was originally built and licenced to produce 11.0 MI/d. The licence was subsequently reduced to 2.5 MI/d due to concerns about a SSSI lake downstream. Under drought conditions the lake will be dry and it is expected to be

possible to abstract an additional 8.5 Ml/d of water. The Company accepts that the use of this 1:1 ratio is simplistic, however, there is no storage involved so it considers this to be the best estimate of yield from the source during different drought events.

The Company has examined in its sensitivity testing a scenario whereby the Source S Drought Permit is not available (considered to be a proxy for risk of the yield of the drought permit being lower than expected). The results indicate that this could result in a supply-demand deficit in AMP7. After 2025-26 however, there would be a surplus in the supply-demand balance, even without this option. This indicates that whilst the drought permit is needed in the short term, once other options within the preferred plan have been developed, there is potential not to rely on the drought permit. This is beneficial the Environment Agency and Natural England have expressed some concerns regarding the Source S Drought Permit and the Company would like to avoid the requirement for using the drought permit wherever possible.

2.1.33.2 *Changes to Draft Final Plan*

The Draft Final Plan has been amended to acknowledge the potential risk to the supply-demand balance of the drought permit RO68 yield not being available. Additionally, the Company is committed to undertaking a study of the potential impact of different drought events on the yield of the drought permit, to verify whether its estimate of the 1:1 ratio of licence increase to DO is appropriate.

2.1.34 13.6 Stochastic Drought Sequence.

The 1,000 years of stochastic weather time series has been used to simulate groundwater levels using lumped parameter groundwater models and river flows using CatchMOD. The 1,000 year stochastic sequence is part of a longer sequence of 15,600 years and has been arbitrarily selected as the first 1,000 years of the sequence. This has been done for stated computational efficiency purposes. In order to provide a more robust estimate of Deployable Output at different return periods the Company should consider how representative the first 1000 years are of the full 15600 years of data (as no droughts more severe than historic could be contained within the first 1000 years). There is also no evidence that the stochastic rainfall sequences have been validated against the historic record to provide confidence in the deployable output and associated return periods. This is particularly important because the dry year 1 in 20 deployable output used* to derive the preferred plan is based on the stochastic sequence and not the historical record. A comparison as part of this review of the historic deployable output values (Appendix A – Figure 8) and stochastic Deployable Output values (Appendix A – Figure 10) indicates that the stochastics may be more severe than the historical record.

*Portsmouth Water is not sure if the Environment Agency have made a typo here and meant to say 1 in 200 years rather than 1 in 20 years? Portsmouth Water's Plan is based on a 1 in 200 year scenario.

2.1.34.1 *Company Response*

Portsmouth Water considers that the use of 1000 years of data is a significant improvement over the 132 years of historic data that is available to it. It is considered that different periods of 1000 years, from within the overall 15,600 year sequence will give a different result but not materially change the Final WRMP. The 1 in 200-year event relates to the return period of supply-demand failures, rather than the return period of rainfall or groundwater levels. The 1000-year block of data (opposed to c. 132 years of historic data) will contain 5 of these 1 in 200-year events and provides more certainty with regards to the DO at this return period. A comparison of Figures 8 and 10 In Appendix A (DO Assessment) demonstrates that the 1000 years of data includes challenging but plausible droughts more severe than the worst historic drought (the ADO is significantly lower at 1 in 200 and 1 in 500-year events compared with the worst historic drought ADO).

To provide evidence that the stochastic rainfall sequences have been validated against the historic record, a report undertaken for Portsmouth Water by HR Wallingford has been included in the appendices of the Draft Final Plan and referenced in the plan text. The report (Portsmouth Water WRMP19, Stochastic Weather Sequences, HR Wallingford, February 2017) describes the provision of stochastically generated sequences of precipitation, potential evapotranspiration and river flow based on the WRSE project stochastics.

The text presented in the Draft Plan has been revised to make the Company's assessment easier to understand with respect to the stochastic drought sequence. The text has been amended to make it clear that the Draft Final Plan is based on the 1 in 200-year event.

2.1.34.2 *Changes to Draft Final Plan*

As previously noted, the Draft Final Plan text and tables have been amended to provide greater clarity regarding drought severity and return periods. A report undertaken for Portsmouth Water by HR Wallingford has been included in the appendices of the Draft Final Plan and referenced in the plan text to provide evidence that the stochastic rainfall sequences have been validated against the historic record.

2.1.35 **I4.1 Resilience to non-drought hazards.**

Defra's Guiding Principles outline how water companies are expected to test resilience of supply systems to a range of future events that could be reasonably foreseen. However, the plan does not include an explicit assessment of resilience to all non-drought hazards (e.g. freeze-thaw and flooding). It is not clear, therefore, whether any significant non-drought resilience issues exist. There is also no explicit reference to UKWIR (2013) Resilience planning: good practice guide – including a list of hazards. This should be provided to demonstrate that all potential non-drought resilience issues have been considered.

2.1.35.1 *Company Response*

Non-drought hazards are considered in the Business Plan, and the Draft Final WRMP also now includes summary information regarding these assessments (section 7.7.1.6).

2.1.35.2 *Changes to Draft Final Plan*

To address the comments received on the Draft Plan, Portsmouth Water has included additional text on resilience within the Draft Final Plan, in the programme appraisal methodology section (7.7.1.6), and subsequently in respect of the level of resilience provided by the least cost plan (section 7.7.2.8) and then the preferred plan (section 7.7.3.8).

2.1.36 **I5.1 Outage assessment**

The preferred plan contains options that will cause significant changes to the supply system (e.g. R022a due in 2022/23 and R013 in 2028/29). However, there is no evidence within the plan that outage allowance has or will be re-assessed to account for this.

2.1.36.1 *Company Response*

Outage has been re-calculated with an allowance for the additional DO provided by the significant resource development options: the DO recovery scheme at Source J in 2024/25 and Havant Thicket Reservoir (R013) in 2029/30. Outage now has a profile that changes with time and that reflects when there are significant planned changes to the supply system.

2.1.36.2 *Changes to Draft Final Plan*

The section on outage within the Draft Final Plan has been updated. The WRMP Tables have been revised to include the new outage profile.

2.1.37 I5.2 High outage allowance and no options to reduce outage.

It is not clear if options to reduce outage have been considered in the plan. Consequently the plan has not explained how outage will be reduced over the planning period. This is of particular concern as outage for this Company is one of the highest across the industry at around 8% of water available for use.

2.1.37.1 Company Response

To address the comments received on the Draft Plan, Portsmouth Water has included more information in the outage section to explain how outage has been calculated.

During AMP6 and in support of the Company's Business Plan a number of studies and initiatives have been undertaken, including modelling and testing where required, to consider resilience and additional requirement both in the short and long term.

One study concentrated on potential high impact and single point failures given that one treatment works contributes 45% of supply to customers. A major threat to the Company's treatment works is from oil spills as demonstrated in the last two sections above and so the purpose of the study was to explore the most effective solution to ensure resilience to this risk, and the projects include expenditure to deal with this. The study included extensive modelling and evaluation of the Company's supply system and distribution systems to consider short and long-term resilience to outages. Over 440 scenarios were tested with failure scenarios ranging from single to 6-point failure. The overall conclusion was that no properties were at risk on an average day, however at peak demand some 100,000 customers would be at risk of low pressure for up to 3 hours. A range of options were considered, and the Company's 2020-25 Business Plan includes four projects that will address the risk and improve resilience at peak demand in a normal year at a cost of £2.4m. Whilst these options will increase resilience at peak demand in a normal year, they have not been tested in 1 in 200-year drought. As such, the outage allowance for the Draft Final WRMP has not been reduced.

The Company has also considered a range of Catchment Management options to reduce outage in the plan. Catchment Management is a key tool in controlling pollution incidents and the Company is involved in three Catchment Partnerships. These have included initiatives to reduce domestic oil pollution e.g. through the offer of subsidised surveys of old oil tanks and/or subsidised replacement of oil tanks with plastic double bunded tanks. These initiatives will continue in the next AMP and it is also anticipated that the insurance industry will become more active due to the size of oil pollution claims.

In addition, the Company is planning to implement a new system for Storage and Production Optimisation in Real Time (SPORT). The SPORT system will continuously analyse and select the optimum pump combinations from the multiple inter-connected sources to balance reservoirs and meet customer demand. Where outage occurs, the SPORT system will allow automated reset to restart works, and where this is not possible, SPORT will analyse and modify the optimum pump combinations on available pumps. Only where reservoirs cannot be balanced within defined limits will out of hours responses be required.

2.1.37.2 Changes to Draft Final Plan

The section on outage within the Draft Final Plan has been updated to explain the basis of the Company's assessment of outage, and the activities it is taking to reduce normal year outage events (although these are not currently considered applicable to 1 in 200 year drought events - although the Company is committed to testing this in more depth as stated in its Next Steps, section 11 of the Draft Final WRMP). The Company has also set out how outage will change over time with new resource developments coming online.

2.1.38 I5.3 Double counting pollution events within headroom and outage assessment.

Appendix D Section 3.2.2 states that for the outage assessment 'Unplanned events in excess of 90 days have been included within the assessment but capped at 90 days'. There are multiple pollution events that have lasted longer than 90 days. The plan states these were capped and included in the outage assessment as expected; however it is unclear if these events have also been included in full in the headroom assessment; as they also appear in Appendix F Section 3.6. If this is the case the combination of headroom and outage assessment may have led to a double counting, and therefore overestimation of risks associated with pollution in the plan.

2.1.38.1 Company Response

To address the comments received, the risk of oil pollution has been removed from headroom to avoid double counting with outage. An explanation of the source data going into both headroom and outage calculations has also been provided.

2.1.38.2 Changes to Draft Final Plan

The section on headroom within the Draft Final Plan has been updated and the headroom and outage appendices have been revised.

2.1.39 I5.4 Limited detail on options to reduce uncertainty in headroom.

Portsmouth Water's headroom is high relative to other water companies. It is not clear if options to reduce levels of uncertainty have been considered. Consequently, the plan has not explained how the levels of risks will be resolved and reduced over the planning period.

The Company has increased the target headroom from its previous plan by around 2% (as % of Total Water Available for Use). Headroom increases over the planning period, with allowance for non-climate change components both high and increasing through the planning period.

The Company should look at options for reducing uncertainty e.g. improve/keep source records for each borehole.

2.1.39.1 Company Response

In the Draft Final Plan, headroom has been reduced in line with the EA's expectations. The risk profile has been altered with a 1% fall in headroom probability every year (5% every step in the tables) and oil pollution has been removed as a driver.

The Company is always looking for ways to reduce uncertainty and additional text around this has been added to the Draft Final Plan.

2.1.39.2 Changes to Draft Final Plan

The section on headroom within the Draft Final Plan has been amended. The headroom appendix has been revised and the WRMP tables updated. Additionally, text has been added in section 11 of the plan describing ways in which the Company plans to improve confidence in certain assumptions underpinning its plan, which may have the impact of reducing headroom in future iterations of the plan, but the extent to which they will be able to reduce headroom is not possible to assess until the work has been undertaken.

2.1.40 I5.5 Appropriate allowance for accuracy of supply side data and new sources within headroom.

The Company do not present any information to suggest it has taken account of new options within uncertainty around accuracy of supply side data and new sources. The Company state that no allowance is made under new sources (in Appendix F Headroom) which is unexpected

and unusual given that the plan contains a new reservoir R013, uncertainty around this new source should be considered.

2.1.40.1 *Company Response*

Uncertainty about a future option is hard to calculate but an allowance for outage has now been made. In addition, an allowance for new sources has been included in headroom.

2.1.40.2 *Changes to Draft Final Plan*

The section on headroom within the Draft Final Plan has been amended. The headroom appendix has been revised and the WRMP tables updated.

2.1.41 **I5.6 Inclusion of oil spill.**

Uncertainty around gradual pollution of the aquifer is likely to be overestimated, especially as oil spills contribute to a significant proportion of the headroom allowance and has increased since last assessment.

The way the Company operates during an oil spill (i.e. shutting down a source as a precaution when a report of an oil spill in the area has been received, and prior to any detected contamination) falls outside of the risks that gradual pollution refers to, and does not sit comfortably within outage as the deployable output is maintained through use of other sources.

2.1.41.1 *Company Response*

As noted in response to I5.3 (section 2.1.38.1) oil spills have now been removed from the headroom calculations to avoid double counting. Additionally, after consideration of each potential pollution source, the assessment of gradual pollution from nitrates, pesticides, turbidity and cryptosporidium has also been removed from the headroom calculations, with a full explanation being provided in Appendix F.

2.1.41.2 *Changes to Draft Final Plan*

The section on headroom within the Draft Final Plan has been amended. The headroom appendix has been revised and the WRMP tables updated.

2.1.42 **I6.1 Lack of ambition around per capita consumption (pcc) reduction.**

The Company states in the plan that “Per capita consumption falls from 140 litres per head per day to 135 litres per head per day by 2024/25” but this does not align with information presented in the tables which has 132.9 litres per head per day in 2024/25.

It is also not clear how the Company plans to achieve the per capita consumption reduction between base year and the beginning of the plan which may not be realistic especially given lack of information around measures and failure to achieve planned metering take up as per our comments in Annual Review 2017.

2.1.42.1 *Company Response*

There appears to have been some confusion in the interpretation of the Draft Plan. This may be due to the difference between the ‘Dry Year’ information presented in the tables and the discussion of ‘Normal Year’ conditions in the text. The WRMP Tables no longer include ‘Normal Year’ forecasts but the data influences the Business Plan via tariffs and income. For clarity, this text has been amended in the Draft Final Plan.

As a result of a combination of its ongoing baseline demand management activities and the metering and water efficiency measures it proposes to undertake during the planning period as part of the preferred final plan, the Company expects to achieve reductions in average PCC from 142.2 l/h/d to 128.7 l/h/d over the planning period. This reflects the decrease in

measured PCC and the increase in unmeasured PCC (of residual unmeasured properties) that result from the Company's proposed metering programme.

In the Draft Final Plan, the population and property forecast has been altered to the plan-based profile (see section 2.1.18.2), the water efficiency assumptions underpinning the baseline demand forecast have been set out more clearly (section 5.3.4) and a wider range of demand management options have been considered in the options appraisal (section 7), and have been included in the preferred plan (sections 7.7 and 9) to detail how the Company proposes to achieve the planned reductions in PCC.

2.1.42.2 *Changes to Draft Final Plan*

The Draft Final plan has a revised PCC forecast as explained above (section 2.1.42.1) and additional explanatory commentary has been provided in the text (section 5.3 of the plan).

2.1.43 **I6.2 Clarify details of water efficiency options.**

It is not clear what water efficiency initiatives are included in the baseline (BL) forecast. Within the final plan (FP) forecast further reduction in per capita consumption will be achieved by implementing five water efficiency options. However the plan does not provide specific information on what each option will involve. Portsmouth Water should present more detail behind the derivation of savings for these water efficiency options.

2.1.43.1 *Company Response*

Baseline water efficiency is covered by the existing Ofwat targets and is set out in the Annual Return (Appendix 'V'). Measures such as the provision of water saving devices and the promotion of water efficiency at events will continue in the next plan period. This is in addition to water efficiency options targeted at Housing Associations with retro-fitting and subsidies. These have been specified in the plan (section 5.3.4).

In light of the comments received, the Draft Final Plan provides more explanation of which water efficiency initiatives are included in the baseline forecast (see section 5.3.4) and provides more information around water efficiency options selected in the preferred plan (see sections 7.5.2.2 and 7.7).

2.1.43.2 *Changes to Draft Final Plan*

The Draft Final Plan text has been amended to provide more clarify on water efficiency options as described above (section 2.1.43.1).

2.1.44 **I6.3 Justify why metering on change of occupier has not been selected.**

Metering on Change of Occupier (C006) is included in the feasible list, Appendix R p8. It is indicated that this option was progressed from stage 2, however no further information has been provided as to how this has been assessed further or why it has not been considered further.

2.1.44.1 *Company Response*

Following comments from the Regulators and the response to the Customer Consultation, Portsmouth Water has revised its options appraisal process such the economic appraisal is undertaken first, followed by the programme appraisal process during which the least cost plan and subsequent iterations are assessed against non-monetary criteria such as customer preferences, risk and alignment with government policy priorities. This has resulted in change of occupancy metering now forming part of the preferred final plan. This, along with baseline optant and new property metering, plus the void household metering and 'not for revenue' smart meter trial which also form part of the preferred plan, will increase meter penetration to approximately 90% by the end of the planning period, and will reduce PCC, contributing to increased resilience.

The new change of occupancy metering option is split into two phases with properties that already have a meter pit being targeted for change of occupancy metering between 2020 and 2025 and all properties where there is a change of occupancy being targeted between 2025 and 2045.

2.1.44.2 *Changes to Draft Final Plan*

The Draft Final WRMP sets out a new metering programme, set out in section 9 of the plan. The options appraisal process through which this programme was derived is presented in section 7.

2.1.45 **17.1 Data used to derive deployable output.**

The Company's deployable output assessment is based on some data that has not been updated since 2006. Some of the operational data that the drought performance of the sources is derived from is no longer available and has been lost including for 1976 (p33 section 3.2.7). Currently the data on which the Deployable Output assessment is based (Appendix A) includes telemetry data which is out by up to 2 m and was checked against a dip back in Sep-Oct 2012 (so potentially only twice checked against a dip 6 years ago); 15 min data available for Jan 2012 – Apr 2016; with max/min water levels available for June 2005-Apr 2016). This introduces uncertainty to the deployable output value which has been in part addressed by bringing the deployable output down in line with the output from a regional model.

However it is not clear what steps the Company is undertaking now or plans to in the future to ensure that the data it uses is of sufficient quality. It is important that this is addressed as the preferred plan was shown to be sensitive to decrease of deployable output of 5% resulting in deficit through sensitivity testing undertaken by the Company.

Need to develop data monitoring programme.

2.1.45.1 *Company Response*

Portsmouth Water will set out a programme of work to collect more consistent data for the DO assessment to reduce the uncertainty.

2.1.45.2 *Changes to Draft Final Plan*

The Company's commitment to improving the data upon which its DO assessments are based is set out in section 11 (Next Steps).

2.1.46 **Issue 1 – Licences**

Commentary about licences for sources F and H and the augmentation clause are not clear.

2.1.46.1 *Company Response*

The commentary about Sources F and H has been expanded to provide further clarification about the licence arrangements.

2.1.46.2 *Changes to Draft Final Plan*

The Draft Final Plan contains amended text in relation to Sources F and H (see section 4.3.1).

2.1.47 **Issue 2 – Sensitivity Testing of Level of Service**

No sensitivity testing of levels of service and the impacts on Deployable Output (Deployable Output) has been explicitly reported as part of dWRMP19 to demonstrate the costs and benefits of changing its level of service.

2.1.47.1 *Company Response*

Customers were happy with the existing level of service for hose pipe bans and agreed with the proposed standard for standpipes in the street. These drought options have an impact on distribution input not deployable output.

2.1.47.2 *Changes to Draft Final Plan*

None.

2.1.48 **Issue 3 – Not-For-Revenue Metering**

Within the baseline forecast, Portsmouth Water intends to introduce a 'not for revenue' metering policy from 2018/19.

The Company plans to install meters at specific properties and provide customer with a comparison between their current unmeasured bill and the resultant measured bill. The Company anticipates that this will encourage customers to opt for a meter. However, it is not clear how the assumed 5% demand saving has been derived, nor how the Company intends to communicate water consumption information to customers. Portsmouth Water should therefore provide further information on this option.

It is not clear if assumed saving are reasonable, or precisely how the scheme will operate.

2.1.48.1 *Company Response*

'Not for Revenue' (NFR) metering is no longer included in the baseline of the Draft Final WRMP. Instead, a trial of 'not for revenue' smart metering has been included in the options appraisal and included in the preferred plan, which will provide additional information on the benefits of metering and customer engagement.

2.1.48.2 *Changes to Draft Final Plan*

The revised metering programme included in the Draft Final Plan preferred plan is different to that which was included in the Draft Plan preferred plan. Details of the options are presented in section 7.5.2.1.

2.1.49 **Issue 4 – Sensitivity Testing of Plan and Scenarios.**

The Company has undertaken sensitivity testing however the text within Section 3.3.8 is misleading and does not fully capture the resilience and sensitivity of the plan to the different scenarios in Section 8. Section 3.3.8 states 'Section 8 considers a scenario where deployable output is reduced by a further 10% by the end of the planning period' however Section 8 does not contain such a scenario. Only 5% reduction and 5% increase of deployable output has been explored and the plan is shown to result in deficit under scenario 15 which looks at 5% less deployable output.

Incorrect presentation of work undertaken and inconsistency making it difficult for customers and stakeholders to understand the plan.

2.1.49.1 *Company Response*

Section 3.3.8 was incorrect in the Draft Plan and has been updated. The Draft Final Plan contains a revised section on sensitivity testing (section 8).

2.1.49.2 *Changes to Draft Final Plan*

The Draft Final Plan contains a revised section on sensitivity testing (section 8). The sensitivity text in other parts of the Draft Final Plan has been checked to ensure consistency.

2.1.50 Issue 5 – 2013 as a Dry Year

Appendix I p5 states ‘Weather variables are held notionally as at 2013 which was a recent example of a dry year’, however it is not clear how this has been assessed or why 2013 has been selected as a dry year.

We would expect to see more information on why 2013 was used as a dry year and how much of an adjustment the forecast includes.

2.1.50.1 Company Response

The year 2013 was selected because it had properties most similar to those of the dry year selected from the Weather Demand Model. However, the comparison was only notional and for information, and did not form the basis of any further analysis. The Company has revised its technical approach to forecasting household consumption for the Draft Final WRMP, now basing the analysis on the variable flow method.

2.1.50.2 Changes to Draft Final Plan

The revised approach to forecasting household consumption is detailed in the revised Appendix I and summarised in section 5.3.3 of the Draft Final Plan.

2.1.51 Issue 6 – Time Limited Licences

Lack of consideration of time limited licences (TLL). Section 5.2.2.3 states ‘The guidance says that the impact of time limited licences should not be included in headroom’, however this is not true. The guidelines state ‘you may include an allowance for uncertainty related to non-replacement of TLL on current terms. This should be based on your assessment of environmental risks.’ Potential for non-replacement of TLL on current terms not included in headroom.

2.1.51.1 Company Response

Section 5.2.2.3 in the Draft Plan was incorrect and the text has been changed. The headroom appendix (Appendix F of the Draft Plan) did however represent TLL correctly.

Appendix F, section 3.4 (S3 Time Limited Licences) reported that the majority of Portsmouth Water’s licences that were previously time limited have been renewed in the last few years with only a small number of time limited licence conditions remaining, expiring in 2028. Portsmouth Water see this as sufficiently long not to cause any concern particularly in the light of abstraction reform which is likely to occur on a shorter timescale.

2.1.51.2 Changes to Draft Final Plan

The text within the Draft Final Plan relating to TLL has been updated (section 6.2.2.3 and Appendix F).

2.1.52 Issue 7 – Table 10 Drought Scenarios

Table 10 Droughts:

The plan states that ‘There is no “Design Drought” but each scenario has been considered and a supply/demand balance produced’ which implies that the Deployable Output has been used as an aggregate number and not tested as a specific event.

However, the Drought Plan analysis suggests that an event is associated with each of the drought scenarios (see Drought Plan figures 8 to 11). If an event is associated with each of the Deployable Output return periods from the stochastic sequences it should be clear how it has been selected and what characteristics it has. For example, based on the 1 in 200 Deployable Output calculation, there are five 1 in 200-year events in the 1000 year record. Because they are Deployable Output derived, the underlying drought the 1 in 200-year droughts could have a range of characteristics e.g. 12 months, 24 months etc.

There are some potential inconsistencies in deployable output values reported in Table 10 vs Appendix A.

2.1.52.1 *Company Response*

Each of the scenarios has a specific DO calculated for that return period. There is no 'aggregate' number and each scenario was tested individually. All of the scenarios pass the supply/demand test but the 1 in 200 (Scenario D) was the most critical in terms of baseline deficit.

2.1.52.2 *Changes to Draft Final Plan*

Following comments received from the Regulators, the Company have revisited the way in which the droughts are presented in section 4.2 and Table 10 and have provided additional information around this. Changes to Draft Final Plan Table 10 and the supporting text have been revised to provide greater clarity.

2.1.53 **Issue 8 – Unaccounted Population and Property**

No details are provided of the assumptions used for the allocation of unaccounted for populations or unconnected properties.

2.1.53.1 *Company Response*

There are no allowances for unaccounted for populations or private supplies. This has been stated within the Draft Final Plan.

2.1.53.2 *Changes to Draft Final Plan*

The text has been updated to state and explain that no allowance has been included (section 5.2.3.1).

2.1.54 **Issue 9 – Billing Forecast**

Portsmouth Water's billing system has been used to allocate base year households as measured, unmeasured or void. But there is insufficient explanation of how forecast measured, unmeasured and void households have been calculated.

2.1.54.1 *Company Response*

Further explanation on how the forecasts are calculated has been added to the Household Demand Forecast Appendix I and also to section 5.3 of the plan.

2.1.54.2 *Changes to Draft Final Plan*

Additional information on household modelling has been added to the Household Demand Forecast Appendix I and also to section 5.3 of the plan.

2.1.55 **Issue 10 – Population Forecasting**

It is not clear how problem characterisation has influenced long term population forecasting in the plan. It is appropriate that, as a Company with "moderate concern" problem characterisation, the Company has used Output Areas (OA) census geography and digital boundaries to match OAs to the Company's WRZ. However, the text should be more explicit about how problem characterisation has influenced the choices and approach. Appendix G Section 1 states that the UKWIR/Environment Agency 2015 guidance (WRMP19 Methods – Population, Household Properties and Occupancy Forecasting) has been applied in the preparation of its forecasts, but it is not clear from the text that all 6 of the tasks identified in the guidance have been applied.

2.1.55.1 *Company Response*

As noted in response to issue R5.1 (section 2.1.18), the demand forecast included the Draft Final plan has been altered and is based on the Local Authority plan-based figures without adjustment. The text included in the Draft Final Plan has been updated.

2.1.55.2 *Changes to Draft Final Plan*

Additional text has been included in the Draft Final Plan (section 5.3.1) to make it clear how problem characterisation has influenced the choices and approach to population forecasting.

2.1.56 **Issue 11 Screening of Leakage Options**

It is not clear how leakage options have been screened:

It is not clear whether all potential leakage options that made it through the 2 stage screening of the unconstrained options list subsequently had a thorough review in line with Section 6.7 of the WRMP guidelines, and then had appropriate AISCs fed forward into the least-cost planning process.

The SELL analysis appears to have been carried out largely separately to the wider options appraisal, with the planned leakage forecast being aligned to the future SELL. The links between the leakage reductions options and the final preferred plan are not clear as it is not possible to tell why some options with low AISC were not selected to be taken forward.

The options appraisal presented within Appendix K appears to rule out a number of options on the basis they would not be economic in their own right, rather than in relation to other supply and demand schemes proposed to manage the significant deficit created through the transfers planned to Southern Water. For instance, in the review of supply pipe leakage reduction options.

It is not possible to confirm that leakage options have been included appropriately within the options appraisal, and are therefore fully considered as solutions to the apparent supply-demand deficit within the baseline forecast.

2.1.56.1 *Company Response*

In response to stakeholder comments and customer feedback, additional leakage options have been included in the Draft Final WRMP (see section 2.1.6.1). The text of section 7.5.4 has been amended so that leakage options are presented more clearly and section 5.5 has been revised to explain more clearly the influence of the SELL assessment on baseline leakage and leakage reduction options.

As described in relation to issue R1.1 (section 2.1.1.1) the Draft Final WRMP contains revised sections of text that set out the Company's options appraisal process and programme appraisal more clearly.

2.1.56.2 *Changes to Draft Final Plan*

Additional leakage options have been included in the options appraisal and a least cost solution set out for comparison with the preferred plan.

2.1.57 **Issue 12 – Occupancy Trends**

Figure 27 in the main report presents a comparison between historic and future occupancy trends, which suggests that the future rate of reduction is much greater than occurred in the recent past. Further explanation is needed as at first sight the trends look inconsistent.

2.1.57.1 *Company Response*

As noted in response to Issue 10 (section 2.1.55), the demand forecast included the Draft Final plan has been altered and is now based on the Local Authority plan-based figures

without adjustment. The text included in the Draft Final Plan has been updated. Additional explanation on occupancy trends has been added to the Draft Final Plan.

2.1.57.2 *Changes to Draft Final Plan*

The Draft Final Plan text on household and property forecasting has been updated.

2.1.58 **Issue 13 – GW: Springs**

'GW: Springs' has been used a source type in the planning tables. This is not a standard defined source type and therefore makes it difficult to compare source type makeup with other companies.

2.1.58.1 *Company Response*

There is no drop-down menu for source type in the planning tables. Portsmouth Water spring system is not a standard type of source. The source type has been changed to a standard defined source type for the Draft Final Plan.

2.1.58.2 *Changes to Draft Final Plan*

The source type has been changed to the standard type: 'GW'.

2.1.59 **Issue 14 – Measured Toilet Flushing**

29.1FP (Measured toilet flushing) is missing from the Planning Tables – but assumed to be 27.9.

2.1.59.1 *Company Response*

This assumption is correct.

2.1.59.2 *Changes to Draft Final Plan*

The tables have been re-populated for the Draft Final Plan.

2.1.60 **Issue 15 – Mislabelling of Tables**

AMEC options costing Report Section 4.1 p41 states 'For some criteria it has been necessary to make the simplifying assumption that none of the options have a quantifiable impact. These criteria are shown in Table 4.2.' However, this should read Table 4.3.

2.1.60.1 *Company Response*

Agreed.

2.1.60.2 *Changes to Draft Final Plan*

The text in the options costing report has been corrected. Note that this report is confidential and only available to regulators.

2.1.61 **Issue 16 – Table 5**

Type of Option has not been entered correctly in Table 5 for all options. It is not possible to compare option costs with other Company option costs by type of option.

2.1.61.1 *Company Response*

The options types have been amended for the Draft Final Plan.

2.1.61.2 *Changes to Draft Final Plan*

The option types have been altered and should now be in the required format.

2.1.62 Issue 17 – Non-Household Water Supply

It is not clear whether the demand from potential new non-household customers switching from non-public water supply sources has been assessed.

2.1.62.1 Company Response

It is possible that non-household customers, such as horticultural producers, may switch back to public water supplies but this is thought unlikely. At the pre-consultation stage such companies stated that they would be developing rainwater harvesting and their own boreholes.

2.1.62.2 Changes to Draft Final Plan

None.

2.1.63 Issue 18 – Non-Household Classification

There is no reference to Ofwat's guidance on non-household classification and if this has led to a significant change in forecast water use compared to WRMP14.

2.1.63.1 Company Response

Retail separation has resulted in changes to the billing data and some reclassification. We now have domestic and commercial customers split by competition rules rather than the Ofwat definition. There were no significant changes to the forecast.

2.1.63.2 Changes to Draft Final Plan

None.

2.1.64 Issue 19 – Spelling and References

The plan has a number of spelling mistakes and references that do not align with tables or figures.

2.1.64.1 Company Response

Noted.

2.1.64.2 Changes to Draft Final Plan

The Company has addressed issues with spelling and incorrect references in the Draft Final Plan.

2.1.65 Issue 20 – Long-Run SELL Calculation

A long-run SELL calculation is not included in the plan, but may be appropriate given supply-demand deficit and other proposed options in the preferred plan. Appendix K Section 3.2 states the capital deferral costs are not included within the cost of water 'This component is excluded if... or if there is no projected capital requirement to maintain the supply-demand balance (as in this case)' It is unclear if this was written prior to the inclusion of transfers to Southern Water (that resulted in a supply-demand deficit) as there are now a number of schemes included in the plan that require capital investment. The Company should confirm the need to include any resource development costs within the cost of water, and calculate long-run – SELL if appropriate. The situation within PW may have changed since the SELL work was commissioned/carried out. The options appraisal does not clearly include all leakage options and it is not clear why. It is not possible to tell if the alternative supply pipe management options provided offer viable alternatives to the current policy.

2.1.65.1 Company Response

As noted in response to Issue 11, additional leakage options have been included in the Draft Final WRMP (see also section 2.1.6.1). The text of section 7.5.4 has been amended so that

leakage options are presented more clearly and section 5.5 has been revised to explain more clearly the influence of the SELL assessment on baseline leakage and leakage reduction options.

The options appraisal and programme appraisal have been updated. The Draft Final Plan is not based on the least cost solution but one has been provided for comparison.

2.1.65.2 *Changes to Draft Final Plan*

The Draft Final Plan text has been altered to reflect the new leakage programme. This is based on other non-monetisable factors such as customer and regulator expectations and risk rather than solely on leakage economics.

2.1.66 **Issue 21 – Supply Pipe SELL Model**

There is no separate supply pipe SELL model provided. Appendix K Section 5.4 states 'the SELL review report recommended that companies should consider developing separate SELL models for supply pipe leakage'. However, this does not appear to have been done. Whilst discussion of options for supply pipe management are discussed in Appendix K, the current policy is not clearly stated or assessed to determine if it offers the best economic choice for the Company. Options '4' and '5' (targeted replacement of supply pipes, and changes to supply pipe repair payment) are presented in Appendix K but not considered in option appraisal. It is not possible to tell if the alternative supply pipe management options provided offer viable alternatives to the current policy.

2.1.66.1 *Company Response*

As noted in response to Issue 11 and Issue 20, additional leakage options have been included in the Draft Final WRMP (see section 2.1.6.1). A separate supply pipe option has not been considered because the fixed network option is designed to find smaller leaks automatically. Additionally, the Company sets out its assumptions in relation to the supply pipe leakage savings achieved through its metering options (section 7.5.2.1 of the plan).

2.1.66.2 *Changes to Draft Final Plan*

The Draft Final Plan text has been altered to reflect the new leakage programme. The Company does not consider that a separate supply pipe SELL model is required at this stage.

2.1.67 **Issue 22 – Uncertainty around Policy Minimum Used in SELL Assessment**

There is extensive discussion of the derivation of the policy minimum used for the SELL assessment. There is significant uncertainty over the most appropriate figure, and the method finally selected does not appear to particularly reflect minimum achievable levels of leakage (Section 3.1.1). There appears to be considerable uncertainty in the legitimate night use estimates, with a methodology applied that does not appear straight forward (discussed on pages 13 and 14 of Appendix K). The summary discussion on PMLL (Section 3.1.3 – overall policy-Minimum) states that the 'very large' uncertainty is driven by 'significant' uncertainty in the actual night use during the policy-minimum. We would suggest this is urgently addressed as uncertainty in night use estimates will impact the overall leakage estimation as well as the SELL calculations. However, fundamentally the PMLL is based on minimum achieved, rather than achievable estimates of leakage. Sensitivity assessment around this shows that the SELL could be as much as 3Ml/d lower than the central estimate using the low-end estimate of the PMLL estimation.

2.1.67.1 *Company Response*

Since 2015 Portsmouth Water has been improving data quality to ensure compliance with the new reporting methodology. The Company have outlined a plan with Ofwat to be fully compliant by March 2020. This work will result in improved understanding of customer night use, reducing uncertainty.

Portsmouth Water has recently introduced a new works asset management system. The Company is now able to identify when and where leakage reduction activity takes place in enough detail to make more precise assessments of lowest achieved leakage levels. This will allow the Company to avoid reliance on uncertain estimates of variations in night use and result in future improvements of the policy minimum assessment.

2.1.67.2 *Changes to Draft Final Plan*

The Draft Final Plan text has been altered to reflect the new leakage programme. This is based on customer and regulator expectations rather than leakage economics.

2.1.68 **Issue 23 – Household Demand Forecast Methods**

Limited explanation of Household demand forecast methods. Appropriate methods (e.g. Regression Models for measured and unmeasured per household consumption [PHC]) have been used to derive demand forecasts with respect to the Company's problem characterisation. Methodologies are also well presented in the plan (Section 4 and Appendix G, I and J). However, the plan should be more explicit about why these methods are appropriate (specifically relate this to problem characterisation and data availability for example). Additionally, there is little information regarding the advantages and disadvantages of methods used.

2.1.68.1 *Company Response*

The Company is pleased that the Environment Agency considers that appropriate methods have been used to derive demand forecasts and that methodologies are well presented. Additional text has been included in the Draft Final Plan to explain why these methods have been chosen.

2.1.68.2 *Changes to Draft Final Plan*

The text included in the Draft Final Plan in Appendix I and in section 5.3.3 has been updated as described above (in section 2.1.68.1).

2.1.69 **Issue 24 – Multiple Linear Regression Models in Household Forecast Methodology**

Details of the household demand forecast methodology are given in Appendix I. Two multiple linear regression (MLR) models have been used to forecast measured and unmeasured per household consumption (PHC). MLR is a new approach for WRMP19 and the forecast presented in the draft plan provides a proof of concept. However greater certainty and validation of the models is required in order to gain greater confidence in this approach and the forecast produced. The methods, assumptions and decision making should be explained in greater detail: There is no explanation as to why the Company has elected to use chosen variables over others. It is unclear if the MLR meet the assumptions of linear regression (i.e. it is uncertain whether the response variables for both measured and unmeasured are linear). There is little information on data cleaning; how outliers have been dealt with or if there is any covariance in the explanatory variables, for example. More explanation of the data validation process is therefore needed, e.g. better description and analysis of validating the data temporally. Appendix I Figure 2 and 3 show forecast data compared to historic, however this information could benefit from an accompanying table (i.e. present forecasted data vs measured data in a table with values).

2.1.69.1 *Company Response*

The demand forecast has been revised for the Draft Final Plan due to changes in property forecasts, metering and leakage. In light of the comments received, the regression models are no longer used in the demand forecast. Instead the 'Variable Flow' method is used that allows for the explicit consideration of different factors and also integrates with the Monte Carlo headroom assessment.

2.1.69.2 *Changes to Draft Final Plan*

The demand forecast has been revised for the Draft Final Plan and the text updated (section 5.3.3 and Appendix I).

2.1.70 **Issue 25 – Analysis and Work by Water UK and WRSE Surrounding Bulk Supplies**

In isolation Portsmouth Water has no water resource deficit and therefore no investment requirements. It is deficits within neighbouring areas which drive the preferred plan. Section 1.4 p12 states 'analysis undertaken by WaterUK and detailed work undertaken by Water Resources in the South East (WRSE) both indicate that greater bulk supplies from Portsmouth Water to Southern Water are both necessary and economic. These studies indicate that, to facilitate these greater supplies, resource development is required; Havant Thicket is a significant development and effectively becomes a regional source, meeting the needs of the region as opposed to meeting the needs of customers of Portsmouth Water'. Within the plan reference is made to the WRSE group's work which demonstrates this need, however no detail or evidence is provided. The WRSE appendix only providing an overview of what WRSE is, but no details of the findings.

2.1.70.1 *Company Response*

The WRSE water resource modelling work has shown that in eight of the nine future scenarios that have been examined in detail, the Havant Thicket reservoir has been chosen as part of the solution to help meet the demand for water across the region. As such it is considered very important option to help deliver resilience in south east England.

Further information about the WRSE modelling work and results have been included in the Draft Final Plan.

2.1.70.2 *Changes to Draft Final Plan*

Additional information about the WRSE modelling work and results surrounding bulk supplies has been included in the Draft Final Plan (primarily in section 3.1.1 and Appendices S, EE and FF).

2.1.71 **Issue 26 – Cost of New Options**

It appears the Company has not considered costs of new options when deriving SELL.

The Company may have under or overestimated the SELL and this could have an impact on the option selection for final plan. In combination with other issues this has the potential to impact security of supplies.

2.1.71.1 *Company Response*

The options considered when deriving the SELL are:

- Further pressure management,
- Efficiency improvements in leak detection and repair by methods including subdivision of existing SMAs, permanent noise logging and other more intensive methods of monitoring of the network,
- More intensive leak detection activity across the whole network,
- Targeted intensive investigation of individual DMAs and SMAs to reduce policy-minimum leakage,
- Infrastructure renewal for leakage reduction, and
- A number of different supply pipe leakage reduction options.

In most of these options new and emerging technologies have been considered.

2.1.71.2 *Changes to Draft Final Plan*

The Draft Final Plan text has been altered to reflect the new leakage programme. This is based on customer and regulator expectations rather than leakage economics.

2.1.72 **Issue 27 – Improvement in Leakage Data Quality**

No timetable for improvement in leakage data quality is provided. No estimate of the uncertainty created through the current data quality provided or used in scenarios. Although the Company has used leakage figures calculated in line with the consistent methodology, there are still improvements needed to key parameters. Specifically in Appendix K – Leakage Report, Section 1 – Operational and Regulatory Background – it is stated that 'the remaining unquantified parameter to be used in the new methodology will continue to vary for some time: particularly, in PW, non-household night use and plumbing losses'. However, no estimate of the potential uncertainty created through these values not being updated is provided. No timescale over which they will be addressed is provided. Although this should not affect the overall planned reduction in leakage (of 5MI/d), it will be clearer for customers who may review the plan and see changes between draft and final, or future figures, that are different.

2.1.72.1 *Company Response*

Since 2015 Portsmouth Water has been improving data quality to ensure compliance with the new reporting methodology. The Company have outlined a plan with Ofwat to be fully compliant by March 2020.

2.1.72.2 *Changes to Draft Final Plan*

The Draft Final Plan is based on the new leakage methodology.

2.1.73 **Issue 28 – Current Leakage**

Very little explanation of how current leakage has been derived is included within the plan. The methodology to derive baseline leakage is provided in Section 1 of Appendix K – Leakage Report. The Company has used the consistent reporting methodology as the basis for the plan, with the estimate rising over the previous methodology by 5.14MI/d. However in its planning tables the actual leakage estimate for 2016/17 is not clearly stated. In Appendix V – Annual Review 2017 – Leakage is stated as 30.37MI/d (Appendix V Section 10 – Tables), and this is assumed to be based on older reporting methods, although it is unclear from the text. Distribution losses account for 21.86MI/d of this total leakage amount, following MLE adjustment (Appendix V Section 6.2.5). Table 15 of the main plan shows leakage in 2015/16 as being 33.3MI/d under the consistent reporting method, or 28.18MI/d under the existing reporting method. For the baseline PW have used their Company leakage target, rebased in line with the consistent reporting methodology, of 35.14MI/d. There are still a number of areas where more data is required to be fully compliant with the consistent reporting methodology, and therefore this value could change. It is generally difficult to identify current leakage and how these values are derived from within the plan and appendices – more focus is given to assessing the economics of leakage (in Appendix K, than discussing the current leakage estimate).

2.1.73.1 *Company Response*

Leakage figures for Portsmouth Water are as follows (rounded to one decimal place):

Old Methodology
2015/16 – 28.2 MI/d
2016/17 – 30.4 MI/d
2017/18 – 32.9 MI/d

New Methodology:
2015/16 – 33.3 MI/d

2016/17 – 34.8 MI/d
2017/18 – 37.1 MI/d

The new methodology leakage figure have been derived using the UKWIR consistency methodology (UKWIR – 17/RG/04/5). Since 2015 Portsmouth Water has been improving data quality to ensure compliance with the new reporting methodology. The Company have outlined a plan with Ofwat to be fully compliant by March 2020.

It is agreed that further improvements to data quality may lead to changes to the new methodology leakage values. Changes to the leakage values will be considered in line with Ofwat guidance.

2.1.73.2 Changes to Draft Final Plan

The Draft Final Plan is based on the new leakage methodology.

2.2 Office of Water Services (Ofwat)

2.2.1 Levels of Service

The levels of service for non-essential use bans and emergency drought orders are inconsistently reported in the Draft Plan.

2.2.1.1 Company Response

The levels of service are set out in the Draft Final Drought Plan. They are as follows:

- Temporary Bans >1 in 20
- Non-Essential Use Bans >1 in 80
- Emergency Drought Orders >1 in 200

In the customer facing document a range of return periods were given to reflect the uncertainty in the drought management process. These have been changed to the fixed levels of service required for the Directions. There is no level of service for Drought Permits but the Company has made a commitment to avoid taking more water from the environment until a 'Severe Drought' is experienced.

2.2.1.2 Changes to Draft Final Plan

The text and tables of the Draft Final Plan have been modified to make sure that the levels of service are consistent. The public facing document for the Final Plan will also make the drought scenarios and the associated levels of service clearer.

2.2.2 Non-Drought Resilience

The plan makes no reference to non-drought resilience.

2.2.2.1 Company Response

As noted in response to the Environment Agency's comment I4.1 (section 2.1.35), Non-Drought resilience is considered under normal demand conditions and proposals to improve resilience are included in the Business Plan.

To address the comments received on the Draft Plan, Portsmouth Water has included additional text on resilience within the Draft Final Plan.

2.2.2.2 Changes to Draft Final Plan

Resilience is now discussed in the Draft Final Plan in the programme appraisal methodology section (7.7.1.6), and subsequently in respect of the level of resilience provided by the least cost plan (section 7.7.2.8) and then the preferred plan (section 7.7.3.8).

2.2.3 Customer Consultation

Ofwat are concerned that customers have not been consulted on Portsmouth Water's regional role.

2.2.3.1 Company Response

As noted in response to the Environment Agency's comment R1.5 (section 2.1), the main customer consultation took place as part of the Draft Plan submission so it was not specifically addressed in the previous iteration.

Customers were engaged on Portsmouth Water's regional role through a number of qualitative and quantitative research including focus groups, an online survey in response to a customer facing document summarising the Draft WRMP, valuation research, acceptability testing and future generations initiatives. Specifically in relation to the online survey, an

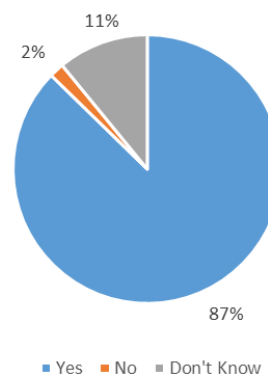
unprecedented response of 2,212 questionnaires were received with a snapshot of the relevant results highlighted below.

Havant Thicket and Bulk Supply

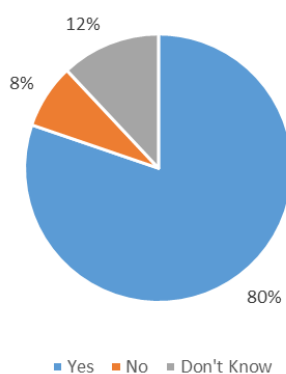
Do you support our plans to build Havant Thicket reservoir as a regional water source and community facility?

87% of customers supported our plans to build Havant Thicket reservoir as a regional water source and community facility. This was also the consensus from the customer comments.

Support for Havant Thicket



Support for Bulk Supply to Southern Water



Do you support our plans to share water with our neighbours in Hampshire (who are supplied by Southern Water) as part of a solution for the shortage of water in the South East as a whole?

80% of customer supported plans to share water with Southern Water in Hampshire.

It is likely that those who answered 'don't know' require more information about the project and more information on our plans for a bulk supply is now available in the WRMP on our website and informs our future communications strategy.

Across the various mechanisms used for engagement on this subject, customers were overwhelmingly in support of the bulk supplies and Portsmouth Water has made a commitment that bills will not rise as a result.

2.2.3.2 Changes to Draft Final Plan

A new chapter has been added to the Draft Final WRMP to explain how Portsmouth Water has communicated with customers regarding the provision of supplies to Southern Water and how customers' views have shaped the final preferred plan.

2.2.4 Drought Restrictions

Ofwat is concerned that customers have not been consulted on the use of drought restrictions.

2.2.4.1 Company Response

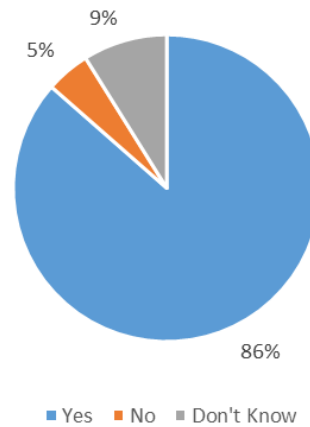
The main customer consultation took place as part of the Draft Plan submission (as described above). Drought restrictions were addressed through focus group feedback, the online questionnaire in response to a customer facing document summarising the Draft WRMP, through willingness to pay work used to determine the appropriate level of associated Performance Commitments in AMP7 and through acceptability testing.

Below is a snapshot from the 2,212 responses received from the relevant questions in the online survey.

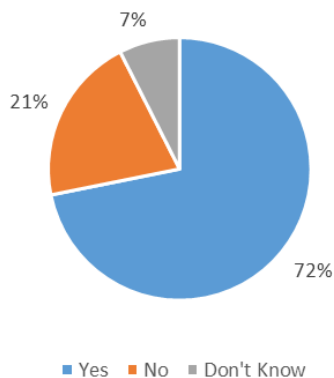
We plan to introduce water restrictions (hosepipe bans) in droughts that occur every 20-40 years on average and further water restrictions and a drought permit once every 80-125 years on average. Do you think this is about right?

86% of customers supported our plans to use water restrictions in droughts. Some of the customer comments we received were supportive of hosepipe bans but less supportive of more severe restrictions.

Support for Water Restrictions in Droughts



Support for Rota Cuts and Standpipes in Extreme Drought



Do you believe that rota cuts (which restrict water use to a few hours each day) or standpipes in the street are acceptable in an extreme drought?

72% of customers supported our plans to use more severe restrictions such as rota cuts and standpipes during extreme drought. This was a lower percentage than the less severe restrictions such as hosepipe bans.

Additionally, as part of Business Plan customer engagement, the Company established a Customer Advisory Panel (CAP). This was made up of a representative group of customers, with the same group meeting five times over 18 months to consider a range of different topics and issues. The sessions were facilitated by a third party to encourage the best possible discussion and debate. The Company presented to the CAP on a range of different topics in order to obtain a wider and deeper understanding of customer views and priorities. It was particularly relevant to the WRMP because it covered topics such as levels of service, metering, bulk supplies and Havant Thicket.

Customers agreed with the proposal to set the level of service for temporary restrictions at 1 in 20 and the level of service for Non-essential use restrictions at 1 in 80. These levels of service are to just avoid the restrictions at that return period and this represents a level of risk of 5% per year for temporary restrictions and 0.8% for non-essential use restrictions. In the CAP, did not support the use of standpipes or Rota cuts even in a 1 in 200- year drought. The use of Drought Permits to enhance supplies is not covered by a level of service but Portsmouth Water has made a commitment not to use them until we experience a 'Severe' drought.

2.2.4.2 Changes to Draft Final Plan

The levels of service for demand restrictions and customer support for them have been explained more clearly in the Draft Final Plan and will be made clearer in the public facing document published with the Final Plan.

2.2.5 Relative Resilience

The relative resilience of Portsmouth Water's area of supply is not described.

2.2.5.1 *Company Response*

The Company has provided additional information on the resilience of its supply system particularly in relation to its preferred plan in its Draft Final Plan.

2.2.5.2 *Changes to Draft Final Plan*

The resilience of Portsmouth Water's supply system to drought and non-drought hazards is outlined in section 7.7.1.6 of the Draft Final Plan, alongside a discussion of the Company's contribution to regional resilience. The performance of the least cost plan and subsequently the preferred final plan in relation to resilience is also described in sections 7.7.2.8 and 7.7.3.8 respectively.

2.2.6 **Customer Challenge Group (CCG)**

Ofwat is concerned that engagement with the CCG is not covered in the WRMP.

2.2.6.1 *Company Response*

Engagement with the CCG was not specifically addressed in the Draft WRMP. In light of the comments received from the Environment Agency and Ofwat, the Draft Final WRMP contains a new chapter to set out in detail the stakeholder and customer engagement undertaken by the Company.

The CCG was engaged with both directly and also through another channel, the Water Resources Management Plan Stakeholder Group. Organisations who had made representations or expressed an interest in the Company's previous plan were invited to join the WRMP Stakeholder Group. The group consisted of the Consumer Council for Water (CCW), Environment Agency, Ofwat, Natural England and Partnership for Urban South Hampshire (PUSH), representing local authorities. The Group met and fed into the development of the Draft WRMP. In particular, the members of the group each provided stakeholders' responses to Pre-Consultation. The majority of the WRMP Stakeholder Group's representatives also sat on Portsmouth Water's Customer Challenge Group and their on-going engagement on the WRM was subsequently undertaken under the auspices of this group.

Water resources have been a key element of scrutiny for the CCG and have been a standing agenda item at meetings, allowing a dialogue to take place on the various issues arising from the Company's Water Resources Management Plan. Technical expertise on these matters has been provided by a representative of the Environment Agency, who was a permanent member throughout the PR19 CCG engagement, and a representative of Natural England, as well as through an independent Technical Assurance provider from an established engineering consultancy.

The CCG has been directly involved in decisions on the customer and stakeholder engagement strategy as well as how those findings have been utilised by Portsmouth Water. For example, the Group has considered the following:

- relevance and make-up of the sample for the Company's qualitative research on the WRMP
- how conflicts between different customer feedback should be treated and the associated weighting each element should be given as part of the triangulation process
- how customer acceptability has translated into both short-term priorities (the setting of Performance Commitments over the next five years) and longer-term commitments

Having considered the outputs of customer engagement, the Group also particularly challenged the Company on its metering strategy, which has resulted in a significant shift from what was proposed in the Draft Plan. The CCG's detailed findings are summarised in its ['Report on Portsmouth Water's PR19 Business Plan'](#) published in September 2018.

2.2.6.2 *Changes to Draft Final Plan*

The Draft Final WRMP has been updated to capture engagement with the CCG within the main document (section 3.1.3).

2.2.7 **Trend Based Population Forecast**

The Final Plan should confirm that the hybrid population forecast method does not result in lower forecasts than only using the local authority plan based method, particularly in the near term.

2.2.7.1 *Company Response*

For the Draft Final WRMP, the Company has used the Local Authority plan-based forecasts without adjustment, to meet the Environment Agency's requirement. This is also noted in response to the Environment Agency's comment R5.1 (section 2.1.18.1).

2.2.7.2 *Changes to Draft Final Plan*

The demand forecast included in the Draft Final plan has been altered to the plan-based population forecast. The Company's demand forecast is now therefore based on the Local Authority plan-based figures without adjustment.

2.2.8 **Measured Per Capita Consumption Trend**

Ofwat is concerned that measured per capita consumption is rising with time and does not align with unmeasured PCC.

2.2.8.1 *Company Response*

The final planning PCC forecasts have changed since the Draft Plan. In its Draft Final Plan, as a result of a combination of its ongoing baseline demand management activities and the metering and water efficiency measures it proposes to undertake during the planning period as part of the preferred final plan, the Company expects to achieve reductions in average PCC from 142.2 l/h/d to 128.7 l/h/d over the planning period. This reflects the decrease in measured PCC and the increase in unmeasured PCC (of residual unmeasured properties) that result from the Company's proposed metering programme.

2.2.8.2 *Changes to Draft Final Plan*

Revised PCC forecasts are now summarised in section 9.6.1 of the Draft Final Plan, with the underlying baseline assumptions being set out in section 5 and options that reduce PCC presented in section 7.

2.2.9 **Supply Forecast**

Ofwat states that more work is needed on the interactions between the supply forecast, the level of service and the use of drought permits.

2.2.9.1 *Company Response*

The Deployable Output assessment has been totally revised for the WRMP 2019 using the latest UKWIR guidance. The assessment is based on the latest stochastic approach and has been carried out by the same Consultants who produced the methodology in the WRMP Guidance. In response to stakeholder comments, the Draft Final Plan has been modified to provide greater clarity regarding drought severity and return periods.

The Company has set out how its supply forecast is linked to its levels of service and also to its Drought Plan and associated drought management actions in section 4.2.5 of the Draft Final Plan.

2.2.9.2 *Changes to the Draft Final Plan*

The Draft Final Plan text and tables have been amended to provide greater clarity regarding the links between the supply forecast, levels of service and the use of drought permits.

2.2.10 **Southern Water Bulk Supplies**

Ofwat states that there is uncertainty in Southern Water's requirements both in terms of timing and magnitude for the bulk supplies and that they are not consistently presented across Portsmouth Water and Southern Water's respective plans.

2.2.10.1 *Company Response*

Bulk supplies have been requested by Southern Water and have been agreed by both companies. The timing and the magnitude of the bulk supplies are included in the WRMP tables. Bulk supplies are covered in Section 4.7 of the Draft Plan and details are provided for the existing bulk supplies and the proposed bulk supplies.

The existing bulk supply agreements which are available throughout the planning period (April 2020 - March 2045) comprise:

- Southern Water – Sussex North WRZ 15 MI/d
- Southern Water – Hampshire Southampton East Zone 15 MI/d

The proposed bulk supplies are as follows:

- Southern Water – Hampshire Southampton East Zone additional 9 MI/d from 2024/25
- Southern Water – Hampshire Southampton East Zone additional 21 MI/d from 2029/30

2.2.10.2 *Changes to Draft Final Plan*

After further consultation with Southern Water, the timing of some of the exports included in the WRMP tables has been amended to ensure that both companies' plans align.

The destination name for the proposed bulk supplies has been changed to Hampshire Southampton East Zone to match Southern Water's naming convention for the zone.

2.2.11 **Nitrate Pollution**

Ofwat states that nitrate pollution is not included in headroom but could have a significant impact on source availability.

2.2.11.1 *Company Response*

In the Headroom Report (see Appendix 'F' of the Draft Plan), section 3.6.2 considers gradual pollution from nitrates and sets out Portsmouth Water's position on nitrate blending and catchment management. In the past, high nitrate levels have been managed by the introduction of blending schemes. In addition to blending, Portsmouth Water is now involved in 'Downs & Harbours Clean Water Partnership' with the Environment Agency, Natural England and the South Downs National Park. With these measures in place it was decided not to include gradual nitrate pollution in headroom. Further nitrate blending schemes may be included in the Business Plan to address specific problems. If shutdowns occur due to nitrate levels in the shorter term, these will be covered within the outage allowance.

2.2.11.2 *Changes to Draft Final Plan*

None.

2.2.12 **Oil Pollution Double Counted**

Ofwat states that oil pollution appears to have been double counted due to its inclusion in outage and headroom.

2.2.12.1 *Company Response*

As noted in response to the Environment Agency's comment I5.3 (section 2.1.38.1), to address the comments received, the risk of oil pollution has been removed from headroom to avoid double counting with outage. An explanation of the source data going into both headroom and outage calculations has also been provided.

2.2.12.2 *Changes to Draft Final Plan*

The section on headroom within the Draft Final Plan has been updated and the headroom and outage appendices have been revised.

2.2.13 **Alternative Trading Scenario**

Owat states that the supply-demand balance components have mostly been forecast in line with the guidance. However, the future Southern Water trade has been incorporated into the baseline of the plan rather than presented as an alternative trading scenario. This creates some issues with transparency and it may have been more appropriate to provide an alternative trading scenario for consultation.

2.2.13.1 *Company Response*

The modelling undertaken by WRSE indicated that there is both the scope (through options available to Portsmouth Water) and the need for the Company to provide additional bulk supplies to Southern Water, to assist its neighbour in meeting deficits it faces during the planning period. The Havant Thicket reservoir is considered very important option to help deliver resilience in south east England.

Portsmouth Water has given careful consideration to the WRSE modelling results in preparing its WRMP19. Discussions have been held with Southern Water throughout preparation of both companies' WRMPs. Agreement was reached that as Southern Water's modelling shows a need for the additional bulk supplies, Portsmouth Water would make these available. Portsmouth Water has agreed in principle to provide the requested bulk supplies to Southern Water.

Providing the agreed bulk supplies to Southern Water means that they effectively form an additional demand. They must therefore be added to the Company's own baseline demand to develop a planning solution to maintain the balance between supply and demand.

For the Draft Final WRMP, the volumes of the bulk supplies are included in Portsmouth Water's baseline supply-demand balance and have also been included within Southern Water's preferred programme in their Final WRMP. Including the agreed bulk supplies allows the regional planning solution to be determined.

Prior to making the decision to include these bulk supplies in its baseline supply-demand balance, the Company consulted with customers to determine whether they were in support of the proposals. The public consultation on the Draft WRMP included a public facing document with a series of key questions for customers. One of these questions covered the bulk supplies to Southern Water and the customer responses illustrated that 80% supported the bulk supplies and 87% supported Havant Thicket Reservoir which is needed to make up the resultant deficit. Portsmouth Water has made a commitment that existing bills will not rise as a result of the bulk supplies and highlighted some of the additional benefits of Havant Thicket Reservoir. The need, customer support, investment and outcomes to be delivered for Havant Thicket are set out in Portsmouth Water's Business Plan submission to Owat

2.2.13.2 *Changes to Draft Final Plan*

None.

2.2.14 Options Appraisal Process

It is not clear how the feasible options perform against the appraisal criteria.

2.2.14.1 Company Response

In the light of the comments received, Portsmouth Water's Draft Final WRMP contains revised text that sets out the Company's options appraisal process, including its programme appraisal process, more clearly.

2.2.14.2 Changes to Draft Final Plan

The Draft Final WRMP text has been amended to contain more information around how the final plan has been developed through the options appraisal process, including economic appraisal and programme appraisal.

2.2.15 Third Party Options

The Draft Plan does not include any third-party provision of options.

2.2.15.1 Company Response

Third Party options were considered at the pre-consultation stage and with the publication of the Market Information. Portsmouth Water provided details of the pre-consultation in Appendix Z of the Draft Plan and kept records of confidential meetings and communications with third party suppliers. None of the third-party suppliers offered any water resources either in the form of a bulk supply or in the form of demand savings within the Company's area of supply. Following the publication of the Market Information, the Canals & Rivers Trust sent a generic letter to all Water Companies. They acknowledged that in the case of Portsmouth Water there was no direct connection but they will continue to work with the WRSE group.

2.2.15.2 Changes to Draft Final Plan

The text around Third Party Options in the Draft Final Plan has been reviewed but there are no material changes as no third-party suppliers of water made any firm proposals to Portsmouth Water.

2.2.16 Leakage Policy 2025–2045

Ofwat would like to see more ambition for leakage control beyond 2025.

2.2.16.1 Company Response

As noted in response to the Environment Agency's comment R4.1 (section 2.1.15.1), Portsmouth Water has considered the views of the Regulators and customers and reviewed the options around leakage reduction. The Draft Final WRMP options appraisal has been updated and the preferred plan now contains more ambitious leakage reduction, extending throughout the whole planning period, comprising two phases of installation of a fixed network of permanent noise loggers:

Option DO04a is the first phase and would commence in AMP7 (2020/21) with the programme being carried out through the five-year period. Leakage would be expected to fall by approximately 5 MI/d over the AMP7 period (i.e. a reduction in leakage to approximately 30 MI/d by 2024/25).

Option DO04b is the second phase and would continue from DO04a, commencing in AMP8 (2025/26) with the programme being carried out throughout the remainder of the planning period. Leakage would be expected to fall by a further 5% per AMP up to 2044/45.

2.2.16.2 Changes to Draft Final Plan

The Draft Final WRMP has been amended to consider additional leakage options. The options appraisal and programme appraisal have been revised and the option of permanent noise

loggers in a fixed network has been selected in the preferred final plan. Leakage savings as described in 2.2.16.1 are delivered throughout the planning period. This is shown in the Final Planning tables and described in the Final Planning section of the Draft Final WRMP.

2.2.17 Metering Policy

It is not clear that the metering approach is optimal in the regional context.

2.2.17.1 Company Response

Most water companies in the South East are able to use Compulsory Metering as an option. This is not available to Portsmouth Water because it does not lie within an area of 'Serious Water Stress'.

Portsmouth Water's metering programme has changed as a result of the customer consultation on the Draft Plan and the views expressed by the Regulators.

The metering programme has been developed through the economic appraisal process and subsequently the programme appraisal, which incorporates non-monetised costs and benefits such as customer preferences and alignment with government policy priorities. Taking these factors into account, the Company's final planning metering programme is considered to provide best value to customers when implemented alongside the other feasible options in its final plan.

2.2.17.2 Changes to Draft Final Plan

The Draft Final WRMP includes a different metering programme. 'Change of Occupier' metering is now included in the Preferred Plan, with changes to the text and the tables.

2.2.18 Water Efficiency Option

The water efficiency options appear to be relatively unambitious.

2.2.18.1 Company Response

In response to Regulator feedback on the Draft Plan, the water efficiency options included in the Company's Draft Final Plan have been reviewed. In particular the Company's household water efficiency programme has been revised to include an enhanced approach whereby the Company will work with Waterwise to develop a strategy that will deliver meaningful reductions in PCC.

2.2.18.2 Changes to Draft Final Plan

Further information has been provided in section 7.5.2.2 of the plan with regards to the extent of activities proposed under each water efficiency option.

2.2.19 Havant Thicket Cost Data

The Havant Thicket Reservoir cost estimate is ten years out of date.

2.2.19.1 Company Response

The options appraisal undertaken for the Draft Plan was based on a revised cost estimate produced by Atkins in September 2017, and the Draft Final Plan has been based on an updated version of this cost estimate produced in 2018 to the P50 level.

2.2.19.2 Changes to Draft Final Plan

Additional text has been added to the Options Appraisal section in the Draft Final Plan to emphasise that the Company has a new cost which has been included (section 7.5.5.1).

2.2.20 Discounting of Costs

There appear to be problems with the discounting costs to determine net present values.

2.2.20.1 *Company Response*

The tables presented with the Draft Plan in December 2017 contained an error which applied the discount factors twice to some elements of the options costs. This error was discovered by the Consultant and a corrected set of tables was produced and the AISC's shown in Section 6 were updated. The revised set of tables was sent to the EA in February 2018 and also posted on the shared file drive.

For the Draft Final Plan, some options have been added and others amended. The costs included in the appendices, text and tables have therefore been updated.

2.2.20.2 *Changes to Draft Final Plan*

The corrected figures for the Draft Plan were published in February 2018. The Draft Final Plan text and tables are based on revised AISC calculations.

2.2.21 **Havant Thicket Reservoir Benefits**

A high environmental and social benefit value is included for the Havant Thicket reservoir (including recreational benefits) which should be further justified in the final plan.

2.2.21.1 *Company Response*

With the introduction of the concepts of 'Green Infrastructure' and 'Natural Capital' the value of environmental benefits and recreational benefits has increased. This makes options such as Havant Thicket Reservoir more attractive because they provide rare aquatic environments and recreational activities which enhance social wellbeing and health.

2.2.21.2 *Changes to Draft Final Plan*

None.

2.2.22 **Feasible Options**

There were too few feasible options given the scale of the problem.

2.2.22.1 *Company Response*

Many of the unconstrained options were already included in Southern Water's plan and were therefore excluded from the feasible list of options to prevent double counting, for example, building a desalination plant to provide a bulk supply to Southern Water is not feasible as they have one in their plan and could just increase its size, and options to utilise treated effluent from Southern Water wastewater treatment works were considered on their merits but were excluded as they appear in Southern Water's options. In response to consultation comments, additional leakage and metering options have been considered in the Draft Final WRMP.

2.2.22.2 *Changes to Draft Final Plan*

Additional metering and leakage options have been added to the list of feasible options and full explanations as to the reasons for certain options being screened out has also been provided.

2.2.23 **Least Cost Plan**

A least cost plan should be compared with the preferred plan.

2.2.23.1 *Company Response*

As noted in response to the Environment Agency's comment R1.1 (section 2.1.1.1), the options appraisal has been updated. The Draft Final WRMP sets out the least cost plan and the preferred plan and provides evidence to assure customers and regulators that the proposed final plan is the most optimal plan.

2.2.23.2 *Changes to Draft Final Plan*

The least cost plan has been compared to the preferred final plan in the Draft Final Plan.

2.2.24 Limited Resilience Testing

Resilience testing appears to be limited and is not described in detail.

2.2.24.1 *Company Response*

As noted in response to the Environment Agency's comment R4.3 (section 2.1.17.1), the Draft Final Plan includes a revised section on sensitivity testing (section 8 of the plan). Further testing has been undertaken and the text provides additional commentary to explain the sensitivity results.

2.2.24.2 *Changes to Draft Final Plan*

The Draft Final Plan contains a revised section on sensitivity testing which considers how uncertainty can be managed by the Company.

2.2.25 Deliverability of the Plan

The plan does not present evidence on how the deliverability of the options, such as the Havant Thicket reservoir, has influenced the preferred plan.

2.2.25.1 *Company Response*

Included in the options appraisal of the Draft Final Plan is an assessment of the deliverability risks and uncertainty of each feasible option (section 7.5). These factors have also been taken into account in the programme appraisal, when determining risk and uncertainty around deliverability of the programme of options as a whole.

2.2.25.2 *Changes to Draft Final Plan*

As described above, the options appraisal section has been expanded to include the assessment of risk, uncertainty and deliverability of all feasible options, and those options in its least cost and preferred plans (including Havant Thicket Reservoir).

2.2.26 Board Assurance

Defra's guiding principles for water resources planning is underpinned by Board assurance which was not evidenced in the draft plan and raises concerns about the robustness of plan development. There is also limited description of the quality assurance of the plan. For the final plan Ofwat expects to see assurance that the company Board is satisfied that the plan represents the most cost effective and sustainable long term solution.

2.2.26.1 *Company Response*

A Board Assurance statement has been added to the Draft Final Plan and will be included with the Final Plan when it is published.

2.2.26.2 *Changes to Draft Final Plan*

Board Assurance statement added to the Executive Summary of the Draft Final Plan.

2.3 Defra

2.3.1 Per Capita Consumption

Your plan currently suggests that per capita consumption is projected to still be high at 130.4 l/h/d by 2044/45. Your strategy on per capita consumption and level of service should be explored further with your customers and your board to consider whether you can offer a higher level of service.

2.3.1.1 Company response

The Company's PCC for the Draft Final WRMP is projected to be 128.7 l/h/d by 2044/45 with its final plan in place but excluding the influence of drought demand restrictions. Portsmouth Water believes that increasing meter penetration is a key enabler for reducing PCC, and companies who have been able to compulsorily meter have been able to demonstrate reductions in consumption of 15% or more. However, due to legislation this is not an option open to Portsmouth Water as its area of supply is not deemed to be 'seriously water stressed'.

The Company has therefore considered all other metering options available to it for its Draft Final WRMP, and through the options appraisal process, metering on change of occupancy, void household metering and a 'not for revenue' smart metering trial have been selected as part of the preferred final plan. This, coupled with more expansive water efficiency schemes also selected as part of the final plan, delivers a reduction from base year PCC of 10% over the planning period, which is the extent of the demand savings that we can achieve through options that are supported by our customers and enabled by the legislation.

2.3.1.2 Change to Draft Final Plan

The customer consultation undertaken by the Company has been extensively documented in the Draft Final WRMP (section 3) and the influence of this on the selection of options to reduce PCC has been set out both in section 3 and section 7 of the plan.

2.3.2 Reductions of Level 4 restrictions since 2014 Plan

You have reduced level four restrictions since your 2014 plan. Your strategy on per capita consumption and level of service should be explored further with your customers and your board to consider whether you can offer a higher level of service.

2.3.2.1 Company response

For the 2019 Plan, the Company focussed on the guidance which asked it to plan for resilience to a 1 in 200 year drought. Portsmouth Water can maintain the level 4 restrictions at 2014 levels with only minor changes to the plan, so has done this for the Draft Final plan.

2.3.2.2 Change to Draft Final Plan

Level 4 restrictions have been reverted to 2014 levels in the Draft Final WRMP.

2.3.3 Delivering the government's 25 year plan for the environment

Alongside this I would like to understand how your plan will help deliver the government's 25 year plan for the environment, in particular how it will deliver environmental net gain in your company area, including planting of trees.

2.3.3.1 Company response

Portsmouth Water believes its WRMP, together with its work on Catchment Management and biodiversity, offers gains to the environment. The Havant Thicket Winter Storage reservoir will deliver net gains to the wider environment and provide local measure resources. In terms of the planting of trees, as part of our catchment management work, we will plant trees on the South Downs which, as well as controlling nitrates, will enhance the environment of the region.

2.3.3.2 *Change to Draft Final Plan*

The Company has summarised in section 11 of its plan (Next Steps) its approach to catchment management, which is set out more fully in the Company's PR19 Business Plan. Additionally, the environmental and social benefits of its preferred plan options are summarised in section 7 of the Draft Final WRMP and the SEA (Appendix P).

2.4 **Natural England**

2.4.1 **Habitats Regulations Assessments**

Recent case law has highlighted the need to review the use of mitigation measure to avoid the need for a Habitats Regulations Assessment. This applies to Havant Thicket Reservoir and the associated pipelines.

2.4.1.1 *Company Response*

Portsmouth Water has carried out a Habitats Regulation Assessment (HRA) for the whole of the WRMP and this was included as Appendix 'O'. As Havant Thicket is developed the planning process will require a full Environmental Impact Assessment of the individual option. This will include a HRA screening assessment. It is not proposed to use mitigation in the assessment. The development of Havant Thicket will involve further mitigation but this will be an outcome of the wider ecological assessment and not an input. A comprehensive mitigation and compensation strategy is being developed to support the planning application. Natural England were invited to comment on the draft outline strategy. Their feedback is being used to inform updates to the strategy. We welcome acknowledgment from Natural England that they are content with the reported assessment that there would be no likely effect on European designated sites or RAMSAR sites.

2.4.1.2 *Change to Draft Final Plan*

None.

2.4.2 **South Downs National Park**

Additional landscape considerations may be important, especially in relation to the South Downs National Park.

2.4.2.1 *Company Response*

The HRA assessment for Havant Thicket Reservoir includes all of the European Sites within 15 km and the possible impacts on specific features and species.

Landscape is an important part of the Strategic Environmental Assessment (SEA) which is included as Appendix 'P'. This lists key sustainability issues and landscape is one of them (Question 10 in the consultation). For Havant Thicket Reservoir (R013) there would be 'Significant Negative Effects' during construction but this does not relate to the National Park but the Listed Parkland Setting at Staunton Country Park. The National Park boundary is close to the site entrance, but the reservoir will not be visible from the South Downs National Park boundary due to the screening effect of the Havant Thicket woodland.

During the operation of the Reservoir the landscape is likely to be enhanced by the addition of open fresh water which is relatively rare in South Hampshire due to the geology. The SEA process ranks this as a 'Minor Positive Benefit' along with biodiversity.

The South Downs National Park Authority (SDNPA) did not make a formal response to the Draft Plan. The Company has held a number of briefing meetings with SDNPA to keep them up to date on our plans for Havant Thicket Reservoir. Representatives of SDNPA have also attended a site visit to view the site in more detail. A landscape impact assessment will be a key component of the Environmental Impact Assessment. SDNPA are being invited to

comment on the viewpoints and key plans to be prepared in order to support the planning application. SDNPA representatives are invited to attend the Havant Thicket Reservoir Stakeholder meetings.

2.4.2.2 *Changes to Draft Final Plan*

None.

2.4.3 **Water Framework Directive – Nitrates**

Natural England state that there is a need for management of catchment resources and explanation about how the quality of groundwater affects the nutrient status of European sites.

2.4.3.1 *Company Response*

Since 2009, Portsmouth Water has worked with Natural England and the Environment Agency as part of the Downs and Harbours Clean Water Partnership to protect and improve the quality of groundwater sources as part of catchment management. This is achieved through encouraging farmers and landowners to uptake best management practices. The scheme provides services such as nutrient and manure management plans, workshops and consultations to reduce the risk of pollution of groundwater. In areas where nitrates are found in the groundwater, we have installed blending arrangements to ensure that Water Quality Regulations standards are met. More information can be found at <https://www.cleanwaterpartnership.co.uk/>

The nutrient status of the harbours is not good but our work with farmers to improve catchment management, along with point source improvements will help to reduce nutrient concentrations.

2.4.3.2 *Changes to Draft Final Plan*

Catchment management is highlighted in the text of the Draft Final Plan (sections 3.3.2.4, 4.5.7 and 10.3.2).

2.4.4 **Water Framework Directive – Wastewater**

Natural England states that there is a need for water demand management and where the resultant wastewater volumes and nutrient load is not fully addressed by treatment capabilities at wastewater treatment works.

2.4.4.1 *Company Response*

Potable water consumption is a small part of sewage treatment work input and does not affect the nutrient load which comes from the solids material. A much greater proportion of the volume comes from the fact that sewers are 'Combined' and collect surface water run-off. Sewage works often have to treat up to three dry weather flows (3 DWF) and store up to 6 DWF. Any reduction in potable consumption will be insignificant.

The second issue for sewage treatment volumes is the problem of infiltration into faulty sewerage systems. This can be due to poor pipe condition or illegal connections and is made worse by the high groundwater levels in this area. Significant reductions in treated volumes could be achieved by sewer replacement or refurbishment of sewers in the critical areas. This is primarily a matter for the waste water undertaker.

2.4.4.2 *Changes to Draft Final Plan*

Additional metering and leakage options have been included in the Draft Final Plan. Further metering and water efficiency will help to reduce sewage flows. Further leakage control could help to reduce infiltration into faulty sewers.

2.4.5 Upstream and Downstream Thinking

It is not clear whether upstream and downstream thinking influences the decision-making process in Portsmouth Water's WRMP.

2.4.5.1 Company Response

Portsmouth Water incorporates as standard practice upstream and downstream thinking into the decision-making process, particularly for new sources of abstraction. Some new abstraction sources were screened out during the options appraisal process due to the impact that they may have on downstream sites. Downstream effects are also considered in the SEA such as debris from construction and change in nutrient status. As much of our supply comes from groundwater supplies, catchment management is very important. Upstream impacts are considered when impacts of pollution in the catchment has caused deterioration in the water quality.

2.4.5.2 Changes to Draft Final Plan

None.

2.4.6 Bulk Supply

Natural England believes that compulsory metering in the Southern Water's area and supplying the bulk exports to them which are subject to a higher water efficiency culture than in the Company's area creates a perverse situation.

2.4.6.1 Company Response

Portsmouth Water is in agreement that the south of England should be subject to the same classification of water stress and the same level of metering, particularly where resource sharing and water trading is being promoted through regional collaboration and government policy. However, under current legislation, Portsmouth Water cannot compulsorily meter its customers as it is not classified as being under 'serious water stress'. The Company has, however, taken all steps available to it (where it has been able to demonstrate customer support) to install meters and undertake water efficiency initiatives to help customer save water.

2.4.6.2 Changes to Draft Final Plan

None.

2.4.7 Metering

Natural England states that voluntary metering is unlikely to offer a large financial incentive for customers.

2.4.7.1 Company Response

Portsmouth Water has the lowest price for water in the country, although customers who switched would also benefit from savings in wastewater charges as which are almost three times the clean water bill. Therefore we understand this comment from Natural England and indeed recent meter optant figures do support this view. We will continue to promote metering with the aim of encouraging all those who would save, to switch to a measured supply. The "not for Revenue" metering trial is one approach to this.

In its Draft Final plan the Company has included change of occupier metering, which does address the point made by Natural England. Changes to Draft Final Plan

The Draft Final Plan includes a revised metering strategy, developed through section 7 (options appraisal) and summarised in section 9 (final plan).

2.4.8 Not For Revenue Metering (NFR)

Natural England believes that the evidence provided to support the proposed metering option is weak and Portsmouth Water should provide further evidence.

2.4.8.1 Company Response

Portsmouth Water has updated its metering strategy. In the Draft Final Plan, the baseline demand forecast includes new property and optant metering, while the metering options selected as part of the preferred plan are change of occupancy metering, void household metering and a trial of 'Not for Revenue' metering with smart meters. The trial will provide additional information that may be useful in the future should NFR metering be required.

2.4.8.2 Changes to Draft Final Plan

The Draft Final Plan includes a revised metering strategy, developed through section 7 (options appraisal) and summarised in section 9 (final plan).

2.4.9 Per Capita Consumption

Even if the projected number of metered customers is achieved, Portsmouth Water will fail to meet the Government's aspiration to average reduction in per capita consumption.

2.4.9.1 Company Response

The Government's per capita consumption aspiration is based on the whole country and represents 'Normal Year' demands. The numbers quoted by Natural England are 'Dry Year' per capita consumptions and the Draft Final Plan tables show that the aspiration will be met by 2030 with the revised metering programme.

2.4.9.2 Changes to Draft Final Plan

The Draft Final Plan has a revised metering programme and as a consequence forecast PCC has been updated.

2.4.10 Change of Occupier Metering (COO)

Natural England recommends that Portsmouth Water install meters on change of household owner or occupier.

2.4.10.1 Company Response

Portsmouth Water considered Change of Occupier Metering in the options appraisal process but it was not thought to be popular with customers. During the recent customer consultation, it became apparent that there was some customer support for change of occupancy metering, so the Company has reviewed its metering strategy for the Draft Final Plan.

2.4.10.2 Changes to Draft Final Plan

Change of Occupancy Metering has been added to the package of measures designed to balance supply and demand. It will complement the optant and new property metering included in the baseline demand forecast, and the void household and 'Not for Revenue' smart metering trial which also form part of the preferred plan. The total number of meters fitted and the associated expected demand reductions have been recalculated.

2.4.11 Abstraction Incentive Mechanism (AIM)

Abstraction from chalk groundwater could be reduced by the Abstraction Incentive Mechanism. This could benefit 'Priority Habitats' identified by Natural England.

2.4.11.1 Company Response

Portsmouth Water has considered AIM schemes for the sources that are most likely to affect priority habitats. In addition to sites that were previously included in AIM a further four sites

were investigated. An AIM based on groundwater levels was considered but it was thought to be too difficult to manage and would have limited benefits. It was based on average conditions because all the sources are needed to meet drought demands.

2.4.11.2 *Changes to Draft Final Plan*

One existing AIM scheme is included in the Business Plan and this is based on Q95 flows.

2.4.12 **Wastewater**

Natural England states that reducing sewer wastewater flows per household can help to reduce nutrient pollution.

2.4.12.1 *Company Response*

Please refer to response in section 2.4.4.

2.4.12.2 *Changes to Draft Final Plan*

None.

2.4.13 **Havant Thicket**

Natural England believes that the statements in the Draft WRMP, that Havant Thicket Reservoir will provide biodiversity benefits, does not fully reflect the assessment in the SEA.

2.4.13.1 *Company Response*

The SEA report is split into construction impacts and operational impacts and biodiversity is one of the 10 SEA objectives. Havant Thicket has minor negative impacts on biodiversity during construction as habitats are removed and mitigation is being developed. During operation there are minor positive effects as freshwater habitat is created and the mitigation/compensation measures mature. With construction lasting ten years but the potential life of the reservoir being 150 years the net impact of this option on biodiversity is positive.

The Company is working with Natural England and other stakeholders to develop a robust mitigation/compensation strategy which will ensure that a net biodiversity gain is delivered.

2.4.13.2 *Changes to Draft Final Plan*

None.

2.4.14 **Planning Requirements of Havant Thicket**

Portsmouth Water has not demonstrated how it will meet legislative and national planning policy requirements in regard to the loss of biodiversity, particularly on ancient woodland sites.

2.4.14.1 *Company Response*

We welcome Natural England's acknowledgment that the reservoir provides a key part of the solution to sustainability reductions required from Southern Water on the River Itchen SAC and River Test SSSI which are necessary to meet conservation requirements and will provide a biodiversity benefit to these valuable chalk stream habitats.

Portsmouth Water completed extensive ecological survey work between 2005 and 2009 at the Havant Thicket Reservoir site. The Company has worked with Natural England and the Local Planning Authority ecologist to agree what updating surveys are required in advance of the planning application. These surveys are underway and the findings will be used to inform a comprehensive mitigation and compensation strategy for loss of woodland habitats and maintain the favourable status of protected species. The Company is committed to working with Natural England and other stakeholders to deliver a net biodiversity gain and address the matter of ancient Woodland specifically.

2.4.14.2 *Changes to Draft Final Plan*

None.

2.5 West Sussex County Council (WSCC)

2.5.1 Minimising the need for Emergency Restrictions

WSCC seeks reassurance that Portsmouth Water are doing all it can to minimise the need to introduce emergency restrictions.

2.5.1.1 Company Response

Portsmouth Water has set a resilience standard of 1 in 200 and believes that this realistic and achievable. Other Companies have set higher standards but the evidence to support these targets is difficult to find. Forecasts of supply and demand can be made but there are large uncertainties and it is not clear that customers actually benefit. Emergency restrictions are there to cope with events outside the normal Water Resources Management Plan and associated Drought Plan. The Emergency Plan ensures that there is a fall-back position to ensure that public water supplies are maintained.

Standpipes in the street, or rota cuts, would only be required on extremely rare occasions and represent a pragmatic approach to extreme drought conditions. Under the 1 in 200 year drought scenario, which is the basis of the Draft Final Plan, standpipes and rota cuts would not be required, and only under more extreme droughts might they be considered.

In terms of 'Water Scarcity' there are large variations across the South East and Portsmouth Water is not in an area of 'Serious Water Stress'. This has implications for metering policy and the messages that are used for drought planning. On the plus side it means that Portsmouth Water can provide bulk supplies to Southern Water. These bulk supplies protect West Sussex customers from unnecessary demand restrictions and increase overall resilience.

2.5.1.2 Changes to Draft Final Plan

None.

2.5.2 Change of Occupier Metering

WSCC would like to see change of occupier metering across the whole of the South East to avoid confusion.

2.5.2.1 Company Response

Portsmouth Water considered Change of Occupier Metering as an option in the Draft Plan but customer research to that point had not shown support for this. The WRMP consultation process included a series of standard questions and one of these related to installing meters when people move home. The results showed that 72% of respondents supported Change of Occupier Metering. In light of the customer feedback, the Company has reviewed its position on metering and our Draft Final Plan includes a different metering strategy, which includes full Change of Occupier Metering from 2025 and selective change of occupier metering from 2020.

2.5.2.2 Changes to Draft Final Plan

Change of Occupancy Metering has been added to the package of measures designed to balance supply and demand. It will complement Optional Metering and the Not for Revenue Metering trial. The total number of meters fitted and the demand reductions achieved are reflected in the WRMP tables.

2.5.3 Compulsory Metering

WSCC states that the National Infrastructure Commission has called for compulsory metering beyond the Water Stressed areas of the UK.

2.5.3.1 *Company Response*

Portsmouth Water agrees that it should be able to use the option of Compulsory Metering to help balance supply and demand and supports the National Infrastructure position. Portsmouth Water is in an area classified as “moderately” water stressed and under legislation is not able to compulsory meter all of its customers. This is a matter for Government, but the Company has changed its plan to introduce more metering options.

2.5.3.2 *Changes to Draft Final Plan*

None, on the specific question, but a greater number of metering options is included in the Draft Final Plan.

2.5.4 **Leakage**

WSCC consider that the 15% reduction in leakage proposed should be the minimum.

2.5.4.1 *Company Response*

The 15% reduction is in effect a minimum standard that has been set by the Company through to 2025 and is a target which if it fails to meet will pay a penalty. In response to feedback on its draft Plan, further leakage reductions have been included in the Draft Final Plan such that leakage will be 30% lower than it is now. The Company will strive to beat that target where it is financially and practically possible.

In response to stakeholder and customer consultation, Portsmouth Water has reviewed the options around leakage reduction. The Draft Final WRMP options appraisal has been updated and the preferred plan now contains more ambitious leakage reduction, extending throughout the whole planning period.

Portsmouth Water will now combat leakage in two stages. In the first stage, leakage will be reduced by 5Ml/d by 2025 by installing a fixed network of noise loggers with telemetry data collection. Leakage will then be reduced by a further 5Ml/d (15%) by 2040 by extending the fixed network of noise loggers and removing the existing DMA's. It will continue to innovate and monitor technology to strive to reduce it further.

2.5.4.2 *Changes to Draft Final Plan*

The Draft Final WRMP has been amended to consider additional leakage options. The options appraisal and programme appraisal have been revised and the option of permanent noise loggers in a fixed network has been selected in the preferred final plan. Leakage savings are delivered throughout the planning period. This is shown in the Final Planning tables and described in the Final Planning section of the Draft Final WRMP.

2.5.5 **Per Capita Consumption Targets**

The Council states that the reduction in per capita consumption (PCC) from 140 l/h/d to 132 l/h/d is unambitious.

2.5.5.1 *Company Response*

Following feedback on the Draft Plan the Company has increased the number of metering and water efficiency options in its Preferred Plan. This has reduced the normal year PCC below 130 l/h/d. It will also work with other stakeholders to generate further reductions and these are contained in the Next Steps section of the Plan.

2.5.5.2 *Changes to Draft Final Plan*

The Draft Final Plan has a revised demand forecast and metering programme and as a consequence, forecast PCC has been updated.

2.5.6 Water Efficiency in Schools

We would expect Portsmouth Water to help residents and businesses to use water efficiently, particularly through engagement with schools.

2.5.6.1 Company Response

Portsmouth Water regularly attend fetes, fairs and shopping centres as part of our community events to encourage our customers to learn how to use water more efficiently. We hand out water saving devices such as regulated shower heads, Save a Flush Cistern Bags, Leaky Loo test stickers and shower timers. We have found that this is effective as parents that take part in using water more efficiently, pass this information directly to their children.

We have a long-term education partnership with Staunton Country Park, which delivers a “water is life” education program via local schools where children can learn about the water and its impact on the environment including the need to save water. We also have a water is life trail which encourages families (both adults and children) to learn all about water as they go around the park. We also have a designated education section designed in conjunction with Staunton Country Park on our website which has information for children as well as resources for adults, so they can support the learning.

We will consider these comments and review our future plans accordingly.

2.5.6.2 Changes to Draft Final Plan

None.

2.5.7 Refill Scheme

WSCC state that there has been no engagement on the Refill Scheme.

2.5.7.1 Company Response

Whilst we have not joined the “refill scheme” we have worked with a number of organisations via our Water Quality Department offering advice on water fountains and the sampling regimes required etc. We chose to partner with ‘final straw Solent’ a local environmental campaign organisation sponsoring metal drinking water bottles supporting their initiative to reduce the amount of single use plastic water bottles and making drinking water more accessible in the local area by getting local shops and businesses to allow access to free tap water. All monies received will go to providing further metal water bottles and into their community outreach programme.

We modified our primary school water bottle scheme this year by encouraging schools to only order replacement lids which we offered free of charge. The scheme delivers reusable water bottles to primary schools. Normally we deliver 30,000 water bottles this year this was reduced to just under 15,000.

2.5.7.2 Changes to Draft Final Plan

None.

2.5.8 Havant Thicket Development

WSCC would like reassurance that the development of Havant Thicket poses no financial impact on customers in West Sussex.

2.5.8.1 Company Response

The reservoir development is planned to allow that Portsmouth Water to maintain a bulk supply to Southern Water. The revenue from this trade of water will be used to fund the development of the reservoir and therefore, customer bills will not increase as a result of the development.

2.5.8.2 *Changes to Draft Final Plan*

None.

2.5.9 Conflicting Messages over Water Scarcity

Sharing water across the region seems a reasonable solution, as noted above. It is pleasing to note that Portsmouth Water is part of the Water Resources in the South East Group. The complexity of water supplies across the region is sometimes confusing for our residents of West Sussex, many of whom receive water and wastewater services from different companies. This can lead to conflicting messages over water scarcity. Portsmouth Water could do more, with neighbouring companies, to ensure a more joined up, single customer facing approach for our residents.

2.5.9.1 *Company Response*

Portsmouth Water agrees with this and we are working closely with other water companies in the region to provide consistent communication. However, the fact remains that each company can have a different status but we are working to address this. This does not result in any direct changes to our Draft Plan.

2.5.9.2 *Changes to Draft Final Plan*

None.

2.5.10 Customer Challenge Group

WSCC states that West Sussex is currently under represented on the Customer Challenge Group.

2.5.10.1 *Company Response*

Of the 11 members of the CCG, 4 represent Regulators leaving 7 other members. Of this 7, two members are from West Sussex which we believe is fair representation. However, we will reflect on this feedback with the CCG and consider the representation for the future.

The Customer Challenge Group's report is published on our website in September 2018.

2.5.10.2 *Changes to Draft Final Plan*

None.

2.5.11 Carbon Footprint

The Council states that there is very little detail provided around the work undertaken to reduce the carbon footprint of Portsmouth Water's operations.

2.5.11.1 *Company Response*

The approach to reducing the Carbon Footprint is addressed in Portsmouth Water's Business Plan, which can be found on its website. Portsmouth Water is dedicated to reducing our carbon footprint and our approach is summarised as follows:

- Improving the efficient use of electrical power. We have commenced development trials in preparation for implementation in AMP7 of a new software tool. This will select and operate pumps to maximise electrical efficiency. They indicate savings in the area of 3-5%.
- Maintain the level of energy obtained from renewable sources at >90%.
- Investigate further opportunities for developing third party funded wind and solar energy projects.

- Havant Thicket will be promoted as an exemplar scheme concerning minimising carbon impact, promoting sustainable practices throughout the project's construction and operational life span.

2.5.11.2 *Changes to Draft Final Plan*

Information on the carbon cost and carbon emissions associated with each preferred option has been included in the Draft Final Plan, together with information at a Company level. The options screening and appraisal process includes an assessment of carbon emissions as part of the environmental assessment.

2.6 Hampshire County Council (HCC)

2.6.1 Water Efficiency in Schools

HCC states that Portsmouth Water should continue to raise awareness of water efficiency, and run campaigns involving schools and communities.

2.6.1.1 Company Response

Portsmouth Water regularly attend fetes, fairs and shopping centres as part of our community events to encourage our customers to learn how to use water more efficiently. We hand out water saving devices such as regulated shower heads, Save a Flush Cistern Bags, Leaky Loo test stickers and shower timers. We have found that this is effective as parents that take part in using water more efficiently, pass this information directly to their children.

We have a long-term education partnership with Staunton Country Park, which delivers a "water is life" education program via local schools where children can learn about the water and its impact on the environment including the need to save water. We also have a water is life trail which encourages families (both adults and children) to learn all about water as they go around the park. We also have a designated education section designed in conjunction with Staunton Country Park on our website which has information for children as well as resources for adults, so they can support the learning.

We will consider these comments and review our plans accordingly.

2.6.1.2 Changes to Draft Final Plan

None.

2.6.2 Leakage

Portsmouth Water needs to install water meters to meet leakage targets of 15% by 2025.

2.6.2.1 Company Response

Portsmouth Water's area of supply is under 'Moderate Water Stress' which means that we are unable legally to use compulsory metering and we can only encourage customers to voluntarily opt for a water meter and meter households on change of occupier. In its Draft Final Plan, the Company will extend its metering options to include change of occupier metering.

In response to stakeholder and customer consultation, Portsmouth Water has reviewed the options around leakage reduction and the option of permanent noise loggers in a fixed network has been selected in the preferred final plan.

Portsmouth Water will now combat leakage in two stages. In the first stage, leakage will be reduced by 5Ml/d by 2025 by installing a fixed network of noise loggers with telemetry data collection. Leakage will then be reduced by a further 5Ml/d by 2040 by extending the fixed network of noise loggers and removing the existing DMA's.

2.6.2.2 Changes to Draft Final Plan

The Draft Final WRMP has been amended to consider additional leakage options. The options appraisal and programme appraisal have been revised and the option of permanent noise loggers in a fixed network has been selected in the preferred final plan. Leakage savings are delivered throughout the planning period. This is shown in the Final Planning tables and described in the Final Planning section of the Draft Final WRMP.

2.7 Partnership for Urban South Hampshire (PUSH)

2.7.1 Havant Thicket Pipeline

PUSH would like clarification on whether the proposed pipeline would have any safeguarding of land implications.

2.7.1.1 Company Response

The new pipeline route was the subject of detailed discussions with the Local Authorities and a public consultation on alternative routes. The preferred route is safeguarded in the Local Plan and other Regulators, such as the Environment Agency, are aware of the potential clashes with river restoration schemes.

2.7.1.2 Changes to Draft Final Plan

None.

2.7.2 Domestic and Non-Domestic Water Consumption

PUSH states that it is unclear whether reductions in water consumption applies to only housing or includes non-domestic uses.

2.7.2.1 Company Response

In April 2017, when the market for business retail services opened, Portsmouth Water exited the Retail Market along with many other water companies. This means that the Company is no longer the Retailer for non-households and has no direct contact with this customer base. Portsmouth Water made an agreement to transfer its non-household customers to Castle Water although the customers can change their Retailer at any time as they see fit.

Portsmouth Waters targets for reducing demand are therefore targeted primarily at domestic customers with whom we act as Retailer and thus have a direct relationship. However we will of course encourage retailers to drive water efficiency.

2.7.2.2 Changes to Draft Final Plan

None.

2.7.3 Reductions in Per Capita Consumption

Portsmouth Water's targets of per capital consumption are not ambitious compared to Southern Water's targets – both companies should work together to contribute towards additional water use savings.

2.7.3.1 Company Response

Southern Water are aiming for a PCC of 100 l/h/d in 2042 but this is based on full metering and the introduction of Automatic Meter Reading (AMR). Southern Water have a very significant deficit, due to sustainability reductions, and need a wide range of options to balance supply and demand. Portsmouth Water have a surplus and are exporting water to Southern Water.

Portsmouth Water and Southern Water and indeed other Companies in the South East are committed to working together to deliver a lower PCC. However, the level of metering is key to changing the behaviour of customers and the Company cannot currently compulsorily meter all of its customers.

In response to consultation comments received, Portsmouth Water have reviewed the metering policy in the Draft Plan and decided to implement a more ambitious policy that includes 'Change of Occupier' (COO) metering.

This change of policy will result in lower per capita consumption and a higher level of meter penetration in the early years. Water use depends on customer behaviour and the availability of more water efficient fixtures and fittings. The Water Efficiency programme is intended to deliver these objectives (see section 2.1.43.1). It is agreed that further collaborative work between Portsmouth Water and Southern Water to achieve additional water use savings could be beneficial and this will be investigated.

2.7.3.2 *Changes to Draft Final Plan*

None.

2.7.4 **Maximum Water Use Targets (New Homes)**

PUSH state that the figure for lower maximum water usage targets for new homes should be revisited and considered as a long-term target.

2.7.4.1 *Company Response*

We agree, but at present we cannot assume any benefits from this. The 'Code for Sustainable Homes' was intended to drive down water use in new homes but was ineffective and has been withdrawn. Low water use fixtures and fittings will influence consumption in new and existing homes however, we strongly believe that developers should be encouraged to adopt lower water use targets for new homes and will continue to lobby for this.

2.7.4.2 *Changes to Draft Final Plan*

None.

2.7.5 **Working with Local Planning Authorities**

Portsmouth Water should consider working with Local Planning Authorities to ensure water efficiency policies are included in emerging local plans so that they are reflective of the Draft NPPD.

2.7.5.1 *Company Response*

Portsmouth Water has worked with Local Authorities over the years on the development of Local Plan policies. The policies should avoid unforeseen problems such as water quality risks and the availability of water in a drought and we agree that this should be extended to water efficient policies. It is only by working together that we can drive down PCC towards a figure of 100 l/h/d, which should be the long term aspiration.

2.7.5.2 *Changes to Draft Final Plan*

None.

2.7.6 **Working with Landowners**

Portsmouth Water should make reference in the document to working with landowners so that the quality of water is maintained.

2.7.6.1 *Company Response*

Since 2009, Portsmouth Water have worked with Natural England and the Environment Agency as part of the Downs and Harbours Clean Water Partnership to protect and improve the quality of groundwater sources as part of catchment management. This is achieved through encouraging farmers and landowners to uptake best management practices. The scheme provides services such as nutrient and manure management plans, workshops and consultations to reduce the risk of pollution of groundwater. In areas where nitrates are found in the groundwater, we have installed blending arrangements to ensure that Water Quality Regulations standards are met. More information can be found at <https://www.cleanwaterpartnership.co.uk/>

Nitrate protection zones exist in Fareham Borough area and they help to maintain groundwater quality and reduce nitrate concentrations in the harbours.

2.7.6.2 *Changes to Draft Final Plan*

The Draft Final Plan text refers to catchment management and the Down and Harbours Clean Water Partnership.

2.7.7 **Recycled Waste Water**

PUSH suggest that it would be helpful for Portsmouth Water's plan to make reference of the use of recycled waste water from Southern Water's operation.

2.7.7.1 *Company Response*

Recycled waste water was included in the options appraisal process but most of the potential sites, such as Budds Farm, are already in Southern Water's plan and cannot be double counted. Portsmouth Water's abstraction on the River Itchen is downstream from Chickenhall Waste Water Treatment Works and this indirect effluent re-use is one reason why the abstraction is so sustainable.

2.7.7.2 *Changes to Draft Final Plan*

None.

2.7.8 **Costs and Funding of Projects**

PUSH suggest that it would be helpful for Portsmouth Water to provide an indication of anticipated costs of the noted projects and how this will be funded.

2.7.8.1 *Company Response*

The Capex and Opex costs of feasible options are included in Table 5 of the WRMP tables. Costs of current and future projects and how they are funded can be found in the Business Plan published in September 2018.

2.7.8.2 *Changes to Draft Final Plan*

None.

2.8 Havant Borough Council

2.8.1 Support for Havant Thicket Reservoir

Havant Borough Council supports the inclusion of Havant Thicket Reservoir in the Draft WRMP2019. It is included in the Draft Local Plan as a key infrastructure requirement and a potential major resource for recreation and leisure.

2.8.1.1 Company Response

Portsmouth Water would like to thank Havant Borough Council for its continued support for Havant Thicket Reservoir and look forward to working with them on the development of this scheme.

2.8.1.2 Changes to the Draft Final Plan

None.

2.9 Test Valley Borough Council

2.9.1 Bulk Supplies to Southern Water

The Council supports the provision of bulk supplies to Southern Water as a way of maintaining sustainable abstraction across a wider area.

2.9.1.1 Company Response

Portsmouth Water would like to thank Test Valley Borough Council for its support for the bulk supplies and the provision of Havant Thicket Reservoir.

2.9.1.2 Changes to Draft Final Plan

None.

2.10 Fareham Borough Council

2.10.1 Welborne Development

The Draft Local Plan is anticipated to cover the period to 2036 and the phased development of Welborne is currently projected to continue to 2045. The Council welcomes the approach being taken to support this development by the provision of new water resources.

2.10.1.1 Company Response

Portsmouth Water would like to thank Fareham Borough Council for their support.

2.10.1.2 Changes to Draft Final Plan

None.

2.10.2 Havant Thicket Pipeline

Fareham Borough Council would like clarification on whether there will be any safeguarding of land implications of the new pipeline within Fareham Borough.

2.10.2.1 Company Response

The raw water pipeline needed for Havant Thicket Reservoir is wholly within Havant Borough Councils area and is included in their Local Plan as a piece of key infrastructure.

Treated water will not pass directly to Southern Water from Havant Thicket and there will be no dedicated new main in the Fareham area. Additional mains reinforcements may be required to distribute water from Farlington to Portsmouth Water's existing customers. These mains will be procured under Portsmouth Water's existing statutory powers.

2.10.2.2 Changes to Draft Final Plan

Additional text has been added to the Draft Final Plan to make it clear that Havant Thicket Reservoir will supply Portsmouth Water customers and that the bulk supply to Southern Water will be sourced from the River Itchen.

2.10.3 Water Use Targets

Fareham Borough Council believe that there is scope for Portsmouth Water's WRMP to be more ambitious on overall water use. Under this theme, the Council have commented on water efficiency, per capita consumption and water usage targets for new developments.

2.10.3.1 Company Response

In response to consultation comments received, Portsmouth Water have reviewed the metering policy in the Draft Plan and decided to implement a more ambitious policy that includes 'Change of Occupier' (COO) metering.

This change of policy will result in lower per capita consumption and a higher level of meter penetration in the early years. Water use depends on customer behaviour and the availability of more water efficient fixtures and fittings. The Water Efficiency programme is intended to deliver these objectives (see section 2.1.43.1).

2.10.3.2 Changes to Draft Final Plan

The Draft Final Plan has been revised and includes 'Change of Occupier' (COO) metering and more water efficiency measures.

2.10.4 Domestic and Non-Domestic Water Consumption

Fareham Borough Council state that it is unclear whether reductions in water consumption applies to only housing or include non-domestic uses.

2.10.4.1 *Company Response*

This issue was also raised by the Partnership for Urban South Hampshire (PUSH). Please refer to the response in section 2.7.2.1.

2.10.4.2 *Changes to Draft Final Plan*

None.

2.10.5 Per Capita Consumption

Portsmouth Water's targets of per capital consumption are not ambitious compared to Southern Water's targets – both companies should work together to contribute towards additional water use savings.

2.10.5.1 *Company Response*

This issue was also raised by the Partnership for Urban South Hampshire (PUSH). Please refer to the response in section 2.7.3.1.

2.10.5.2 *Changes to Draft Final Plan*

None.

2.10.6 Working with Landowners

Portsmouth Water should make reference in the document to working with landowners so that the quality of water is maintained.

2.10.6.1 *Company Response*

This issue was also raised by the Partnership for Urban South Hampshire (PUSH). Please refer to the response in section 2.7.6.1.

2.10.6.2 *Changes to Draft Final Plan*

None.

2.10.7 Recycled Waste Water

Fareham Borough Council suggest that it would be helpful for Portsmouth Water's plan to make reference of the use of recycled waste water from Southern Water's operation.

2.10.7.1 *Company Response*

This issue was also raised by the Partnership for Urban South Hampshire (PUSH). Please refer to the response in section 2.7.7.1.

2.10.7.2 *Changes to Draft Final Plan*

None.

2.10.8 Costs and Funding of Projects

Fareham Borough Council suggest that it would be helpful for Portsmouth Water to provide an indication of anticipated costs of the noted projects and how this will be funded.

2.10.8.1 *Company Response*

This issue was also raised by the Partnership for Urban South Hampshire (PUSH). Please refer to the response in section 2.7.8.1.

2.10.8.2 *Changes to Draft Final Plan*

None.

2.11 Rowlands Castle Parish Council

2.11.1 Local Road Infrastructure and Havant Thicket Reservoir

Rowlands Castle Parish Council is concerned that visitors to Havant Thicket will have an impact on the local road infrastructure that is already close to capacity.

2.11.1.1 Company Response

Portsmouth Water consulted on different access arrangements for Havant Thicket Reservoir and selected the northerly route to minimise impacts on the local community during construction and through the life of the project. The impact on local infrastructure will be assessed and dealt as part of the planning application.

2.11.1.2 Changes to Draft Final Plan

None.

2.12 Sussex Wildlife Trust

2.12.1 Leakage

Sussex Wildlife Trust states that Portsmouth Water's leakage target is a low percentage reduction and not in line with the 2018 NIC report.

2.12.1.1 Company Response

The 15% reduction is in effect a minimum standard that has been set by the Company through to 2025 and is a target which if it fails to meet will pay a penalty. In response to feedback on its draft Plan, further leakage reductions have been included in the Draft Final Plan such that leakage will be 30% lower than it is now. The Company will strive to beat that target where it is financially and practically possible. The NIC Report sets out generic targets of a target of 50% reduction by 2050. The Company will rise to this challenge and believes technology will develop to allow this to be achieved. For the Draft Final Plan however, it has only included currently emerging technology and current practise. As a result of the views of the Regulators and customers the Company has decided to include a more ambitious leakage policy in the Draft Final Plan and will be using a fixed network of noise loggers rather than District Metering. This will allow smaller leaks to be detected more quickly using telemetry.

Portsmouth Water will now combat leakage in two stages. In the first stage, leakage will be reduced by 5MI/d by 2025 by installing a fixed network of noise loggers with telemetry data collection. Leakage will then be reduced by a further 5MI/d by 2040 by extending the fixed network of noise loggers and removing the existing DMAs.

2.12.1.2 Changes to Draft Final Plan

The Draft Final WRMP has been amended to consider additional leakage options. The options appraisal and programme appraisal have been revised and the option of permanent noise loggers in a fixed network has been selected in the preferred final plan. Leakage savings are delivered throughout the planning period. This is shown in the Final Planning tables and described in the Final Planning section of the Draft Final WRMP.

2.12.2 Compulsory Metering

Sussex Wildlife Trust advocate for the EA to update the Serious Water Stress designations to reflect regional water stress.

2.12.2.1 Company Response

The Company agrees with the point made on the designation of Serious Water Stress, it would be able to use the option of Compulsory Metering to help balance supply and demand. If the Governments and Regulators want the Water Companies in the South East to collaborate to increase resilience in the region, then the whole region should be deemed seriously water stressed.

2.12.2.2 Changes to Draft Final Plan

None.

2.12.3 Per Capita Consumption

Portsmouth Water's target for per capita consumption is not ambitious when compared to neighbouring companies.

2.12.3.1 Company Response

Portsmouth Water's neighbouring companies will have different supply-demand balances to maintain. Additionally, Portsmouth Water is not in an area of 'serious water stress' unlike some of its neighbours, which restricts the availability of metering options available to it.

As a result of a combination of its ongoing baseline demand management activities and the metering and water efficiency measures it proposes to undertake during the planning period as part of the preferred final plan, the Company expects in its Draft Final Plan to achieve reductions in average PCC from 142.2 l/h/d to 128.7 l/h/d over the planning period.

2.12.3.2 *Changes to Draft Final Plan*

In the Draft Final Plan, the population and property forecast has been altered to the plan-based profile (see section 2.1.18.2), the water efficiency assumptions underpinning the baseline demand forecast have been set out more clearly (section 5.3.4) and a wider range of demand management options have been considered in the options appraisal (section 7), and have been included in the preferred plan (sections 7.7 and 9) to detail how the Company proposes to achieve the planned reductions in PCC.

2.12.4 **Source 'S' Drought Permit**

Sussex Wildlife Trust encourages Portsmouth Water to mitigate risks that might be associated with additional abstraction from Source 'S'.

2.12.4.1 *Company Response*

The Source 'S' Drought Permit was included in the SEA: it has no construction impacts and mixed impacts for operation for biodiversity and water quantity and quality. The Draft Final Drought Plan 2018 (Appendix 'U') sets out the proposals for Portsmouth Water to work with Southern Water on a programme of studies for 'North Arundel'. At the moment Southern Water's conclusion is that mitigation is unlikely to be required in a drought, but this will be updated following the additional monitoring or following a drought.

2.12.4.2 *Changes to Draft Final Plan*

None. See Draft Drought Plan 2018 (Appendix 'U').

2.12.5 **Abstraction Incentive Mechanism (AIM)**

Portsmouth Water should consider schemes such as the Abstraction Incentive Mechanism to limit abstraction from the most environmentally sensitive sources during times of low flow and drought.

2.12.5.1 *Company Response*

Portsmouth Water have had discussions with Natural England and the Environment Agency about the use of AIM.

Portsmouth Water will continue with the current AIM site, at Northbrook and the River Hamble with a reward and penalty, relating to the abstraction at Northbrook relative to its historic usage volume when the flow in the River Hamble falls below the agreed level (known as its Q95 level). THE Company considers that none of its other sites are suitable for AIM either because there are already restrictions or because there is little impact.

2.12.5.2 *Changes to Draft Final Plan*

None. The existing AIM scheme is still included in the Business Plan.

2.12.6 **Catchment Management**

Sussex Wildlife Trust encourage Portsmouth Water to adopt a bespoke environmental Performance Commitment on catchment management.

2.12.6.1 *Company Response*

Portsmouth Water have recently held a meeting with Natural England and the Environment Agency to develop our environmental performance commitments. One of our four

commitments to be adopted over the AMP7 period is on catchment management. The WINEP for catchment management currently requires Portsmouth Water to engage with farmers in our priority areas, to influence their behaviour to benefit the water quality. The new Performance Commitment will require us to engage with farmers outside of these areas but still within our area of supply. This will be to further improve the quality of raw water quality and potentially benefit the long-term trends. It is also likely that this will also benefit biodiversity in the area.

2.12.6.2 Changes to Draft Final Plan

The Draft Final Plan text has been updated to include environmental performance commitments.

2.12.7 Natural Capital

Sussex Wildlife Trust encourage Portsmouth Water to integrate natural capital within the decision-making processes during AMP7 and future WRMP reviews.

2.12.7.1 Company Response

During our water resource planning process we considered the natural capital benefits of our projects and options. This was especially true for the planning of Havant Thicket Reservoir which will have benefits in terms of the creation of freshwater habitat.

2.12.7.2 Changes to Draft Final Plan

Consideration of natural capital is included in the SEA process and in addition will form part of the supporting evidence for the Havant Thicket EIA.

2.13 Wessex Chalk Stream and Rivers Trust

2.13.1 Havant Thicket

Wessex Chalk Stream and Rivers Trust urge Portsmouth Water (and Southern Water) to start planning and constructing Havant Thicket as soon as possible.

2.13.1.1 Company Response

Portsmouth Water would like to thank Wessex Chalk Stream and Rivers Trust for its support for the bulk supplies and the provision of Havant Thicket Reservoir. Detailed planning for Havant Thicket Reservoir has re-started and the Company is looking to submit a planning application in 2019. Southern Water are committed to further bulk supplies in March 2023 and March 2029. This will depend on the finalisation of Portsmouth Water's and Southern Water's Drought Plans and WRMP by the Secretary of State. It will also depend on the outcome of the Business Planning process which covers the funding of this major capital scheme.

2.13.1.2 Changes to Draft Final Plan

None.

2.13.2 Investing in Water Resources to Enhance River Resilience

Portsmouth Water should re-invest any economic gain from trading water with neighbouring water companies into water resources to enhance the resilience of rivers.

2.13.2.1 Company Response

Our initial plan is to reinvest income from the Southern Water bulk supply into the development of Havant Thicket. Winter Storage Reservoir, which will allow Portsmouth Water to provide bulk supplies. The development and construction of the reservoir will require substantial investment and an element of the income will provide a fair return on this investment.

2.13.2.2 Changes to Draft Final Plan

The Draft Final Plan text makes it clear that the bulk supply income is used to fund water resource developments.

2.13.3 Ecological Status (WFD)

Wessex Chalk Stream & Rivers Trust believe that achieving 'Good Ecological Status' as a target is not enough to safeguard chalk streams and rivers in the long term.

2.13.3.1 Company Response

Water Companies work within a tight regulatory framework and a key part of this is the Water Framework Directive (WFD). Compliance with the Framework and achievement of 'Good Ecological Status' requires input from many organisations and individual land owners. We believe this is a matter for discussion with all interested parties. In preparing the WRMP, we can only apply the regulations we currently face.

2.13.3.2 Changes to Draft Final Plan

None.

2.14 Canal and River Trust

2.14.1 Bulk Supplies using the Canal Network

The Canal and River Trust believes that they can make a significant impact on the water resource situation by the use of bulk supplies via the canal system.

2.14.1.1 Company Response

The Canal and Rivers Trust acknowledges that the waterways system does not extend as far as Portsmouth Water's area of supply but they have been working with other Water Companies in the South East. To benefit Portsmouth Water these transfers would have to reach Southern Water or South East Water. Although transfers from the River Thames have been considered by these companies they are either not cost effective or do not generate sufficient surplus for the companies to pass water on. In fact, Southern Water rely on and South East Water have considered bulk supplies from Portsmouth Water to their areas of supply.

2.14.1.2 Changes to Draft Final Plan

None.

2.15 Hampshire and Isle of Wight Wildlife Trust

2.15.1 Leakage

Portsmouth Water's targets for leakage reduction are lower than those recommended by the NIC Report published in April 2018.

2.15.1.1 Company Response

The National Infrastructure Commission (NIC) Report sets out generic targets of a target of 50% reduction by 2050. The Company will rise to this challenge and believes technology will develop to allow this to be achieved. For the Draft Final Plan however, it has only included currently emerging technology and current practise. However due to the views of the Regulators and the Customers the Company has decided to include a more ambitious leakage policy in the Draft Final Plan and will be using a fixed network of noise loggers rather than District Metering. This will allow smaller leaks to be detected more quickly using telemetry.

Portsmouth Water will now combat leakage in two stages. In the first stage, leakage will be reduced by 15% (5 MI/d) by 2025 by installing a fixed network of noise loggers with telemetry data collection. Leakage will then be reduced by a further 5% in each AMP period (to achieve an additional 5 MI/d by 2040) by extending the fixed network of noise loggers and removing the existing DMA's. Therefore by 2040, in the Draft Final Plan leakage will be 30% lower than it is now, but we believe new technologies will be developed in future years to allow us to reach the NIC targets.

2.15.1.2 Changes to Draft Final Plan

The Draft Final WRMP has been amended to consider additional leakage options. The options appraisal and programme appraisal have been revised and the option of permanent noise loggers in a fixed network has been selected in the preferred final plan. Leakage savings are delivered throughout the planning period. This is shown in the Final Planning tables and described in the Final Planning section of the Draft Final WRMP.

2.15.2 Leakage Ambition in future AMPs

Portsmouth Water's plans for progress in the subsequent AMPs to 2045 are limited which can have an impact on the ecological sensitivity of the Chalk Rivers. They would like the Company to go beyond the lowest SELL figures and set out a more ambitious leakage reduction programme.

2.15.2.1 Company Response

Portsmouth Water's revised leakage policy discussed above (in section 2.15.1.1) will result in falling leakage levels in future AMP periods. A further 5% reduction will be achieved in each AMP period to 2045.

The target reduction of 15% by 2025 is consistent with the SELL, but future reductions go beyond the current SELL.

2.15.2.2 Changes to Draft Final Plan

As stated in section 2.15.1.2.

2.15.3 Per Capita Consumption (PCC)

Hampshire and Isle of Wight Wildlife Trust state that Portsmouth Water's target for PPC reduction in AMP7 is not ambitious.

2.15.3.1 *Company Response*

In response to consultation comments received, Portsmouth Water has reviewed the metering policy in the Draft Plan and decided to implement a more ambitious policy that includes 'Change of Occupier' (COO) metering.

This change of policy will result in lower per capita consumption and a higher level of meter penetration in the early years. Water use depends on customer behaviour and the availability of more water efficient fixtures and fittings. The Water Efficiency programme is intended to deliver these objectives (see section 2.1.43.1).

2.15.3.2 *Changes to Draft Final Plan*

The revised metering programme is set out the Draft Final Plan and the impact on PCC is shown in the WRP Tables.

2.15.4 **'Leaky Loos' Programme**

Hampshire and Isle of Wight Trust suggest a 'leaky loos' programme as part of the home visits programme would be beneficial.

2.15.4.1 *Company Response*

As part of our community events, we hand out free water saving devices to customers including 'leaky loo' test stickers complete with instructions. These are also advertised on our website at a cost of £1.29. We have a link to www.waterwise.org on our website who explain how to test for a leaky loo without the designated sticker.

2.15.4.2 *Changes to Draft Final Plan*

None.

2.15.5 **Water Stress Designations**

Hampshire and Isle of Wight Trust encourage the EA to update their Serious Water Stress designations to reflect regional water stress so that Portsmouth Water are able to use universal metering.

2.15.5.1 *Company Response*

Portsmouth Water agrees that it should be able to use the option of Compulsory Metering to help balance supply and demand. We will lobby for this change and in the meantime, we have introduced a programme of 'Change of Occupier' (COO) metering in our Draft Final Plan.

2.15.5.2 *Changes to Draft Final Plan*

No changes have been made to the Draft Plan regarding Serious Water Stress designations, although additional metering options have now been included. Although compulsory metering cannot be enforced by the Company at present, costs for compulsory metering have been included in the Draft Final Plan for reference.

2.15.6 **New Supply Options**

The wildlife trust advocates that any new supply options chosen should be the least environmentally damaging, contribute to achieve good ecological status, and be suitably scaled to address the problems of over-abstraction.

2.15.6.1 *Company Response*

Portsmouth Water fully agree. In the WRMP process, the environmental impact of all potential options were considered in the SEA. Any options that were considered likely to cause environmental damage were screened out. Environmental considerations have also been included in the decision making during options and programme appraisal.

2.15.6.2 *Changes to Draft Final Plan*

None.

2.15.7 Abstraction at Source 'H'

Hampshire and Isle of Wight Wildlife Trust state that abstraction at Source 'H' may be contributing to the risk of deterioration under WFD on the River Meon which does not appear to be reflected in the SEA.

2.15.7.1 *Company Response*

Source 'H' is abstracting within its current abstraction licence. The Company have already complied with two sustainability reductions at Source 'F' and is providing an augmentation flow. The risk of deterioration under WFD is going to be investigated under WINEP3, however this is a proposed investigation and no information has yet been gathered which can be utilised within the SEA.

2.15.7.2 *Changes to Draft Final Plan*

None.

2.15.8 Use of SEA in Choosing Options

Portsmouth Water should use the SEA to identify the opportunities for mitigating any negative impacts identified for the options that are to be taken forward.

2.15.8.1 *Company Response*

Portsmouth Water has taken this comment on board for the options in the preferred plan. At Havant Thicket, a comprehensive mitigation and compensation strategy is already being developed to support the planning application to help ensure that a net biodiversity gain is delivered.

2.15.8.2 *Changes to Draft Final Plan*

None.

2.15.9 Habitat Enhancements at Source 'S'

Hampshire and Isle of Wight Trust suggest that habitat enhancements should be undertaken in advance, to reduce the effects of additional Drought Permit abstraction at Source 'S' as recognised by the SEA.

2.15.9.1 *Company Response*

As noted by the Wildlife Trust, the Company has a good track record of delivering on biodiversity management and enhancement. The Company will consider the suggestion of undertaking habitat enhancements in advance to provide climate change resilience. It is noted that such work will be in line with the Ofwat 'Resilience Duty' and the best practice guidance contained in the EA and NE Water Industry Strategic Environmental Requirements (WISER) document.

2.15.9.2 *Changes to Draft Final Plan*

None.

2.15.10 Reduction against Licences as a Result of WINEP Investigations

Hampshire and Isle of Wight Wildlife Trust state that it is unclear whether Portsmouth Water's planning scenarios include a potential future reduction against its licences as a result of the WINEP investigations.

2.15.10.1 *Company Response*

Work has not yet commenced on investigations proposed under WINEP3, therefore the planning scenarios do not include any potential future reductions (potential impacts and/or reductions have yet to be identified). However, the potential future reductions associated with WINEP investigations has been investigated as part of the sensitivity testing in the Draft Final Plan.

2.15.10.2 *Changes to Draft Final Plan*

The Draft Final Plan includes a revised section on sensitivity testing. This explains how Portsmouth Water has considered the potential impact on the plan from uncertain future environmental requirements.

2.15.11 Abstraction Incentive Mechanism (AIM)

Hampshire and Isle of Wight Trust found no mention of the Abstraction Incentive Mechanism in Portsmouth Water's Draft WRMP.

2.15.11.1 *Company Response*

Portsmouth Water has had discussions with Natural England and the Environment Agency about the use of AIM schemes.

Portsmouth Water will continue with the current AIM site, at Northbrook and the River Hamble with a reward and penalty, relating to the abstraction at Northbrook relative to its historic usage volume when the flow in the River Hamble falls below the agreed level (known as its Q95 level). The Company considers that none of its other sites are suitable for AIM either because there are already restrictions or because there is little impact.

2.15.11.2 *Changes to Draft Final Plan*

None. The existing AIM scheme is still included in the Business Plan.

2.15.12 Working with WRSE Members

Hampshire and Isle of Wight Trust believe that closer working between WRSE members could identify joint-funding opportunities for demand or supply-side scheme that are currently not economically viable alone.

2.15.12.1 *Company Response*

Portsmouth Water has worked closely with other Companies as part of the WRSE process. The bulk supply which the Company is providing to Southern Water is being used to fund the development of the Havant Thicket reservoir which will supply Portsmouth Water customers and provide additional resilience to the Company. Additional information on the WRSE work has been included in the Draft Final Plan. The funding of water supply schemes, and in particular jointly funded schemes, is also presented in the Business Plan process. All the Companies involved in WRSE are committed to even closer collaboration in the future.

2.15.12.2 *Changes to Draft Final Plan*

Additional information about the WRSE modelling work and results surrounding bulk supplies has been included in the Draft Final Plan.

2.15.13 Catchment Partnerships

Portsmouth Water should extend their work through the 'Downs and Harbours Clean Water Partnership to domestic sewerage in partnership with Catchment Partnerships in the area.

2.15.13.1 *Company Response*

The Company has widened the role of the Catchment Management Team to cover areas outside the source protection zones. This covers issues such as sediment and domestic oil pollution but is unlikely to cover problems with Southern Water sewerage system.

2.15.13.2 *Changes to Draft Final Plan*

None

2.15.14 Bespoke Environmental Performance Commitment

Hampshire and Isle of Wight Trust would like to see a Bespoke Environmental Performance Commitment adopted on catchment management for the Portsmouth Water area.

2.15.14.1 *Company Response*

As noted by the Wildlife Trust, Portsmouth Water are extensively involved in catchment management work, particularly on water quality issues. Portsmouth Water have recently held a meeting with Natural England and the Environment Agency to develop our environmental performance commitments. One of our four commitments to be adopted over the AMP7 period is on catchment management and this is detailed in our Business Plan, which can be found on our website

2.15.14.2 *Changes to Draft Final Plan*

None.

2.15.15 Natural Capital

Hampshire and Isle of Wight Trust would like to see Portsmouth Water to move towards natural capital work for PR24.

2.15.15.1 *Company Response*

The Trust notes that the Company is already supporting an Ecosystem Services Assessment in relation to the reservoir at Havant Thicket. The outcomes of this study will be used to inform future decision making.

Whilst already consider the environmental benefits that our projects may have, and will continue to develop this in the future.

2.15.15.2 *Changes to Draft Final Plan*

None.

3 RESPONSE TO INDIVIDUAL FEEDBACK

3.1 Customer Feedback

This section sets out the key issues raised by customers collected as part of the online questionnaire on the Draft WRMP.

This has been triangulated with other customer and stakeholder engagement and the findings, and how they have shaped our plans, have been summarised in the Company's Draft Final WRMP document.

3.2 Leakage

3.2.1 More Ambitious Leakage Targets

This was the most common observation made by respondents and was also raised by the regulators and other organisations.

3.2.1.1 Company Response

The 15% reduction is in effect a minimum standard that has been set by the Company through to 2025 and is a target which if it fails to meet will pay a penalty. In response to feedback on its draft Plan, further leakage reductions have been included in the Draft Final Plan such that leakage will be 30% lower than it is now. The Company will strive to beat that target where it is financially and practically possible. In the first stage, leakage will be reduced by 5MI/d (15%), by 2025 by installing a fixed network of noise loggers. Leakage will be reduced by a further 5MI/d by 2040 by expanding the network and removing DMAs.

3.2.1.2 Changes to Draft Final Plan

The new approach to leakage is reflected in the Draft Final WRMP and WRMP tables.

3.2.2 Reducing Leakage as a Priority

A comment that the Company received frequently was that the Portsmouth Water should focus on reducing leakage before we ask customers to install a meter and reduce their consumption.

3.2.2.1 Company Response

For the Draft Final WRMP, in addition to the traditional district metering approach, a more 'innovative' option of permanent noise loggers in a fixed network has been considered. This option uses telemetry to collect data continuously. This change means that the Company has a more ambitious leakage target. In addition to meeting Ofwat's 15% leakage reduction target over the first five years of the plan, further leakage savings will be delivered throughout the planning period.

The Company's metering programme has been updated as a result of the customer consultation and the views expressed by the Regulators. The Company's metering programme has been widened from a baseline of Optant metering and New Build metering to now include Change of Occupier metering. This change will result in lower per capita consumption and a higher level of meter penetration in the early years.

3.2.2.2 Changes to Draft Final Plan

The leakage, metering and per capita consumption components of the Water Resources Management Plan have been updated to reflect these changes in approach.

3.3 Education and Metering

3.3.1 Education

There is a general consensus from the customer feedback that Portsmouth Water should use education as a method to help customers to reduce water.

3.3.1.1 Company Response

Portsmouth Water regularly attend fetes, fairs and shopping centres as part of our community events to encourage our customers to learn how to use water more efficiently. We hand out water saving devices such as regulated shower heads, Save a Flush Cistern Bags, Leaky Loo test stickers and shower timers. We have found that this an effective way to encourage the public to use water efficiently. As well as this, we have pages on our website to help children and adults to learn about where their water comes from and how to save water. It is possible that we will consider campaigns such as advertising in the future to provide information to a larger audience. We will however as a result of this feedback seek to establish how education can be improved.

3.3.1.2 Changes to Draft Final Plan

None.

3.3.2 Metering Should Be Compulsory

A frequent response from customer feedback stated that all customers should be metered to reduce PCC. Some people find it unfair that they are metered whilst others are not, and are wasteful.

3.3.2.1 Company Response

Portsmouth Water would like to be able to use the option of compulsory metering to help balance supply and demand. However, because our supply area is under 'Moderate Water Stress' rather than 'Serious Water Stress' we are legally unable to do so.

3.3.2.2 Changes to Draft Final Plan

None.

3.3.3 Metering for Information

Some customers do not agree with compulsory metering and would prefer installing meters for information about water use to help reduce consumption but not to use this information for billing purposes. A popular example for providing better information was the provision of smart meters.

3.3.3.1 Company Response

Portsmouth Water has initiated a trial to install 500 meters per year free of charge for information purposes. This will enable customers to see how much water they use and how much this would cost. Customers will then have the option to switch to measured bills if they find that it will be beneficial to them.

We agree that smart meters should be easier for the customers to use and we will explore opportunities to provide them for our customers in the future if and when the cost of installation reduces.

3.3.3.2 Changes to Draft Final Plan

Not-for-Revenue Metering has been added to the package of measures designed to balance supply and demand. It will complement, Change-of-Occupancy Metering and Optional Metering. The total number of meters fitted and the demand reduction remains the same.

3.3.4 Water Meters in Flats

A number of customer comments expressed a desire for a water meter but lived in a flat and wanted to understand the alternative if it was not possible.

3.3.4.1 Company Response

It is difficult to install water meters to most flats because often there is only one supply pipe into the building. Our team are happy to investigate to find out if a meter would be right for our customers.

3.3.4.2 Changes to Draft Final Plan

None.

3.3.5 Water Meters for Families

Most comments about water meters recognised that they tend to be financially beneficial for small households or those living alone. However, they also recognised that families tend to pay more using measured bills and are concerned about the financial implications this would have.

3.3.5.1 Company Response

It is true that customers who *usually* benefit from water meters are smaller households or those that have one or more spare bedrooms in their homes. However, that is not to say that larger families will not benefit. Customers will be able to test whether they benefit financially using the not-for-revenue metering and using information about metering on our website.

3.3.5.2 Changes to Draft Final Plan

None.

3.4 Reusing Water

3.4.1 Capturing Rainwater

Some customers believe that Portsmouth Water should be making more effort to capture and use rainwater to reduce the risk of water shortages.

3.4.1.1 Company Response

The Havant Thicket Reservoir is essentially a storage unit for winter rainfall. During the winter when rainfall is higher, the yield is higher at the springs at Source B. This water, if not collected and stored, flows into Langstone Harbour approximately 1km away. When the reservoir is built, excess water during periods of high rainfall will be transferred by pipelines to Havant Thicket to be stored. This water can then be used when there is less rainfall and to ensure that Portsmouth Water are able to provide a bulk supply to Southern Water.

3.4.1.2 Changes to Draft Final Plan

None.

3.4.2 Greywater Recycling

There were many comments welcoming the idea of 'grey-water' recycling within the homes.

3.4.2.1 Company Response

Greywater recycling does not form part of Portsmouth Water's WRMP preferred plan. This may change in the future as new technology becomes available.

It is difficult to retrofit this type of system into an existing house and there is little evidence of success in England and Wales. Portsmouth Water is supportive of water reuse schemes in

new houses, although we are cautious of the risks that this type of system may have. A trial of a 'grey-water reuse system' is to be carried out on a new development in the supply area and we will follow progress.

3.4.2.2 *Changes to Draft Final Plan*

None.

3.5 **Desalination**

3.5.1 **Desalination**

Many comments that Portsmouth Water received expressed desire for the Company to explore the possibility of a desalination plant in the area and customers wanted to know how the cost would compare with that of the planned reservoir at Havant Thicket.

3.5.1.1 *Company Response*

There were four potential sites that Portsmouth Water considered for desalination plants during the initial stage of development of the Draft WRMP. These options appeared on the unconstrained list and were screened out early on in the process. This was on the basis of mutual exclusion that Southern Water has a stronger business case and need to build a more strategic and/or bigger desalination plant which would offset any need on Portsmouth Water to invest in desalination.

As a result of screening out at the first stage, Portsmouth Water did not require the Company to undertake any costing work which would allow for comparison. However we believe that the desalination option is much higher than the cost of Havant Thicket.

3.5.1.2 *Changes to Draft Final Plan*

None.

3.6 **Havant Thicket**

3.6.1 **Timing of Havant Thicket Reservoir**

Customers have heard about Portsmouth Water's plans to build the reservoir at Havant Thicket for many years so many people have questioned why construction has not commenced.

3.6.1.1 *Company Response*

Portsmouth Water has owned the land needed for the reservoir since 1965. The Company did not initially progress the reservoir proposal because it was able to meet customer water supply needs by providing a new water treatment works on the River Itchen.

A review of water resources available in the South East of England indicated that to meet anticipated demand for water the Havant Thicket Reservoir should be brought forward as a preferred option. In 2017 both Portsmouth Water and Southern Water reviewed our Water Resource Management Plans (WRMP) for the next 25 years which has led Southern Water to ask for an additional bulk supply into the Southampton area of Hampshire, triggering the need for the Havant Thicket Reservoir.

The target date for delivery of the reservoir is 2029. Work on preparing a planning application commenced in 2018.

3.6.1.2 *Changes to Draft Final Plan*

None.

3.6.2 Funding of Havant Thicket Reservoir

Some customers have concerns that the cost of the development of the reservoir will impact on their bills.

3.6.2.1 Company Response

The reservoir development is planned partly to ensure that Portsmouth Water is able to maintain a bulk supply to Southern Water. The revenue from this trade of water will be used in the development of the reservoir and therefore existing customer bills will not increase.

3.6.2.2 Changes to Draft Final Plan

None.

3.6.3 Reservoir Emergency Plan

Some comments expressed concern about safety around the reservoir site.

3.6.3.1 Company Response

Health and safety is the number one priority of the Company both during construction and also the on-going operation of the site.

A Construction Engineer is appointed as part of the Reservoirs Act 1975. They will approve the design of the reservoir embankments, associated structures and inspect the works during construction. The reservoir will be approved with a certificate from the Construction Engineer before the reservoir is filled. The embankments, spillway and other draw down facilities will be regularly inspected by an engineer. This will ensure that the reservoir is safe for use and prevent emergencies such as overflow or failing of banks. Emergency plans are also put in place to cover all potential scenarios with regular testing. As part of the design, there will for example be a carefully designed spillway into the existing nearby stream for any excess storm water. In the case of extreme events, pipelines can be used to quickly drain water into Langstone Harbour. More information about the reservoir development is available on the Portsmouth Water website.

3.6.3.2 Changes to Draft Final Plan

None.

3.6.4 Environmental Impact of Havant Thicket Reservoir

Customers would like more information about what is being done to mitigate environmental impacts during the construction of the reservoir.

3.6.4.1 Company Response

Portsmouth Water recognises the importance of taking a responsible approach to concerns regarding environmental impacts at the proposed reservoir site. The Company has been carrying out ecological survey work since 2005. The Company has worked with Natural England and the Local Planning Authority to agree what updating surveys are required in advance of a planning application. These surveys are underway and the findings will be used to inform a comprehensive mitigation and compensation strategy for loss of woodland habitats and maintain the favourable status of protected species.

The programme for the development of the reservoir includes two years of wildlife impact mitigation prior to the start of any construction operations. This means that wildlife is more likely to adapt and move naturally with the changing environment. Key species such as reptiles will be translocated to other suitable sites and nesting boxes will be provided for bats if necessary. Trees that will be felled before the land is flooded will be replaced by planting trees elsewhere on the site to help to reduce the amount of habitat loss.

Once the reservoir is completed, the local ecology and wildlife will be enhanced by the reservoir itself and the marginal wetland areas will support a range of aquatic species and birds. There are also opportunities for the development of new wildlife habitats within the existing woodlands around the site. The Company is committed to working with Natural England and other stakeholders to deliver what should translate into a net biodiversity gain.

3.6.4.2 *Changes to Draft Final Plan*

None.

3.6.5 **Havant Thicket Reservoir Site**

Customers would like more information about the site itself, in particular the size, stating that a map of the location would be helpful.

3.6.5.1 *Company Response*

The reservoir will be approximately 1 mile (1.6km) from east to west and 0.5 miles (0.8km) from north to south. More information about the site including a location map and a proposed plan of the actual site can be found on the Havant Thicket page on our website (<https://www.portsmouthwater.co.uk/havant-thicket-reservoir/>).

3.6.5.2 *Changes to Draft Final Plan*

None.

3.7 **Service**

3.7.1 **Standpipes**

Nearly all of the comments relating to standpipes expressed concern about the effects that this would have on the vulnerable population and what will be put into place to solve this issue.

3.7.1.1 *Company Response*

Portsmouth Water only expect to use water restriction plans such as standpipes in extreme and rare cases. At present, the Company is resilient to a drought that would occur once in 200 years, and this means standpipes would not be required in such an event put this into perspective, the drought in 1976 had a return period of 1 in 80 years. During this time, a hosepipe ban was introduced which is the only restriction that the Company has introduced in our 160-year history.

The Company also operates a Priority Services Register providing a range of free services for customers who need extra support. This includes assistance for customers who are unable to collect water from a supply point so we will deliver bottled water directly to customers' homes. For more information or to register, customers should call the company on 023 9249 9666 or visit <https://www.portsmouthwater.co.uk/customer-services/priority-services/>.

3.7.1.2 *Changes to Draft Final Plan*

None.

3.7.2 **Taste of Water**

Most people complimented the taste and the quality of the water that Portsmouth Water supply, however some stated that they do not like the taste of the water and purchase bottled water.

3.7.2.1 *Company Response*

Water from different parts of the country has a different taste depending on where it is sourced because of the difference in natural minerals. Most of Portsmouth Water's supplies originate from the chalk of the South Downs and these naturally contain the hardness salts of calcium

and magnesium and traces of other minerals. We also add chlorine to the water supply so that it meets drinking water standards and helps to prevent the spread of disease. The taste of water is subjective but the quality of the water is not. More information is available on the website for customers that have concerns about the quality and taste of their water.

3.7.2.2 *Changes to Draft Final Plan*

None.

3.7.3 **Hardness of Water**

A minority of customers asked the Company to make the water in the area softer.

3.7.3.1 *Company Response*

It is because most of Portsmouth Water's water supply is sourced from the chalk of the South Downs that our water is moderately hard due to the naturally occurring calcium and magnesium salts. Hard water is safe to consume and there is evidence to suggest that it is beneficial for our health. Although it can cause lime scale to build up on taps and scaling on hot water systems, the costs of softening the water is relatively high and in extensive research with customers once they understand the cost, they typically do not favour treatment to soften it. Portsmouth Water therefore does not have any plans to soften the water in the area. Customers have the option to purchase personal water softeners and descalers to address this issue in the home if they desire. More information on water hardness is available on the Portsmouth Water website (<https://www.portsmouthwater.co.uk/faqs/>).

3.7.3.2 *Changes to Draft Final Plan*

None.

3.7.4 **Impact of Construction and Repairs**

Customer have asked for more information about the disruption to local residents that may occur during construction of new assets and repairs on the existing network.

3.7.4.1 *Company Response*

Portsmouth Water always try to mitigate disruption as much as possible. For example, we have increased the length of mains replaced using 'no-dig' technology so the amount of excavation is reduced which has a knock-on benefit of reducing disruption to customers and road users.

Customers will be informed of any disruption from planned works in advance.

More information about the disruption when future projects are constructed will be available when plans are finalised. Portsmouth Water will work closely with the Highways Authority, Planning Authorities and customers to minimise the impact of our work. Information about planned and unplanned works are publicised through various mechanism including signage, leafleting, our website and social media so that customers are aware and can make informed decisions to minimise any potential disruption.

3.7.4.2 *Changes to Draft Final Plan*

None.

3.7.5 **Environmental Impact of Groundwater Abstraction**

Many customer comments stated that they would like more information about the impacts on the environment that occur as a result of groundwater abstraction in the Portsmouth Water supply area.

3.7.5.1 *Company Response*

For Portsmouth Water to abstract groundwater, we have to obtain a licence from the Environment Agency. These licences limit the amount that the Company can abstract to ensure that the process is sustainable and has minimal impact on the environment. The licences are regularly reviewed so that they reflect recent environmental changes and continue to be sustainable.

3.7.5.2 *Changes to Draft Final Plan*

None.

3.7.6 **Sharing Water Supplies**

The majority of customer comments were in favour of sharing water supplies with other water companies (Southern Water in practice) but would like reassurance that this will not affect Portsmouth Water customers such as through more frequent water restrictions. Many were happy with the trading of water as long as Southern Water is also doing all that it can to reduce consumption in its supply area.

3.7.6.1 *Company Response*

Portsmouth Water will maintain the same level of service for our customers whilst providing a bulk supply to Southern Water. This means that we do not expect sharing of water to have an impact on the frequency of water restrictions in our area. This will be achieved by the development of new water sources (the Havant Thicket reservoir) as well as both companies promoting water efficiency and continuing to bring further reductions in leakage.

3.7.6.2 *Changes to Draft Final Plan*

None.

3.7.7 **National Water Grid**

Some customers have asked about the possibility of a national water grid to share supplies.

3.7.7.1 *Company Response*

There are no plans to create a National Water Grid as the financial and environmental costs outweigh the benefits and there are more effective local solutions. This situation may change in the future.

3.7.7.2 *Changes to Draft Final Plan*

None.

3.7.8 **Businesses**

There was some confusion amongst customers whether Portsmouth Water supplies water to businesses.

3.7.8.1 *Company Response*

In April 2017 the market for business retail services opened and Portsmouth Water exited the retail market along with many other water companies.

Non-household customers can now choose their Retailer for their retail service. This means that Portsmouth Water continues to supply the water but we have no direct contact with business customers. For more information, visit <https://www.open-water.org.uk/>

3.7.8.2 *Changes to Draft Final Plan*

None.

4 NEXT STEPS

The Company will submit this Statement of Response to the Secretary of State for the Department of Food and Rural Affairs.

It will be published on the Company website and a copy will also go to each organisation who made representations to Defra on the Company's Draft Plan.

The Company intends to send the Secretary of State a Draft Final Plan incorporating the changes highlighted in this Statement of Response.

The Secretary of State will then consider Portsmouth Water's response to the representations and the amendments made to in the Draft Final Plan.

The Secretary of State will then advise Portsmouth Water to either publish the Final Plan, provide further information on the plan or inform the Company that an examination in public will be required.