



Draft Regional Plan
for consultation

**Appendix 4: Objective and
metric development**

November 2022

Appendix 4. Objective and metric development

Introduction

The WReN objectives were initially identified using the Water Resources National Framework and Environment Agency Water Resource Planning Guidelines (EAWRPG), and further refined in consultation with stakeholders, regulators and customer focus groups. We previously presented our objectives (and associated metrics) in the Emerging Regional Plan, and they have been used in the subsequent development of our draft regional plan. A high-level summary of the objectives is provided in **Table A4.1** below:

Table A4.1 WReN Regional Plan objectives

WReN objectives	
1	Meet the future PWS and non-PWS needs in our region
2	Meet and maintain a PWS drought resilience level of service of 1:500 for level 4 restrictions
3	Contribute to the Government's ambition in the 25 Year Environment Plan to 'leave the environment in a better state than we found it'
4	Achieve the WReN environmental destination and River Basin Management Plans (RBMP) objectives (sustainability reductions) taking a catchment wide approach
5	Meet demand management policy requirements to reduce leakage and per capita consumption as defined in the Water Resources National Framework
6	Identify WReN's potential to contribute to national resilience
7	Incorporate Strategic Environmental Assessment (SEA) outputs and other relevant environmental legislation (e.g. habitats regulations assessment) in decision making
8	Achieve multiple benefits (including non-drought resilience)
9	Produce a plan that supports the views of regional stakeholders and water companies' customers and is not detrimental to social wellbeing
10	Create a plan that is affordable and sustainable over the long term

The WReN decision making methodology expands the Economics of Balancing Supply and Demand (EBS) approach to include other criteria in addition to cost so that we can compare both monetised and non-monetised costs and impacts, and develop a best value plan. This multi-criteria analysis (MCA) approach allows us to directly consider wider benefits to customers, society and the environment in a structured manner, other than simply meeting a supply-demand deficit at lowest cost (the traditional basis of EBS methods).

This multi-criteria analysis approach to decision making has been enabled by the development of the bespoke WReN planning objectives (**Table A4.1**) and metrics (**Table A4.3**), which was completed taking into account:

- Regulatory and policy aspirations;
- Customer preferences; and,
- Stakeholder engagement.

In determining the best value plan through our options appraisal and decision-making process, a range of options were identified (see Appendix 5). These options were assessed to address supply-demand balance deficits under the dry year annual average (DYAA) baseline and, where relevant linked to Company WRMPs, critical period (DYCP), scenarios over a 60-year planning period from 2025 to 2085. The options appraisal process has been focussed upon meeting the water resources needs in the Yorkshire Grid zone, where significant deficits remain even after further demand management and leakage reductions have been applied.

We used our Decision-Making Framework (DMF) optimiser model to create solutions (programmes of options) that initially optimised on a least-cost basis. Only feasible options that had passed screening as part of the options identification process (Appendix 5) were included in the optimiser. These preliminary optimisation runs allowed us to understand the frequency of selection of options across a range of scenarios, and to create a reduced list of options based on those selected most frequently for exploration in the best-value plan.

As the least cost solution may not provide best-value for meeting other objectives, we produced further optimisation runs to minimise carbon, and to maximise the environmental and social benefits of the options. The outputs of the least cost and best value optimisation runs were used to create a portfolio of supply options for consideration in the preferred plan, and create candidate solution programmes to be considered as the best value plan. The candidate solution programmes were compared against each other using the MCA approach of comparing metric values at a programme level. The candidate solutions were created through the optimiser model by mandating options into the solution to meet key objectives. It was not possible to optimise for each individual objective / metric, and therefore it was necessary to apply “trade-offs” to select a plan considered best value.

Our plan was stress tested against different scenarios to assess the sensitivity against future risks and uncertainties such as climate change, abstraction reduction (environmental destination) and under achieving demand reduction objectives. An adaptive planning approach has been taken to provide alternative pathways which can be taken according to the outcome of these future uncertainties.

Defining the WReN objectives

Table A4.2 provides a more detailed description of the WReN objectives and classifies each as being supported by either a planning scenario and/or metric(s) (the detailed definition of which is covered later in this document). The objectives and metrics have been shared with the WReN stakeholder steering group and were presented to customer focus groups (see Appendix 7 – WReN Customer Research June 2021); an explanation of consultation on our metrics is described in later sections.

Each objective has been assigned a planning status in **Table A4.2**. This planning status describes how the objective can be considered in the options appraisal process that we developed for regional planning:

Achieve or enhance = there is a mandatory requirement, but our options appraisal can result in programmes that exceed (enhance) the mandatory requirement if feasible options are available.

Optimise = the development of several alternative solution programmes with performance against these objectives measured (by the metrics) for each individual programme. The best performing programmes can be assessed further to understand the trade-offs between metrics, as we cannot optimise all metrics.

Scenario constraint = the objective can be constrained into a planning scenario¹ and the solution programme impacts and benefits can be compared between programmes for alternative scenarios.

Objectives 4 and 7 are not listed separately in **Table A4.2** for the following reasons:

Objective 4: Meeting the environmental destination and RBMP is a key objective of the WReN regional plan. The approach to environmental destination is summarised in Section 5.2 of the main WReN draft regional plan document and described in more detail in Appendix 6. In **Table A4.2** below, each objective is mapped to either a scenario or metric. The BAU+ scenario is included within the baseline supply-demand balance (i.e. as a need to address), so is already inherently included in the planning problem to be optimised through the options appraisal process. In addition, the environmental destination and RBMP objectives are included in the decision making as scenarios assessing the impact of any potential changes to abstraction permissions. In **Table A4.2** the environmental destination and RBMP

¹ Not all such scenario constraint areas are definable to constrain into the options appraisal, but this ensures that our process could accommodate this in future.

objective are included under the objective to contribute to the Government's ambition in the 25 Year Environment Plan to 'leave the environment in a better state than we found it'. It has been mapped this way as initiatives such as the environmental destination and RBMPs will help meet this ambition by improving waterbodies or removing the risk of deterioration in the future. However, as it is a key component of regional planning, we consider it as a key objective in its own right in **Table A4.1** above.

Objective 7: Incorporating SEA outputs and other relevant environmental legislation into the regional plan decision making is another key objective of the WReN regional plan. The SEA, Habitats Regulation Assessment (HRA) and Water Framework Directive (WFD) assessments, including Invasive Non-Native Species (INNS) are a statutory requirement of water companies' planning processes when considering options. Each option is assessed against SEA objectives and, where applicable, HRA and WFD requirements independently of the MCA approach. Regional plans are non-statutory, but the SEA approach was applied to our regional options and the results incorporated into our options appraisal alongside the SEA process for water company WRMPs. As the SEA, HRA and WFD assessments, including INNS, are a key requirement of both regional plans and WRMPs they were included as a key objective (see **Table A4.1**). Although they were used to shape the best value plan, unlike the other identified objectives, they did not create a defined scenario or an individual metric for inclusion in the decision-making. Instead they provided data for delivering the process at both the option appraisal and decision-making stages, including metrics.

The SEA objectives provided data for some WReN metrics (see **Table A4.3**), but not all SEA objectives were represented as metrics. The metrics were developed independently to the SEA objectives and focussed on key decision-criteria that was relevant to the WReN objectives listed in **Table A4.1**. The SEA objectives were developed in line with Water Resource Planning Guidelines and specifically the UKWIR (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans, report reference 21/WR/02/15. Where there was a clear overlap between the decision-making metrics and the SEA objectives, the SEA outputs provided the data for measuring the metric. In addition, the SEA outputs for potential solutions were considered separate to the MCA approach and incorporated into the decision making. This allowed all SEA objectives to be assessed as part of the decision-making approach to developing the best value plan, whilst ensuring we were compliant with the SEA process.

Table A4.2. WReN objectives mapped to planning scenarios and metrics

WReN objective 1	Meet the future PWS and non-PWS needs in our region.			
	Description	Scenario/Metric	Driver/source	Planning status
	<p>Close PWS supply-demand deficits Water companies assess future risks through producing supply-demand balance scenarios. If water company modelling shows there is a public water supply (PWS) risk to security of supply, they must invest to remove this risk. WReN scenarios must ensure PWS needs are met. The minimum requirement for this objective is to remove the risk of future deficits and have sufficient headroom to be resilient to uncertainties. If a programme results in a surplus above target headroom needs, this may provide additional resilience or other benefits.</p>	Scenario	Statutory requirement of WRMPs	Achieve or enhance
	<p>Meet non-PWS/multi sector needs As well as meeting PWS needs, we consider the needs of other sectors such as agriculture or industry who abstract water as part of their business (where future specific regional needs can be sufficiently tangible defined to incorporate into the process). This could be through non-PWS solutions or through shared PWS/non-PWS investment in a solution that benefits multiple sectors or ensuring a PWS solution does not present future risks to non-PWS. Given the challenges with identifying future needs in other sectors, as described elsewhere in our documentation, at this stage there are no identified targeted options that may specifically address other sectoral needs across the region. Our approach allows a method for inclusion of such options if they are identified in the future.</p>	Scenario measured as a yes/no metric: Non-PWS option benefit	National Framework	Scenario constraint

WReN objective 2	Meet and maintain a PWS drought resilience level of service of 1:500 for level 4 restrictions.			
Description	All water companies must plan to be resilient to a 1 in 500 year drought resilience level for Level 4 restrictions (Emergency Drought Orders). Where water company modelling shows they do not meet this requirement, they must invest to achieve this by 2039. Achieving resilience to a 1 in 500-year drought results in significant underlying deficits for the Yorkshire Grid zone in particular, which occur from the beginning of the planning period in 2025. Some scenarios or solutions may include different levels of service before 2039, as part of considering this as part of our plan response the deficit.	Scenario/Metric	Driver/source	Planning status
		Metric: PWS drought resilience	National Framework	Achieve or enhance
WReN objective 3	Contribute to the Government's ambition in the 25 Year Environment Plan to 'leave the environment in a better state than we found it' (https://www.gov.uk/government/publications/25-year-environment-plan)			
Description	Achieve the WReN environmental destination and RBMP objectives taking a catchment-wide approach	Scenario/Metric	Driver/source	Planning status
	Water is abstracted from the environment for both public water supply and non-public water supply use. The water we take is subject to permissions and constraints controlled by the EA. If an existing abstraction is considered to be a risk to the environment, the permissions may be altered to ensure it is sustainable for the future. Where abstraction reductions create a deficit, regional plans need to identify an alternative solution. Due to the uncertainties around abstraction reductions, we have ensured our plan is adaptable to the alternative environmental destination scenarios.	Scenario	National Framework	Achieve or enhance
	Environmental Performance	Metric: Biodiversity	Defra/National Framework/WRPG	Optimise
	Our best value plan takes into account any impacts our options could have on the environment. Both positive and negative impacts are identified, along with mitigation measures to minimise negative impacts where feasible.	Metric: Natural capital ²	Defra/National Framework/WRPG	Optimise

² The capitals are the valuable assets which are critical to the success of any organisation, and effective management of the capitals helps ensure resilience. There are six capitals: financial, manufactured, natural, social, human and intellectual capital. The capitals that we consider to be most relevant to the WReN process are natural, social, human, financial and manufactured. We have not explicitly accounted for and valued intellectual capital due to overlaps with human capital. Each feasible option will be assessed against the capitals, but Environmental Performance focuses on the Natural Capital metric.

WReN objective 5	Meet demand management policy requirements to reduce leakage and per capita consumption			
Description	<p>The water industry has made a commitment to reduce leakage and PCC by 2050 and this commitment has been incorporated into the Water Resources National Framework:</p> <ul style="list-style-type: none"> - Reduce 2017-18 leakage levels by 50% on average by 2050 - Achieve an average PCC of 110 l/h/d by 2050 	Scenario/Metric	Driver/source	Planning status
	<p>The WReN objective meets this policy requirement at a regional level as a minimum, but scenario tests may include lower levels of delivery as part of developing the adaptive plan. This is particularly important giving the challenging nature of the long-term targets, and in the case of PCC, dependence in part upon wider government interventions on water labelling and building standards.</p>	Metric: Leakage reduction	National Framework	Achieve or enhance
		Metric: PCC reduction	National Framework	Achieve or enhance
WReN objective 6	Identify WReN's potential to contribute to national resilience			
Description	<p>Regional (PWS) export options are developed by each region for other regions to consider in their regional plans whilst ensuring security of supply in their own region. Trade supplies are offered to other regions if this does not create a risk to their own region. By creating regional transfer links and sharing water resources across regions we can help improve national resilience to water supply risks. This includes offering surplus resources to other regions (as with the Kielder to UU option), but may also include investing in new supplies to help deliver national resilience.</p>	Scenario/Metric	Driver/source	Planning status
		Scenario measured as a yes/no metric: Regional transfer	National Framework	Scenario constraint

WReN objective 8	Achieve multiple benefits (non-drought resilience)			
Description		Scenario/Metric	Driver/source	Planning status
<p>A best value plan considers the impacts and benefits of each option and what can be achieved in addition to mitigating supply-demand risks. Options to increase available supply or reduce demand can potentially achieve additional benefits such as improvements to water quality, flood risk management, reduction in greenhouse gases or carbon sequestration. By assessing the potential solution programmes against non-drought resilience metrics, we have an opportunity to achieve multiple benefits or minimise the impacts, whilst closing a supply-demand deficit.</p> <p>Flood risk management and multi-abstractor benefit metrics associated with this objective are based on those from the SEA process. Alongside the WReN metrics, as part of Yorkshire Water's WRMP decision-making, a specific resilience metric has been included in support of the plan decision-making process³.</p> <p>At present, the flood resilience scenario constraint has not been included for the draft regional plan. However, the flood resilience scenario represents a way to incorporate specific flood resilience proposals in future planning rounds should these be identified for consideration relevant to the regional scale.</p>		Scenario measured as a yes/no metric: Flood resilience	WReN steering group	Scenario constraint
		Metric: Flood risk management	National Framework	Optimise
		Metric: Multi-abstractor benefit	WReN steering group	Optimise
		Metric: Carbon	Environment Agency WRPG	Optimise

³ The loss of the existing STW transfer from the WRW area to WReN would fundamentally change the configuration of the Yorkshire Grid, which leads to specific additional resilience considerations as part of options and solutions development. This has been accounted for as part of exploring the impacts and candidate solutions to address a loss of the import (Section 7 of the WReN main report). In the development of the Yorkshire Water draft WRMP24, a specific resilience metric was introduced to help facilitate the identification of the preferred plan as part of a further, more detailed examination of this issue.

WReN objective 9	Produce a plan that benefits regional stakeholders and water companies' customers		
<p>Description</p> <p>Customer and stakeholder views have been fully considered as part of developing the WReN plan. In some cases, these preferences have been taken into account as part of our plan strategic choices (see Section 6 of the WReN main report), which frames the supply-demand need to be addressed.</p> <p>In terms of the options appraisal process, all metrics have been informed by Company and WReN level customer research and stakeholder engagement. We have included metrics that measure impacts on society and that incorporate customer views on option types. Customer and stakeholder views may differ, and the aim was to identify a programme of options that is acceptable to the majority of customers and stakeholders. Customer preferences for certain types of options are considered in the decision making through the 'customer preferred option type' metric, although there was no clear consensus to include such a metric (customers were less concerned about general option type than about the performance of the specific option in question, which is picked up through other metrics in the plan).</p>	<p>Scenario/Metric</p>	<p>Driver/source</p>	<p>Planning status</p>
	<p>Metric: Customer preferred option type</p>	<p>Environment Agency WRMP guidelines</p>	<p>Optimise</p>
<p>WReN objective 10</p>	<p>Create a plan that is affordable and sustainable over the long term</p>		
<p>Description</p> <p>Affordability The regional plan should aim to maximise the benefits that can be achieved through securing water supply in our region for both PWS and non-PWS. We considered whether the benefits of the plan can be sustained into the future and if the whole life costs of the solution are proportionate to the benefit and affordable both now and for future generations (net present value [NPV] costs are compared using the social time preference discount rate and sensitivity tested using the intergenerational discount rate).</p> <p>Deliverability A best value plan must test numerous scenarios as risks such as growth and loss of supply due to climate change are uncertainty. There is also uncertainty around the costs and benefits of options and if they will deliver the benefits that we need.</p>	<p>Scenario/Metric</p>	<p>Driver/source</p>	<p>Planning status</p>
	<p>Metric: Programme financial costs (NPV)</p>	<p>Environment Agency WRPG</p>	<p>Optimise</p>
	<p>Metric: Option deliverability</p>	<p>WReN options identification workstream</p>	<p>Optimise</p>
<p>Scenarios</p>	<p>Uncertainties</p>	<p>Optimise</p>	

WReN multi criteria analysis – metrics

The metrics we developed through the WReN regional planning process and used to compare our candidate solutions, evaluate trade-offs and produce a best value plan are presented in **Table A4.3**. This provides an overview of how individual metrics are measured at programme level.

The WReN options appraisal and decision-making process (see Appendix 5) has been developed using the latest Environment Agency Water Resource Planning guidelines, the National Framework, the UKWIR methodology *Deriving a Best Value Water Resources Management Plan*, HR Wallingford 2020 and feedback from the WReN steering group and customer research. This provided a new approach for use on regional planning problems which evolved and refined through the phases of plan development, with input from the WReN steering group, and as programmes were produced during the regional reconciliation process.

The metrics included in **Table A4.3** represent a range of criteria, each measured by a qualitative unit or quantitative scale that is appropriate for that particular criterion. This makes it difficult to directly compare programme metric scores using the measured values as they are not consistent. Therefore, we normalised the values to a scale from 0 to 100 to provide consistent units. A score of 100 is the most optimal value for all metrics.. All other programmes are applied a normalised score that is relative to the optimum programme for that metric⁴.

In the development of the Yorkshire Water draft WRMP24, a resilience metric was introduced to measure programme resilience benefits at a company level. These resilience benefits were specific to the Yorkshire Water supply system. A number of the WRMP supply options were identified to be potential solutions to resilience risks, such as system constraints, and these options scored higher than those that did not meet a specific system need.

Table A4.3 Water Resources North Decision-Making metrics

Metric	How we will measure the metric
PWS Drought resilience	Number of years over the planning period the PWS drought resilience to 1 in 500 is achieved.
Biodiversity	The change in biodiversity metric units is based on assumptions related to change to land use/habitat due to the option and its footprint relative to the baseline*
Natural Capital	Monetised (£NPV) impact of the option on natural capital e.g. change to land use, recreation.
Leakage reduction	Volume of leakage reduction achieved over the planning period (Ml/d).
PCC reduction	Volume of PCC reduction achieved over the planning period (litres/head/day).

⁴ As normalised scores are only directly comparable within consideration of a defined set of solutions or programme choices, care should be taken not to directly compare them with those of other regions, or from different stages of our own plan process. For transparency, we have also included the absolute metric scores for our preferred and candidate solutions in Appendix 5, as well as the summary normalised scores.

Metric	How we will measure the metric
Flood risk management (non-drought resilience)	Qualitative assessment based on SEA objective 4.3: To reduce and manage flood risk, taking climate change into account. Options are graded -4 to +4 and the programme score based on the average grade.
Multi-abstractor benefit	Qualitative assessment based on SEA objective 4.1 To maintain or improve the quality of rivers, lakes, groundwater, estuarine and coastal waterbodies and 4.2 To avoid adverse impact on surface and groundwater levels and flows and ensure sustainable management of abstractions. Options are graded -4 to +4 for each objective and the programme score based on the average grade.
Carbon	Capital/embedded and operational total tCO2e of programme
Customer preferred option type	Options to be ranked 1 to 3 based on customer preferences from the outputs of the WReN Customer Research June 2021 (Appendix 7). (Leakage and water efficiency score 3, enhancement of existing supply options score 2 and new supplies such as desalination and increased abstraction score 1.) Programmes are compared by the benefit (M/d) provided by each of the 3 categories.
Human and social well-being	SEA objectives associated with human and social well-being: 2.1 To protect and improve health and well-being and promote sustainable socio-economic development, 2.2 To protect and enhance the water environment for other users, 6.1 To maintain and improve air quality, 6.2 To minimise greenhouse gas emissions, 7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites and 8.1 To protect and enhance designated and undesignated landscapes, townscapes and the countryside. Options are graded -4 to +4 and the programme score based on the average grade.
Financial Cost	Total cost (Totex) of the programme £NPV
Option Deliverability	Individual options will be scored (1 to 5) for deliverability / cost confidence. The programme score is based on the average score for all options included in the solution.

* Natural England's Biodiversity Metric Tool is used to calculate the biodiversity unit impacts of the options for the metric scoring. For schemes that require planning permission, it is likely we will need to legally provide biodiversity net gain (BNG) under obligations in the Environment Bill. The bill will provide a minimum level of BNG and water companies can plan for more ambitious levels of measurable BNG. In accordance with the Environment Agency WRPG, where reasonable companies should incorporate biodiversity gain into the design of supply and transfer options. If this is not possible, they are likely to be obliged to provide this equivalent off-site.

Table A4.4 lists the scenario constraints that can be used to meet specific objectives by constraining relevant options into the solution. These scenarios can be compared against the scenarios that do not meet the desired objectives

to evaluate the impacts and this is the approach that WReN has used in development of this regional plan. However, it should be noted that the constraints outlined below were not needed in developing this draft regional plan, but in future plan cycles mean that they may be incorporated into the process if specific needs or considerations have been defined.

Table A4.4 Water Resources North scenario constraint metrics

Scenario constraint metric	How we will measure the metric
Non-PWS option benefits	<p>Yes/no (programmes with non-PWS benefits are classed as best value for this metric). Scenarios may constrain an option into a programme to meet a non-PWS need or may constrain an option out if it has potential to impact negatively on non-PWS.</p> <p>This is dependent on specific other sector needs and solutions being identified and quantified at a catchment level with sufficient certainty for the interested parties to take forward in a WReN investment plan.</p>
Regional transfer	<p>Yes/no (programmes with a regional transfer benefit are classed as best value for this metric).</p> <p>This is dependent on a regional transfer need being agreed with sufficient certainty for the interested parties to take forward in regional investment plans.</p>
Flood resilience (non-drought resilience)	<p>Yes/No (programmes with flood resilience benefits are classed as best value for this metric).</p> <p>This is dependent on a flood resilience need and solution being identified at a catchment level with sufficient certainty for the interested parties to take forward in a WReN investment plan.</p>

Metric consultation

The metrics have been developed in consultation with stakeholders, regulators and customer focus groups. An initial list of objectives and metrics was produced by the WReN option appraisal workstream and shared with the WReN stakeholder steering group on 17 May 2021. The objectives were derived from the National Framework and the Environment Agency's WRPG 2024. The metrics put forward by the workstream were selected to measure these objectives to ensure all regulatory requirements were included in the WReN options appraisal process as a minimum. During the stakeholder steering group meeting, the group was asked to provide feedback on the metrics and objectives to the WReN option appraisal workstream.

Verbal feedback from other sector representatives on the steering group raised questions on the process for inclusion of non-PWS needs and how these needs would be met and funded. The Environment Agency also provided feedback. The objectives and metrics were updated in response to this feedback, although the issue on funding of non-PWS requirements will require future direction from Government and regulators. The maturity of the datasets and definition of planning processes is also significantly lower than for PWS aspects, which represents a continued challenge across all regional groups. The key challenges and opportunities of the non-public water supply sectors in the WReN region are set out in more detail in Section 5.6 of the main regional plan document and Appendix 8.

Customer views on the WReN objectives and metrics were sought through focus groups, allowing detailed exploration of issues with the customers involved when compared to broader survey approaches. Both household and non-household customers and citizens took part in the group discussions. Feedback from the participants provided information on customer ranking of metrics and the type of options they would prefer to see included in a best-value plan. Customers were asked to rank plan metrics in order of importance which highlighted that leakage, drought resilience (reliable supplies) and cost (affordability) had the strongest customer focus, with a range of environmental and social considerations (and per capita consumption) sitting in the mid rank. Customers did not rank highly on option deliverability, or on option type, indicating that achieving the desired outcome is more important than necessarily how those outcomes are achieved.

The research also helped assess the aspects of the process customers understood and where further clarity on objective and metric definitions was needed. These outputs were used in the decision-making process and the terminology reviewed for this draft regional plan documentation. Full details of our engagement with customers for WReN are provided in Appendix 7.

Since the WReN customer engagement work was completed, Yorkshire Water (YW) and Northumbrian Water (NW) have carried out further research to help inform our approach to PR24 and long-term strategies including WRMP24. This is also relevant to the WReN draft plan. The most recent results from this research were made available in September 2022 and they are broadly consistent with what customers told us through the WReN engagement programme. The Yorkshire Water research is directly relevant to the options appraisal and zonal needs to be addressed using the metrics described earlier; further information on this is available in YW's draft WRMP24 which can be found on the company's website⁵.

Updates to the objectives and metrics in response to the steering group feedback and the customer focus group outputs included:

- WReN objectives gained support, although a focus on education was something that was felt to be potentially missing. The three water companies in the WReN region run customer awareness campaigns on water related initiatives including conserving water. Other stakeholders and abstractors provide information on their businesses through websites and public communications. However, WReN is a new group and we recognise that we would benefit from increased promotion of both the group and the issues we aim to address. A WReN website has been created and is used to share information on the regional approach. The profile of the regional group will be reviewed following this first regional plan, and we will consider how best to engage customers and stakeholders as the regional group evolves over future plan iterations.
- Customers did not consider leakage reduction to be prominent in the objectives, although it was included under the description of a 'meet demand management policy requirements' objective. This objective has since been expanded and is now listed as 'meet demand management policy requirements to reduce leakage and per capita consumption' to make sure leakage reduction is explicitly included as a key objective of the plan.
- An objective to 'consider multi sector solutions' has been removed and the objective to 'meet the future PWS needs in our region' has been expanded to 'meet the future PWS and non-PWS needs in our region'. This has been done to demonstrate WReN's intent to consider both PWS and non-PWS needs in combination. In future iterations, if solutions are identified that address both PWS and non-PWS they have potential to be constrained into the best-value plan.
- A 'stakeholder preferred option type' metric was included in the initial metric list, but has been removed as there was no clear consensus on the general types of options stakeholders prefer. Non-PWS stakeholders on the WReN steering group have not expressed a clear preference for particular types of options (although there is support for demand reduction). The stakeholder group was more focused on specific sector needs and objectives and felt more research was needed for these to be understood. Questions were also raised on the mechanism for delivering and funding objectives such as carbon and bio-diversity net gain in the non-PWS sector. The challenges that individual sectors are facing and how the regional planning process can

⁵ [Yorkshire Water - Water resources management plan](#)

facilitate the creation of opportunities for joint solutions moving forwards is further detailed in Section 5.2 and Appendix 8.

- The proposed stakeholder preferred option type metric was ranked the lowest by customers who took part in the WReN customer research focus groups. The report notes that customers felt both the customer and the stakeholder preferred option type metrics were unclear but 'most felt that it was important that household and business customers and citizens, alongside other stakeholders, such as farmers and manufacturers, have their say'. We have therefore considered alternative means of considering stakeholder preferences (see the two bullets below) rather than link to option type.
- A 'non-PWS option benefit' metric has been added. Non-PWS needs were included in the initial objectives but were to be addressed as a planning scenario rather than a metric. Our methodology has been updated in response to feedback from both stakeholders and the Environment Agency that the method for considering non-PWS needs should be more prominent in the process. The non-PWS option benefits can be constrained into the planning scenarios to ensure they are included and represented as a 'yes/no' metric.
- A 'multi-abstractor benefit' metric has been added to take into account feedback from the steering group that factors such as water quality and sustainability should be considered in the decision making. The metric is based on qualitative data provided by the SEA outputs for objective 4.1 (To maintain or improve the quality of rivers, lakes, groundwater, estuarine and coastal waterbodies) and 4.2 (To avoid adverse impact on surface and groundwater levels and flows, and ensure sustainable management of abstractions).
- A 'regional transfer' metric has been added. This metric, similar to the non-PWS option benefit metric, is a scenario constraint that is measured as a 'yes/no'. Potential regional transfer options can be constrained into a solution. By including more explicitly as a yes/no metric we can assign additional value to any programmes that include a transfer.
- A flood metric was suggested as a potential non-drought resilience metric in the initial metric list. The intention was to include a metric to measure flood resilience benefits of solution programmes, e.g. controlling reservoir stocks at a reduced level to provide flood storage. This type of measure is not a feasible option that would be selected by the options appraisal process for meeting supply-demand deficits. Instead it requires a change to be made to the supply constraints in the deployable output calculation. The methodology therefore allows for this through creating a specific planning scenario, which can be assessed at programme level as a 'yes/no' flood resilience metric. However, it is only relevant to the regional plan if a specific scenario is identified with an impact that is material at the regional scale.
- In addition to consideration of flood risk benefit (which is dependent on a specific scenario being identified in future), the risk of increased flooding must be considered and where applicable mitigation sought. A flood risk management metric has been added to represent the impact each solution has on flooding, i.e. a change of land use could increase the risk of flooding, and hence identify a need to avoid or mitigate. This metric is linked to SEA objective 4.3 (To reduce and manage flood risk, taking climate change into account) and applied at an option level and measured at a programme level. In essence, this allows for a more broadly applicable representation of flood risk than the resilience metric, as it is not dependent on a specific scenario and a pre-defined location.

How to find out more

More information about Water Resources North, including our publications and how you can contact us, is available on our website, www.waterresourcesnorth.org.

