

UUW45

Our approach to deliver best value totex

October 2023

Chapter 8 supplementary document

This document summarises our approach in developing our AMP8 business plan, including the processes and tools used to assess and deliver best value, the steps we have taken to refine and tighten our total expenditure (totex) estimates, and the benchmarking and assurance that support the efficiency of our costs.

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1. Our approach to deliver best value totex

1.1 Key messages

- **We are proud to submit a plan** that will deliver over £35 billion of value for the North West and support 30,000 jobs, including through our supply chain.
- **We have applied significant efficiencies to create a plan that delivers the best value-for-money** including robust challenge of need, scale and phasing, innovation and optimisation of solutions, and optimal delivery routes making effective use of markets, direct procurement for customers (DPC), and co-funding through partnerships.
- **We have assessed best value for all enhancement expenditure** and this assessment has been crucial in shaping and optimising our plan to get the best result for customers, communities and the environment.
- **We have a consistent and robust approach to assessing best value**, which includes a rich mix of economic, social and environmental priorities, and takes us towards ever more holistic value-based decision making.
- **Our approach to building best value totex is leading** and supported by customers/stakeholders.

1.2 Structure

1.2.1 This document is structured as follows;

- **Section 1.3** provides an overview of our approach to value-based decision making;
- **Section 2** sets out our approach to building the best value plan for AMP8, which is further developed as follows::
 - **Section 2.1.4** shares how we have identified and challenged the requirements that drive investment needs over the business plan period;
 - **Section 2.3** discusses how we developed detailed strategies, identified and assessed the best value solutions, with extensive optioneering including nature-based and catchment level solutions across our enhancement cases;
 - **Section 2.4** provides more detail on how we have planned delivery timing, how we have costed our plan and ensured that our cost estimates are efficient, and how we have considered the relative merit of a variety of delivery methods to ensure we are selecting the best delivery and procurement routes; and,
 - **Section 2.5** showcases our track record in developing an efficient and best value totex and shares our plans for continuous improvement.

1.3 Overview

- 1.3.1** The scale and complexity of the challenges faced by the water sector is more significant than ever before. We are responding to a range of changing circumstances, including for example: climate change, changes in customer and stakeholder expectations, and the pressures on customers and our costs from high inflation and the cost of living crisis. The comprehensive understanding we have developed of our choices and the consequences of our activities helps us to effectively navigate through these challenges. We understand what our plans will cost, and also what they will deliver in terms of value – financial, environmental and social.
- 1.3.2** Value-based decision making helps us to consider a fuller picture when making decisions. It helps us put customers, society and the environment at the heart of our planning. It is helping us to account for differing stakeholder views, and give us a more complete picture of risk and opportunity, by bringing in

a broader set of information into decision making. Through this approach, we have built a best value plan for AMP8 that delivers against customer priorities. Our best value plan will tackle pollution, reducing spills by 26.8 per cent by the end of AMP8, it will deliver leakage reductions of 13 per cent in AMP8 and will help make the North West stronger, greener and healthier. For more on the benefits our plan will deliver, see Chapters 5 and 6 of our main business plan submission. We are delivering significant improvements at a cost that is within our assessment of an efficient modelled cost and the efficiency of our plans is supported by benchmarking analysis and third party assurance.

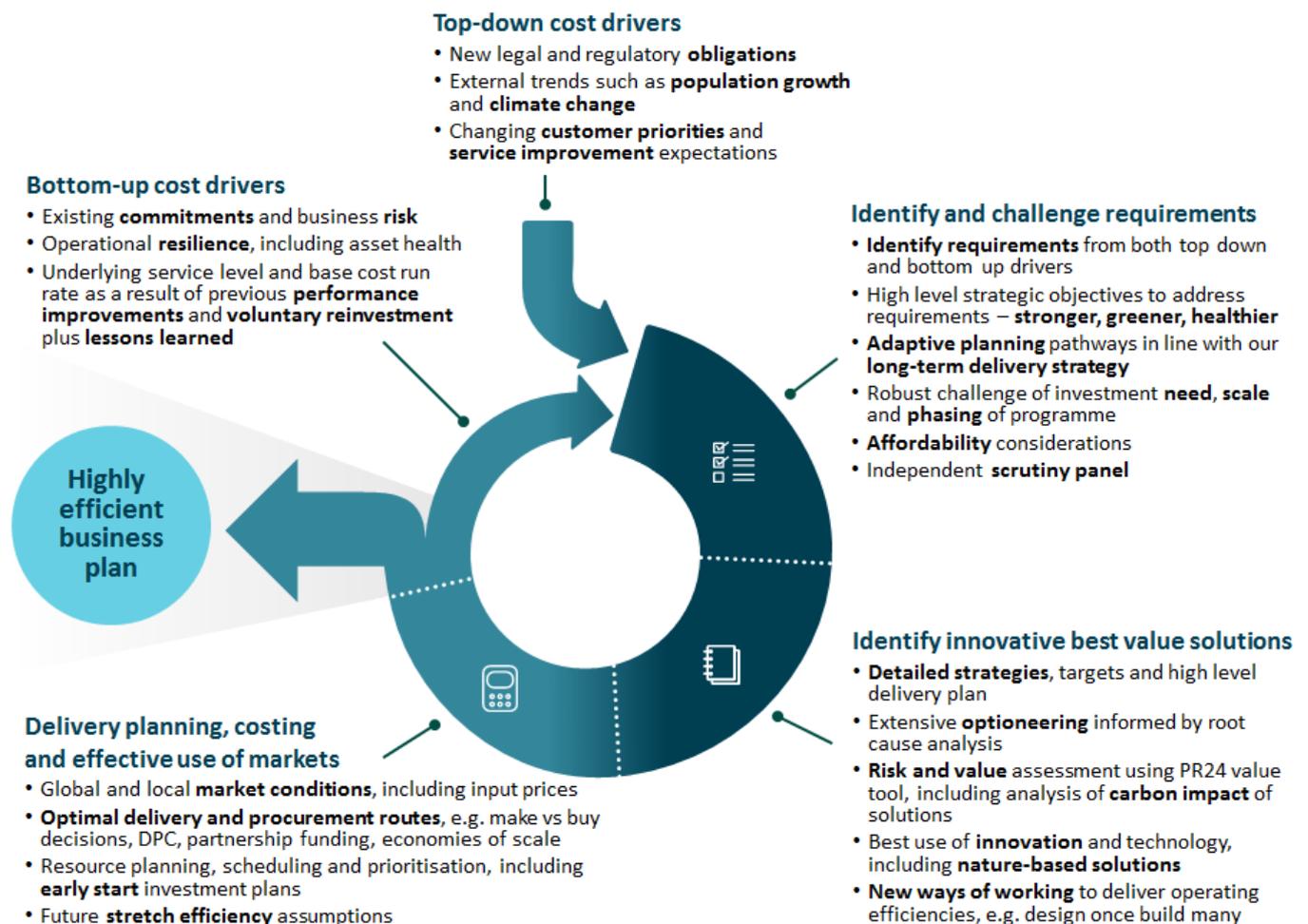
- 1.3.3** Ofwat defines a best value investment as one that generates the greatest long-term economic benefit for customers, the environment and society, taking into account the costs of the scheme.
- 1.3.4 This value is always understood in the context of a translation to financial costs and benefits, striving to maximise the ratio of value to cost over the lifetime of the scheme, supporting our ambitious plans to deliver more over the long term. In the near term, this understanding of value helps us focus on low regrets investments for AMP8.
- 1.3.5 The detail underpinning the definition of Best Value can change over time as:
- Customer and societal priorities evolve;
 - We better understand the impacts and dependencies between UUW, the North West and the wider global environment; and,
 - Available data, evidence and scientific understanding improves.
- 1.3.6 Our approach to assessing value at PR24 is robust and mature, and we will continue to improve and further embed our approach to drive value-based decisions throughout everything we do. We are continuing to mature our approach to value-based decision making to give us an ever richer and broader view that helps further enhance how we serve all customers and stakeholders. This helps us serve their differing needs, and is increasingly important and valuable at a time where the sector is facing many significant drivers for change, at the same time as ensuring bills remain affordable.
- 1.3.7 This document shows how our approach to totex supports us in delivering best value at efficient cost.

2. Our approach

2.1 Introduction

- 2.1.1 Our totex approach (set out in Figure 1 below) begins by identifying and understanding the requirements that our plan must deliver, challenging the investment needs (including the use of an independent scrutiny panel) and developing effective strategies to achieve the outcomes that our plan needs to deliver in AMP8. We then identify the best value solutions, using extensive optioneering and innovation, and determine the most effective delivery plan and procurement routes to maximise efficiency and value creation.
- 2.1.2 Our approach builds on our legacy of using financial and non-financial information to support decision-making, learning from others and global best practice for six capitals approaches to value-based decision making. We have developed our bespoke PR24 Value Tool to support consistent value assessments using a rich mix of measures that help us to deliver value for customers, society and the environment at an efficient cost.
- 2.1.3 As can be seen in Figure 1, the investment we make in one AMP – enabling improvements in performance, addressing risks and improving resilience – feeds into the bottom-up cost drivers for future periods. The transformation we have delivered in AMP6 and AMP7, helped by voluntary reinvestment, means we have a much smaller gap to close than we otherwise would have in order to deliver the level of service we need to in AMP8.

Figure 1: Our approach to creating the best value plan



Source: UUW business planning process

- 2.1.4 Our best value totex approach, which looks at the whole-life cost of solutions as part of the overall value assessment, enables us to secure an efficient level of totex whilst improving performance, addressing risks and enhancing resilience to provide sustainable value for the long term. This circular nature of efficiency also means that by driving further performance improvements, improving resilience and protecting the health of our assets in AMP8, we will be better positioned to deliver for customers as we go into AMP9 and beyond. This demonstrates the importance of long-term planning and focusing on the lowest whole life cost solutions.

2.2 Identify and challenge requirements

- 2.2.1 The design of our plan began by identifying the requirements that drive investment need in AMP8, looking from both a bottom-up and a top-down perspective.

Bottom-up drivers

- 2.2.2 It is essential that we understand the health of our network and assets, and any issues we are experiencing with performance or asset health deterioration, in order to accurately identify the areas where expenditure needs to be targeted to maintain and improve our services and enhance operational resilience – this includes how we allocate our base expenditure to maintain and improve services efficiently, and the areas where we need enhancement investment to deliver a step change.
- 2.2.3 This understanding is part of our comprehensive ongoing business risk assessment, and our ability to assess operational risks effectively is strengthened by our systems thinking approach and data-led networks, combining multiple sources of information including real-time performance data alongside on-the-ground inspections. This helps us to identify investment needs more accurately and prioritise expenditure to deliver the best value for money.
- 2.2.4 The investment we have made in previous periods has helped us to deliver continual performance improvements. This, alongside our systems thinking approach and a shift towards proactive interventions, is delivering a better service for customers in the North West, and this improved underlying performance level helps to reduce the bottom-up cost drivers going into AMP8.

Top-down drivers

- 2.2.5 Changes in the external environment require investment to meet the evolving needs and expectations of the North West. Investment needs arise from new legal and regulatory obligations such as the Water Industry National Environment Programme (WINEP), which is by far the most significant top-down cost driver for us in AMP8, as well as other new obligations from the Environment Agency (EA) and Drinking Water Inspectorate (DWI). We must adapt to new technology, climate change, and expand our network and production capacity to accommodate a growing population. We use independent forecasts and horizon scanning that enable us to develop long-term plans, such as our Water Resources Management Plan (WRMP) and Drainage and Wastewater Management Plan (DWMP), which set out what we need to do to adapt to these trends and ensure our services remain resilient and fit for these long-term changes.
- 2.2.6 Customer priorities and service level expectations change over time, and we must ensure we understand and respond to these in order to continue providing a great service. In Chapter 2 we discuss our six strategic priorities (shown in Figure 2) and how these have been shaped by customer and stakeholder expectations, legislative and regulatory change, and external trends such as population growth, climate change and technology change. Our approach to value-based decision making supports us to deliver these priorities.

Figure 2: Our six strategic priorities



Source: Our six strategic priorities

Challenging and optimising requirements to deliver best value

- 2.2.7 It is important that we invest wisely and balance the many drivers for investment with the need to protect customer affordability – today and across generations – and we applied robust challenge to the requirements that were identified, and continue to engage with quality and environmental regulators on the timeline for delivery of our new obligations to ensure we are using customers' money wisely by investing at the right time to optimise value.
- 2.2.8 Our risk and value process provides a structured way of exploring the need behind a proposed investment, challenging assumptions and addressing inconsistencies so we can be confident that the right projects are being proposed to maximise value for customers from the investment. Operational teams escalate risks identified in the field through a tiered process that provides multiple levels of challenge of the need for additional investment.
- **Tier 1** – Local operators meet at least fortnightly to review new and existing risks and agree mitigating or monitoring actions at a local level to maximise local operational resolution. If they feel that they cannot adequately manage the risk then it is escalated to Tier 2.
 - **Tier 2** – Local operational management considers a wider range of operational and maintenance solutions, including procurement of engineering resources to optimise systems and assets. If they decide the risk cannot be mitigated further without more significant investment it is escalated to Tier 3.
 - **Tier 3** – Asset managers review all risks across their area and are responsible for considering a wide range of potential solutions, looking for smart solutions to manage risks in an integrated way and identifying cost effective totex solutions for managing multiple risks. During this meeting, bottom-up risks identified by operational teams are aligned with top-down strategic risks, prioritised and mitigated.
- 2.2.9 This process ensures the requirements we are addressing are aligned with our risk assessment and filters out items that lack sufficient evidence or are not material enough to warrant additional investment. All risks are captured in our investment prioritisation system, where risks are weighted based on relative customer valuations.
- 2.2.10 For programmes of work where the requirements are less defined, such as reactive maintenance, we challenged the size of programmes of work using our asset deterioration model, Pioneer. This uses a series of cost, deterioration and consequence models to assess future service risk, and triangulates this with historic costs, known issues and expert judgement to determine the appropriate size for these programmes. Our systems thinking approach and data-led networks enable us to more accurately monitor and assess our business risks, leading to a more accurate estimate of ongoing reactive maintenance activities, and enable us to achieve more efficient maintenance and repair costs as a result of a better understanding of our entire network and its operating effectiveness.
- 2.2.11 The adaptive planning pathways in our long-term delivery strategy help us to identify the optimal timing of investment so we can undertake low or no regrets actions now in order to help with the achievement

of long-term goals. Full details of our long-term delivery strategy are available in *UUW12 - Long Term Delivery Strategy*. Alongside our risk and value assessment, these adaptive planning pathways help to ensure we are investing in the right areas at the right time, and only where there is a clear need. We also applied an affordability lens in our assessment of individual projects and the overall size of the AMP8 programme to help with scale and phasing decisions.

- 2.2.12 As discussed in Chapter 8, an independent scrutiny panel was appointed to help us evaluate our plan and provide robust oversight and challenge of the scope and how we are meeting the requirements of our WINEP – the largest top-down driver of investment need in AMP8.

Informing the value framework we use to support decision making

- 2.2.13 Our value-based decision making is informed by the six capitals framework, taken from the internationally adopted Integrated Reporting <IR> Framework¹. The six capitals are defined in Table 1, and help us structure our decision making framework in a consistent, holistic and robust way that accounts for:
- **Our dependencies** – The resources that we rely on to deliver value, including physical resources like water, chemicals and construction materials and less tangible things like trust and effective relationships; and,
 - **Our impacts** – Both positive and negative impacts that we have on the North West and beyond.
- 2.2.14 The six capitals approach helps give structure to our complex operating environment, helps us select which metrics are most relevant to ensuring our decisions are effective, and helps us to consider environmental and social value across all our activities.
- 2.2.15 We have recently completed a full assessment of our six capital assets, impacts and dependencies to help us understand opportunities to create additional value. Table 1 defines the six capitals and summarises these opportunities.

Table 1: UUW potential six capital impacts and dependencies

	We depend/rely on it	We can impact on it
<p>Natural capital All renewable and non-renewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organisation. This includes air, water, land, minerals and forests as well as biodiversity and ecosystem health.</p>	<ul style="list-style-type: none"> • To source clean water from reservoirs, rivers and boreholes, from which abstraction licences permit us to take water to be treated and supplied to customers • To receive cleaned wastewater back into the environment • To store and clean sources of water • To recycle biosolids, citing engineered or nature-based interventions, and to attenuate water flows • To provide resources, such as chemicals, cement, metals and energy 	<ul style="list-style-type: none"> • By improving the condition of the land we are stewards of, including habitat health and biodiversity • By improving the condition of rivers and water bodies through our abstractions, final effluent quality, overflows and pollution incidents • By releasing of greenhouse gas (GHG) emissions contributing to climate change • By storing greenhouse gases in our land, e.g. in soils and woodland • By releasing of air pollutants that impact the health of people and nature
<p>Social capital The institutions and relationships within and between communities, groups of stakeholders and other networks and the ability to share information to enhance individual and collective wellbeing.</p>	<ul style="list-style-type: none"> • To build trust with all of our stakeholders (e.g. customers, communities, suppliers, investors) • To understand of the needs of customers and stakeholders to deliver the things that are important to them • To collaborate with customers and stakeholders on shared challenges such as leakage, flooding and water efficiency 	<ul style="list-style-type: none"> • By providing high quality of our water, wastewater and customer services • By making our services resilient now and for the future • By supporting customers who struggle to pay their bill and those in vulnerable circumstances • By creating spaces for access and recreation • By communicating and collaborating with all stakeholders

¹ A link to the IFRS website, which hosts the <IR> Framework <https://www.ifrs.org/issued-standards/ir-framework/>

	We depend/rely on it	We can impact on it
Human capital Our people's competencies, capabilities and experiences, and their motivations to innovate.	<ul style="list-style-type: none"> To deliver great services for customers through the skills, knowledge and experience of our workforce To provide diversity of thought and a range of perspectives To run a responsible business and deliver our services in an efficient and productive way 	<ul style="list-style-type: none"> By creating a great place to work By having health, safety and wellbeing as a priority By recruiting new staff, including graduate and apprentice programmes By developing and training all of our people By creating a diverse workforce with fair opportunities and remuneration for all
Intellectual capital Organisational, knowledge-based intangible aspects such as intellectual property, and systems, procedures and protocols.	<ul style="list-style-type: none"> To provide real time monitoring and analytics that helps us provide our service efficiently and effectively To provide innovative ways of doing things, which drive more value and better efficiency To keep us safe from cyber attacks To give us a competitive advantage in how our processes and systems drive continuous improvement 	<ul style="list-style-type: none"> By investing in research and development, and innovation By improving our system monitoring and investing in smart assets By investing in our digital capability By collaborating with the supply chain and other partners
Manufactured capital Manufactured physical objects available to an organisation for use in the production of goods and or the provision of services, including buildings, equipment and infrastructure.	<ul style="list-style-type: none"> To deliver reliable performance for customers To secure resilience of our assets To keep our assets secure 	<ul style="list-style-type: none"> By maintaining, protecting and improving assets and infrastructure By developing new assets and infrastructure where required By maintaining our assess effectively By performing well in capital delivery By following best practice approaches to be efficient and effective, such as ISO55001
Financial capital The pool of funds that is: available to an organisation for use in the production of goods or the provision of services or obtained through financing, such as debt, equity or grants, or generated through operations or investments	<ul style="list-style-type: none"> To finance our activities and smooth out cash flows To pay our operating expenses, financing expenses and capital delivery expenses 	<ul style="list-style-type: none"> By being efficient in our operations By working with long term investors and demonstrating good governance for fair and sustainable returns By being a responsible business that acts fairly on tax and with its suppliers

2.3 Identify innovative best value solutions

Develop value-based strategies

2.3.1 All investment requirements were categorised into high level strategic objectives:

- Performance** – We have achieved significant performance improvements in the last two AMPs but there are still areas in which we want to improve. Our plan delivers stretching improvements in service for customers and the environment, targeting significant improvements in key areas such as storm overflows, sewer flooding and water supply interruptions, alongside frontier performance in pollution incidents by 2030, as set out in *Chapter 5*, as well as wider social and environmental value. Our targeted performance improvements drive strategic areas for investment;
- Environmental and social value** – Our purpose – to provide great water for a stronger, greener and healthier North West – sets out our clear ambition to deliver environmental and social value. This is in line with our strategic priorities for AMP8 and beyond; and
- Resilience and asset health** – We need to invest to secure water sufficiency and improve wastewater capacity to meet the needs of a growing population, and enhance our operational resilience to cope with a changing climate, reducing the risks of flooding and dry weather restrictions. We have many long-life assets at different stages in their lives, and their maintenance needs will vary depending on their age as asset health naturally deteriorates over time. Our plan

includes investment in an appropriate mix of resilience solutions, selecting the most efficient option with consideration to the four R's – resistance, reliability, redundancy, and response and recovery².

- 2.3.2 Underpinning these high level objectives were detailed strategies that set out the drivers, targets, high level delivery plans, and key risks and dependencies for each price control. For example, how we plan to tackle rainwater management, our strategy for reducing water losses, and our net zero ambitions. These strategies are aligned with our overarching strategic priorities. More detail on these strategies can be found in *Chapter 2*.
- 2.3.3 The biggest opportunity to drive more value in any investment is usually at the strategic planning stage. The strategic direction from the Board and Executives, informed by customers, regulators and other stakeholders, has been clear about strong ambitions to make the North West stronger, greener and healthier. This strategic direction has flowed throughout our approach to our business plan, including into how we have developed options and built the programme. The most material impacts can be had at this stage, when choosing which strategies will deliver the most benefit for the least cost.
- 2.3.4 The planning stage of the asset life cycle is also where there is the most uncertainty and least robust data. This highlights the importance of ensuring decision makers understand the North West and how decisions in PR24 will impact our ability to deliver environmental and social value. It also highlights the importance of long term and adaptive planning that considers ambitions, risks and opportunities to secure a low regrets approach in the short term. The line of sight between our corporate objectives, through to the strategies we have developed has been important in ensuring driving more value into the programme, and is supported by our ISO55001 accredited Asset Lifecycle Management approach.
- 2.3.5 The development of all strategies was mindful of the need to deliver at the most efficient cost and balance the requirement with the need to protect customer affordability.

Optioneering and development of solutions

- 2.3.6 Due to the maturity and scale of the programme for AMP8, we prioritised the requirements and strategies to ensure we were concentrating our optioneering efforts on high-value, time-intensive projects to drive efficiency and best value creation.
- 2.3.7 There is little or no value in optioneering simple and common requirements of low value and high-cost certainty. However, large or complex sets of maintenance requirements and projects that do not reflect business-as-usual activity, including all enhancement expenditure, were assessed through our solution development and decision (SDD) process as set out below.
- 2.3.8 Our SDD process assesses a number of potential solutions to meet the requirements in line with our strategies. It can be broken down into three steps which are set out below and describe how our plan has been constructed to deliver best value:
- **Root cause analysis:** Our engineering team conducted a root cause analysis of the requirement, looking at information such as current asset performance, headroom, lifespan, and maintenance activity.
 - **Solution development:** Information from the root cause analysis assisted with our extensive optioneering of potential solutions. This drew on solutions that had already been developed through preparation of our WRMP, DWMP and other studies we have undertaken as part of our long-term planning, as well as developing new solutions where appropriate, including new ideas and technology trialled through a series of innovation pilots and other innovations we were able to pursue without trial, as detailed in *UUW49 – Innovation framework and strategy* and Chapter 8. For example, we have explored 65,000 different options for wastewater interventions.

Innovative technology and new ways of working were all considered at this stage, and every requirement was assessed for the feasibility of adopting a nature or catchment-based solution. On

² The four R's of resilience were published by the UK Government Cabinet Office in 2011: [gov.uk/government/publications/keeping-the-country-running-natural-hazards-and-infrastructure](https://www.gov.uk/government/publications/keeping-the-country-running-natural-hazards-and-infrastructure)

projects with capital expenditure estimates greater than £20 million, we undertook a strategic review using a risk-based approach to identify the leanest solution to meet the requirements. We also explored partnership opportunities.

Using a suite of screening tools, the unconstrained options were narrowed down to a list of feasible solutions. We used our generic high level solution hierarchy to review the solutions, with costs and value estimated to help inform preferred options. This included assessment against the six capitals framework for value.

To improve reliability and consistency, WINEP value assessments were carried out using a common suite of assumptions based on scheme types to ensure the consistency of inputs, and non-WINEP value assessments were done at workshops with subject matter experts and a central value assessment team. For our WINEP requirements, making up the majority of our enhancement totex, at least two options were then developed further for a more detailed engineering assessment.

- **Solution selection:** We developed and used a 'PR24 Value Tool', as set out below, which calculates a 'best value ratio' based on the value of a solution in relation to its totex and carbon 'cost'. This provides a robust and consistent valuation across our plan, helping us better understand risk and value in order to inform best value decision-making in selecting solutions.

The value framework in the PR24 value tool

- 2.3.9 All of our enhancement expenditure has been assessed for best value (including WINEP, DWMP and WRMP). We have developed and used our 'PR24 Value Tool' which allows us to quantify the economic value of a wide range of priorities across the six capitals and use this to assess best value. This has been developed by internal SMEs and assured by a qualified and experienced third party to give confidence on the robustness of value estimates and the overall process.
- 2.3.10 When assessing options for enhancement (including WINEP), our preferred option is the best value option. Recognising that our value assessment process is intended to inform decisions, not to make them for us, we may deviate from best value where deemed appropriate, for example where:
- There is a significant financial saving to protect affordability for customers;
 - There is a significant saving in greenhouse gas (GHG) emissions to protect climate resilience; or
 - There is an opportunity to support a nature-based solution which is considered the most effective approach but may not be showing in the current quantification process as the best value option due to relatively poor understanding of cost or unquantified benefits.
- 2.3.11 As well as having a robust approach to assessing the value of our options, to ensure a truly best value approach it is also important to have a broad range of innovative, value-adding solutions to choose from. At the options development phase we used pre-defined generic high level solutions to provide a starting point for our Engineering team. This list of solutions includes a partnerships option, an operational optimisation option, and a nature-based option, which means that we have value-adding options flowing into the optioneering process.
- 2.3.12 For Base expenditure, we have assessed cost, performance and GHG emissions as primary drivers for decision making.
- 2.3.13 The PR24 Value Tool provides us with support to:
- Ensure consistency of valuations across the business plan
 - Ensure robustness of data and repeatability of data
 - Support colleagues to assess value as options are developed
 - Develop a broad information set for decision making that helps us understand risk and value, as well as helping us estimate against the Wider Environmental Outcomes (WEOs)

- 2.3.14 The PR24 value tool uses a broad range of metrics that cover many aspects of risk, including service, financial, reputation, and health and safety, supplemented with natural capital metrics based on the Environment Agency’s WEOs to better reflect opportunities to create value for society and the environment. Using the WEOs supports consistency of value assessment between different companies for the WINEP, and we have replicated this approach across our PR24 business plan to ensure consistency of value assessment between areas of investment. The balance of metrics allows us to quantify risk, alongside social and environmental value, to support decisions that will deliver a high return on investment for our stakeholders.
- 2.3.15 The tool itself leads users involved in assessing value through questionnaires, with relevant questions for the intervention that is being assessed, to quantify performance in terms of severity, likelihood and frequency, then uses agreed valuations to monetise the predicted performance. This gives a consistent unit that can be used in decision making, and helps to make the process more efficient.
- 2.3.16 Valuations of measures in the PR24 Value Tool have come from performance commitment incentive rates, EA’s WEOs valuations or third party literature values where there were gaps.

Value assessment for PR24 optioneering

- 2.3.17 The lists below share the metrics selected to articulate the value of our options. The range of measures supports us in quantifying ‘best value’ by identifying schemes that generate the greatest long-term economic benefit for customers, the environment and society, taking into account the costs of the scheme. The metrics have been categorised into suitable categories. We have also expressed how performance across these metrics can create or erode value against the six capitals.

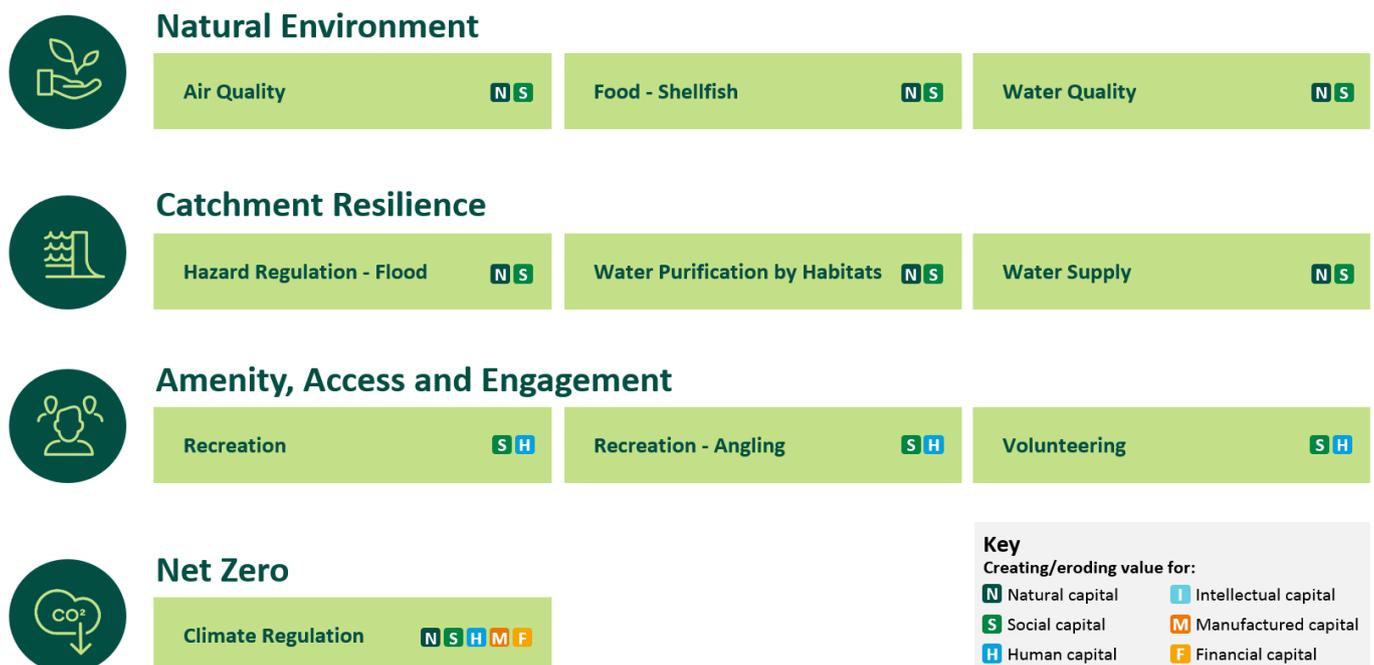
Performance-based metrics (informed by performance commitments)

- 2.3.18 In our value assessment, we measure and value the implications of our investments on expected future performance, with valuations taken from incentive rates provided by Ofwat.

Natural capital-based metrics (adapted from the EA’s WINEP guidance)

- 2.3.19 We have opted to take the EA’s suggested measures from WINEP guidance and apply it across the whole PR24 enhancement programme to support consistency. Wider Environmental Outcomes (WEOs) reflect impacts that investments will have on natural and social capital.

Figure 3: Natural capital-based metrics

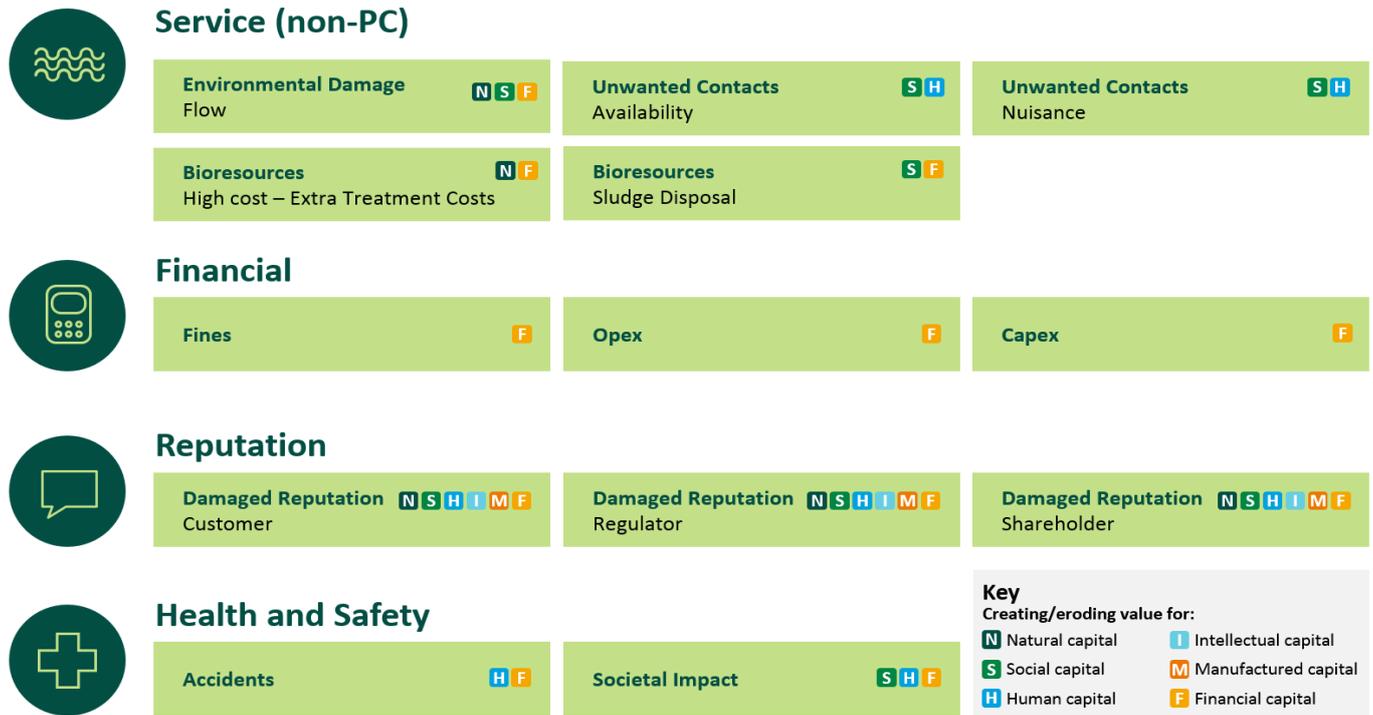


Source: Natural capital-based metrics used in the PR24 Value tool, showing how they have the potential to create or erode value against the six capitals.

Risk-based metrics (taken from our existing Risk-Breakdown Structure)

2.3.20 Risk measures are designed to help articulate the reduction of risk to UUW and customers through carrying out an investment. For example, not responding to a WINEP driver may result in decreased likelihood and consequence of a pollution incident, a health and safety incident, or the erosion of trust with customers.

Figure 4: Risk-based metrics



Source: Risk-based metrics used in the PR24 Value tool, showing how they have the potential to create or erode value against the six capitals.

Trust and reputation measures

2.3.21 The PR24 value tool includes three measures to help represent the impact that decisions will have on the level of trust and the reputation of the company in the eyes of customers, regulators and shareholders. Trust and reputation are notoriously difficult to value, but we rely on the trust and relationships - also described as social capital - with these stakeholders in order to continue to deliver our services. By including these measures in our decision making, we can weigh up the relative impacts of options and investments on trust and reputation. When aggregated up for the whole programme, these measures can be seen to represent social licence to operate.

2.3.22 We have valued trust and reputation by seeking proxy figures to ascribe a monetary value. These valuations have low robustness, but support decision makers by providing differentiation in magnitude and direction. We aim to continuously improve our approach to value-based decision making in the future, including how we represent trust and reputation.

Financial measures

2.3.23 We have included three financial measures to reflect the financial risk UUW would face if an investment isn't made. This could be an increased risk of fines, or opex and capex associated with incident response that would be incurred. Valuing the risk of fines is a proxy for environmental and social harm caused, and therefore we feel is important to include in our decision making.

Greenhouse gas emissions in decision making

- 2.3.24 In addition to the metrics above, greenhouse gas (or carbon) emissions is also a prominent metric in our decision making. Carbon is accounted for as a negative benefit (or disbenefit) in our cost benefit analysis, monetised through the UK Government's cost of carbon. For more information on how the management of GHG emissions and the goal for Net Zero 2050 has been embedded in our decision making, see Chapter 6, and the supplementary document *UUW37 – Our strategy to Net Zero 2050*. This metric is different to the climate regulation metric in the above diagram, which represents carbon sequestration by habitats.

Further details of our approach

Double counting and duplication

- 2.3.25 When assessing a broad range of metrics which have been adopted from a number of different sources, with valuation evidence which has different scopes, there is a risk of double counting the value of a scheme. To be prudent in our estimates, where this risk may exist we have opted to only use a single measure. One common example of this is between some service measures, and expected performance against the performance commitment, where we have used the performance commitment valuation. This may mean that in some cases the value is understated.

Discounting benefits

- 2.3.26 The Value Tool uses the discount factors in the Government's Green Book. The Green Book stipulates cost benefit assessments should use Social Time Preference Rate (STPR) to estimate the present value. For 30 year assessment periods, the rate is 3.50 per cent.

Time horizon (period of analysis)

- 2.3.27 The value tool supports a whole-life calculation of costs and benefits (including environmental benefits and dis-benefits) calculated over 30 years, considering Opex and Capex. It includes monetary valuation where possible alongside quantitative and qualitative evidence that supports a comprehensive assessment of costs and benefits.
- 2.3.28 The Value Tool aligns with the EA's requirements for a whole-life calculation of benefits. The PR24 value tool uses a 30-year NPV and CPIH adjusted prices, with 2023 as the base year.

Confidence and judgement

- 2.3.29 The Value Tool also considers two types of confidence assessment:
- Confidence assessments from a user input perspective – Users who complete the tool are asked to assign an overall confidence level for their assessment responses.
 - Confidence of valuations – a high, medium and low assessment depending on the robustness of the underlying valuation used.

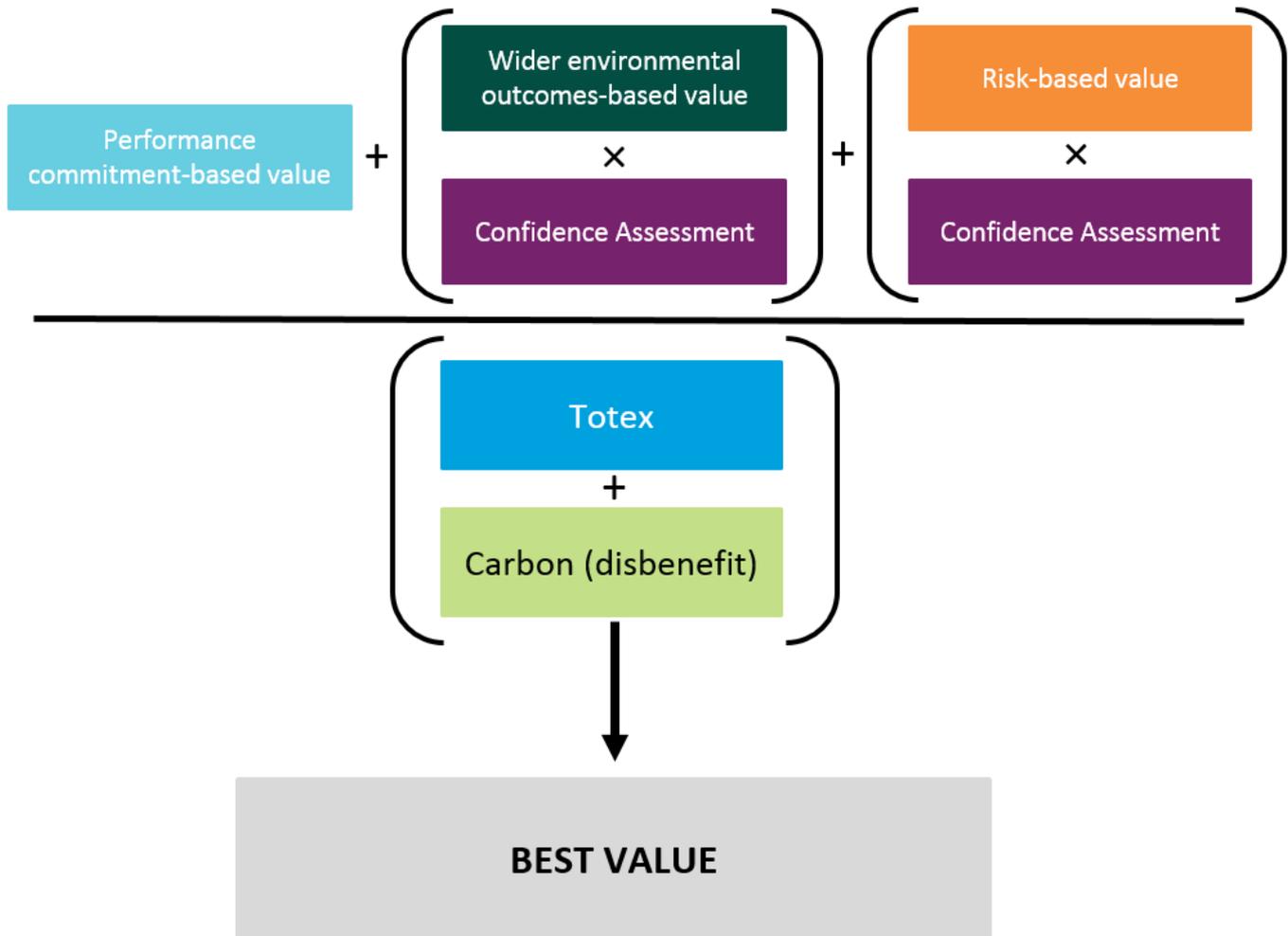
Enhancement case process

- 2.3.30 Due to the uncertainty associated with many of the measures in the PR24 Value Tool when forecasting into the future, we have implemented the following controls to minimise the risk of misrepresenting the values associated with a given investment. These are:
- For WINEP, the value assessments were carried out using a common suite of assumptions based on scheme types to ensure the consistency of inputs. A dedicated team of cross-functional experts was set up to lead this process.
 - For other enhancements (excluding WINEP), a series of value assessment workshops were held with subject matter experts and a central value assessment team to discuss and collectively agree levels of input for the tool. Having the subject matter experts helps with accuracy of estimates, and having the central team helps to eliminate bias and drive consistency of inputs.

Using the output of the Value Tool in optioneering decision making.

2.3.31 One of the benefits of the PR24 Value Tool is the ability to have cost, value and carbon all in a common unit (£'s), which can then be used to give a best value ratio. The ratio allows us to identify which of the options has the highest return on investment.

Figure 5: How the best value ratio is calculated in the PR24 Value Tool



Source: Diagram showing how the best value ratio is calculated in the PR24 value tool to support decision making

2.3.32 The above approach has been used for all of our WINEP and other enhancement expenditure, with the default option selected being the option with the highest best value ratio. This is then discussed at a cross-departmental decision making group to use the information from this process to inform the final decision.

Alignment with WRMP24 and DWMP24

2.3.33 Our approach to value assessment across the plan is consistent, with most focus on our assessment of enhancement options using our PR24 value tool.

Assessing value in our long-term planning

2.3.34 Our long term plans help guide our choices now to make sure we are delivering the best value we can, and ensuring a low regrets approach. We follow a process that ensures the way we assess value is proportionate to the decisions it informs, recognising the stage of the asset lifecycle.

- **WRMP** – We have completed a monetised value assessment of our plan using a value framework we co-designed with our Water Resources West partners. There is strong alignment between this value framework and the one we are using throughout our planning for PR24.

- **DWMP** – In this new area of strategic planning, we have completed a qualitative six capitals assessment to secure best value. An expert panel approach assigned scores to different intervention types to reflect the value created or eroded across the six capitals. This uses and aligns with the principles and concepts of our value framework without quantifying the economic value of the impacts.

2.3.35 Where schemes from these plans feed into our PR24 business plan, we have carried out value assessment during optioneering in the same way as our WINEP and Enhancement schemes (using the PR24 value tool), to ensure consistency in our understanding of the value a scheme delivers.

2.4 Delivery planning, costing and effective use of markets

2.4.1 Projects and activities of a similar type were grouped together into work types with required volumes and/or scope of work, enabling us to identify the end-to-end delivery needs of our full AMP8 programme in terms of:

- Benchmarked unit costs (using comparative data from our industry and the wider market);
- Resource requirements (in relation to materials, people and skills); and,
- Key delivery dates and seasonal variations (for example, reactive maintenance is typically highest during the summer and winter months when weather is more extreme, so planned maintenance can be scheduled at less busy times if appropriate).

2.4.2 This understanding was then used to determine the most appropriate and efficient delivery and procurement routes for each type of expenditure, including ‘make’ or ‘buy’ decisions, opportunities to use markets to deliver higher levels of efficiency, and partnership co-funding opportunities, as well as which projects and programmes of work may be suitable for delivery by direct procurement for customers (DPC).

2.4.3 Detailed cost estimates were developed, in line with the selected delivery routes, with efficiency assumptions built into the costs to reflect the savings we expect to achieve. For example:

- Where we expect to be able to use fewer chemicals by adopting an innovative solution, this is reflected in lower volumes within the cost estimate;
- Where we expect to be able to drive savings through bundling and batching, this is reflected by lower unit costs within the cost estimate;
- Where we are able to use a delivery pathway with second-tier contractors that have lower overheads, this is reflected by lower indirect costs within the cost estimate; and,
- Our lean target operating model leads to a lower cost to serve within the cost estimate.

Ensuring cost estimates are efficient

2.4.4 The Investment Programme Estimating System (IPES) is a bespoke parametric estimating tool that contains data from AMP3 to AMP7, to provide historic cost curves that are then inflated to the PR24 base date. Displaying these cost curves, alongside estimated data, IPES allows the capture, analysis and estimation of costs at a project and programme level.

2.4.5 We have then undertaken progressive refinement of our cost estimates with the help of external reviews and benchmarking analysis, and have been able to tighten our cost estimates further:

- **Market testing** was undertaken on a selection of projects representative of the scale and types of projects and solutions in the AMP8 programme, and the potential delivery routes, to ensure the costs established by our estimating team were appropriate. This confirmed that the contractor additions we have used are broadly representative of current market conditions.
- **Independent scrutiny panel** reviewed our WINEP submission and supported our overall costs, looking holistically at risk exposure, overheads and transformation costs.

- **Comparative benchmarking** was undertaken where adequate information is available to compare our costs against the industry, for example using DWMP data tables and APRs. This has allowed us to cross-validate the work we have done to drive efficiency into our costs over this iterative process. More information on the benchmarking we have done on the cost estimates of our enhancement programmes can be found in supplementary document(s) *UUW60-67*. As we discuss in our enhancement cases, where recent and comparable data was available, our benchmarking analysis found our submitted business plan costs align to similar comparator companies. For example, our costs for storm tank storage (grey), network storage (grey), network storage (green), coastal and river erosion, and phosphorus removal were all efficient relative to analysis of available data.
- **Deloitte** assured our top-down benchmarking activity and did not find any issues, saying:

“UUW’s other top-down benchmarking based on more recent data submitted by peer companies indicates that UUW PR24 costs are generally in line with expected costs.”

This demonstrates that top-down benchmarking information presented within the cost efficiency has been assured by Deloitte and as such, the findings can be considered robust.

- **Faithful and Gould (F&G)** undertook a bottom-up deep dive into the cost efficiency of our enhancement cases. This involved a close examination of our cost base relating to a sample of our plan, with comparisons made to similar activity carried out by third party companies across a variety of sectors. F&G noted the effectiveness of UUW’s cost estimation process and found that our proposed costs are in line with rates typically seen across the industry.

“Overall, UUW’s approach of utilising historic cost curves, market testing and obtaining specialist third party quotations demonstrates a sound proactive approach to cost planning ... In light of this Cost Assurance work and evidence of UUW’s responsive actions we have concluded that the data we have benchmarked is within a reasonable alignment with anticipated market rates.”

2.4.6 Delivering a programme of this size and complexity will mean we are operating with a higher level of overall risk, and our runway approach with multiple delivery pathways (as detailed in section 8.5.4 of *Chapter 8*) means we will be assuming different levels of risk across different programmes of work. For example, build-only delivery routes achieve lower contractor costs as a result of a lower level of risk transfer to the contractor, but this means a higher level of risk remains with us as we take on greater design definition responsibility. Working with Mott MacDonald³, we developed differing associated contractor add-ons (in-direct costs and risk percentages) to apply against the delivery routes to reflect this. Arup agreed with the logic of our approach to pricing risk, although it did raise some concerns that it is at the lower end of the acceptable range it would expect.

2.5 Ensuring we have a leading approach to value-based decision making

How does improving the way we assess value help us deliver more value for customers and stakeholders?

- 2.5.1 The outcome-based incentives have driven formality in measurement and reporting of non-financial information. However, it has become clear that for many of our stakeholders this progress is not delivering the value to the environment and society that is expected. More needs to be done in the sector on broadening the non-financial information used to make decisions, and on maturing the data and information that supports companies to deliver on the varying needs of stakeholders.
- 2.5.2 Six capitals thinking is one way to bring structure to many of the broader types of metrics to enhance our decision making. Through six capitals thinking we can make decisions that deliver more value for the environment, society and UUW by:
- Making better sense of our complex operating environment;

³ An independent management engineering and development consultancy organisation.

- Accounting for multiple stakeholders with different views;
- Improving our understanding of new and emerging risks;
- Better reflecting value in our decision making; and,
- Accounting for impacts and dependencies that are not in traditional/historic approaches but which are central to what we do for customers.

2.5.3 Through more clarity on risks and choices we will be better informed and able to pursue no or low regrets investment that deliver more for customers.

Customer views on six capitals and best value

2.5.4 Evolving our approach to decision making will drive better decisions, and sometimes different decisions to ones we may have made before. The aim is to use these different decisions to drive more value for customers, society and the environment. Therefore understanding customer views on this approach is important.

2.5.5 To help us understand customer views, we undertook research on six capitals thinking and value-based decision making with UUW Customers. This was a qualitative piece of research, designed to put customers in the shoes of decision makers, and understand which sets of information they felt were relevant or useful for their decisions. This is shown in Figure 6 below.

Figure 6: Key takeaways from the Six Capitals Customer Research Report⁴



Source: Extract from the third party report sharing customer views on value, decision making and the six capitals approach

2.5.6 Insights from this research has supported the development of our approach for PR24 and will inform our plans as we continue to mature our approach to the six capitals.

⁴ unitedutilities.com/corporate/about-us/our-future-plans/listening-to-our-customers/insight-and-research-library/#6Capitals

- 2.5.7 Outside of this specific piece of research, our programme of customer research has highlighted the trend of customers putting more emphasis on environmental and social impacts. We analysed the results of a broad range of our customer research to help identify themes that relate to social and environmental value.
- 2.5.8 The insights from this Social Value Insight Synthesis were:
- Customers prioritise UUW providing the brilliant basics over anything else;
 - Since the pandemic, company ethics have come to the fore;
 - The environment is a higher priority for customers in 2021 than in 2016, especially for Future Bill Payers. Customers ideally want targets, linked to business performance, and transparency around progress; and
 - Climate change is a growing concern. Customers assume it will only get worse but feel powerless to stop it. They don't easily relate water company services to preventing it. They more easily associate it with nature and biodiversity.
- 2.5.9 The wide range of topics important to customers, as well as making sure that water company basics are provided to a high standard at low cost, reinforces the need for a holistic decision making framework that allows us to consider environmental and social value alongside core performance.

Our track record of value-based decisions

- 2.5.10 UUW has a long legacy of using innovative accounting approaches to inform decision making. Below are some examples that have shaped our approach:
- **Natural capital accounting, natural capitals ODI and Catchment Systems Thinking (CaST)** – We have reported on the State of Natural Capital at a corporate level and a regional level, continuing to build our capability and establish baselines to measure ourselves against. In AMP7, we developed a bespoke Natural Capital ODI. This helped develop our capability in natural capital accounting, through developing tools and accounting approaches for relevant schemes. See supplementary document *UUW35 - Environment Strategy for more information*.
 - **Six Capitals account** – We have completed a full internal assessment of our six capitals assets and the impacts and dependencies we have as an organisation. This will form the baseline for us to measure ourselves against going forward.
 - **Integrated Reporting** – Our annual report has been an integrated report under the <IR> Framework since FY2015.
- 2.5.11 Value-based decision making is not a new approach in UUW as the workstreams/initiatives above have each played an important role in helping us to embed social and environmental value in our business planning. We expect this approach to continue developing as innovative accounting approaches develop, as we evolve our processes and systems, and as customer and stakeholder demands change.

Continual improvement in our value-based decision making

- 2.5.12 We are proud of how our business plan delivers more for the North West, using a robust value assessment, supported by a culture and leadership that puts value at the heart of decision making. There is an opportunity to further grow the value we create through continually improving our six capitals approach to value-based decision making. We are focussing our efforts in the following ways, to fully embed six capitals thinking across our organisation and maximise the potential benefits of this approach:

People and culture

- 2.5.13 Continuing to communicate internally and externally about six capitals thinking and how it is a crucial part of systems thinking. This includes our annual Six Capitals Corporate Accounts, sharing successes internally through case studies and decision maker guidance to support colleagues in using a broader set of information, including qualitative, quantitative and monetised information, for decision making.

Processes and methodologies

- 2.5.14 We use six capitals thinking in our PR24 Totex Build, at the centre of our Asset Lifecycle Management Framework and in our Risk Management Framework. We will build on this to support more decision making processes across the business with value-based decision making.
- 2.5.15 We have ambitions to keep broadening the metrics we use to help us understand value. We currently have robust valuations and approaches for Financial Capital, Manufactured Capital, Human and Natural Capital. As is the case for all organisations, many of the metrics we use to understand Social Capital are centred around risk, service, performance and reputation, but understanding wider social impacts of our activities is a high priority for maturing.

Systems and tools

- 2.5.16 We have developed a robust PR24 Value Tool to help us understand value, and we want to build on this success to systematise our value-based decision making. We are investing in an industry leading Asset Investment Planning solution, with a six capitals value framework to drive better decision making. This will make value-based decisions more formalised and more pervasive across our organisation, as well as make it easier for our colleagues to capture the relevant information.
- 2.5.17 In 2022 we completed our first internal Six Capitals Corporate Account. This account has helped us to set our strategic direction to address key impacts and dependencies, and identify opportunities for creating more value. We plan to continue this reporting to enable us to track our impacts over time.

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