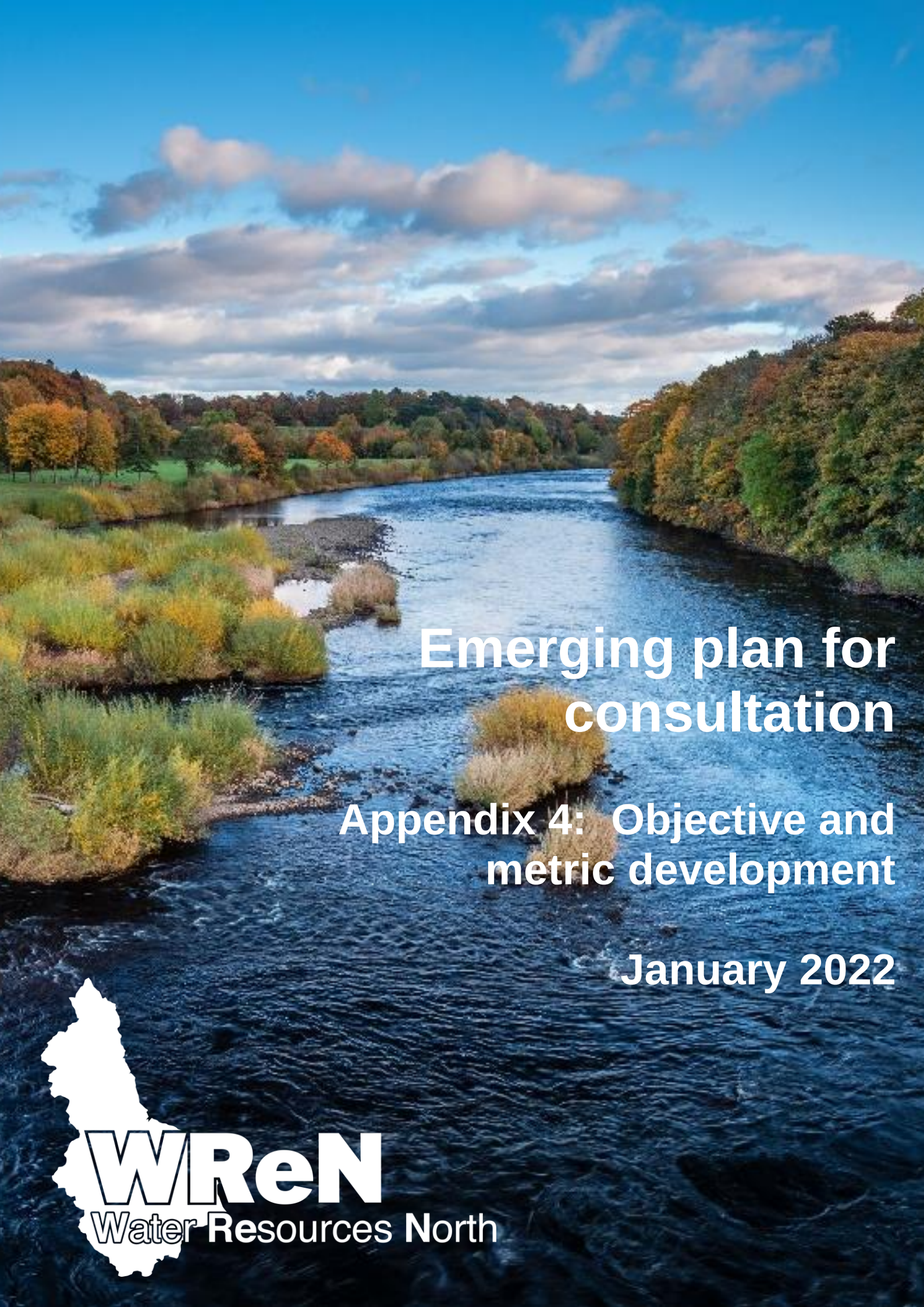

Emerging plan for consultation

Appendix 4: Objective and metric development

January 2022

WReN
Water Resources North

Appendix 4. Objective and metric development

Introduction

The WReN objectives have been identified using the Water Resources National Framework and Environment Agency Water Resource Planning Guidelines (EAWRPG). 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 (EBSD) approach to include criteria in addition to cost. Some of the objectives will be addressed via planning scenarios whereas other objectives are performance measures represented as metrics for consideration in a multi criteria analysis (MCA) approach to producing a best value plan.

The development of our objectives and metrics has been completed taking into account, on balance:

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

We have a range of options that could be used to meet the WReN planning scenarios. For public water supply scenarios, options will be assessed for meeting the dry year annual average baseline supply-demand balance and stress testing scenarios (if showing a deficit). Stress testing scenarios represent the risks the future will deviate from the baseline scenario and require an alternative plan to be triggered. We shall use an optimisation model to produce a solution from the available options for each scenario that shows a deficit. The scenarios will consider a planning period from 2025 to 2085. Each solution will consist of a programme of options (a solution programme) that will be measured by the metrics. The solution programmes will differ as each scenario will aim to meet different criteria. If the initial solution programme for a given scenario includes options that present a risk to the delivery of the solution (e.g. the environmental assessment highlights an option to be unfavourable) that option will be constrained out of the

EBSD optimiser and it will be rerun to produce an alternative solution programme for metric comparison. It may be necessary to run the optimiser several times for each scenario.

Several solution programmes will be produced for any baseline deficit scenarios in the WReN PWS zones. This may include iterations with specific options constrained in or out and/or optimisations that are not based purely on financial cost (i.e. the optimiser has functionality to use carbon or the six capitals to influence the solution programme). The metric performance of each solution programme will be compared to identify if there is a best performing solution programme that should be put forward as the preferred / best value plan. Alternatively, a portfolio programme could be created that includes the best performing options from the solution programmes combined, and this could be put forward as the preferred / best value plan. As it will not be possible to optimise for each individual metric, it will be necessary to apply "trade-offs" to select a plan considered best value.

For the stress testing scenarios we will use the optimiser to produce least cost solution programmes. If potentially unfavourable options are included in the solution programmes, we will rerun the optimiser to produce alternative programmes. The options selected across all the solution programmes produced for each scenario will produce a portfolio of options (i.e. a sub-set of the feasible options). The most frequently selected will be considered for inclusion in the adaptive plan and portfolio programmes will be created. Metric comparison will be used to determine the best performing portfolio programme(s) for the adaptive plan.

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**. The planning status describes how the objective will be considered in the options appraisal process.

> **Achieve or enhance** = there is a mandatory requirement, but our options appraisal could result in programmes that exceed (enhance) the mandatory requirement if feasible options are available.
>
> **Optimise** = we will develop several alternative solution programmes and performance against these objectives will be measured (by the metrics) for each individual programme. The best performing programmes will be assessed further to understand the trade-offs between metrics, as we cannot optimise all metrics.
>
> **Scenario constraint** = the objective can[1] be constrained into a planning scenario and the solution programme impacts and benefits compared against programmes for alternative scenarios.

The Strategic Environmental Assessment (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 we will apply the SEA approach to our regional options and incorporate the results into our options appraisal. This does not replace the need to carry out an 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 are included as a key objective (see **Table A4.1**). Although they will shape the best value plan, unlike the other identified objectives, they do not create a defined scenario or an individual metric for inclusion in the decision-making. Instead they provide data for delivering the process at both the option appraisal and decision-making stages, including metrics.

[1] At this point in time, not all such scenario constraint areas may be definable to constrain into the options appraisal, but this ensures that our process could accommodate this in future.

The SEA objectives will provide data for some WReN metrics (see below), but not all SEA objectives are represented as metrics. The metrics have been developed independently to the SEA objectives and focus on key decision-criteria that is relevant to the WReN objectives listed in **Table A4.1**. The SEA objectives have been 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 Ref 21/WR/02/15. Where there is a clear overlap between the decision-making metrics and the SEA objectives the SEA outputs will provide the data for measuring the metric. In addition, the SEA outputs for potential solutions will be considered separate to the MCA approach and incorporated into the decision making. This allows all SEA objectives to be assessed as part of the decision-making approach to developing a best value plan, whilst ensuring we are compliant with the SEA process.

Another key objective of the WReN Regional Plan is meeting the environmental destination and RBMP (once available). The approach to environmental destination is summarised in Section 6.5 of the main WReN Informal Consultation 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 environmental destination and RBMP objectives would be 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 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.

The best value plan that WReN will ultimately put forward for public consultation will be either a single solution programme that performs best overall against the criteria / metrics or a portfolio programme of the options that appear most often in the best performing solution programmes. The plan will be subject to uncertainties and an adaptive planning approach will be used. The scenarios will include stress testing[2] to understand the potential impacts if the planning assumptions, identified risks or solution benefits are materially different to the baseline and final planning forecasts. We will identify a number of potential pathways and variations on the options we implement. We may alter the final planning solution if any individual option or combination of options are considered too vulnerable to the uncertainties. We will also identify the uncertainties that could impact on the success of the preferred final plan solution as we progress through the planning period and identify triggers for diverting to an alternative path if our preferred plan is not successful.

[2] Information on the stress testing scenarios is provided in our main report. They include stress test scenarios provided by the national reconciliation process which all regions must consider in their plans.

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

WReN objective	Meet the future PWS and non-PWS needs in our region.			
		Scenario/Metric	**Driver/source**	**Planning status**
Description	**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 provides additional resilience or opportunities to trade resources.	Scenario	Statutory requirement of WRMPs	Achieve or enhance
	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 in future specific regional needs can tangibly be 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 identified in the future.	Scenario measured as a yes/no metric: Non-PWS option benefit	National Framework	Scenario constraint

WReN objective	**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). If our modelling shows we do not meet this requirement, we must invest to achieve this by 2039. Achieving resilience to a 1 in 500-year drought could result in some initial deficits at the beginning of the planning period while we implement our preferred best-value solutions. If this is the case, we can use drought measures to achieve resilience in the interim. Alternatively, we could plan to a reduced level of service, for this interim period.	**Scenario/Metric**	**Driver/source**	**Planning status**
		Metric: PWS drought resilience	National Framework	Achieve or enhance

WReN objective	**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)			
		Scenario/Metric	**Driver/source**	**Planning status**
Description	**Achieve the WReN environmental destination and RBMP objectives taking a catchment-wide approach** 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. If abstraction reductions create a deficit, our regional plan will identify an alternative solution.	Scenario	National Framework	Achieve or enhance
	Environmental Performance Our best value plan will take into account any impacts our options could have on the environment. We will measure the impacts, both positive and negative, and where feasible identify mitigation measures to minimise impacts.	Metric: Biodiversity	Defra/National Framework/WRPG	Optimise
		Metric: Natural capital[3]	Defra/National Framework/WRPG	Optimise

[3] 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	**Meet demand management policy requirements to reduce leakage and per capita consumption**			
Description	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: - Reduce 2017-18 leakage levels by 50% on average by 2050 - Achieve an average PCC of 110 l/h/d by 2050 The WReN objective is to meet this policy requirement at a water company level as a minimum. If a water resource zone could benefit from going beyond this level, we will appraise options to exceed the objective at a resource zone level.	**Scenario/Metric**	**Driver/source**	**Planning status**
		Metric: Leakage reduction	National Framework	Achieve or enhance
		Metric: PCC reduction	National Framework	Achieve or enhance

WReN objective	**Identify WReN's potential to contribute to national resilience**			
Description	We will develop regional (PWS) export options for other regions to consider in their regional plans whilst ensuring security of supply in the WReN region. WReN is one of five regions in England. By creating regional transfer links and sharing water resources across regions we can help improve national resilience to water supply risks. We will offer to trade supplies to other regions provided this does not create a risk in our own region. This could include offering surplus resources to other regions, but we would also appraise investing in new supplies to help deliver national resilience.	**Scenario/Metric**	**Driver/source**	**Planning status**
		Scenario measured as a yes/no metric: Regional transfer	National Framework	Scenario constraint

WReN objective	Achieve multiple benefits (non-drought resilience)			
Description	A best value plan considers the impacts and benefits of each option and what can be achieved alongside the objective to mitigate any supply-demand risks. Options to increase available supply or reduce demand can 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. Currently we do not consider that there is a significant non-drought resilience need or risk at regional scale that warrants specific assessment. The flood resilience scenario represents our approach should a scenario be identified in the future.	**Scenario/Metric**	**Driver/source**	**Planning status**
		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

WReN objective	Produce a plan that benefits regional stakeholders and water companies' customers			
Description	In addition to the weightings applied to the metrics, we shall include metrics that measure impacts on society and that incorporate customer and stakeholder views on option types. Customer and stakeholder views will differ, and our aim will be to identify a programme of options that is acceptable to the majority of customers and stakeholders. Customer preferences for certain types of options will also be considered in the decision making. Stakeholders may also have preferences for certain options although there is no clear consensus to provide a metric. However, their preferences will be considered through the multi-abstractor benefit metric.	**Scenario/Metric**	**Driver/source**	**Planning status**
		Metric: Customer preferred option type	Environment Agency WRMP guidelines	Optimise
		Metric: Human and social wellbeing	Environment Agency WRMP guidelines	Optimise

WReN objective	**Create a plan that is affordable and sustainable over the long term**			
Description	**Affordability** Our best value plan will aim to maximise the benefits that can be achieved through securing water supply in our region for both PWS and non-PWS. We must also consider if 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 will be compared using the social time preference discount rate and sensitivity tested using the intergenerational discount rate).	**Scenario/Metric**	**Driver/source**	**Planning status**
		Metric: Programme financial costs (NPV)	Environment Agency WRPG	Optimise
	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.	Metric: Option deliverability	WReN options identification workstream	Optimise
		Scenarios	Uncertainties	Optimise

WReN multi criteria analysis – metrics

Table A4.3 lists each metric identified in **Table A4.2** to be compared at a programme level and used to evaluate trade-offs and produce a best value plan. **Table A4.4** lists the scenario constraints that can be used to meet specific objectives by constraining relevant options into the solution. These scenarios will be compared against the scenarios that do not meet the desired objectives to evaluate the impacts.

Table A4.3 provides an overview of how individual metrics will be measured (at programme level). The WReN options appraisal and decision-making process 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. It is a new approach that has not been fully tested using an actual regional planning problem. It will therefore require further refinement as programmes are produced during the regional reconciliation process, later phases of plan development and as further input is sought from the WReN steering group.

The metrics included in **Table A4.3** are measured using a variety of units, which allows individual metrics across scenarios to be compared but it is difficult to compare metrics against each other. To allow the range of metrics and scoring types to be comparable to one another, each of the metric scores will be converted to a value between 0 and 100. It is also possible the metrics themselves are not considered to hold equal value, and customers and stakeholders may value differently. The value of metrics can be considered by applying weightings to the metrics. This will help when assessing the potential trade-off decisions, however, as the metric ranking is subjective, the weighting will not automatically define the preferred programme. The WReN Customer Research June 2021 (Appendix 7) provides a scale for weighting customer values to the metrics. This will be considered in the decision-making, but trade-offs may need to be made between preferences and meeting key objectives if this creates a conflict.

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).
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 will be graded -4 to +4 and the programme score based on the average grade.

Metric	How we will measure the metric
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 will be 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 will be compared by the benefit (Ml/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 will be 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 will be based on the average score for all options included in the solution.

* Natural England's Biodiversity Metric Tool version 3.0 is used to calculate the biodiversity unit impacts of the options for the metric scoring. In the final decision making we shall consider biodiversity net gain. 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 Water Resources North scenario constraint metrics

Scenario constraint metric	How we will measure the metric
Non-PWS option benefits	Yes/no (programmes with non-PWS benefits will be 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. 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.
Regional transfer	Yes/no (programmes with a regional transfer benefit will be classed as best value for this metric). This is dependent on a regional transfer need being agreed with sufficient certainty for the interested parties to take forward in regional investment plans.
Flood resilience (non-drought resilience)	Yes/No (programmes with flood resilience benefits will be classed as best value for this metric). 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.

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 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.

Customer views on the WReN objectives and metrics were sought through focus groups (allowing detailed exploration of issues with the customers involved compared to broader survey approaches). Both household and non-household customers and citizens took part in the group discussions. The outputs are discussed in detail in Appendix 7 - WReN Customer Research June 2021 and summarised in our main report. 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 (see above). 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 will be used in the decision-making process and the terminology will be reviewed for the next public WReN document.

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

- Customers were supportive of the WReN objectives but raised education as a potential gap. 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.
- 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. 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 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) however, further discussion will be held as potential solutions are identified. 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 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 therefore shall look for alternative means of considering stakeholder preferences (see next bullet) rather than link to option type. We shall also discuss the feasible WReN supply-side options with stakeholders in more detail to understand if there are any specific factors we should consider when producing the plan.
- 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 will be constrained into the planning scenarios to ensure they are included and represented as a 'yes/no' metric. The scenarios containing non-PWS option benefits will be considered to provide best value compared to those that don't.
- 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 will be 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 will be measured as a ‘yes/no’. Any potential regional transfer options, if identified in future reconciliation rounds, will need to 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.
- The flood resilience management metric has been confirmed. 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 will only be 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 will be linked to SEA objective 4.3 To reduce and manage flood risk, taking climate change into account. This would be 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.

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