Water Resources Planning Guideline

Draft for consultation – July 2020

Contents

Introduction to consultation

The Water Resources Planning Guideline is available for consultation until 2 October. This guideline will inform water companies producing their statutory water resources management plans (WRMPs).

We welcome your comments. Please respond using our consultation response form available on GOV.UK. Alternatively you can request it from our water-company-plan mailbox. Email responses to:

water-company-plan@environment-agency.gov.uk

If your comments relate to Wales, please also copy in:

WREPP@cyfoethnaturiolcymru.gov.uk

We aim to publish the final version of the guideline in January 2021.

There are a number of supplementary guidance notes to this guideline. An overview note describes the applicability of each supplementary guidance note to England and Wales. You can request them from the Environment Agency from 31 August. These supplementary guidance notes include:

- Climate change
- Outage
- Leakage
- Resource zone integrity - remains unchanged from July 2016
- Planning to be resilient to a ‘1 in 500’ drought
- Stochastics
- Adaptive planning
- Environment and society in decision-making

The changes in this guideline

The last version of the water resources planning guideline was an update in 2017. Since that update we have significantly revised the guideline. The most significant changes are that water companies:

- should use natural capital in decision-making and provide environmental net gain through their WRMPs

- should plan to provide a long-term destination for the environment by reducing abstraction where it is causing the most environmental damage

In England

- are expected to be resilient to any drought of a return period of once in 500 years

- should take account of regional plans

There are also changes around baseline assumptions for demand management; updated guidance on climate change and when to consider adaptive planning. Water companies are also asked to use the drought vulnerability framework to assess their vulnerability to drought.

Section 1 - Planning for a secure, sustainable supply of water

This guideline is relevant to water companies in England and Wales. It is also relevant to those producing regional plans.

1.1. Your WRMP

If you are a water company in England or Wales, you must prepare and maintain a water resources management plan (WRMP). Your WRMP sets out how you intend to achieve a secure supply of water for your customers and a protected and enhanced environment. The duty to prepare and maintain a WRMP is set out in sections 37A-37D of the Water Industry Act 1991[1]. You must prepare a plan every 5 years and review it annually.

In your plan you must forecast your supply and your demand over at least the statutory minimum period of 25 years. If you forecast a deficit you should consider supply-side options to increase the amount of water available to you and demand-side options which reduce the amount of water you require.

To determine your preferred programme you should identify and appraise a range of options and justify your preferred solution. If you do not have a deficit you should still produce a best value plan, which considers wider objectives such as leakage reduction or increasing your surplus to facilitate water trading.

1.1.1 Outcome based planning

This guideline focusses on the legal requirements and technical approaches you should follow to develop a WRMP. You should consider this guideline in conjunction with any relevant government policy expectations or any specific outcomes.

Your WRMP should efficiently deliver resilient, sustainable water resources for your customers and the environment, both now and the long term. This objective should be at the centre of all planning methods and decisions.

You should be transparent through your methods, data, assumptions and decisions to achieve customer, stakeholder, regulator and government support for your plan. This is essential so that all interested parties can debate and influence your plans.

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[1] Please note that the Environment Bill may amend this legislation. The UK and Welsh Governments will notify you of any changes by amending this guidance if requirements change during the preparation of your plan

1.2. This guideline

This guideline is designed to help you write a plan that complies with all the relevant statutory requirements and government policy. In this guideline we have used the word ‘must’ where the action is related to a statutory requirement. If you do not follow a ‘must’ there is a high risk you will produce a plan that is not legally compliant.

We have used the word ‘should,’ where we believe this action is needed to produce an adequate plan.

If you, or a regional group, decide to take a different approach you should clearly demonstrate how you are still fulfilling your obligations. You should discuss this approach with regulators. Regulators are fully supportive of new approaches but will need to work with you to understand and review the approach.

If the guidance for water companies in England and Wales differs significantly, we have referred to these companies as follows:

- for companies wholly or mainly in England - ‘England’ or water companies in England
- for companies wholly or mainly in Wales - ‘Wales’ or water companies in Wales

1.3. Developing your WRMP

Your plan must take a long-term view, setting a planning period that is appropriate to the risks of your company, but which covers at least the statutory minimum period of 25 years. It may be appropriate, depending on the challenges and risks in the relevant regional plan[2], for you to plan for the next 50 years or more. This is so your plan identifies the right solutions to meet future pressures. Your plan should contribute to a protected and enhanced environment.

Before you revise your WRMP you should review which parts of your previous WRMP are still relevant. Your previous WRMP (as an agreed long-term plan) should be a starting point to build on. Your new plan should include a review of what has, and has not, changed since the last plan. This should include a review of whether your previous plan is still fit for purpose.

You must develop and publish a new plan no later than 5 years from the date when your plan was last published. You must also produce a WRMP if:

[2] Regional plans are a requirement by Defra for five regional groups within England.

- you have been directed to do so by the Secretary of State for the Environment, Food and Rural Affairs (if wholly or mainly in England) or by Welsh Ministers (if wholly or mainly in Wales)
- there has been a material change in your circumstances.

In producing the plan you:

- must comply with your legal duties
- should follow the relevant government's policy expectations and any specified outcomes
- must demonstrate how you will ensure secure supplies while protecting and enhancing the environment.
- should produce a final water resources management plan with no deficits in any of your water resource zones over the final planning period
- (in England) should demonstrate how you will implement both national planning (through the National Framework) and regional planning in your WRMP

1.4. Regulator roles and responsibilities

The following regulators have a significant role in the WRMP process. They are responsible for jointly writing this guideline.

1.3.1 Environment Agency

The Environment Agency is a statutory consultee for WRMPs. It leads on producing this guidance for you to use in compiling your WRMP. It has a statutory duty to secure the proper use of water resources in England. The Environment Agency will work with you as you prepare your plan and provide a representation as part of your consultation.

At the statement of response stage, its role changes and it becomes a technical advisor to Defra and the Secretary of State.

1.3.2 Natural Resources Wales

Natural Resources Wales is a statutory consultee for WRMPs process and the advisor to the Welsh Government for plans affecting Wales. Natural Resources Wales has responsibility for the sustainable management of natural resources and delivering the well-being goals for Wales. Natural Resources Wales will work with you in your preparation and implementation of plans in Wales. It leads on producing guidance specific to Wales.

1.3.3 Ofwat

Ofwat is a statutory consultee for the WRMP process. Ofwat may make representations on the content of the draft plan. The WRMPs primarily inform the supply-demand balance part of your business plans that you then submit to Ofwat.

Ofwat determines the extent to which, and the conditions under which, you can recover the costs of investment through your charges to customers. It does this principally (although not exclusively) through determinations and decisions under Condition B of water companies' Instruments of Appointment (licences). This provides the framework for your price controls, and, where necessary, the imposition of additional supporting licence conditions. Ofwat is required to carry out its statutory functions in accordance with its duties in Part I of the Water Industry Act 91. Ofwat's primary statutory duties under section 2(2A) of the Water Industry Act 1991 require it in summary, to set price controls in the manner it considers best calculated to:

- further the consumer objective to protect the interests of consumers, wherever appropriate by promoting effective competition;
- secure that water companies properly carry out their functions;
- secure that the companies are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of those functions
- further the resilience objective to secure the long-term resilience of companies' systems and to secure that they take steps to enable them, in the long term, to meet the need for water supplies and wastewater services.

1.3.4. RAPID

RAPID will help accelerate the development of new water infrastructure and inform future regulatory frameworks. It is made up of the three water regulators in England: Ofwat, Environment Agency and Drinking Water Inspectorate. It also works closely with Welsh Government and Natural Resources Wales. Find further information on RAPID's website.

Some water companies received funding to investigate and develop strategic regional water resource solutions in the periodic review 2019 final determination. These companies should account for progress made on these solutions through a gated process. RAPID will then make recommendations on the solutions and Ofwat will make decisions on funding. You must present the need for these schemes, their timings, and the justification for your decisions in your WRMP.

1.5. Assurance

You should provide an assurance statement from your Board to Ofwat and Natural Resources Wales or the Environment Agency that you are satisfied that:

- you have met your obligations in developing your plan
- your plan aligns with any relevant regional plan and has been developed in accordance with the National Framework and relevant guidance and policy
- your plan is the best value plan for managing and developing your water resources so you are able to continue to meet your obligations to supply water and protect the environment (Chapter 9 defines a best value plan).

Your assurance statement should be accompanied by a supporting statement. This should detail how the Board has engaged, overseen and scrutinised all stages of development of your plan and the evidence it has considered in giving its assurance statement.

1.6. Links with other plans

Your WRMP is closely related to a number of other frameworks, plans and strategies. This includes important links to other tiers of water resources planning through the National Framework and regional plans (see Section 2 – National, regional and local planning). You should also consider the following in your WRMP:

A. Government's 25 Year Environment Plan (England only)

Your WRMP should reflect the ambitious nature of the Government's 25 year Environment Plan. You should set out your ambition for environmental sustainability and resilience, support nature recovery, use natural capital in decision-making, use a catchment approach and importantly deliver net gain for the environment.

B. Water Strategy for Wales (Wales only)

Your plan should reflect the long-term policy direction in relation to water.

C. Business plans

Your business plan sets out your investment plans for the asset management period. Your investment plans are the mechanism to achieve the planned outcomes set out in your WRMP and deliver wider water system resilience. Your business plans should reflect Ofwat's price review methodology.

Your business plan is assessed through Ofwat's price review process. This results in a final determination which sets out how you will fund efficient expenditure from customer bills. This process is agreed on a 5 year cycle.

D. Drought plans

Your WRMP is complemented by your water company drought plan. Your drought plan sets out the short-term operational steps you will take if the area you cover faces a drought in the next five years. It describes how you would enhance available supplies, manage customer demand and minimise environmental impacts as the drought progresses. You should set out the justification for your drought plan actions and options in your WRMP.

E. River basin management plans

Your WRMP and drought plan will contribute to the objectives set out in River Basin Management Plans by ensuring you:

- have a secure and sustainable set of options to supply your customers
- are contributing to a sustainable catchments by ensuring supplies are managed well in a drought
- are demonstrating how you will help your customers to use water wisely

You should identify integrated catchment-based solutions in your plan. These should deliver multiple benefits, for example reducing flood risk and improving resilience of the environment to droughts.

F. Drainage and Wastewater Management Plans

The publication of the first draft drainage and wastewater management plans is expected in 2022. If you are a water and sewerage company, you should ensure that your long-term planning for wastewater and water supply are aligned. You should consider alignment in your growth forecasts, climate change scenarios and timetable for delivering solutions. If you are a water-only company, you should ensure your WRMP and your sewerage provider’s plans are aligned.

G. Drinking Water Safety Plans (or risk assessments)

These provide a means of identifying hazards and hazardous events that could arise in the catchment area, from the source up to the customer’s tap. You should keep your drinking water safety plans under continual review. Your WRMP should take account of these safety plans, where appropriate. Your WRMP should consider how you can mitigate any risks due to water quality which might impact your supply-demand balance or preferred options. Where these actions could improve the supply-demand balance, you should consider them as options in your plan.

H. Local Authority plans

Local authority plans set out future development, such as housing. Your WRMP should meet planned housing demand.

I. Local Nature Recovery Strategies (England)

The Environment Bill, as currently drafted, will introduce Local Nature Recovery Strategies for areas in England. Public authorities will have duties in relation to Local Nature Recovery Strategies. Your WRMP should support recovery and enhancement of biodiversity according to opportunities and priorities identified in strategy areas.

1.7. Further guidance

This guideline is supported by a number of manuals and technical guidance. These are referred to throughout the guideline and include manuals produced by UK Water Industry Research (UKWIR) and supplementary guidance notes produced by the Environment Agency and Natural Resources Wales. Please contact the Environment Agency or Natural Resources Wales for the latest list of supplementary guidance. These organisations can also provide an overview document that lists these notes and states whether they apply to companies in Wales.

Section 2 – National, regional and local planning

When you develop your plan, you should consider how it will contribute to national and regional water resources needs, while delivering local benefits. Your plan should take account of the following three scales of planning:

National Framework (applicable to resource zones in England)

The National Framework sets out the challenge for water resources in England over the next generation.

You are expected to work in regional groups to meet this challenge and work together to develop a cohesive set of plans. The regional plans should identify the best strategic options to meet the challenges we face, delivering best value for the environment and society.

Regional planning

For the first time, if you are in England, you will align your WRMP to a regional water resources plan. Regional plans will set out at a strategic level, how the supply of water for people, business, industry and agriculture will be managed in the region. The regional plan should create resilient water supplies for all users, while protecting and enhancing the environment for 25 years or more.

Your WRMP should explain how you have taken account of the regional plan and why you have selected your preferred programme.

Regional plans will be developed with other large water-users, taking into account the demands of all sectors. The regional planning guidance is an appendix of the National Framework and sets out what a regional plan must, should and could do. Regional groups and water companies will need to work with regulators and others to agree a long-term destination for environmental improvement and sustainable abstraction. The regional plan should show how they will achieve it.

Given the close link between the regional plan and the WRMP we expect this guideline to be highly relevant for regional groups. Regional groups should use this guideline where appropriate.

If you are a water company in Wales, and have a resource zone within or bordering England, you should inform the appropriate regional plan as required. There is no current requirement from Welsh Government for regional plans to be produced in Wales.

Local planning

In compiling your plan you should also actively engage with customers and stakeholders at a local, catchment level. You should consider any local pressures and local solutions. For example, local housing growth, or local concern around a particular stretch of river. You should engage with River Basin Management Planning catchment groups and priority catchment groups.

In England you should consider opportunities and priorities set out in Local Nature Recovery Strategies which embed nature recovery into your planning processes.

In Wales you should refer to the Nature Recovery Action Plan on the Welsh government website and to further details available on the Wales Biodiversity Partnership website.

Section 3 – How to form and maintain a WRMP

This section explains what steps you need to take to develop and publish your water resources management plan (WRMP or the plan). It starts from early engagement with regulators and customers, through to publishing your final plan. Once published, you must report on your plan annually.

3.1. The legal requirements

When you prepare and publish a WRMP, you must take account of the Water Industry Act 1991, sections 37A - 37D and any secondary legislation made. This includes the Water Resources Management Plan Regulations 2007 (2007 regulations), and any ministerial directions given under this legislation.

Please note the Environment Bill will amend this legislation. Future updates to the guideline will take account of any legislative changes.

You must also take account of the following legislation as relevant to your plan (this is not an exhaustive list):

- Water Industry Act 1991
- Water Resources Act 1991
- Environment Act 1995
- Water Resources Management Plan Regulations 2007 (2007 regulations)
- Environmental Assessment of Plans and Programmes Regulations 2004
- Conservation of Habitats and Species Regulations 2017
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- Water Supply (Water Quality) Regulations 2016
- Eels (England and Wales) Regulations 2009
- Wildlife and Countryside Act 1981
- Countryside and Rights of Way Act 2000
- Natural Environment and Rural Communities Act 2006
- Invasive Alien Species (Enforcement and Permitting) Order 2019
- Well-being and Future Generations (Wales) Act 2015

- Environment (Wales) Act 2016

You must consider whether you need to carry out a Strategic Environment Assessment (SEA) and Habitats Regulations Assessment (HRA) for your plan.

3.2. Pre-consultation

You should engage at an early stage with your Board, regulators, customers and interested parties, especially if your plan is likely to be complex or include significant change. This reduces the risk of issues being identified at a later stage. You should discuss your plan in the context of your previous WRMP and business plan, your progress with their delivery, and any expected variations.

You should continue engagement through the development of your plan (including highlighting significant changes) until you submit your draft plan. There should therefore be no surprises to regulators and stakeholders when you publish your plan. A good pre-consultation should lead to less challenge of a draft plan as your pre-consultation should help identify and resolve any concerns early in the process. This should help avoid delays in the later stages of the process which can have implications for your business plan and funding.

Customer and stakeholder engagement on your plan should, where possible, align with customer engagement on your business plan. This should mean that customer preferences identified as part of the WRMP process are reflected in your business plan.

3.2.1 Statutory consultees

You must carry out pre-consultation discussions with the following statutory consultees:

- the Environment Agency and the Secretary of State if your plan will affect sites in England
- Natural Resources Wales and the Welsh Ministers if your plan will affect sites in Wales
- Ofwat
- any licensed water supplier that supplies water to premises in your area through your supply system
- Cadw (in relation to SEA in Wales)

You should also engage as early as possible with relevant Strategic Environmental Assessment and Habitats Regulation Assessment statutory consultees where appropriate.

If your possible options affect a designated site in England or Wales you must contact Natural England or Natural Resources Wales as applicable.

Designated sites include:

- special areas of conservation (SACs, including candidate areas)
- special protection areas (SPAs, including potential areas)
- Ramsar sites (including proposed sites)
- sites of special scientific interest (SSSIs)
- national nature reserves
- local nature reserves (contact local councils)
- local wildlife sites (contact local councils or wildlife trusts)
- marine conservation zones
- landscapes including World Heritage sites, European Landscape Convention, National Parks, Areas of Outstanding Natural Beauty

3.2.2. Non-statutory consultees

You should also carry out pre-consultation discussions with other consultees. These should include as a minimum:

- regional groups (where applicable)
- any water supplier affected by your supply system
- any water companies you have bulk supply or shared resource agreements with
- neighbouring water companies
- customer challenge groups or their equivalent
- local catchment partnerships
- Wales Water Management Forum (Wales)
- any other groups your plan is likely to affect
- any potential water supplier, company or third party you may wish to trade with
- CCW (Formerly Consumer Council for Water)
- Public Services Boards (Wales) and other public service providers

- water retailers for business
- Drinking Water Inspectorate
- RAPID
- National Infrastructure Commission
- Local Nature Partnerships (where applicable)

3.2.3 Consultation with regulators

You should undertake an enhanced pre-consultation with the Environment Agency and/or Natural Resources Wales and Ofwat. You should discuss your plan's ambition, methods and the approaches that you intend to take while developing your plan.

You should present the following information to the regulators, as a minimum, by January 2022:

- the resource zones on which your plan will be based
- your supply-demand balance at a resource zone level
- problem characterisation assessment
- how your plan will reflect the relevant regional plans (if applicable)
- your planned approach to assessing climate change
- progress with WRMP19 delivery and significant changes and how this will affect your plan
- your provisional preferred schemes
- the wider benefits and outcomes you plan to deliver beyond a least-cost plan
- any particular risks or issues you identify in your plan

Regulators will review this information and provide an initial view. They will highlight the areas they wish to work with you on as you compile your plan. Regulators will not sign off any parts of your approach in advance of the consultation. This is because they need to assess the plan as a whole and offer impartial advice to government.

3.3. Write a draft plan

You should use this guideline to write your draft plan, taking into account any feedback from your pre-consultation. Your WRMP should align to any relevant regional plan. You must also follow legislation including any directions you

receive from the Secretary of State or the Welsh Ministers. They will issue directions ahead of you submitting your draft plan. They will include the date by which you must submit your draft plan and any other statutory requirements. You may receive further directions during the process.

Your plan should have an easy to read non-technical summary that clearly sets out your planning problem and how you propose to solve it. It should also highlight specific questions you would like responses to during the consultation. It should also summarise the progress since, and differences from, your previous plan. Your non-technical summary should show how your WRMP and other linked plans such as your drought plan, regional plan (if applicable) and your business plan fit together. You should also provide a dashboard of summary metrics using a template that the regulators will provide.

Your non-technical summary should sit alongside a more detailed, but still clearly understandable, technical document. Regulators and interested parties need to understand the options you have considered and the decisions you have made. You should provide supporting information in appendices and also complete the water resources planning tables. When writing your plan, you should also consider the reporting requirements for completing the stages (if applicable) of the Strategic Environmental Assessment and Habitats Regulation Assessment.

3.4. Send your draft plan

You must send your draft plan to the Secretary of State and/or Welsh Ministers.

If your company area is wholly or mainly in:

- England - you must send your draft plan, statement of response to your consultation and final plan to the Secretary of State. If your plan also affects sites in Wales, you must send it to the Welsh Ministers in addition to the Secretary of State
- Wales - you must send your draft and final plan to the Welsh Ministers. If your plan also affects sites in England, you must send it to the Secretary of State in addition to the Welsh Ministers. You must ensure your submitted plan and statement of response complies with the requirements of the Welsh Language (Wales) Measure 2011

Defra will provide you with instructions about sending electronic copies of your plan via a secure transfer site. If your plan affects sites in Wales, the Welsh Government will provide instructions for submitting electronic copies of your plan.

When you submit your draft plan to the Secretary of State or Welsh Ministers for agreement to publish it for consultation, you must submit a statement from your

security manager. This must certify that the plan has been reviewed[3] and that it does not contain any information that would compromise national security interests. You must highlight the information you propose to redact or edit out in the published version, so that the Secretary of State or Welsh Ministers may confirm whether it can be removed on grounds of national security.

In this statement you must also say whether the plan contains any information that may be commercially confidential. If you believe a draft plan should not be published because it contains commercially sensitive information, you should tell the Secretary of State or the Welsh Ministers as soon as possible.

You should also provide your assurance statement to the Secretary of State and Welsh Ministers alongside your draft plan. Section 1.5 describes the requirements of your assurance statement.

3.5. Publish, distribute and consult on your draft plan

You must wait to hear from the Secretary of State or the Welsh Ministers before publishing your draft plan. Once you've been instructed to publish, you must adhere to Water Industry Act 1991, the 2007 regulations and directions with regards to the consultation and making draft plans available. You must share your draft plan with all consultees listed in the 2007 regulations. You should also share your draft plan with all other organisations involved in the pre-consultation discussions.

You must also publish a statement with the draft plan that:

- specifies whether you have left out any commercially confidential information
- tells people that how they can make representations on the draft plan to the Secretary of State or the Welsh Ministers before the end of the consultation period

You should also consider:

- offering to explain the plan to established groups, known interested parties or companies within your area
- including an engaging summary of your plan which clearly sets out your proposals to your customers in plain language
- holding virtual events, road shows or exhibitions

3 Clause 75 of the Environment Bill may alter this requirement

- conducting questionnaires to gain views on your proposals, using phone or in person surveys or other recognised survey techniques
- using social media to highlight the consultation
- innovative web-based engagement
- joint communications with other companies

These are only suggestions and the approach you take will depend on your circumstances and the issues you are facing.

Where you are proposing joint schemes, you should ensure that your messages and narrative are consistent with the other proposers and consider joint stakeholder events.

You have 26 weeks (unless specified differently in any new direction) to consult on your draft plan and produce a statement of response. It is your responsibility to decide how long you will consult for. Previously, the consultation period has been around 12 weeks. However, this will depend on your situation. You should allow enough time:

- for consultees to make comments on the plan – allow more time for more complex draft plans
- to produce a statement of response based on the comments you receive

You must state in your consultation that all responses should be sent to the Secretary of State, if you are in England, or to the Welsh Ministers if you are in Wales, using the email or postal addresses below:

Defra Email: water.resources@defra.gov.uk

Water Resources Management Plan Water Services
Department for Environment, Food and Rural Affairs
Seacole 3rd Floor
2 Marsham Street
London
SW1P 4DF

Welsh Government Email: water@gov.wales
Water Branch
Welsh Government
Cathays Park
Cardiff
CF10 3NQ

The Secretary of State or Welsh Ministers will send copies of all the responses on your plan to you.

Regulators expect to operate a query process during the draft plan consultation stage. This will be similar to Ofwat's approach during its periodic review process. If you receive a query from a statutory consultee you should respond with supporting evidence where required within 3 working days of the request. A longer response time can be requested if this can be justified. Depending on commercial and security considerations, the query responses should be published on your website in support of the draft plan. You should also include the queries and responses as part of your statement of response.

3.6. Publish a statement of response

You must publish a statement of response after completing the public consultation. You must publish this within 26 weeks of publishing your draft plan for consultation (unless specified differently in any new ministerial direction).

Your statement of response must:

- show that you have considered the representations you have received
- set out the changes you have made to the draft plan as a result of the representations and your reasons for making them - either set as amended text or in a revised draft plan
- say if you have not made changes as a result of representations and explain why
- describe anything that has changed during the consultation period. For example, the conclusion of any projects you had undertaken or external influences such as new sustainability changes

You should decide whether the statement of response alone allows your customers and partners to understand clearly and easily the changes you have made. If it does not, you must publish a revised draft plan alongside it.

You will need to assess whether any changes in the WRMP will require changes to other plans such as your drought plan, regional plan, or business plan.

You must publish the statement of response in line with the Water Industry Act 1991, the 2007 regulations and the directions. You must tell everyone who responded to your draft plan that you have published it.

Once completed you must send your statement of response to the Secretary of State or Welsh Ministers. If you have a revised draft WRMP or have been requested to provide further information, you should provide it alongside your statement of response. You must notify the Secretary of State or Welsh Ministers

of any further information that may be commercially confidential or which has been, or you consider should be, removed for reasons of national security.

The Secretary of State will send your statement of response and revised draft plan to the Environment Agency and Ofwat for review and the Welsh Ministers will send it to Natural Resources Wales for review.

3.7. Publish your final plan

The Secretary of State or Welsh Ministers will review your draft plan, the representations made and statement of response. They will also review technical advice from the regulators and decide whether your plan can be published. They may ask you to complete further work before you can publish your plan. If so, the Secretary of State or Welsh Ministers will send you the necessary instructions.

If your plan has unresolved issues or significant public interest there may need to be a public hearing, inquiry or examination in public. The Secretary of State or the Welsh Ministers will decide if this step is needed and will inform you.

You cannot publish your final plan until you have received permission from the Secretary of State or the Welsh Ministers. Before publishing your final plan you must:

- follow any directions from the Secretary of State or the Welsh Ministers
- undertake a final check of your plan to ensure it is ready to publish

You should ensure your plan is still aligned to any applicable regional plan. It should reflect any changes that have been made to the regional plan as a result of changes from other companies' draft plan consultations.

You must publish the final plan as set out in the Water Industry Act 1991 and the 2007 regulations and directions. This must be completed within the set timescales issued or you may face enforcement action.

You should notify everyone who responded to your consultation and bring it to the attention of anyone else that your plan is likely to affect.

3.8. Review and maintain your final plan

You must maintain your plan. You should treat it as a live document. You should implement your plan, monitor its progress, and take action if required. You must review your published plan every year and report to the Secretary of State or the Welsh Ministers. This should be on or before the anniversary of publication of the final WRMP. You should follow the Annual Review guidance.

You must consult with the Environment Agency and/or Natural Resources Wales on any substantial changes that you wish to make to your final plan. For

example, implementation of new resources not mentioned in your plan. If the changes are ‘material’ you must prepare a revised draft plan for re-consultation. Material changes are those likely to significantly impact customers through higher bills, changing their security of supply or significantly affect the environment. The Environment Agency and/or Natural Resources Wales will provide technical advice to the relative governments.

Section 4 – Basis of planning

A WRMP must set out how you intend to maintain the balance between supply and demand for water during the planning period. The planning period should be appropriate to the risks of your company, but must cover at least the statutory minimum of 25 years. It may be appropriate, depending on the challenges and risks in the relevant regional plans[4], for you to plan for the next 50 years. This is to ensure your plan identifies the right solutions to meet future pressures. WRMPs must show how you will manage and develop water resources so that you meet your obligations in relation to supplying water and the environment. Your plan should deliver value for money for your customers. It should reflect wider society values and Government expectations.

4.1. Developing your plan

When producing your WRMP, you should transparently:

- consider the continuity of your plan with your previous WRMP and business plan. Where no changes are required you should use the relevant 5 year period from previous long-term plans. Where there are differences between previous plans you should highlight them and explain the reasons. You should include a section in your plan that explains how your backwards look (including previous planned interventions and delivery) has influenced your plan

- forecast how much water, on a sustainable basis, you have available to supply your customers each year over your chosen planning period, for a minimum of 25 years (see Section 5)

- forecast how much demand there will be for water each year over the same period (see Section 6)

- allow for uncertainty in your calculations and forecasts (see Section 7)

- compare supply with demand (including uncertainty) and see if there is a surplus (more supply than demand) or a deficit (less supply than demand). If there is a deficit you must identify options to increase supply or reduce demand so that you achieve an environmentally sustainable secure supply of water. If you do not have a deficit you should still produce a best value plan. (see Sections 8 and 9)

- consider the risks to the supply-demand balance that you face and how you will ensure that your current and future system will be resilient to future uncertainties across the planning period. The risks that you consider, and

4 Regional plans are a requirement by Defra for five regional groups within England.

where appropriate mitigate, should be set in the context of your overall company resilience and risk register.

- provide all of this information at a water resource zone level and summarise it at a water company level

Your plan should demonstrate that you have:

- complied with any statutory requirements and had regard to the government policy
- an efficient, environmentally sustainable, secure supply of water, with no final planning deficits, for each water resource zone over your chosen planning period, which must be a minimum of 25 years. Where there are significant challenges a longer timescale should be considered

In England

- consider how to solve the challenges set out in the National Framework for England, published in March 2020
- reflect the regional plan unless there is clear justification for not doing so

4.1.1 High-level considerations

You should take account of these high-level considerations in your plan. You should:

In England and Wales

- include your enhanced ambition for improving the environment, suitably evidenced and aligned with the relevant regional group. This should be in addition to any changes set out by the Environment Agency, Natural England or Natural Resources Wales
- fulfil your Water Framework Directive regulations obligations. You should ensure your plan supports the environmental objectives in the River Basin Management Plans by preventing deterioration and achieving protected area and water body status objectives
- carry out a Habitats Regulations Assessment (HRA), including an appropriate assessment, as set out in the Conservation of Habitats and Species Regulations 2017 (as amended), if your preferred solution could affect any Habitats sites
- ensure that any previous HRA of options included in your preferred solution remains current and covers any material changes in circumstance. Any HRA needs to be available for review and assessment by Natural England and/or Natural Resources Wales and other relevant parties. You should explain how you have considered advice from these bodies.

- screen for a Strategic Environment Assessment (SEA) and carry out a full SEA if required
- show the impact of your plan on the affordability of customer bills, including any measures to mitigate these
- consider intergenerational and distributional impacts in your plan
- consider how your plan is compatible with Defra's or Welsh Government's long-term ambitions for the environment and sustainable management of natural resources

In England

- ensure your plan delivers net biodiversity and environmental gain and use a natural capital approach
- if you are in surplus, or have additional sources available, you should provide evidence that you have worked with your neighbouring water companies and regional groups to identify whether this water is available for trading. You should also consider if you have options to further facilitate inter-company trading
- consider your duty to conserve biodiversity under Section 40 of the NERC Act (2006) and the list of species and habitats of principal importance set out in Section 41 of the Act (England)
- take a catchment based approach, including engagement across sectors to develop options that provide broader benefits to society
- consider how your plan will contribute to Nature Recovery and the establishment of Nature Recovery Networks incorporating opportunities and priorities identified in Local Nature Recovery Strategy areas
- consider what your company can do to address the climate emergency

In Wales

- ensure your plan delivers biodiversity and environmental requirements and uses a natural capital approach
- if you are in surplus, you should take into account Welsh Government's Guiding Principles regarding water trading and commence early consultation with Natural Resources Wales and other stakeholders in Wales
- planned for the worst drought in your historic record, as a minimum. You should consider contingencies for more challenging but plausible droughts. For example, those you identify through the drought vulnerability framework. You should identify whether you require solutions for additional resilience

- consider local multi-sector needs and include within your supply-demand balance if you are directly supplying them. You should also consider future demands and consider if sectors, such as, private water supplies and agriculture may switch to your supply during peak periods, such as droughts
- consider how your plan could contribute to the Well-being of Future Generations (Wales) Act 2015, if you supply customers in Wales or your plan affects sites in Wales
- work with the Welsh Government and Natural Resources Wales to understand the implications of the Environment (Wales) Act and sustainable management of natural resources principles for the development of WRMPs, if you supply customers in Wales or your plan affects sites in Wales
- consider the Biodiversity and resilience of ecosystems duty, the Section 7 Biodiversity lists and duty under the Environment (Wales) Act and Nature Recovery Action Plan for Wales

4.2. New appointments and variations

If you are a new appointments and variation[5] (NAV) and therefore operate under bulk supply agreements with other water undertakers, some parts of your plan may be proportionate to reflect this. You should produce a WRMP that demonstrates that all the statutory requirements have been met, but the level of detail within your plan may be relative to the size of your customer base and on how you obtain your water supplies. You should set out how you will:

- engage with the supplier and your customers to continue to maintain water supplies
- feed into the development of your suppliers' planned levels of service
- take account of donor/neighbouring undertaker's data and information when preparing your plan.

You should clearly present and explain any differences in planned drought actions in your plan. You should discuss the requirements for your plan with the Environment Agency or Natural Resources Wales at an early stage in the process. Where other water companies are operating in your supply area, you should consider any water supply management arrangements you will have with them in your draft plan.

5 NAV appointments are made under the Water Industry Act 1991 (Sections 7 and 8) and enable Ofwat to replace the existing water supply and/or sewerage undertaker for another for a specific area. NAVs undertake much of the same duties and responsibilities as the previous statutory company, including the requirement to produce WRMPs.

4.3. Water supply and sewerage licences

Retailers with water supply and sewerage licences (WSSLs) can supply non-household customers using public water supply networks. Retailers with a WSSL are not required to prepare their own plans. However, if they are operating in your area, under terms of their special licence conditions, they must provide you with any relevant information you request to inform your plans. You should work with any retailers operating in your area to plan and implement any demand management proposals relevant to customers in your preferred programme.

In Wales

Retailers with WSSLs can only apply for a restricted retail authorisation that authorises the holder to use the supply system of an appointed water company to supply the eligible premises of its customers only.

4.4. Defining a water resource zone

Your plan should be built up of assessments undertaken at a water resource zone level. The water resource zone describes an area within which the abstraction and distribution of water to meet demand is largely self-contained (with the exception of agreed bulk transfers). You may divide your supply area into one or more water resource zones.

In England, you should define your water resource zones using the Environment Agency's assessment methods (Water Resource Zone Integrity, 2016)[6]. If you are in Wales, you should discuss the assessment of your resource zone integrity with Natural Resources Wales.

Your customers in a resource zone should face the same risk of supply failure and the same level of service for demand restrictions. There will be limitations to achieving this due to the specific characteristics of a distribution network. Water distributed within a water resource zone should be useable throughout that zone (in terms of water quality and hardness).

You should review whether future changes to your planned supply or demand would cause sub-zonal issues. If this is the case you should consider sub-dividing the resource zone or justify maintaining the current zonal area.

You should include forecasts for non-potable water demand and supply as additional lines in the water resources planning tables where relevant.

You should provide your planned resource zone configuration and reasoning to the Environment Agency and/or Natural Resources Wales during pre-

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6 This is available on request from the contact details set out in Section 1.

consultation. If you need to combine or divide a resource zone during your planning period, you should discuss your approach with the Environment Agency or Natural Resources Wales.

4.5. Problem characterisation

You should use the problem characterisation step of the UKWIR report Decision Making Process Guidance. You should use it to identify the scale and complexity of your planning problem and your vulnerability to various strategic issues, risks and uncertainties. You should use this information and the UKWIR report Risk Based Planning Method to inform your choice of methods so they are proportional in terms of the effort, complexity and costs.

4.6. Drought vulnerability assessment

England

You should use the drought vulnerability framework to assess the resilience of your current supply system to a range of droughts of differing severity and duration.

You can use the drought vulnerability framework as a screening step to help you understand what droughts you are vulnerable to. In your plan you should present two response surfaces for each resource zone. Your response surfaces should use different ending months to reflect the risks that you might face. You should assume you can use whatever supply options and drought measures are in your plan for the base year. You should present the main sources of uncertainty as recommended by the UKWIR Drought Vulnerability Assessment manual.

You should use the results:

- to highlight any specific types of droughts you are vulnerable to
- to consider how you can improve your resilience to droughts through your plan

You may wish to consider including further drought response surfaces in your plan, to show the resilience of your final plan in the future.

Wales

You should base your supply forecast on a design drought. As a minimum, you should assess your plan against the worst drought on record. You should follow the UKWIR report Risk Based Planning guidance to inform your assessment of drought vulnerability (risk) and to decide on a design drought. You can use one of the following techniques from the UKWIR guidance:

- conventional plan (risk composition 1 – based on the worst drought on record)

- resilience tested plan (risk composition 2 – consider a more challenging but plausible range of droughts)
- fully risk based plan (risk composition 3 – based on probability analysis of drought events not seen in the historic record)

You should include a drought vulnerability statement in your plan to reflect the hydrological risks that drought imposes on your supply system. Whatever design event you select, you should still test your plan against a more challenging, but plausible range of drought events. You should clearly justify your risk composition choice, particularly if you choose risk composition 1, and outline the risks and uncertainty involved (for example, in your behavioural modelling and source output analysis).

You may also choose to use the drought vulnerability framework assessments from your drought plan to complement your approach. You should do this for those resource zones that are most likely to be vulnerable to a range of droughts. You should engage early with Natural Resources Wales to discuss its expectations for using the drought vulnerability framework for your resource zones within Wales.

4.7 Levels of resilience

The point of failure is defined as implementing exceptional demand restrictions associated with emergency drought orders, such as standpipes. Your plan must set out your planned level of service for failure, as well as your actual level of service. You should explain how your company defines this level of failure.

Your plan must also set your planned level of service for other customer restrictions over the planning period. You should explain the frequency that you plan to restrict water supplies for your household and non-household customers using temporary use bans and non-essential use bans. These should be consistent with your drought plan and the assumptions in the regional plan, where relevant. You should describe how you have engaged your customers and stakeholders, and how you have taken account of their views and requirements in developing your level of service.

If you are a NAV entirely supplied by bulk supplies or a retailer, you should reflect your incumbent's levels of service.

For companies in England

You should plan to be resilient to any drought of an approximate return period of once in 500 years without implementing an emergency drought order. You should achieve this level of resilience by 2039 at the latest. You should determine an optimum timing for achieving this through the regional groups, considering the costs and benefits of alternative approaches. Your preferred timescale should

consider a balance of customer and environmental resilience, the affordability of the programme (along with distributional impacts) and deliverability.

Some flexibility in achieving a resilience of ‘1 in 500’ is possible, where costs are exceptionally high locally in comparison to benefits. For example, at a resource zone level. Where more flexibility is considered appropriate, you should present meeting a ‘1 in 500’ by 2050 scenario. You should clearly identify the changes to your preferred programme and the level of service during this time. You should have a robust drought plan in place to protect those customers where this is the case.

In the short term, you may need to consider drought management options to achieve the expected level of resilience and/or consider reducing your level of service in the interim.

Your increased resilience in the medium and longer-term should not rely on the increased use of drought measures to boost supplies. For example by allowing additional abstraction during drought, where this is environmentally damaging. You should plan, where appropriate, to use drought permits and orders less frequently in future, particularly in sensitive areas. You should use your understanding of the environmental risks associated with each permit, to inform your planned use of drought permits and orders. You should also indicate, through the relevant tables, the likely order and frequency of use of your drought permits and drought orders. The assumptions should be consistent with your drought plan.

The Supplementary Guidance: Planning to be resilient to a 1 in 500 drought provides further guidance on planning for this level of resilience.

For companies in Wales

You should set out the levels of service you plan to provide for your customers over the planning period. You should describe the frequency that you plan to restrict water supplies for your household and non-household customers using temporary use bans, non-essential use bans and emergency drought orders. Your level of service should be supported by the use of appropriate and evidence based assumptions and methodologies and be consistent with your drought plan.

You should describe how you have engaged your customers and stakeholders. You should explain how you have taken account of their views and requirements in developing your level of service. You should consider the costs and benefits of changing your level of service. When considering how to communicate resilience with your customers, you should consider the UKWIR report Risk Based Planning and developing resilience metrics.

If you are a Welsh company planning a new transfer with an English company, you should plan to be resilient to any drought of an approximate return period of

once in 500 years (0.2% per annum failure probability) by the 2030s, for those zones affected by those trading options.

4.8. Planning scenarios

Your plan should be based on a baseline scenario which considers the supply-demand balance when your supplies are low and your demand is high. This is your design scenario.

You can also include in your plan, a Dry Year Critical Period scenario or scenarios to show how you will plan for a period of peak strain on your system. For example, high seasonal demand such as during a heatwave (for example 2018 and 2020), winter leakage, or when holiday-makers increase demand significantly during the summer. If your demand has changed as a result of the coronavirus outbreak, you could consider this as a critical period. If so, you should consider the risk of a combination of pressures, such as the dry weather and the coronavirus outbreak in 2020.

Where these types of peak strain have a much shorter duration or localised impact than is considered in a WRMP, you should address them as part of your business plan.

Your baseline scenarios should include the following assumptions:

- leakage remaining static from the first year of your plan throughout your whole planning period (unless otherwise agreed by regulators)
- your forecast of customer consumption without any further water company intervention. For example you should assume you end your water efficiency programmes and metering programmes beyond AMP7
- existing transfers to the extent of the agreed contracts
- include sustainability reductions
- the benefits of non-supply-demand balance solutions such as capital maintenance
- risks to groundwater and surface water sources due to declining water quality. These should be captured in your baseline so that the measures to address them can be properly explored and set out in your plan

- should not include the contributions from any demand or supply drought measures[7] such as drought permits or orders. For companies in Wales refer to section 4.9.

- schemes that have planning permission to go ahead and/or funding or other necessary permissions such as abstraction licences. You should discuss and agree these assumptions with the regulators at the pre-consultation stage

England

If you are in England your design scenario should be based on:

- supply forecast – your estimate of supplies which are resilient to a drought-caused failure[8] of a likelihood of once in 500 years or 0.2% in any one year. See Section 5 and the Supplementary Guidance: Planning to be resilient to a 1 in 500 drought for further details

- demand forecast – your forecast dry year annual average demand, when demand for water and your leakage for your network is at its highest before temporary use bans are imposed

  If you have evidence that suggests that demand in a 1 in 500 year drought with drought measures in place, is higher than your dry year annual average you can consider using this as an alternative. You should present your evidence and discuss this approach with regulators. If agreed, you will also need to report an unrestricted dry year per capita consumption and a dry year annual average supply balance

You should report data at a water resource zone level using the water resources planning tables. Your preferred plan should address any deficits in your dry year annual average and critical period scenarios.

You should also present your assessment for each resource zone of the demand you might expect during a 1 in 500 drought event.

Wales

Your design scenario baseline planning scenario should include:

- a baseline supply forecast including your assessment of water available for use from current sources. You should base this on supplies that can be maintained through a design drought considered appropriate for your

7 Supply drought measures are those that increase available supplies during a drought, for example drought permits, drought orders and re-commissioning sources. Demand-side measures would include temporary use bans and non-essential use bans.

8 The point of failure is defined as using exceptional demand restrictions associated with Emergency Drought Orders, such as standpipes.

resource zone/company area. The dry year annual average demand and the design droughts should link with your drought plan and consider government expectations

- if a baseline supply or demand forecast for a resource zone is affected by a regional plan, you should align your planning scenarios for those zones with the regional plan
- a baseline demand forecast covering what people and businesses need, what you expect to lose through leakage and what you may use in operating your system. You should base this on forecast dry year annual average demand, when demand for water is at its highest before water use restrictions are imposed
- an allowance for uncertainty relating to your supply and demand forecasts depending on your chosen methods.

You should discuss what scenarios should be presented in your plan with Natural Resources Wales.

4.9. Links to your drought plan

You should clearly explain how your drought plan and WRMP link in a way that your customers, regulators, government and interested stakeholders can understand. Your drought plan should set out the actions that you will take to manage a drought. Your emergency plan will set out the actions you will take in a civil emergency. Your WRMP should set out your current and future levels of service and your justification for the order of actions you will take in a drought.

In Wales, you should refer to the UKWIR report Risk Based Planning when deciding which drought measures to include in your baseline supply forecasts. It is expected that when planning for historic drought within your baseline, you should not include the benefit of supply drought measures. When planning for more extreme events (once an event reaches 1 in 200 years severity) you may decide to include the benefits of supply drought measures in your baseline supply forecasts. You should only consider supply drought measures that have no significant environmental impacts associated with them. You should have the experience and confidence that you will be able to implement these measures during a drought.

Section 5 – Developing your supply forecast

In your WRMP you should set out how much water you have in your base year and how you forecast this will change throughout the planning period. You should demonstrate that you understand how your sources respond to droughts, the current constraints and potential future changes to your sources of water.

5.1. How to develop your supply forecast

You should assess how much water is available to supply your customers in each of your water resource zones. For companies in England, your baseline supplies should be resilient to a 0.2% chance of failure caused by drought.

The water available in each resource zone will be dependent on the water available from each source and how you will use those sources in conjunction. For companies in England, you should use a system response deployable output[9].

You should discuss your approach to developing your supply forecast with the Environment Agency or Natural Resources Wales (as appropriate) as early as possible.

When developing your supply forecast, you should account for the impact of the following pressures on your sources. You should describe any assumptions you make in your plan:

- the impact of the changing climate
- changes to your abstraction licences to ensure sustainability and meet your long-term environmental destination
- issues arising from pollution or contamination of sources
- issues arising from development and new infrastructure
- changes in contractual arrangements, for example, with transfers of water between companies

For companies in England, see the Supplementary Guidance: Planning to be resilient to a 1 in 500 drought. This explains how you should define a ‘1 in 500’ planning scenario and the assumptions you should use.

9 For further information on the system response deployable output see the Supplementary Guidance: Planning to be resilient to a 1 in 500 drought

5.2 What to include in your baseline supply forecast

You should base your baseline supply forecast on the response of your system. Using your system response is preferable to rainfall or effective rainfall. This is because of the problems in presenting duration, rainfall patterns and start and finish months when evaluating the return period. Using a system response means that your supply forecast will adequately your capture system constraints, conjunctive use capability and operational response.

If you abstract water in your water resource zone, you should produce a breakdown of your supply forecast that includes:

- the deployable output for each source (or group of sources)
- future changes to deployable output from sustainability changes, including your environmental ambition, a changing climate and any other changes you expect
- existing transfers and schemes where planning permission is already in place
- an allowance for short term losses of supply and source vulnerability known as outage
- any operational use of water or loss of water through the abstraction-treatment process
- a supply forecast that combines all the above elements into Water Available For Use (WAFU)

The water resources planning table instructions define the individual components of your supply forecast and how you should define them.

If you require a critical period scenario or scenarios you should provide supply-demand forecasts for them in addition to the dry year annual average scenario.

If your water resource zone receives all of its water via transfers or third parties, your supply forecast should only reflect your contractual arrangements. However, you should confirm that the supplier company has made the necessary assessments to meet the statutory and policy obligations, for example climate change assessments. You should also confirm that it will be able to supply you with water during your design scenario and that you can meet your level of service. We would expect your level of service to reflect the incumbent's level of service.

5.3. What to cover in your deployable output assessment

If your source of water is not solely provided by a transfer, you should assess and report your deployable output. Deployable output is the yield of a commissioned source, or group of sources constrained by:

- hydrological yield - for companies in England you should determine using a system response so that your system is resilient to a 0.2% chance of failure caused by a drought
- licensed quantities
- environment (represented through licence constraints)
- pumping plant and well/aquifer properties
- raw water mains and aqueducts
- transfer and output main
- treatment
- water quality, including any risks to your groundwater and surface water sources, due to declining water quality

You should consider the risks of non-renewal for time limited licences that are due to expire during the period covered by the plan. You should review whether these licences are sustainable and that their use does not cause environmental deterioration. If there are risks with renewal you should describe how you will manage these in your plan.

If you are a company in England, your deployable output should not include the contributions from any demand or supply drought measures[10] such as drought permits or orders.

If you are a company in Wales, refer to Section 4.9 for more details of what to include in your deployable output.

You should clearly explain in your plan which factors constrain deployable output. To calculate your deployable output, you should use:

- UKWIR (2014) Handbook of Source Yield Methodologies

10 Supply drought measures are those that increase available supplies during a drought, for example drought permits, drought orders and re-commissioning sources.

- UKWIR (2016) WRMP19 Methods - Risk Based Planning

Given the complex nature of deployable output calculations in the context of stochastically generated droughts, you should talk to the Environment Agency and/or Natural Resources Wales when developing your plan. You should also refer to the Supplementary Guidance: Planning to be resilient to a 1 in 500 drought (England) and to the Supplementary Guidance: Stochastics.

5.4. Your role in achieving sustainable abstraction

Sustainable abstraction is essential to support healthy ecology and the natural resilience of our rivers, wetlands and aquifers. Your plan should protect and improve the environment, for example, by providing greater protection to sensitive habitats and vulnerable rivers, such as chalk rivers. Your plan should demonstrate that your abstraction is sustainable now and over the long-term.

Your plan:

- must deliver the regulatory actions required to avoid deterioration and meet targets for Protected Areas
- must deliver actions required to meet the Abstraction Plan for 2027 and those required to achieve Water Framework Directive objectives, as defined in River Basin Management Plans
- should take account of government and regulators' objectives for the environment
- should include the Environment Agency's requirements in the Water Industry National Environment Programme (WINEP) and/or Natural Resources Wales requirements in the Environment Programme (NEP)
- should include your long-term environmental ambition, clearly setting out the actions you will take in the short, medium and long-term to achieve it
- should fully reflect and support the achievement of the regional long-term environmental ambition, where you are part of a regional group

5.4.1. Statutory requirements and regulatory expectation

You have a duty to have regard to River Basin Management Plans (RBMPs) when exercising your functions. You must assess all your current and future predicted abstractions to ensure they comply with and support the achievement of Water Framework Directive regulation requirements and objectives set out in the RBMPs. This includes protected area objectives. You must also consider any other environmental obligations, including obligations towards Sites of Special Scientific Interest covered by the Wildlife and Countryside Act 1981.

You should also determine any changes needed to your abstractions to protect or improve locally important sites (undesignated sites), including those supporting priority habitats and species.

The Environment Agency or Natural Resources Wales set out measures in the WINEP or NEP for you to investigate or deliver in the following AMP. You should include any options needed to manage sustainability changes identified in your WINEP or NEP and potential actions resulting from your environmental ambition in your WRMP.

The Environment Agency or Natural Resources Wales will also identify other measures in the WINEP, including to protect eels under the Eels (England and Wales) Regulations; improve fish passage under the Salmon & Freshwater Fisheries Act and WFD; and protect raw drinking water supplies. You should assess the effect that these and other measures will have on your supply forecast.

5.4.2. Developing your long-term environmental destination

To deliver long-term sustainability and environmental resilience, you must also develop a long-term environmental destination. You should clearly set out in your plan the short, medium and long-term actions (licence changes and non-licence changes) you will take to achieve it.

Where your plan is subject to a regional plan, you will need to jointly develop the regionally agreed long-term environmental ambition and the actions to achieve it. You should ensure your plan fully reflects and supports the achievement of the regional destination.

You should use information and guidance provided by the Environment Agency or Natural Resources Wales and the work undertaken by the regional groups, to develop your own long-term environmental destination and plan for sustainable abstraction.

In developing your long-term environmental destination you should;

- be ambitious
- deliver enhanced protection for the environment
- not be restricted to current environmental obligations
- consider the timing of achieving your environmental improvements. For example, how the programme changes if the timetable for implementation is adjusted. You should also consider how your programmes affect the wider environment and affordability for your customers

- support nature recovery and achieve sustainable abstraction across the planning period

You will need to use an appropriate level of evidence to justify your decisions and your level of ambition. This should include evidence of customer and stakeholder support for your destination and proposed solutions. Your plan should show how your solutions are:

- cost-effective and affordable
- provide overall environmental improvement
- support the ambitions of the 25 Year Environment Plan (England) or the Water Strategy for Wales
- provide good value to the environment and your customers.

You should work with regulators and other regional and local partners as you develop your destination. Doing this will allow you to identify the best solutions to manage water resources over the long-term, delivering better outcomes and better value for society as a whole.

The Environment Agency or Natural Resources Wales will support and help shape your environmental destination by sharing information and local knowledge to feed into your discussions as you develop it.

England

You should refer to the Environment Agency's 'Long-term destination for sustainable abstraction and environmental resilience; guiding principles for regional groups'. This document has been provided to regional groups and is available on request from the contact details provided in Section 1.

Wales

In Wales, you must demonstrate that all legal requirements have been complied with including The Environment (Wales) Act, The Well-Being of Future Generations Act, together with the Water Framework, Strategic Environmental Assessment and Habitats Regulations. You must also demonstrate the principles of Sustainable Management of Natural Resources as they are enshrined in Welsh legislation – the Environment (Wales) Act. Natural Resources Wales will provide water companies and regional groups (as applicable) with more information on environmental destination requirements for Wales.

5.5. How to include changes to your abstraction licences in your plan

You will need to incorporate the implications of the following into your forecast supply:-

- the impact of any confirmed and likely sustainability changes as identified in the PR24 WINEP in England and NEP in Wales, for implementation in AMP8. The Environment Agency or Natural Resources Wales will formally notify water companies and Ofwat of the confirmed, likely and unconfirmed sustainability changes required in AMP8 to meet environmental obligations, through the PR24 WINEP and the Welsh NEP

- the impact of other licence changes required across the planning period as set out in your long-term environmental destination, and any consequent reduction in deployable output from future changes to abstraction licences

You should present these two types of sustainability reduction separately in your water resources planning tables. However both should be included your baseline.

You should discuss appropriate timescales to implement these sustainability changes with the Environment Agency or Natural Resources Wales. This is to ensure you achieve an efficient, sustainable and secure supply of water that protects the environment effectively. You should consider and plan for permanent licence changes needed to address any remaining seriously damaging abstractions early in the planning period.

You should also consider scenarios in your plan to show the impact of:

- unconfirmed sustainability changes that may be required in the short term

- different levels of long-term environmental ambition, including greater levels of protection for the environment

You should not include any uncertainty in target headroom for sustainability changes within your plan. You can consider any uncertainty through scenario testing and potentially adaptive planning.

5.6. Climate change

Our climate has changed and will continue to change. Your plan should assess the risk and possible impact of climate change and report the likely implications for deployable output of current and future sources of water.

When deciding on your preferred approach you should follow the Supplementary Guidance: Climate Change.

You should discuss your preferred approach with the Environment Agency and/or Natural Resources Wales and regional planning groups (if appropriate) at an early stage of developing your plan. You should do this before you analyse the impact of climate change on water availability. Your plan should:

- clearly state the vulnerability to climate change for each water resource zone
- describe the risk and vulnerability to the range of climate change impacts on your sources
- state why you have chosen your method and assumptions when presenting the results including, if appropriate, links to regional plans
- explain which scaling method you have used to factor in any climate change that has already happened
- clearly explain how climate change uncertainty has been included in the plan

5.7. Water transfers

You should clearly describe all your existing raw and potable water imports and exports; both internally between water resource zones and externally between you and your neighbouring companies. You should include details in the relevant sections of the water resources planning tables. The volumes and timings should be consistent between your plan and any donor or recipient companies. You should provide information on the:

- agreed limits between supplier and recipient companies and ensure consistent reporting in the relevant plans
- total volume available for each year of your plan (excluding any water that cannot be transferred due to operational or infrastructure constraints)
- variations related to contractual arrangements such as decreases in transfers due to drought
- direction of flow and whether it can be changed
- (if it is a new or increased transfer, or if the source of the water is changing) the quality of water being transferred and the impacts on the receiving area water quality (even within a water resource zone)

5.8. Outage

You should include an allowance to cover the risk of temporary or short-term losses of supply. This is called your outage allowance. The allowance should include both unplanned and appropriate planned outage as defined in the Supplementary Guidance: Outage.

When determining your outage allowance, you should use the following guidance:

- UKWIR (1995) Outage Allowances for Water Resources Planning
- UKWIR (2016) WRMP19 methods – Risk based planning
- EA (2020) Supplementary Guidance: Outage

You should describe in your plan:

- how you selected your outage method
- how you estimated your outage allowance
- the sensitivity of the assessment

If you report a forecast of zero outage, you should clearly explain how you will achieve this.

You should consider options to reduce your outage, particularly where your outage allowance contributes to a potential deficit in the planning period. For example, any catchment options to reduce your treatment works losses, while still complying with drinking water regulations.

You should also assess whether you need to improve your data collation, assessment and estimation of outage.

5.9. Losses from processing and treatment

You are expected to operate your network efficiently and should look to reduce losses where possible. If taking action to do this would require significant investment you should consider including the option or options in your feasible options list and appraising them through your decision-making.

In your plan you should provide the values for raw water losses, raw water operational use, treatment works losses and treatment works operational uses. Your plan should consider whether your operations could be more efficient and whether these losses could be reduced. You can consider these opportunities as options in your plan.

5.10. Water available for use

In you plan, you should clearly state the total water available for use in each water resource zone taking account of any changes to deployable output, transfers, operational use and outage.

5.11. Drinking water protected areas

You must show how your plan will support the objectives for drinking water protected areas. Supporting these objectives may have benefits of maintaining or increasing deployable output. You should ensure that:

- under the water treatment regime applied, the drinking water produced meets the standards of the Drinking Water Directive regulations plus any UK requirements to make sure that drinking water is safe to drink
- the necessary protection is in place to prevent deterioration in the water quality in the protected area, with a view to reducing the level of treatment required

In your plan you should:

- describe treatment works losses and operational use in each resource zone and show how these have been calculated
- where requested by regulators in pre-consultation, provide diagrams and other supporting evidence for complex major works
- consider options to reduce losses where there is a supply-demand balance deficit or where it make sense to do so
- consider catchment options to reduce the treatment process while still complying with the requirements of any drinking water regulations
- consider measures to protect your supply against long-term risks of pollution
- ensure all groundwater sources identified in your plan and drought plan have delineated source protection zones, and where appropriate, Safeguard Zones. The Environment Agency and Natural Resources Wales can support you in the delineation of these zones
- ensure you have been consistent in your approach across all your water resource zones

5.12. Drinking water quality

The regulatory framework for drinking water quality and sufficiency of supplies is established in the Water Industry Act 1991. You must ensure that your plan takes account of:

- Section 86 which relates to the appointment and delegated powers of the Chief Inspector of Drinking Water. It includes reference to *"…such other powers and duties in relation to the quality and sufficiency of water supplied…".* This is particularly relevant to powers and duties relating to the protection of public health, and to resilience and contingency planning.

- Section 68 of the Act, the duty to supply wholesome water.[11] This Section states: "… It shall be the duty of a water undertaker..... so far as reasonably practicable, to ensure, in relation to each source or combination of sources from which water is so supplied , that there is, in general, no deterioration in the quality of the water which is supplied from time to time from that source or combination of sources. …". This primary duty may have implications for how you develop your plans, especially in relation to resilience and contingency planning.

You must review these duties when you include any transfers of water for supply (raw or treated) or in the development of new sources. Further guidance is provided in the guidance note: Long-term planning for the quality of drinking water supplies – Water Resources and Sufficiency of Supplies

5.13. Environmental Permitting Regulations

In 2021 (England) and 2023 (Wales) government plans to move the abstraction and impoundment licensing regime into the Environmental Permitting Regulations. This will bring it in line with our other permitting regimes, and lead to a more modern and consistent regulatory framework.

It is not expected that this will impact water company licences. However if you believe it will, you should discuss with the Environment Agency or Natural Resources Wales.

In England, a formal consultation is planned for late 2020. You will be able to provide feedback on the proposed approach. More information about the move to Environmental Permitting Regulations can be found on GOV.UK.

In Wales, Natural Resources Wales has been working closely with Welsh Government on moving abstraction and impoundment licensing into the Environmental Permitting Regulations. They are likely to consult in 2021 and to implement the proposed changes in 2023.

5.14. Invasive non-native species

Aquatic and riparian invasive non-native species (INNS) have significant adverse social, economic and environmental impacts. They can cause the ecological status of Water Framework Directive waterbodies to deteriorate or fail to achieve their ecological objectives. You must review whether your current abstraction operations and future solutions will risk spreading INNS or create pathways

[11] Wholesomeness requirements are set out in the Water Supply (Water Quality) Regulations 2016 (as amended) (in England) and the Water Supply (Water Quality) Regulations 2018 (in Wales), and associated amendments.

which increase the risk of spreading INNS. Where there is increased risk you must propose measures to manage that risk in your plan.

You may need to contact the Environment Agency or Natural Resources Wales to discuss these issues on a case-by-case basis. For more details on INNS and their impacts, visit the non-native species secretariat website.

England

If you are considering transfers of raw water between catchments in England you should refer to the position statement[12] (February 2017). The statement sets out the Environment Agency's position regarding managing the risk of the spreading INNS through raw water transfers. The position statement is supported by a short risk assessment guidance note and a map which states which catchments are considered isolated.

If you propose a new scheme that creates a hydrological connection between locations not already connected, you will be required to have mitigation measures in place to ensure INNS cannot be spread by the new transfer. If you propose a new scheme that will create a hydrological connection between locations that have an existing hydrological link, you will need to undertake an assessment of the increased risk that their scheme poses.

The Environment Agency will decide whether mitigation will be necessary for schemes on a case-by-case basis to ensure they do not significantly increase the risk of INNS transfers.

Wales

You should carry out an assessment of the risk of spreading INNS and discuss this with Natural Resources Wales.

12 This is available on request from the contact details set out in Section 1.

Section 6 - Developing your demand forecast

Your plan should demonstrate the demand for water in your base year and your forecast across your planning period. Your demand includes all the water beyond the treatment works and therefore includes leakage from your supply pipes, customers' supply pipes and the consumption of water by the people and businesses you supply.

Government and regulators expect that all parts of demand are managed and, where possible reduced, while acknowledging that your demand is also influenced by your customers' behaviour.

For companies in England, you should align your forecasts with the regional plans for the customers you supply. You should demonstrate how you have collaborated at a regional level with neighbouring water companies and non-public water supply abstractors to generate your forecasts. You should show how you made use of best available data and information.

6.1. How to develop your demand forecast

You should produce a baseline and final plan demand forecast for your entire planning period. These forecasts should include your estimates of demand from:

- household customers
- non-household customers
- water that leaks from your network of pipes and that of your customers
- any other losses or uses of water such as water taken unbilled

You should use the following guidance to develop your dry year annual average and critical period forecasts:

- UKWIR (2016) WRMP19 Methods – Household Consumption Forecasting
- UKWIR (2016) Population, Household Property and Occupancy Forecasting
- UKWIR (2006) Peak Water Demand Forecasting Methodology

You should also refer to other relevant reports such as the water industry project on 'Water Demand Insights from 2018 (Artesia 2020).

When developing your demand forecast, you should consider any relevant influences including:

- housing development and population changes, including changes in occupancy

- changes in water use behaviour (in both household and non-household users), including the volume and distribution such as those caused by the coronavirus outbreak, as well as hot dry weather
- metering and smart metering
- changes in government policy and expectations, for example water efficiency standards in new homes and water labelling
- increasing water efficiency and sustainable water use practices
- changing design standards of devices that use water such as more efficient washing machines
- changes in technology and practices for leakage detection and repair
- a changing climate
- weather patterns

You should clearly demonstrate and justify any assumptions you have made in your plan.

6.2. Baseline demand forecast

Your baseline demand forecast should include:

- baseline dry year annual average – your baseline customer demand should take account of customer demand without any further water efficiency or metering intervention from yourselves, forecast population growth, change in household size, changes in property numbers and the impact of climate change on customers' behaviour. Leakage in your baseline should remain static from the start of your plan to the end of the planning period. If there is significant growth planned in a resource zone you should discuss and agree your approach with regulators
- baseline critical period or periods (if applicable – see Section 4.5)
- a normal year demand forecast which reflects the demand in an average year. In this scenario you should provide distribution input, household and non-household demand, leakage and per capita consumption. You should provide these for the first five years of your plan (to align with the business planning period) and then at 5 year intervals until the end of your planning period. You should present the data alongside your dry year forecast so that a clear comparison can be made. Regulators will use this information when considering your plan alongside your business plan submissions and annual reviews

You should clearly describe the assumptions and supporting information you have used to develop your plan. You are encouraged to discuss these with the

Environment Agency or Natural Resources Wales as early as possible. As a minimum you should:

- explain how your current best estimates of demand have been reconciled with other parts of the water balance
- estimate future demand, describe the method you have used and shown you understand what is driving any changes
- use dry year annual average unrestricted demand in developing your demand forecast. If you believe an alternative is appropriate you should discuss and agree this with regulators. You will still need to provide a dry year annual average demand
- clearly state which data you have used as the base for your forecasts. You should base your base year on your actual data as far as possible, adjusted to dry year if appropriate. If you need to extrapolate, you should use the data you think is most appropriate and justify why. If your position is significantly different from your previous plan forecasts you should discuss and agree your approach with regulators. Regulators will expect you to achieve your WRMP19 commitments. If you are using the regional planning data, you should ensure that there have been no significant changes since it was produced. If there are, you should update your plan accordingly
- ensure your forecasts are aligned, where appropriate, with neighbouring companies, regional water resources groups and regional plans and provide a comparison with other demand forecasts, including the population forecast given at a regional level
- account for future demand reduction planning assumptions and targets set out in the National Framework (England only) or set through government policy

England

For companies in England, the National Framework provided information on the demands of other sectors, which the regional groups will have developed further. Regional plans consider multi-sector needs. Your plan should take into account regional and local multi-sector demand when it is relevant to your supply-demand balance. For example, customers you supply directly or indirectly or options you are building jointly with other sectors.

Wales

For companies in Wales, you should consider local multi-sector needs and include them within your supply-demand balance if you are directly supplying them. You should also consider future demands and consider if sectors, such as private water supplies and agriculture, may switch to your supply during peak periods, such as droughts. You should also consider using any multi-sector information available within Wales, such as the Welsh Government's multi-sector

demands project[13] and from the neighbouring regional plan (if applicable) to inform your draft plan.

6.3. Forecast population, properties and occupancy

England

For companies supplying customers in England you will need to base your forecast population and property figures on local plans published by the local council or unitary authority. All local authorities are at different stages of publication of local plans. You can find the latest list of local plans on GOV.UK.

Local plans are likely to cover the first 10 to15 years of the planning period. You will need to check the duration of, and timescale for, producing plans with your local council. In some cases you may need to use your own property forecasts.

If your local council has:

- a published adopted plan that is not being revised – you should take account of the planned property forecast. You will need to ensure your planned property forecast, and resulting supply, does not constrain the planned growth by local councils. If you adjust the planned property forecast and select a higher number you will need to justify why you have selected a higher forecast and provide evidence

- published a draft plan, but it has not yet been adopted – you should take account of and use this as the base for your forecast. You should discuss with your local council whether it expects to make changes to the forecast for the adopted plan

- not started or published a draft plan – you should use alternative methods such as household projections from the Ministry of Housing, Communities, Local Government and/or the Office of National Statistics or derive your own analysis using methodologies outlined in the UKWIR (2016) report Population, Household Property and Occupancy Forecasting

Where your area includes major strategic housing and growth developments such as the Oxcam Arc or Garden Communities, you should include an estimate of the planned growth in the baseline. You should contact the relevant local authorities to obtain data on planned property and population numbers. You should also work with your regional water resources groups to assess and test the impact of these developments on your plans. You could consider the uncertainty around these forecasts in scenarios. Alternatively an adaptive plan might be useful to manage significant uncertainty.

[13] This is available on request from the contact details set out in Section 1.

Local authorities in England are now required to use local housing need calculations to inform their local plans as they are revised and updated. This assessment may indicate that the number of properties could be higher or lower than the forecasts in current adopted local plans. You should obtain local housing need figures from local authorities when you develop your property and population forecasts. You should:

- check whether the adopted or draft local plan contains and uses information on local housing need
- if it does not include local housing need, discuss this with your local council and request the information
- use whichever forecast has greater numbers of properties and population in your WRMP to ensure that it will not constrain planned growth. If there is a significant difference between local authority, local housing need and/or regional plan forecasts, you should explain these and the reason for the forecast you have chosen to use in your plan
- if no local housing need is available from the local authority, you should use alternative methods (as described earlier in this section) to test the impact of reasonable higher levels of growth, than indicated in the local plan. Growth rates predicted by neighbouring local authorities, may help inform your analysis
- set out clearly the impacts of local housing need on your WRMP and any changes to the supply-demand balance and options as a result

Wales

For companies supplying customers in Wales you will need to base your forecast population and property figures on the latest local authority population and property projections published by the Welsh Government. The projections are trend based and use the Office of National Statistics (ONS) population estimates. You will need to explain the methods you have used to forecast population and property figures beyond the period covered by the projections published by the Welsh Government. You can find the Welsh Government's latest local authority population and property projections at:

- population projections
- household projections

When looking at the projected population of Wales as a whole, the national population projection for Wales produced by ONS should be used instead of adding up the local authority population projections. You should also engage with the local planning authorities in Wales to consider the local development plans in your supply area to inform your analysis of the uncertainties in your forecast population and property figures.

England and Wales

In your plan you should:

- clearly describe the assumptions and supporting information used to develop population, property and occupancy forecasts. You should demonstrate you have incorporated local council information (particularly in relation to their published adopted local plans) in England
- explain the methods you have used to forecast property figures after the planning period used by local councils (for example from years 15 to 25 in the planning period)
- demonstrate how you have included other information sources and amended your forecast accordingly
- clearly describe any limitations in your forecast
- demonstrate that you understand the uncertainty associated with your forecasts
- clearly describe how you have worked with regional groups (where applicable), neighbouring companies and those involved with strategic water resource solutions to align your forecasts
- explain the assumptions about how you have derived unaccounted population
- describe how you have allocated populations to the geographically different water resource zones (such as using neighbourhood plans or census data to further subdivide the populations)
- take account of local council local plans and supporting neighbourhood plans to understand future demands
- use improved and updated population and household data in your final WRMP if it is available and describe how you will do this in your draft plan. This should be consistent with that used in your business plan
- clearly explain the assumptions, risks and uncertainties associated with the results

If you are using a planning period beyond 25 years, and are basing decisions on this forecast, you should explain the range of uncertainties this long-range forecast will have, and how your plan will manage this uncertainty.

6.4. Forecasting your customers' demand for water

You should select baseline demand forecasting methods appropriate to the data available and the supply-demand situation in individual water resource zones. You should consider using the problem characterisation as described in the

UKWIR report Decision Making Process Guidance. You should develop your forecasts with neighbouring companies and regional plans.

You should produce a forecast demand for the dry year annual average, normal year and critical period or periods (if required) scenarios. You should present this data in the corresponding water resources planning tables at a resource zone level and a break down into micro-components at a company level. You will find information on how to do this in the instructions for the water resources planning tables.

Your plan should show your normal year per capita consumption (PCC) for the first 5 years of your plan (to align with the business planning and price review period) and every 5 years until the end of the planning period. You should present the data alongside your dry year forecast so that a clear comparison can be made.

6.4.1 Data and methodologies

You should collect good quality, recent data about your customers' water use to produce your baseline demand forecast. To help determine future forecasts you should understand current behaviours and attitudes to water use and report this through use of micro-components in the water resources planning tables. You should provide micro-components at a company level, unless you are aware of significant differences between your resource zones which makes reporting separately appropriate.

Guidance on demand forecasting is available here:

- UKWIR (2016) WRMP19 Methods – Household Demand Forecasting
- UKWIR (2016) WRMP19 methods – Risk Based Planning
- UKWIR (2016) Integration of Behavioural Change into Demand Forecasting and Water Efficiency Practices
- UKWIR (2012) Customer Behaviour and Water Use - A Good Practice Manual and Roadmap for Household Consumption Forecasting

You should state why you have chosen a particular method, the assumptions you have made, and the uncertainty associated with your demand forecasts. You should also show how you have allowed for uncertainty in the rest of the plan.

Your demand forecast should consider the impacts of prolonged dry weather and droughts and the resulting high demand where it affects the supply-demand balance. You should consider whether there are alternative methods to define dry year demand. You should do this in a way that takes account of your specific

situation and lessons learned from the high demands experienced in recent hot dry weather.

Your plan should also consider the results of water industry project on ‘Water Demand Insights from 2018 (Artesia 2020). You should consider, for example, how prolonged dry weather could affect your customers’ demand and whether your planning scenario adequately considers peaks in demand that you have experienced.

If your plan includes a critical period of high demand, it should be informed by recent peak demand years, including 2018 and 2020. It should include weather dependent demand, seasonal population changes and other factors as appropriate. You could also consider:

- the combined effects of hot dry weather and coronavirus on demand, including the distribution and the duration of the peak
- whether high demand could be as a result of other extreme weather such as a significant freeze-thaw event

It is important that you are able to maintain supply during peaks of demand, without the need to abstract outside the conditions of your licences.

6.4.2 Base year demand forecast

You should clearly state which data you have used as the base for your forecasts and whether you have used reported actual data or your planned position as set out in your 2019 plan. You should base the base year on your actual data as far as possible, adjusted to dry year where appropriate. If you need to extrapolate, you should use the data you think is most appropriate and justify why. If your position is significantly different from your previous plan forecast you should discuss and agree your approach with regulators. Regulators will expect you to achieve your previous WRMP commitments. If you are using regional planning data, you should ensure there have been no significant changes since it was produced. If there are, you should update your plan accordingly.

If your approach to calculating base year and forecast PCC leads to uncertainty or significant changes in your base year or projected consumption compared to your previous plan, you should:

- assess the impacts on the water balance (such as leakage and non-household use)
- describe how this affects the options you have considered in your plan and consider scenario testing or adaptive planning (See Section 9)
- explain the reasons for the change
- explain any uncertainty in PCC levels

- describe how this affects your ability to meet any relevant planning assumptions in the National Framework, regional plans and government aspirations to reduce PCC over the planning period

- use improved and updated PCC data if it is available in your final WRMP and describe how you will do this in your draft plan. This should be consistent with that used in your business plan (PR24)

6.4.3 Baseline demand forecast

England

Your baseline forecast should reflect your forecast of customer consumption without any further water efficiency or metering activity from you from the start of the planning period. You should include an assessment of how many of your customers will opt for a meter, without any encouragement from you.

Wales

For companies in Wales, your baseline demand forecast should include the impact of customers opting for a meter and metering new builds.

6.5. Forecasting your non-household consumption

You should produce a forecast of your non-household demand. This is the demand for water being used by non-household premises (such as businesses and industrial processes) and for the population living in communal establishments (for instance hospitals, prisons and educational establishments).

You should base your decision on what to include in your forecasts of non-household use on principal use. This should be in line with Ofwat's guidance on Eligibility guidance on whether non-household customers in England and Wales are eligible to switch their retailer and supplementary guidance on assessing whether non-household customers in England and Wales are eligible to switch their water and wastewater retailer.

You should be clear about the types of property you have classed as household and non-household in your demand forecasts. You should explain if following Ofwat's guidance leads to significant change in your projections of household or non-household water use, in relation to previous plans.

You should also work with non-household customers to improve water efficiency where you believe there are savings to be made. You should provide evidence of this in your plans and in your forecasts for non-household demand. You should also explain the implications of your chosen drought management actions (such as non-essential use bans) on your non-household customers.

Your forecasts should be aligned with the outputs of regional plans (if appropriate) for the customers you supply.

Your forecasts should include an assessment of the demand for water from new customers switching to public water supplies, from other sources of abstraction such as agriculture in a significant drought. This allowance would be on top of your dry year annual average demand for non-household customers. You should include it as a separate line in the water resources planning tables to differentiate it from the dry year forecast.

You should also consider whether there are any implications from private water supplies failing and therefore calling on you as a supplier of last resort. If so, you could consider an allowance for this demand in your non-household demand. If you do this, you should explain how you have assessed this demand and the evidence you have used.

England

For companies in England, a joint regulators letter was issued to retailers and wholesalers in March 2020. It sets out what you and retailers should be doing to meet your water efficiency obligations[14]. This letter required you to submit an action plan by September 2020 outlining the actions that both wholesalers and retailers need to complete to increase water efficiency. This action plan should guide your discussions and provide a way forward for measuring non-household demand.

6.5.1 Retailers

In England, all business customers and public sector, charitable and not-for-profit organisations are able to choose their water supplier (retailer).

In Wales, only non-household customers who meet the 50 megalitres per annum threshold requirement are able to choose a different supplier for water retail services.

You (the incumbent water supplier or wholesaler) are still responsible for delivering the water to the customer, and should continue to plan for non-household customer demand in your area. You should ensure there is no double-counting in your plan between this forecast and any bulk supply to an incumbent. The general duty to promote the efficient use of water under section 93A of the Water Industry Act 1991 applies to both the wholesaler and the retailer.

When you prepare your plan you should consult any retailers within your area. The retailer should give you any information that you reasonably request to

14 Available on request from the contact details set out in Section 1.

prepare or revise your plan. You should work with the retailers to ensure they promote water efficiency and demand management with their customers and collect data on water consumption. You should prioritise work with the retailers who have greatest customer demand. You should outline details of this joint planned work in your plan as a discreet section.

6.5.2 Information you should provide in your plan

You should work with retailers and through regional groups (where applicable) to share information, data and expertise to ensure your forecasts and solutions are robust. You should make sure that:

- your plan contains an estimated demand forecast for non-households
- you describe how you have derived the figures and assumptions you have made
- you make use of the MOSL[15] system that stores retail company data as needed
- you describe the makeup of non-household demand in different sectors either by using the service and non-service split (identifying the main sectors), or by using Standard Industrial Classification (SIC) categories published by the Office for National Statistics
- you clearly explain the existing water efficiency initiatives planned by both the wholesaler and retailer. Your baseline should reflect non-household demand without any further intervention. Your final plan should include any forecast savings from water efficiency programmes
- you consider non household water efficiency as an option to manage the supply-demand balance.
- you consider any uncertainty associated with reducing demand and show how you will monitor the water efficiency programme and how the plan can be adapted if required
- you have collaborated at a regional level, and engaged with non-public water supply abstractors or relevant organisations to produce your forecasts
- the planned level of service provided to customers is clear
- you have considered the potential demand for other sources such as agriculture and those on private water supply in a significant drought.

15 MOSL is the market operator of the non-household water market

6.6. Forecasting leakage

Reducing leakage is an essential part of reducing the demand for water. Not least because many customers are more responsive to reducing their own water use if water companies reduce their leakage.

Reducing leakage is important for the efficient use of resources, improving resilience and reducing the environmental impact. Leaking water costs you as you pump, abstract and treat the water. You should therefore show leadership by making sure you keep leakage under control. You should follow government policy and regulators and customers' expectations to continue to reduce water loss through leaks.

You should demonstrate how your leakage proposals build on your work to manage leakage to date and form part of a long-term approach to demand management.

You should determine your leakage using the approach outlined in Leakage reporting guidance (Ofwat and Water UK, March 2018).

Companies in England should take account of the Supplementary Guidance: Leakage.

6.6.1. Base year leakage

You should clearly state which data you based your base year forecasts on. You should state whether you have used reported actual data or your planned leakage from your 2019 plan or the final business plan determination. Your base year should be based on your actual data as far as possible, adjusted to dry year if appropriate. If you need to extrapolate, you should use the data you think is most appropriate and justify why. If your base year leakage is significantly different from your previous plan forecast you should discuss and agree your approach with regulators.

If your approach to calculating base year and forecast leakage has significant uncertainty around it, or is significantly different from your previous plan, you should use scenarios to:

- assess the impacts on the water balance (such as PCC and non-household use)
- describe how this affects the options you have considered in your plan
- explain the reasons for the change
- explain any uncertainty in leakage levels

You should also:

- describe how this uncertainty affects your ability to meet planning assumptions as set out in the your previous plan, the National Framework, regional plans and government aspirations to reduce leakage over the planning period
- use improved and updated leakage data in your final WRMP and describe how you will do this in your draft plan. This should be consistent with that used in your business plan
- clearly state your policy for repairing customer supply pipes in your plan.
- discuss the changes that result from the revised approach to calculating leakage and the impacts with regulators

6.6.2 Baseline leakage forecast

Your baseline leakage forecast should remain static from the first year of your planning period. If you have significant growth in a resource zone you should discuss and agree your approach with regulators.

6.7. Other components of demand

You should describe how other components of demand (such as water taken unbilled) have been assessed in your plan. You should demonstrate what assumptions you have made when assessing them and what data sources you have based your assessment on.

6.8. Impacts of climate change on demand

The impact of a changing climate on water consumption is uncertain. You can make an allowance for the impact of climate change on the demand for water. In most cases the expected impact is likely to be no more than 1% over the planning period and should not be more than 3% unless you can clearly demonstrate an exception. You should provide details of the allowance and the assumptions you make. You should refer to:

- UKWIR (2009) Assessment of the Significance to Water Resource Management Plans of the UK Climate Projections 2009
- UKWIR (2013) Impact of Climate Change on Water Demand

Section 7 - Allowing for uncertainty

You should use the most up-to-date technology, methods and data available to produce your supply and demand forecasts. However there is uncertainty in all forecasts. You should include an allowance for uncertainty relating to your supply and demand forecasts depending on your chosen methods. That is unless this uncertainty is already in your supply-demand balance through one of the more complex methodologies.

You should analyse the sources of uncertainty around the components of your supply-demand balance and the range of uncertainty around these variables. The following documents set out different approaches to assessing uncertainty:

- UKWIR (2016) Risk Based Planning
- UKWIR (2016) Decision Making Process Guidance
- UKWIR (2002) An Improved Methodology for Assessing Headroom
- UKWIR (1998) A Practical Method for Converting Uncertainty into Headroom (Wales only)

If you use risk-based planning tools or a decision-making tool to assess uncertainty and variability you may not need to calculate target headroom. Or you may need to exclude some target headroom components. If so, you will need to explain the methods and assumptions you have used and demonstrate that you have not double counted or omitted uncertainties. It is recommended however, that you provide a headroom value which represents uncertainty. This is so that the uncertainties in your plan are explicit, even if you are using more advanced methodologies.

If you use target headroom to provide a buffer for uncertainties, you need to consider the appropriate level of risk for your plan. If target headroom is too large it may drive unnecessary expenditure. If it is too small you may not be unable to meet your planned level of service. You should also accept a higher level of risk further into the future. This is because as time progresses the uncertainties for which headroom allows will reduce and you have more time to adapt to any changes.

You should provide a clear justification of the assumptions and the information you use to assess your uncertainties. You should assess the relative contributions of uncertainty, clearly showing which uncertainties have the biggest impact in each water resource zone. You should communicate this clearly so that customers and interested parties can understand it easily. You should also consider whether there are any steps you could take to reduce uncertainty during the planning period.

You should make sure your plans can adapt to over or under achievement of demand management activity.

You should not include uncertainty related to non-replacement of time-limited licences on current terms. If there are risks to supply because your licences may not be renewed you should address this uncertainty directly in your plan through investigations and planning alternative supplies as necessary.

You should work with the Environment Agency or Natural Resources Wales, and regional groups (where applicable) to discuss how to consider possible future sustainability changes. You should not include any allowance for uncertainty related to sustainability changes to permanent licences, as the Environment Agency or Natural Resources Wales will work with you to ensure that these do not impact your security of supply.

If there is significant uncertainty associated with your preferred options in your final plan, you may wish to adjust your final plan headroom accordingly.

If you have significant uncertainty you should consider whether an adaptive planning approach would be beneficial. For further details see Section 9 of this guideline and the Supplementary Guidance: Adaptive Planning. If you do use adaptive planning, you should consider what implications this will have for your target headroom.

If you are a company in Wales you should discuss your adaptive planning approach with Natural Resource Wales.

Section 8 – Identifying possible options

You should identify possible options in your WRMP for one or more of the following reasons:

- you have a deficit in your supply-demand balance
- you are able to supply potential regional or national needs, or supply other sectors
- to achieve your long-term environmental destination or to address concerns of your customers or local stakeholders

You should therefore compile an options list that goes beyond your own immediate needs. Options should include supply-side and demand-side options, as well as making efficiencies in your network such as removing network constraints.

You must assess whether your plan and the options in your plan are subject to a Strategic Environmental Assessment and Habitats Regulations Assessment. You must also ensure that you have complied with any other statutory requirements and legal directions. You may wish to refer to:

- UKWIR (2012) Strategic Environmental Assessment and Habitats Regulations Assessment – Guidance for Water resources Management Plans and Drought plans
- Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive
- Welsh Government, Strategic Environmental Assessment in Wales

If you have options that affect sites in Wales, you must also consider the requirements of the Environment (Wales) Act and Wellbeing of Future Generations Act.

8.1. Unconstrained list

You should compile a list of all possible options that could reasonably be used in your plan. This unconstrained list should be developed from a generic list of option types, and should consider both supply and demand drought measures. The UKWIR report Water Resources Planning Tools 2012: Summary Project produced a comprehensive list of water management option types to consider. You are encouraged to use this list as a base from which you can add or subtract. The unconstrained list should include all the options considered from the previous planning round, and your 2019 plan, as a minimum.

An unconstrained option may not be completely free from restrictions, such as environmental or planning issues, but should be technically feasible. You should provide an indicative deployable output or range for unconstrained options.

8.1.1 Regional solutions and third party options (England only)

If you are a company in England, you are expected to identify whether third parties or neighbouring water companies could provide viable solutions. Or if there are opportunities for collaboration to develop supply or demand solutions. You should consider third party options in the widest sense, for example:

- a transfer of water between water companies
- a water efficiency scheme provided by a third party
- a water trade with a non-water company
- provision by a third party of reclaimed water.

You should identify these opportunities through your regional group, and/or before your pre-consultation. Your regional group may have identified options delivered partly or wholly by third parties. You should appraise these options against your own criteria. Options for identifying and inviting third parties include (but are not limited to) contacting neighbouring water companies and/or other abstractors, or advertising. It is up to you to determine the most appropriate method for your circumstances.

You are encouraged to engage with third parties who could provide solutions to you at a lower cost, or provide additional benefits than your own solutions. The information that you publish on your website to meet Ofwat's water resources market information requirements will aid third parties in developing bids by making water resource data more accessible. Bids could include services such as the provision of water, leakage detection and demand management options.

In your plan you should show evidence that;

- third parties have been able to propose options for appraisal
- you have used a set of screening criteria consistent with those applied to your own options
- you have appraised third party options in line with your published bid assessment framework

8.2. Feasible list

You should develop your feasible list of options from your unconstrained list of options. The feasible list is a set of options that you consider to be suitable to take forward for assessment as part of your preferred programme of options. As

such, it should not include options with unalterable constraints that make them unsuitable for promotion. For example, unacceptable environmental impacts that cannot be overcome or options which have a high risk of failure. These include Water Framework Directive and Habitats regulations constraints.

You should discuss your feasible options with the Environment Agency or Natural Resources Wales as early as possible.

You have the flexibility to decide on the most appropriate screening method for your situation. You should clearly show the criteria you have used to select feasible options. You should clearly state the reasons for rejecting any options.

You should consider schemes that are ‘resilience only’ (they do not contribute to the supply-demand balance) through your business plan. However you can describe these options in your WRMP. To be considered in your WRMP a scheme should have some benefit to one or more components of the supply-demand balance. For example, through providing deployable output or reducing outage.

England

Your feasible list should also include any demand side options such as temporary use bans and non-essential use bans as well as drought permits and orders. This is so they can be clearly appraised alongside other options. Your options should include any impact of drought measures which you removed from deployable output.

You should plan, where appropriate, to use drought permits and orders less frequently in future, particularly in sensitive areas. You should use your understanding of the environmental risks associated with each permit, to inform your planned use of drought permits and orders.

8.2.1. Further screening

If you have a large feasible list you can consider further screening to produce a more manageable number of options. Your reduced list should still contain sufficient options to allow real choices when assessing the preferred programme, in terms of both numbers, type and size of options. You should ensure that the process for further screening does not contain any undue bias. You should discuss your approach with regulators.

8.2.2. Assessing environmental constraints

A. River Basin Management Plan and Water Framework Directive

River Basin Management Plan (RBMP) and the Water Framework Directive environmental objectives are a constraint on your options. You should screen out

any options that have unacceptable environmental impacts that cannot be overcome. You must ensure that feasible options support the achievement of the RBMP environmental objectives. You will also need to assess new supply options against the RBMP measures and objectives for each water body and meet your obligations to avoid future deterioration.

You should confirm that there is no risk of deterioration from a potential new abstraction or from increased abstraction at an existing source before you consider it as a feasible option. In addition, you should ensure that any options do not prevent the achievement of good status (or potential).

You should talk to the Environment Agency or Natural Resources Wales about any intended actions that may:

- cause deterioration of status (or potential)
- prevent the achievement of the water body status objectives in the river basin management plans
- prevent the achievement of water body status (or potential) for new modifications

You should do this as soon as possible before developing your plan. You should make a clear statement in your plan about any potential impacts.

B. Habitats Regulations (Conservation of Habitats and Species Regulations, 2017)

Your options should support the achievement of favourable conservation status of habitats and species identified by the Regulations. They should also not prevent the achievement of favourable condition of sites designated under the Regulations. You should assess if there are any likely significant effects on designated sites from any of your options (such as a potential new abstraction or from increased abstraction at an existing source) before you consider them as feasible options. Where you cannot conclude ‘no likely significant effects’, an ‘appropriate assessment’ is required to establish if the option can be delivered without having an adverse effect on the integrity of a designated site.

You should talk to Natural England or Natural Resources Wales about any intended actions that may cause adverse effects to designated sites within England and Wales, respectively. You should do this as soon as possible before developing your plan, and you should make a clear statement in your plan about any potential impacts. You should refer to the information on the Habitats Regulations Assessment (HRA) provided in Section 9. The need to do a HRA should not be a reason on its own to screen out an option. This is because a HRA screening may conclude that there are ‘no likely significant effects’. Alternatively an appropriate assessment may conclude ‘no adverse effects on integrity.’ Either of which may allow the option to be retained within the plan.

8.2.3. Information you should provide for each option

For each of your feasible options (including third party options) you should provide:

- a profile of the yield (based on the capacity of the solution) or water saved over 80 years. For a supply option, the deployable output should be based on the same assumptions as your baseline options. The yield of a demand side option should be based on a dry year. (See Section 4.6)
- an estimate of the time needed to investigate and implement the option, including the earliest date the option could put water into supply or reduce demand
- an assessment of the risks and uncertainty associated with the option, including the likelihood and impact of reduced yield due to climate change, environmental constraints or customer behaviour (for demand options)
- an explanation of whether the option depends on an existing scheme or a proposed option, or is mutually exclusive with another option
- any factors or constraints specific to the option
- an assessment of your customers' support for the option
- an assessment of the flexibility of the option to adapt to future uncertainty
- a description of how the option will be utilised and impact on costs. You should describe the expected utilisation in both a 'normal' year and the design scenario
- an assessment of the environmental and social impacts of the option, including an Strategic Environmental Assessment, an evaluation of the impacts on RBMP objectives, Nature Recovery objectives (England), Ecosystem Resilience Biodiversity Duty (Wales) and Well-being Goals (Wales)
- a Habitats Regulations Assessment, if an option could affect any designated Habitats site
- a natural capital assessment including an assessment of the predicted impact of the option on natural assets and service flows
- an assessment of the options contribution to environmental and biodiversity net gain (England)

For supply options, you should include in your plan a description of the option including an appropriate schematic map and/or conceptual diagram showing:

- the source of supply

- the main operational features
- the areas over which the option is to be implemented
- any links or dependencies to other options

For demand management options, you should include in your plan a description of how the option being described differs from baseline activities.

For transfer or new source options, you should include in your plan an assessment of the risk of non-compliance, such as by discolouration, nitrates, pesticides or invasive non-native species (where relevant). These options will not be permitted until steps to mitigate those risks are in place.

8.2.4. Cost information

The options costs should represent the cost of a deliverable solution which includes any mitigation or design changes for environmental issues. All option costs should be presented consistently as a deliverable with mitigation measures already included.

You should provide the following cost information:

- a profile of the costs over at least the next 80 years, split into capital (including maintenance and replacement costs); operating (both fixed and variable costs) and financing costs. You should calculate finance costs as a stream of annual costs over the life of the option, using an assumed average cost of capital (the wholesale weighted cost of capital in PR19). You should calculate the Net Present Value of all costs using the Treasury Test Discount Rate as set out in the HM Treasury “Green Book” (HM Treasury 2018). The appraisal period should at least cover the lifetime of the longest lasting asset under consideration.
- the Average Incremental Cost (AIC) of the option based on the NPV of its costs and outputs. Note: you no longer need to provide Average Incremental Social Cost (AISC).
- any supplementary whole life costs related to treatment, pumping, storage, networks, maintenance and operation.
- monetised ecosystem service costs and benefits derived from your natural capital (where you have used a monetised assessment)
- for each option you should clearly present the costs (totex) pre-benefits (Ml/d) realisation and post-benefits (Ml/d) realisation. The costs incurred after the option has started to deliver benefits should be as average annual costs. For example, the development of a new groundwater source will incur construction costs before any benefits (delivering deployable output) being realised. The new groundwater source will then incur pumping, treatment and maintenance costs following any benefits being realised.

Your costs should be efficient and you should provide evidence for how they are calculated. You should benchmark key activities with the costing approach and calculations should be a fundamental component of your assurance plan.

8.2.5. Carbon

Our environment and society is facing a climate emergency. The water sector is a significant contributor to greenhouse gas emissions. Government has committed to reducing greenhouse gas emissions to net zero by 2050. The water sector, through Water UK has committed to become carbon neutral by 2030. You should therefore consider carbon through your options appraisal, but also consider how your plan can contribute to the sector's commitment to carbon neutrality.

You should consider the carbon cost of both the construction and operation of your options, and the impact of land use change on carbon sequestration. You should consider the carbon costs as per government guidance as part of your options cost.

For options where land use change is relevant you can use a natural capital approached as described in Supplementary Guidance: Environment and Society in Decision-making. This provides a methodology for how you should consider the value of the carbon associated with a change of land use.

You should consider the following guidance:

- UKWIR report Framework for Accounting for Embodied Carbon in Water Industry Assets (UKWIR, 2012) (12/CL/01/15).
- For carbon costs associated with the projected emissions you should use the latest government guidance on the cost of carbon. Further information can be found on GOV.UK. In particular you should consider the Green Book Supplementary Guidance.
- The Carbon Accounting (Wales) Regulations 2018
- Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance'
- PAS 2080: Carbon Management in Infrastructure

Section 9 – Selecting your best value plan

The objective of your WRMP is to present a best value plan, both in the short-term and the long-term. Your WRMP must ensure a secure supply of water for your customers and protect and enhance the environment. A best value plan is a plan that considers factors alongside economic cost and seeks to increase the overall net benefit to customers, the environment and society.

Your preferred programme should reflect the regional plan programme, where applicable. You should clearly justify any differences.

In compiling your best value plan, you should consider all the most appropriate solutions for your system (regionally and nationally where appropriate) taking into account:

- government policy and regulator expectations
- regional plans
- customers' preferences
- costs and benefits for customers, environment and society (both monetary and non-monetary) and how these are distributed spatially and over time
- net gain for the environment and specifically biodiversity net gain (if applicable)
- Ecosystem Resilience Biodiversity Duty (Wales) and Well-being Goals (Wales)
- natural capital
- both short and long-term risks and benefits
- the resilience of your network and supplies
- the regional and national need and the needs of other sectors
- the impact of your preferred programme on the affordability of your customers' bills
- the level of uncertainty and sensitivity of your assessment of best value

As a benchmark, you should also identify a least-cost solution so that you can clearly demonstrate the benefits of your best value preferred programme.

You should consider the following methodologies in your decision-making:

- UKWIR (2002) Economics of Balancing Supply and Demand (EBSD).

- UKWIR (2016) WRMP 2019 Methods – Decision Making Process Guidance.

9.1. Your decision-making

Your problem characterisation assessment should inform your decision-making method. Any specific complexities can be examined through the UKWIR guidance on Risk Based Planning (2016) and through appropriate sensitivity analysis.

You should refer to the UKWIR report Economics of Balancing Supply and Demand (ESBD) when you produce a least cost plan as a benchmark to appraise your other programmes against. The least cost plan should still be informed by your Strategic Environmental Assessment and Habitats Regulations Assessment should include the monetised carbon costs associated with each option.

The UKWIR Decision Making Process guidance describes decision-making tools and supporting methods available to you as an alternative to EBSD. You can also consider whether an adaptive plan would be appropriate. See also the Supplementary Guidance: Adaptive Planning.

The final planning forecast should represent the implementation of your preferred solutions. Best value refers to the best value solution or plan for your customers and the environment over the long-term, considering multiple objectives. You should explore through programme appraisal, and/or the application of extended decision making tools how other objectives can contribute to a best-value plan.

Your decision making process should be clear and transparent and set out in your plan. You should demonstrate that this is consistent with other areas of your business planning to ensure that all long-term decision making takes place through a consistent approach. Customers, interested parties and regulators should be able to understand how and why you have decided on your solution and why you have discounted other solutions.

Whichever decision-making method you choose, your final set of options should be justified economically, socially and environmentally. You should clearly describe how the decision on a preferred programme has been reached and how you engaged the Board with the process. You should refer to the list set out in the beginning of this chapter when making your decision.

When can use the drought vulnerability framework to appraise your options. This will ensure your preferred options are resilient across a range of droughts.

9.2 Assessing the environment and society in decision-making

It is important the environment and society are properly considered in your decision-making. Your plan should deliver a protected and improved environment

and provide benefit to society. You should demonstrate that your plan provides overall positive environmental benefit.

There are a number of ways in which the environment and society can be considered in decision-making. In England, you should use your Strategic Environmental Assessment, biodiversity net gain and natural capital assessments to inform your decision-making.

For companies in England, the Supplementary Guidance: Environment and Society in Decision-making sets out how you might consider these approaches. You can also consider alternative approaches if you believe them to be more appropriate.

Natural Resources Wales will provide advice to companies for sites that are within or affect Wales on its' requirements for assessing the environment and society, including Strategic Environmental Assessment and Habitats Regulations Assessment.

9.2.1. Natural capital

Natural capital is defined in the 25 year Environment Plan as 'the elements of nature that either directly or indirectly provide value to people'.

You should use a natural capital approach as part of your decision-making.

As a new and emerging approach, natural capital incorporates methodologies and approaches such as ecosystem services to understand the value that the natural assets provide. For the water industry, these can be substantial. Some water companies have begun to make decisions on smaller scales using various different natural capital approaches.

You should use the following 5 ecosystem services, as a minimum, to value the natural assets and services they provide as you assess your options. These services are:

- water purification
- water regulation
- natural hazard management
- climate regulation
- biodiversity

You should also consider whether to also use other services in your assessment to ensure that you are valuing all the benefits and costs to society in your appraisal.

The supplementary guidance suggests open access data that you can use to value these 5 services. However where better local data exists you and should use this. You should explain the reasoning behind the data you use.

You can consider Defra's ENCA guidance when developing your natural capital approach: Enabling a Natural Capital Approach.

In Wales, the Water Strategy outlines how the Welsh Government wants people to value and identify with water, and take responsibility for the supporting the management of natural capital. You should discuss your approach to natural capital with Natural Resources Wales.

9.2.2. Strategic Environmental Assessment

The SEA Directive (2001/42/EC) regulations require a formal environmental assessment of certain categories of plans and programmes which are likely to have significant effects on the environment. You will need to assess whether your plan, or options in your plan, are subject to Strategic Environmental Assessment (SEA). You may wish to refer to:

- UKWIR (2012) Strategic Environmental Assessment and Habitats Regulations Assessment – Guidance for Water Resources Management Plans and Drought plans
- Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive
- The Welsh Government has transposed the Directive into appropriate Regulations: The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004.

The stages in the SEA process are:

1. screening to determine if SEA required
2. setting the context and objectives, establishing the baseline and deciding the scope (and consulting on it)
3. developing and refining alternatives and assessing effects;
4. preparing the SEA environmental report
5. consulting on the draft plan or programme and the environmental report
6. monitoring the significant impacts of implementing the plans or programmes on the environment

All the stages of SEA are likely to be required where your environmental assessment indicates that the plan is likely to result in significant impacts on the environment.

You must consult with Natural Resources Wales and Cadw if the SEA affects Wales. You must consult with the Environment Agency and Natural England if it affects England. You should also consult any other statutory consultees.

9.2.3. Habitats Regulations

You must ensure that your WRMP meets the requirements of the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), and must undertake a Habitats Regulations Assessment (HRA). You must assess the effects of the plan or project alone or in combination with other plans or projects, for example the effects of supply options on European sites.

HRA refers to the assessment of the likely or potential effects of a plan or project on one or more European sites;

- namely designated Special Areas of Conservation (SACs) and Special Protected Areas (SPAs)
- candidate SACs (those submitted formally but not yet adopted or designated)
- proposed SPAs and SACs (sites subject to consultation on whether they should be designated)
- proposed and designated Ramsar sites, which are not designated under the Habitats Regulations but under Government policy should have the same level of protection as SACs and SPAs

Find more information on designated sites in England and Wales

A plan or project cannot normally be enacted or adopted unless it can be shown that it would not have a likely significant effect on or an adverse effect on the integrity of a European site, alone or in-combination with other plans or projects. In exceptional cases, a plan or project can be authorised or adopted despite having an adverse effect on the integrity of a European site, but only when the following apply:

1. there are no alternative solutions to delivering the objectives of the plan or project
2. there are Imperative Reasons of Overriding Public Interest (IROPI)
3. compensatory measures are secured to maintain the overall coherence of the Natura 2000 network

Therefore, it is important that your HRA is started as early as possible during preparation of your plan. This will give the HRA the greatest opportunity to influence the plan and therefore avoid or minimise impacts on European sites. HRA should be seen as an iterative process throughout the plan's development. When impacts are identified you should consider how you can change your plan and projects, before re-assessed them. You should not screen out a potential option just because you need to undertake a HRA.

The main stages in the HRA process are:

1. screening stage, including the test of likely significant effect
2. appropriate assessment stage, including deciding the scope and method used for this assessment
3. consultation and assessment of effects on integrity of the sites

You must take account of the effects of the plan or project alone or in combination with other plans or projects.

Natural Resources Wales and/or Natural England are statutory consultees for the HRA process and you should consult them at an early stage and particularly during the screening stage. It is a legal duty to have regard to their advice at the appropriate assessment stage. You should also consult the Environment Agency.

9.2.4. Biodiversity net gain (England)

Biodiversity net gain should deliver measurable improvements for biodiversity by creating or enhancing habitats in association with development. The Government's 25 Year Environment Plan strongly encourages development to contribute to, and enhance, the natural environment by providing net gains for biodiversity. Your plan should therefore provide biodiversity net gain at a scheme and plan level. You should consider providing an ambitious level of measurable biodiversity net gain, equal to or beyond that which might be required by the future Environment Bill.

Your supply options should incorporate biodiversity net gain into their design where reasonable. If this is not possible, you will need to provide net gain off-site. If significant biodiversity gain could be achieved, but at significant additional cost, this can be included as a separate option. You can then consider it in your options appraisal as part of your best value plan.

Your plan should demonstrate how it leaves the natural environment in a measurably better state than it is currently.

9.2.5. Eco-metric

Natural England is developing a tool which will allow consideration of environmental net gain broader than biodiversity. The eco-metric is a tool to inform development. It helps to bring in consideration of the broader impacts of development on habitats and the eco-system services they provide. It is a scoping tool that is underpinned by the biodiversity net gain approach.

Natural England are planning to release a beta version in 2021 for testing. However the eco-metric tool will be made available in autumn for users who wish to pilot its use.

9.2.6. Water Framework Directive

You must take account of the requirements of the Water Framework Directive (WFD) when considering your preferred plan. This includes the legally binding environmental objectives in the River Basin Management Plans. You should consider solutions that promote the requirements of Article 7 of WFD[16] and look to work in partnership with others. You should review solutions that have been identified in River Basin Management Plan. These may require partnership working with others in the catchment to achieve the solution.

The Water Framework Directive promotes increased awareness of catchment processes and challenges the established dependence on a 'treatment-led approach' for the supply of Drinking Water Directive compliant potable water. In particular, Article 7 promotes a 'prevention-led approach' to Drinking Water Directive compliance, based on pollution prevention at source to reduce treatment.

Your plans should include targeted and cost-effective implementation of restoration measures required at the catchment scale, either working solely or in partnership with other catchment based organisations. Given the uncertainty over the level of confidence you should consider the principles of adaptive management, with associated pre- and post-project monitoring.

9.2.7. Well-being Act of Future Generations (Wales) Act 2015

If your plan will affect Wales you will need to consider your contribution to the Well-being goals under the Wellbeing of Future Generations Act.

The Well-being of Future Generations (Wales) Act (2015), includes a goal to develop a more resilient Wales, which is described as:

> "a nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change)."

9.2.8. Environment (Wales) Act 2016

As a statutory undertaker, you must have regard to Section 6 and Section 7 of the Environment (Wales) Act 2016 in your assessment of the environment.

Section 6 contains the biodiversity and resilience of ecosystems duty, which states that public authorities must "seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the

[16] Article 7 seeks, as a minimum, to prevent deterioration of water with the aim of reducing the treatment needed to produce drinking water

resilience of ecosystems, so far as consistent with the proper exercise of those functions."

Natural Resources Wales' State of Natural Resources Report (SoNaRR) provides more information and examples of its use to assess ecosystem resilience, and opportunities to build resilience in Wales.

Section 7 contains your duty to take steps to maintain and enhance biodiversity. This section replaces the duty in section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which it considers are of significance to sustain and improve biodiversity in relation to Wales.

Other locally designated sites (such as local nature reserves) may be considered lower risk, but specific consideration may need to be given to particular features.

9.2.9. Other considerations

In addition to delivering biodiversity net gain, developments should seek to deliver wider environmental gains relevant to the local area, such as reduced flood risk, improvements to air or water quality, or increased access to natural greenspace.

9.3. Your planned level of leakage

In your final plan forecast you should follow current government policy and assess all options to reduce leakage further, alongside other feasible options. You should consider the value that your customers place on reducing leakage and the benefits this will bring to your customers' willingness to participate in demand management, as well as other benefits to the environment.

Previously, companies have used the sustainable economic level of leakage method to determine levels of leakage. However this is no longer acceptable for use in WRMPs and you should consider instead government's, regulators' and customers' views when deciding on your planned level of leakage.

You should explore the use of innovative approaches to achieve leakage reductions in line with leading companies.

When selecting your final plan leakage forecast you should clearly explain the different activities that contribute to this level, including the costs and volumetric benefits that contribute to the supply-demand balance.

You should ensure you can achieve the leakage reductions in your preferred programme, particularly in the short term. You should consider and manage the uncertainty around your leakage programme and the implications for security of

supply if your planned level is not met. You may wish to consider adaptive planning to manage this risk.

Regulators will expect you to deliver your leakage commitments. Any changes to your leakage programme, not reflected in an adaptive plan, may be considered as a material change and you may be directed to re-consult on your plan.

Your plan should also clearly set out how you will address any performance issues experienced undertaking planned leakage programme during the 2020-25 period.

England

You should consider meeting or exceeding Water UK's commitment to reduce leakage by 50% by 2050 (from actual 2017 levels) and any leakage targets set out in Ofwat's price review methodology or by government. You may wish to consider setting more challenging targets for reducing leakage than Water UK's 50% reduction by 2050 or other ambitions set by Ofwat and government, if you can demonstrate you have support from your customers.

In the medium to longer term, it is recognised that reducing leakage by 50% will require innovation and you may not know how you are going to achieve these levels. If this is the case you should demonstrate that you are actively investigating how to achieve your ambitions. Your forecasts of leakage should be consistent with the data you include in the business plan you provide to Ofwat as part of its price review process.

See also the Supplementary Guidance: Leakage.

Wales

You should consult Natural Resources Wales regarding what to include in your final forecasts relating to targets for reducing leakage.

9.4 Your planned level of customer demand

In your final plan forecast you should follow current government policy and assess all options to reduce demand from your customers, alongside other feasible options.

9.4.1. Metering

England

The government's policy for charging by reference to metered volume in England is currently being reviewed. You should follow the requirements set out in the current legislation for the provision of information and appraisal of household

metering and report it in the relevant water resources planning tables. You should clearly state in your plan your current and future metering policy and how you will protect vulnerable customers.

Your plan should evaluate charging by volume based on universal metering, smart metering, metering on change of occupier and metering street-by-street with comparative billing as options in your plan.

You should fully consider the benefits of increasing meter penetration, including the installation of smart meters. You should consider a range of scenarios as part of your decision-making, including one that assumes roll-out as fast as possible. You should consider the multiple benefits of metering (and smart metering) as well as the additional costs and deliverability and uncertainty of achieving the assumed benefits.

You should learn from the good practice of some companies that have achieved high levels of meter penetration. For example, some companies have used enhanced or progressive approaches to installation of meters and encouraging their customers to switch to being charged according to the volume they use. You should include the evaluation of these enhanced approaches in your options appraisal. This should include the wider benefits of these options, including understanding and managing the demand for water, improving customer engagement, protecting vulnerable customers, and reducing leakage.

Wales

Your final plan forecast should follow the current government policy and assess options for further metering beyond the baseline. You should provide details in the relevant sections of the water resources planning tables.

9.4.2. Water efficiency

You have a duty to promote the efficient use of water by your customers. Your WRMP should set out how you will meet this obligation.

Your plan should demonstrate your approach to home and business visits and customer engagement to help reduce demand. As a minimum you should consider visits to vulnerable customers, the biggest water users and where the biggest water and financial savings can be made. You will need to work with retailers to ensure non-household customers receive the best advice for improving their water efficiency.

You should consider how appropriate the use of different tariffs and incentives is to your company, and you should assess this as part of any options appraisal.

9.4.3. Customer per capita consumption

Your preferred programme per capita consumption should account for future demand reduction planning assumptions and targets set by government or regulators. It should also allow for ambitions that may be set through government policy in future.

Your forecasts of per capita consumption should be consistent with the data you include in the business plan (PR24) that you provide to Ofwat as part of its price review process. You should refer to Ofwat's consistent reporting guidance when producing your forecasts. If the level of per capita consumption and demand reduction set out in your WRMP is greater than that allowed for in your business plan or final determination, you should still meet your commitments in your WRMP.

9.5. Adaptive planning

An adaptive plan is a framework which allows you to consider multiple preferred programmes or options. The plan sets out how you will make decisions within this framework.

You can consider an adaptive planning solution if you have:

- significant uncertainty, particularly in the first 5 years of your plan
- a strategic decision in the plan's medium term, which has a long lead-in time
- large long-term uncertainty which might lead you to consider different preferred solutions

If you use an adaptive plan you should clearly set out at what point each decision will be taken, how each decision will be made and how you will monitor your plan. You should consider how your adaptive plan will affect your headroom and ensure that you are not double-counting uncertainty. The costs and solution differences between your adaptive pathways should be clear.

You should clearly identify how customers and the environment will benefit from your adaptive plan. You should also set out how you will inform your customers and stakeholders of a trigger being met and a change in your preferred pathway.

The Supplementary Guidance: Adaptive Planning provides further information on compiling an adaptive plan.

9.6. Resilience of your final plan

Your final plan should improve the resilience of your supplies, particularly where your drought vulnerability assessment indicated that you were vulnerable to droughts of a particular severity and/or magnitude. You should also ensure that the options you select are resilient to droughts and other hazards such as weather extremes.

If your preferred programme provides wider resilience benefits, you should clearly set out what risks you are addressing and how the options will reduce these risks.

Your preferred plan should not include any final planning deficits. Achieving resilience to 1 in 500 could leave you with some initial deficits at the beginning of the planning period while you implement your preferred best-value solutions. If this is the case you should show the drought measures you would use to reach this level of resilience in the interim. Alternatively you should demonstrate your reduced level of service, as a selected option, for this interim period.

If you have large strategic schemes, you can use the drought vulnerability framework to assess its contribution to your resilience. Alternatively you could use the drought vulnerability assessment to demonstrate the improved resilience of your final plan.

9.7. Testing your plan

Your plan should provide a stable basis for you to make decisions and plan for the future. However, the future is uncertain. Therefore you should also clearly describe the biggest areas of uncertainty and define which could have the biggest influence on your plan. You should undertake scenario testing to demonstrate:

- the resilience of your plan to a range of risks
- that you have considered these risks in developing your plan and the possible timings of these impacts, including possible future sustainability changes
- the plan is resilient to minor changes to supply and demand forecasts in the near future and moderate changes as the plan progresses

You should, as a minimum, test the sensitivity of your plan to changes in:

- population growth
- climate change
- sustainability changes
- resilience
- risk profile
- delivery of your preferred programme – both demand management and supply options

You should use scenario testing to help validate your preferred programme or to assess whether alternative programmes would be more appropriate. It could also

inform whether an adaptive plan might be appropriate. Scenario testing could help to:

- justify a flexible or fixed approach
- justify an adaptive plan
- demonstrate when important decisions should be made
- identify what you should monitor to manage risk
- identify alternatives or how the plan may change in the future in response to new evidence