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Outcome: We will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Company performance commitment reference: Working with others

Short definition

The number of projects we deliver in partnership with independent agencies, organisations or individuals.

Examples of partnership activities include:

- Direct financial support.
- Shared investigations.
- Feasibility studies.
- Feasibility modelling.
- Operational work.
- Capital work.
- In-kind support.

The performance commitment is a continuation of the existing performance commitment for the 2015-2020 period.

Measurement

The total number of projects delivered in partnership over the 2020-2025 period, reported annually.

- Projects are activities where we contribute to direct financial or in-kind support, capital or operational programmes, investigations, and feasibility studies or investigations.
- Partnerships are defined as projects where we engage in activity with independent third-party organisations, agencies or individuals for the delivery of a shared objective.

Mitigation / exceptions

The definition of projects excludes:

- Our own research and development activity.
- Business as usual delivery of capital projects by our own contractors.
- Repair and maintenance or other framework contracts.

Any other information relating to the performance commitment

The working with others performance commitment is held at appointee level and spans the Water Resources and Wastewater Network Plus price controls.

The performance commitment embodies our big goal relating to bills; we will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

The working with others performance commitment is an existing measure for the current 2015-2020 period, and it will be continued for the 2020-2025 period. The performance commitment has a proposed outperformance payment, to be recognised at the end of the 2020-2025 period.

Some partnerships may be multi-year projects and others may be delivered within the year. A pragmatic approach is needed when considering when to claim a partnership as complete. For example, some partnership projects, such as jointly funded flood schemes, will deliver clear benefits as soon as they are built. Others, such as those delivering invasive species management or biodiversity benefits may take longer to achieve measurable benefits. Latter projects may be claimed when that benefits have been or will be delivered.

Partnerships may be established to test or trial a concept or technique and even if the technique is unsuccessful, the partnership can still count towards the performance commitment. For example, testing a new technique for managing invasive species may not work, but that does not mean that the partnership has failed.

In order to guarantee the range and quality of the partnerships delivered, the partnerships will only be considered to contribute to the performance commitment once agreed by the Yorkshire Forum for Water Customers. Performance will be measured and reported annually.

Full definition of the performance commitment

The number of projects we deliver in partnership with independent agencies, organisations or individuals.

What counts as an intervention/solution?

Project activities are defined as:

- Joint delivery of a project.
- Investigations and feasibility studies.
- Contributions in kind (for example staff time, resources such as models, expertise or equipment, waived fees).
- Financial contributions to joint schemes.

Project activities do not include:

- Our own research and development activity.
- Business as usual delivery of capital projects by our own contractors.
- Repair and maintenance or other framework contracts.

We use a broad definition of 'benefit' for project outcomes, which include both monetary and non-monetary benefits. For example, where a project:

- enables delivery of a much larger/wider scheme than if we act in isolation;
- helps us achieve our business objectives or strategic priorities;
- saves money, including avoided operational costs;
- provides additional benefits such as recreational or biodiversity benefits.
- enables access to specialist technical expertise, such as local charities/firms/volunteers;
- removes surface water from our network;
- with our involvement would leverage additional funding (for example by demonstrating match funding for bids); and
- improves or protects our reputation.

Areas of activities considered for project partnerships

Due to the nature of partnership schemes, it is not possible to identify an exhaustive list of activities that may contribute to the performance commitment. The following covers the most likely areas where partnership schemes occur, although is not an exclusive list:

- flooding alleviation and protection schemes;
- biodiversity and habitat improvement schemes;
- water quality, for example catchment restoration, working with farmers on pesticide management projects;
- river quality, for example river restoration, invasive species projects, fish passes, pollution mitigation;
- bathing water quality;
- customer participation projects;
- activities with our customers and other third parties, for example community fats, oils and grease collection and re-use schemes;
- local management arrangements, for example where a local group manages a site or asset on our behalf, such as a "friends of" group managing a pond or nature reserve on our land; and
- activities with partner organisations on communications and messaging, for example sharing good practice on tenancy and land management with the National Trust.

Some partnerships take the form of an umbrella structure to co-ordinate and align the delivery of a number of discrete projects over several years. It is considered acceptable to claim individual projects that are part of a broader partnership for this

performance commitment as long as they are self-contained projects with their own distinct goals and benefits.

Identifying potential partnership projects

Opportunities to deliver schemes or projects in partnership are identified through a number of different sources. Some partnerships will be identified as part of the 2019 Price Review business plan as defined schemes (for example, flood risk schemes) or as defined outcomes (for example catchment restoration). Other partnership opportunities are identified through business as usual processes, for example, the identification and delivery of jointly funded flood related opportunities through the work of the Yorkshire Water Flood Steering Group.

Eligibility verification

Once a partnership project has been identified, acceptance of the project will be determined through the appropriate internal governance process. The scheme must meet the eligibility criteria, and include full details of:

- partners involved;
- total costs of the scheme;
- contribution required from us (financial or otherwise);
- timescales for completion;
- criteria for determining a successful outcome; and
- proposed project steering group (including third party members) and project governance.

Delivery and completion of partnership projects

Once a project is agreed, we can carry out the programme of work. Once work is completed, we will agree with all parties that it is finished. Projects completed before the 31 March will be reported in that year.

Some partnerships may be multi-year projects and others may be delivered within the financial year. A pragmatic approach is needed when considering when to claim a partnership as complete. For example, some partnership projects, such as jointly funded flood schemes, will deliver clear benefits as soon as they are built. Others, such as those delivering invasive species management or biodiversity benefits may take longer to achieve measurable benefits. These latter projects may be claimed when the project team agrees that benefits have been or will be delivered.

Partnerships may be established to test or trial a concept or technique and even if the technique is unsuccessful, the partnership can still be claimed. For example, testing a new technique for managing invasive species may not work but that does not mean that the partnership has failed.

In order to guarantee the range and quality of the partnerships delivered, the partnerships will only be considered to contribute to the performance commitment once agreed by the Yorkshire Forum for Water Customers.

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Land conserved and enhanced

Short definition

The area of land conserved and enhanced in the Yorkshire Water region through land management and biodiversity focussed projects and investments on our land, and land not owned by Yorkshire Water.

The performance commitment includes projects and investments relating to protected sites, such as Sites of Special Scientific Interest (SSSI's) Local Wildlife Sites (LWS) or equivalent, (e.g. Sites of Importance for Nature Conservation). It also includes projects that deliver a conservation or enhancement benefit to biodiversity on non-protected sites, that offer a measurable benefit to regional biodiversity in line with the government's Biodiversity 2020 strategy¹.

The performance commitment covers our legal obligations and delivers additional environmental benefits to meet the needs and wishes of our customers and stakeholders.

Measurement

- Land enhanced and conserved is measured in Hectares (Ha). Measurement will be rounded to the nearest Ha.
- Land enhanced is defined in terms of the land area where enhancement projects have taken place to increase the quality, size or connectivity of natural sites, thereby increasing the diversity, functionality and resilience of ecosystems². Hectarage will be defined and agreed through reference to functional site boundaries (for example, SSSI or LWS boundaries) and required work (as identified through regulatory or stakeholder agreement).
- Land conserved is defined as the land area where action has been undertaken to safeguard loss of biodiversity and ecosystem services¹. Hectarage will be defined and agreed through reference to functional site boundaries (for example, SSSI or LWS boundaries) and required work (as identified through regulatory or stakeholder agreement).
- Measurement will be taken annually throughout 2020-2025 on 31 March, and will be summed on 31 March 2025 to provide a five-year total. This performance commitment has a five-year target. Because sufficient time is needed to allow land conservation and enhancement projects to mature enough to ensure a measurable benefit.

¹ Biodiversity 2020: A strategy for England's wildlife and ecosystem services, DEFRA, 2011

² Lawton, J.H et al. (2010) Making Space for Nature: a review of England's wildlife sites and ecological networks. Report to Defra.

Mitigation / exceptions

- Land will not be double claimed. For example, if there is the need for both a SSSI restoration scheme and a woodland planting scheme on the same area of land, the relevant number of Ha will only be counted once.
- The performance commitment aligns with, but is separate to, the Integrated Catchment Management performance commitment. The Land Enhanced performance commitment is focused on direct improvements to biodiversity. Land area will be claimed when a measure is signed off as implemented and completed through the appropriate process. The Integrated Catchment Management performance commitment measures catchments where co-created multi-stakeholder catchment plans are produced and implemented to maintain and enhance the catchment's natural capital for our customers' benefit. The latter may produce a positive outcome for biodiversity, as well as benefits to other aspects such as water quality and recreation, however the performance commitment focusses on the process and way of working.
- In some cases, the full results of investment will not be apparent for decades. For example, new woodland planting or moorland restoration. The area of land will be claimed upon regulatory sign off from the Environment Agency and Natural England. Sign-off will confirm that we have put in place the required works and ongoing management for that benefit to ensue later.

Any other information relating to the performance commitment

This performance commitment is held at appointee level and spans the Water Resources and Wastewater Network Plus price controls.

The performance commitment embodies our big goal related to the environment; we will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

The Land Conserved and Enhanced performance commitment is an existing measure for the current 2015-2020 period, and it will be updated for the 2020-2025 period. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised at the end of the 2020-2025 period. Performance will be measured and reported annually.

The definition has been modified to align the process for claiming land conserved and enhanced with those of other similar performance commitments, such as River Length Improved.

Full definition of the performance commitment

The area of land conserved and enhanced in the Yorkshire Water region through land management and biodiversity focussed projects and investments on our land, and land not owned by Yorkshire Water.

The performance commitment includes projects and investments relating to protected sites, such as Sites of Special Scientific Interest (SSSI's) Local Wildlife

Sites or equivalent, (e.g. Sites of Importance for Nature Conservation). It also includes projects that deliver a conservation or enhancement benefit to biodiversity on non-protected sites, that offer a measurable benefit to regional biodiversity in line with the government's Biodiversity 2020 strategy³.

The performance commitment covers our legal obligations and delivers additional environmental benefits to meet the needs and wishes of our customers and stakeholders.

Measurement will be taken annually throughout 2020-2025 on 31 March and will be summed on 31 March 2025 to provide a five-year total. The performance commitment has a five-year target as sufficient time is needed to allow land conservation and enhancement projects to mature enough to ensure a measurable benefit.

The performance commitment encompasses several statutory programmes:

SSSI programme

We own over 11,000 ha of land designated as a SSSI. We have a legal duty to manage this land in ways that align with the site-specific conservation objectives of the various sites. Investment in this area is driven through the Water Industry National Environment Programme (WINEP) and regulated by the Environment Agency and Natural England.

Legally, the need for investment is underpinned by the requirements of the Water Industry Act, Wildlife and Countryside Act 1981 (as amended by the CRow Act 2000), and Natural Environment and Rural Communities Act 2006 (NERC Act 2006), which set out the duties for water companies deemed to be Section 28G bodies.

Most of the SSSI's fall within a Natura 2000 site (South Pennine Moors Special Area of Conservation, South Pennine Moors Phase 1 Special Protection Area and South Pennine Moors Phase 2 Special Protection Area) and as such, the driver for these is the Habitats and Wild Bird Directive. The 2020-2025 programme will focus on meeting or maintaining the conservation objectives of the Natura 2000 sites, developed by NE and informed by the Common Standards Monitoring Guidance (CSMG).

Local Wildlife Sites or similar, programme

The NERC Act places a duty on every public authority, including water companies, to have regard to conserving biodiversity. The NERC Act aims to restore or enhance a species population or habitat. This reflects the government's ambition for the 'prevention of further human-induced extinctions of known threatened species'.

Through the WINEP programme, a measure has been agreed with regulators and customers to implement the NERC Act through conservation management on our

³ Biodiversity 2020: A strategy for England's wildlife and ecosystem services, DEFRA, 2011

land that is non-SSSI but already identified as being good for nature. This accords with the Lawton Principles⁴ and government strategy as set out in Biodiversity 2020, to maximise benefit by focusing on improving and expanding good sites.

We have over 50 sites on our land recognised as Local Wildlife Sites (or equivalent), where we have never undertaken formal habitat management targeted specifically at biodiversity. During the 2020-2025 we will complete a prioritisation exercise with Natural England, to identify if any of our land is in a state that could contribute to regional biodiversity. In line with the recommendations of Biodiversity 2020, we will focus our management programme on sites already recognised as providing good quality habitat to ensure outputs are sustainable and realistic.

Identification of specific sites will be done in collaboration with the Environment Agency and Natural England, local councils and the company's stakeholder Biodiversity Advisory Panel. Our goal is to prevent loss of biodiversity on these sites through lack of management, and where appropriate undertake management to conserve and enhance Section 41 habitats as outlined in the NERC Act.

The term Local Wildlife Sites will be used to refer to land being managed under this programme, whether it is an actual Local Wildlife Site, a similar site named under a different council system (e.g. a Site of Importance for Nature Conservation) or a site identified by Natural England mapping.

Other schemes benefiting biodiversity

In addition to the SSSI and Local Wildlife Site programme, we will undertake a number of other measures that will result in land being conserved and enhanced. These may be as a result of us delivering best practice land management schemes, that carry greater benefits for our customers, or as a result of the WINEP programme through NERC Act drivers.

'Beyond Nature' land management

In collaboration with external stakeholders and in agreement with Natural England, we have developed the 'Beyond Nature' vision. This is used to develop site-specific farm management plans with agricultural tenants. The aim is to manage land to benefit multiple priorities which include biodiversity (with the defined aim of ensuring the environment and biodiversity will be conserved and enhanced beyond compliance).

⁴ Lawton, J.H et al (2010) Making Space for Nature: a review of England's wildlife sites and ecological networks. Report to Defra.

Process

Process Summary

In general, across all scheme types, the following process is in place for claiming the area of land conserved and enhanced:

1. Define the area of land to be conserved and enhanced and the required actions as set out by the relevant driver.
2. Deliver the investment scheme.
3. Confirm the scheme has delivered the intended output, or outcome as required.
4. Achieve regulatory sign off against beneficial completion, as set out within the relevant driver process below.
5. Claim the area of land against this performance commitment.

Process – SSSI programme

1. Defining the area of land to be conserved and enhanced and the required actions:

As part of the WINEP programme, we will work Natural England and the Environment Agency to agree the scope of works and success criteria for SSSI investment during the 2020-2025 period.

The condition designations of the SSSI are as follows:

- **Favourable:** Special habitats or features are in a healthy state and are being conserved for the future by appropriate management.
- **Unfavourable-recovering:** All necessary management measures are in place to address the reasons for unfavourable condition. If these measures are sustained, the site will recover over time.
- **Unfavourable, no change or unfavourable, declining:** Sites that are not adequately conserved or are being lost. If appropriate management measures are not put in place and damaging impacts not addressed, these sites will never reach a favourable or recovering condition.
- **Part destroyed or destroyed:** A very small number of sites where there has been fundamental and lasting damage and the special features have been lost permanently.

Our statutory obligation is to ensure at least 95% of all SSSI sites are in 'unfavourable recovering' or better status by 2025. Activities in 2020-2025 period will be planned in consultation with Natural England conservation officers, tenant farmers and our Raw Water Quality team.

We will claim SSSI sites as contributing to Ha of land enhanced or conserved that:

- Are in 'unfavourable recovering' or 'better' status, and where we have completed required actions identified by Natural England through the WINEP programme, or by us through review of Site Improvement Plans, Favourable Condition Table targets, and the Natural England remedies and threats database.
- Are in 'unfavourable recovering' or 'better' status, where Natural England has identified no required actions.

2. Confirming delivery against the intended output or outcome:

Project level oversight will be provided by our capital scheme project management and audit systems. This will ensure that the project is delivered as efficiently as possible and the output reflects the scope and aims of the project.

Strategic oversight is provided through the regulated nature of this driver, with outcomes being set and defined by Natural England. An appropriate level of evidence collection will be set to allow Natural England to assess the outcomes of the investment against the specific needs of the site.

3. Achieving regulatory sign off:

Work arising from our SSSI programme, as a result of WINEP process, will receive formal review and sign off against the success criteria set by the Environment Agency and Natural England at the end of 2025. Upon sign off of the WINEP measure delivery, the area of land will be claimed as contributing to the Ha of land conserved and enhanced.

Process – Local Wildlife Sites and similar

1. Defining the area of land to be conserved and enhanced and the required actions:

Through the WINEP process, we have agreed programme target values in Ha with the Environment Agency and Natural England, which we are obligated to deliver. Identification of specific sites will be done in collaboration with the Environment Agency and Natural England, and our own stakeholder Biodiversity Advisory Panel.

At a site-specific level, actions will be identified through review of the site citation, together with consultation with the relevant local authority responsible for designation of the site. Where Natural England has deemed land of high value for nature, we will determine specific actions against outcomes agreed with Natural England.

The area of land to be claimed will be agreed with Natural England, the Environment Agency or relevant local council, as applicable for the site. The area will default to the Local Wildlife Site boundary unless there are good ecological reasons agreed with the relevant stakeholder as to why a smaller or larger value will be used.

2. Confirming delivery against the intended output or outcome:

We will provide site-specific evidence of outputs to Natural England and the Environment Agency. This may take the form of ecology reports, photographic evidence and design/as built drawings depending on the type and scale of intervention. We will facilitate access should either group wish to visit to audit and ground truth the work.

3. Achieving regulatory sign off:

Work arising from our Local Wildlife Site programme is driven through the WINEP process, and as such will receive formal review and sign off against success criteria by the Environment Agency and Natural England at the end of the 2020-2025 period. Upon sign off of the WINEP measure delivery, the area of land will be claimed.

Process – Other schemes benefiting biodiversity

1. Defining the area of land to be conserved and enhanced and the required actions:

With respect to schemes directly targeting biodiversity conservation and enhancement, we have agreed programme level target values in Ha with the Environment Agency and Natural England through the WINEP process, and we are obliged to deliver these.

For non-WINEP schemes that deliver conservation or enhancement benefits that may arise during the 2020-2025 period, we will submit to the Environment Agency and Natural England, a scoping report detailing the reason for the scheme. It will include details of intended outcomes, the area of land on which it will occur, how the scheme will deliver a benefit to conserving or enhancing biodiversity, what actions will be undertaken, and how the benefit will be sustained. Should the Environment Agency and Natural England approve the submission, the area will be deemed to fall under this performance commitment.

2. Confirming delivery against the intended output or outcome:

We will provide site-specific evidence of outputs to Natural England and the Environment Agency. This may take the form of ecology reports, photographic evidence and design/as built drawings depending upon the type and scale of intervention. We will facilitate access should either group wish to visit to audit and ground truth the work.

3. Achieving regulatory sign off:

- For schemes deriving from the WINEP programme; upon sign off of the WINEP measure delivery, the area of land will be claimed.

- For non-WINEP schemes; the area of land will be claimed upon written confirmation from the Environment Agency and Natural England that the scheme has delivered the outputs specified in our scoping report.

Beyond Nature land management

1. Defining the area of land to be conserved and enhanced and the required actions:

For the land that falls under 'Beyond Nature' land management tenancies. Land will be claimed if there is a signed agreement by the tenant to manage the land in accordance with the principles set out in our 'Beyond Nature' vision. The area of land will be defined as the hectareage falling under the agreement and leased to the tenant based on land registry data.

The 'Beyond Nature' principles have been agreed with Natural England to deliver a meaningful benefit in conserving and enhancing our agricultural estate.

2. Confirming delivery against the intended output or outcome:

Assurance of tenant adherence to the 'Beyond Nature' principles will fall under our standard farm and recreational tenant audit and assurance process. This is routinely completed as part of our ISO 14001 accreditation.

We will facilitate access should representatives from Natural England or the Yorkshire Forum for Water Customers Environment Sub Group wish to visit to audit and ground truth the work.

3. Achieving sign off:

The area of land will be claimed in the final year of 2020-2025 period, providing at least one tenant audit has taken place to validate implementation of the management principles.

Assurance

We will report on this measure annually within our published Annual Report, such that we can be held to account for our performance. Measurement will be taken annually throughout 2020-2025 on 31 March and will be summed on 31 March 2025 to provide a five-year total. The performance commitment target is a five-year target, as sufficient time is needed to allow land conservation and enhancement projects to mature enough to ensure a measurable benefit will be achieved.

WINEP driven measures are overseen by the Environment Agency and Natural England, and we depend on their sign off to achieve completion at the end of the 2020-2025 period. If we are unable to deliver a requirement of the WINEP programme, the Ha will be considered as an underperformance against the performance commitment target.

Assumptions:

- Where there is no defined hectarage for a project, the area of land claimed will be based on professional judgement of the functional ecosystems benefitting from the intervention and agreed with Natural England and the Environment Agency as appropriate. For example, an otter conservation project involving the installation of an artificial holt, would likely benefit the home range of the otter, not the dimensions of the holt.
- Natural England is the body responsible for determining the condition of the SSSI's and if it does not have resource to complete surveys, in an absence of further information, we will assume the condition stated at the start of 2020 will be held for the remainder of the 2020-2025 period.
- Where there are amendments to Natural England's Remedies Database, due to a change in designation, we will assume the designation at the start of 2020 is applicable for the purposes of the performance commitment.

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Integrated catchment management

Short definition

The percentage of catchments in which Yorkshire Water operates, where, working with stakeholders, we implement the Natural Capital Operator approach in practice.

The aim of the performance commitment is to bring together the various stakeholders and the strands of catchment management activity they each deliver across land in the Yorkshire region.

Working together, we will ensure a comprehensive and joined-up plan for the sustainable maintenance of natural capital and associated social capital within our catchments, to protect our customers' interests and to allow us to pilot a Natural Capital Operator model in practice.

Measurement

The key measurements for the performance commitment are:

- Percentage of catchments, measured to 1 decimal place, where we have an operational presence and where a Natural Capital Operator based management plan is formally developed and agreed, and relevant actions implemented.
- Catchments are defined as the Water Framework Directive Operational Catchments as designated by the Environment Agency. Catchments will include land owned by us, and land owned by others.
- For each catchment, an independently reviewed Natural Capital Operator based management plan will be produced, with specific actions that must be achieved and evidenced before the end of 2020-2025 period. Catchment plans will be developed, consulted upon, and agreed with stakeholders including Natural England, the Environment Agency, the relevant CaBA partnership⁵ Local Nature Partnership⁶, and the Yorkshire Water Biodiversity Advisory Panel⁷.
- The Natural Capital Operator plans will be considered to contribute to the performance commitment once signed off by the Yorkshire Forum for Water Customers Environment sub group.

⁵ <https://www.catchmentbasedapproach.org/>

⁶ <https://www.gov.uk/government/publications/map-of-local-nature-partnerships>

⁷ An existing advisory panel of external stakeholders from across the region such as Wildlife and Rivers Trusts.

Mitigation / exceptions

- The catchments where we have an operational presence excludes catchments where we may provide drinking water to customers but have no or limited above ground infrastructure. It includes the 39 Operational Catchments present across Yorkshire.
- To ensure we can deliver on this performance commitment, we will focus our evidence and planning on five key aspects of the six capitals:
 - water (quality and quantity);
 - flood management;
 - biodiversity;
 - carbon sequestration; and
 - recreation and wellbeing.
- We will work to the best available data and capital assessment techniques, with some attributes being quantified and others having qualitative assessment.
- We will be open and transparent with stakeholders but can only actively work with groups who wish to participate.
- The primary focus of the work will be on our landholdings and operational needs. We can only collect evidence where the power to do so is within our control. For example, we can collect water quality data from across a catchment through stream and river sampling but may only be able to collect carbon sequestration data from remote imagery, if external site access is not permitted.

Any other information relating to the performance commitment

The integrated catchment management performance commitment is held at appointee level and spans the Water Resources and Wastewater Network Plus price controls.

The performance commitment is new for the 2020-2025 period with a proposed non-financial incentive. Performance will be measured and reported at the end of the 2020-2025 period. Progress towards the target will be reported annually.

The performance commitment embodies our big goal related to the environment; we will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Multi-capital assessments have been conducted at some of our sites (see yorkshirewater.com/capitals), and for this performance commitment we will expand it to catchment scale. Defra's recent 25-year environment plan emphasised the role of natural capital approaches in managing the natural environment, as well as the importance of sustainably realising economic and social benefits from the UK's ecosystems.

Guided by the work of the Natural Capital Coalition, Forum for the Future, the International Integrated Reporting Council and the Crown Estate, we have defined a six capitals approach, which is embedded into our decision-making processes and

used to develop standardised, repeatable processes and tools.

The performance commitment supports our aim to be a recognised leader of environmental management for the Yorkshire region. By developing integrated catchment plans, working with multiple stakeholders we will deliver a wide range of benefits through the six capitals. The intention is to mitigate risk to water quality and protect the environment for current and future generations. The performance commitment will develop integrated catchment plans that seek to protect and improve:

- current water quality situation and trends;
- flow attenuation and natural flood management;
- biodiversity;
- recreational opportunities and health and wellbeing for people;
- social value for customers and stakeholders;
- carbon sequestration; and
- healthy catchments to resist pressures of changing climate.

The approach allows us to be one of the national leaders delivering a catchment based Natural Capital Operator model and to work with others to achieve long-term solutions at the lowest cost to our customers, while maximising wider benefits for society.

Full definition of the performance commitment

The percentage of catchments in which Yorkshire Water operates, where, working with stakeholders, we implement the Natural Capital Operator approach in practice.

The aim of the performance commitment is to bring together the various stakeholders and the strands of catchment management activity they each deliver across land in the Yorkshire region.

Working together, we will ensure a comprehensive and joined-up plan for the sustainable maintenance of natural capital and associated social capital within our catchments. Our aim is to protect our customers' interests and to allow us to pilot a Natural Capital Operator model in practice. This innovative, partnership approach will allow us to deliver more efficient and resilient services for our customers, and other benefits for society.

We will primarily focus on the natural capital and associated social capital elements of the six capitals methodology, as the most important areas relating to our operations and investments within our source catchments. This will largely be delivered through work related to:

- water quality and quantity;
- flood management;
- biodiversity;
- carbon sequestration; and

- recreation and wellbeing.

A catchment specific stakeholder steering group will be set up to deliver a catchment management plan, which will demonstrate:

- Evidence of current, past and anticipated future performance.
- Stakeholder needs from the natural capital and the ecosystem services, with a focus on aspects most relevant to the water consumer.
- Required actions, investments and future management plans needed to restore and protect the natural capital.

The stakeholder group will work to implement the Natural Capital Operator model and agree the sustainable use and management of the natural assets in the catchment. To inform this, relevant stocks and flows of the six capitals will be mapped and quantified. These will support efficient management and investment decisions to improve areas important to the water customer:

- water quality and quantity;
- flood management;
- biodiversity;
- carbon sequestration; and
- recreation and wellbeing.

We will agree any actions required to implement the plan with the stakeholder steering group, and implementation will only be claimed once sign off by the Yorkshire Forum for Water Customers' Environment sub group, is received. We will also share learning from our approach with stakeholders, such as the Department for Rural Affairs and the Environment (Defra), the Environment Agency and the Natural Capital Committee.

Key terms

Catchments:

The Water Framework Directive Operational Catchment as defined by the Environment Agency through the River Basin Management Plan process. For the purpose of this programme, catchments are constrained to the Operational Catchments in which Yorkshire Water operates and has a dominant presence. It includes the 39 Operational Catchments present across Yorkshire (Within the Derwent Humber (4), Hull and East Riding (6), Esk and Coast (3), Swale Ure Nidd and Ouse (10), Wharfe & Lower Ouse (4), Aire and Calder (7) and Don and Rother (5)).

Catchment management:

Catchment management is the cost-effective practical delivery of on the ground interventions, resulting in multiple benefits including improvements to water quality, enhanced biodiversity, reduced flood risk, resilience to climate change and greater community engagement with their local river⁸. For example, activities such as

⁸ <https://www.catchmentbasedapproach.org/about>

restoring a healthy functioning area of sphagnum bog has been shown to have a positive impact on water quality, biodiversity and carbon storage.

Six capitals:

The six capitals refer to natural, social, human, manufactured, intellectual and financial capitals, as set out by the International Integrated Reporting Council and being applied and embedded by Yorkshire Water⁹ and aligns with the international best practice Natural and Social Capital Protocols.

Natural capital:

The world's stock of natural resources, including air, rivers, forests, soil and all living things. These resources combine to provide ecosystem services. This is the flow of benefits provided by natural capital which are valued by people, for example food production and climate regulation.

Natural Capital Operator Model:

A model where a Systems Operator¹⁰ provides a central oversight and management function, to both ensure optimal and sustainable use and management of natural capital, and to coordinate investment and management decisions. This will be implemented at a Catchment Systems Operator scale¹¹.

Ecosystem services:

These are the benefits we gain from the natural environment by properly functioning ecosystems. Examples of ecosystem services include: food and water, regulation of floods, soil erosion and disease outbreaks, and non-material benefits such as recreational and spiritual benefits in natural areas. The term 'services' is used to encompass the tangible and intangible benefits that we obtain from ecosystems, which are sometimes separated into 'goods' and 'services'¹².

Plans:

The outputs of a plan include maps and documented, multi-stakeholder management plans for the catchments. These inform future investment plans and identify the problem and opportunity areas to target investment. They will incorporate specific action points relevant to the 2020-2025 period that must be undertaken and evidenced to demonstrate the plan has been implemented.

Proposed outputs for each catchment:

- Multi-stakeholder catchment management plan to sustainably manage and grow the benefits our customers take from the natural capital aspects identified. This will incorporate an investment plan for the catchment, which we will use to inform our future investment proposals or justify work with other parties to deliver similar or greater outcomes at a reduced cost.

⁹ <https://www.yorkshirewater.com/capitals>

¹⁰ Ofwat, 2015, Water2020: Regulatory framework for wholesale markets and the 2019 price review, Appendix 5: System operation

¹¹ Helm, D, 2015, Catchment Management, Abstraction and Flooding: the case for a catchment system operator and coordinated competition, Oxford University, Oxford

¹² UK National Ecosystems Assessment

- It will incorporate a list of specific actions to be implemented during the 2020-2025 period and a list of remaining actions for future reporting periods.
- Engagement strategy and communications plan.
- Interactive, publicly accessible geographic information system (GIS) map, detailing evidence collated, relevant six capitals stocks, internal and external stakeholder pressures, and investment areas.
- Report on the outcomes for our customers, for example, increased value identified through the six capitals, number of stakeholder engagement interactions, number of enhancements as a result of a program and area of land with schemes (hectare or percentage improvement).

Implementation Process

Identifying and defining the catchment

Catchments where six capitals management planning will take place, will be identified through consultation against the following criteria:

- We will have an operational presence within the catchment (for example, water abstraction or wastewater processing).
- There will be a clear benefit for our customers by implementing this process.
- We will have a realistic chance to gather the required information to drive change (for example, the catchment will not be so large as to make this impractical).

The relevant Water Framework Directive operational catchment will be used as the spatial boundary for the plan. If plans are developed for adjacent operational catchments independently, they will be considered as two catchment plans. If plans for a single operational catchment include a section of an adjacent operational catchment, then it will be considered a single catchment plan. For example, if Catchment A lies upstream of Catchment B and we have a river abstraction at the upstream end of Catchment B, we will focus on water quality improvements in Catchment A and the upper end of Catchment B under a single plan).

Stakeholder engagement

We will identify external stakeholders for each catchment, and will set up catchment steering groups, with members including, but not limited to representatives from our regulators (the Environment Agency and Natural England), Catchment based approach Catchment Partnerships, Local Nature Partnerships, relevant major land owners in the catchment and/or their representative bodies such as the National Farmers Union, and representation from the Yorkshire Water Biodiversity Advisory Panel.

The role of the group will be to identify and prioritise existing data and needs within each catchment to feed into the next stage of the process. During this stage, an engagement strategy and communications plan will be produced for each catchment.

Data collation

Among other variables, we will map land use, land ownership and stakeholder interests and activities across the catchment. This may involve new approaches to mapping such as drone based imaging, and environmental DNA sampling. Evidence will be documented using a publicly viewable Geographic Information System (GIS). We will also investigate the use of 'citizen science' to collect data before and during the 2020-2025 period. This method aims to empower tenants and other catchment users to collect and report on data in the field. Evidence gathered will include detail on the existing position of, and opportunities within the following:

- land use;
- habitat type;
- ownership;
- Water Framework Directive (WFD) status of waterbodies;
- water quality;
- carbon storage;
- NFM opportunities;
- water use and users; and
- other required evidence as agreed with the catchment steering group.

Data will be used to inform the modelling and development of catchment specific management plans, and also provide a baseline dataset against which to evaluate the future impact of the implementation of the management plans.

Natural capital modelling

Focusing primarily on natural capital, we will, as far as practicable, develop and use a six capitals model to quantify and map the stocks and flows of the capitals across the catchments, mapping these qualitatively where quantification is not possible. By mapping impacts expressed in monetary terms, proposed catchment management approaches can be easily compared to inform better decision-making and investment choices. Spatial mapping also allows the integration of more sophisticated analysis of the hydrological, environmental and social consequences of different management approaches.

Quantification and monetisation will be achieved using recognised metrics such as those recommended in the Natural Capital Protocol, and where necessary, new metrics developed by us to express the costs and benefits of capital stocks and flows in the catchments.

Throughout the 2020-2025 period, we will invite comment from expert 'sustainable accounting' groups of which we are a member, including the Natural Capital Coalition, Accounting for Sustainability (A4S), and the CISL Natural Capital Impact Group. We will also use the (currently draft) ISO14007 and ISO14008 guidelines for determining environmental costs and benefits and monetising environmental aspects and impacts as a reference point against which to compare our approach.

Co-creation of catchment management plans

In collaboration with the catchment specific steering group, we will jointly create a management plan to ensure the sustainable management of natural capital within the catchment. The management plan will contain specific action points relating to required work in the 2020-2025 period, as well as residual actions required in the longer term. Action points must be achieved and evidenced before we can agree that they have been implemented.

Alongside the catchment specific steering group, we will develop a range of investment scenarios that could meet the aims required through our regulatory drivers as well as the catchment needs identified by each group. We will model and map actual and potential flows of the capitals against the investment profile associated with each scenario. Our outcomes will inform intervention recommendations and investment decisions, and we will publicly report these.

Defining success

We will develop a procedure to implement the management plans to ensure transparency and demonstrate our commitment in the identified areas. This procedure, together with the evidence of achievement against catchment management plan action points, will be presented to the Yorkshire Forum for Water Customers' Environment sub group.

We will claim a successful outcome for a catchment when the deliverables have been completed and agreed by the Yorkshire Forum for Water Customers' Environment sub group.

We will report publicly on outcomes for our customers, for example:

- increased value identified through the six capitals;
- number of stakeholder engagement interactions; and
- number of enhancements as a result of a program and area of land with schemes (noted either in hectares or as a percentage improvement).

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Length of river improved

Short definition

The number of kilometres of river improved in the Yorkshire Water region.

Scheme improvements can occur on land owned by us and land not owned by Yorkshire Water. Assets and land owned by us can relate to wastewater and clean water investment schemes.

All relevant Water Industry National Environment Programme (WINEP) obligations will be included in the measurement of the performance commitment.

For clean water improvements, additional schemes will be agreed in advance with the Yorkshire Forum for Water Customers.

Measurement

The river length improved performance commitment is held at appointee level and spans the Water Resources and Wastewater Networks Plus price controls.

The following sections set out the measurement criteria for each of the water and wastewater elements.

Wastewater

- River length is measured in kilometres (km), to two decimal places.
- River water quality improvement is defined as a positive change in water quality against WFD classifications (high, good, moderate, poor and bad), and is measured in three distinct categories:
 - Improvement to 'good' status.
 - Improvement to a class status other than 'good'. This includes improvements to 'high' status.
 - Within class improvement.
- We are looking for improvements in river water quality that are measured to a minimum change (Table 1). These thresholds are selected based on the accuracy and resolution of the models, and on the ability to detect and measure changes reliably.

Table 1: Minimum change in water quality required to include the length of river as improved.

Determinant	Minimum change required (mg/l)
Phosphorous	0.02
Ammonia	0.02
Biochemical Oxygen Demand	0.2

- Multiple schemes can contribute to a 'length of river improved' target.
- Delivery of the associated quality improvement schemes allows the 'length of river improved' to be claimed. Where multiple schemes contribute to a 'length of river improved', all schemes must be delivered. The environment must receive the benefits from all contributing schemes prior to being claimed.
- No 'length of river improved' schemes will be counted more than once for a specific determinant.
- The Environment Agency agrees to the wastewater quality obligation in the WINEP (for example, a 3 mg/l Ammonia scheme at a wastewater treatment works) but are not required to agree or sign off the attributable 'length of river improved.'
- The wastewater 'length of river improved' target is the sum of the improvements in the three categories identified above.
- Solutions identified by intermittent urban pollution management models will measure, to two decimal places, the length of river improved from the point of mixing (at the outfall of the asset) to the downstream model boundary. It is not possible to claim any length past the end of the downstream model boundary as the improvement past this point has not been assessed.

Clean water

- River length is measured in kilometres (km), to two decimal places.
- River improvement is defined as a presumed or demonstrated benefit in river ecology, hydrology or geomorphology.
- The exact river length improved by each scheme is measured using methods defined in agreement with the Environment Agency. These methods depend on the scheme, fish passage, flow or river restoration.
- Once the 'length of river improved' schemes have been defined using the agreed method, they are subject to sign off from the Environment Agency and us.
- Sign off from the Environment Agency demonstrates an agreement that, following delivery of the defined scope of the scheme, we can claim the agreed 'length of river improved' status against the overall clean water target.

Both wastewater and clean water performance commitments are measured at the end of the 2020-2025 period and are not reported annually.

Mitigation/ exceptions

Wastewater

- Modelled river lengths for wastewater schemes are based on the models that exist at the start of the investment. Any subsequent changes to models will not change the river length attributable to the scheme.
- If the delivery of a wastewater scheme materially changes the original assumptions (for example transfer of flows or change in discharge point) then the models will re-run to ascertain the impact on river length. The delivery of a wastewater scheme could materially change as a result of agreement with the Environment Agency or changes to the WINEP.

Clean water

A change to the end of the target for the 2020-2025 period for 'length of river improved' will be made in the following situations only:

- If a WINEP WFD scheme is not found to be cost beneficial during delivery (using the cost benefit analysis methodology agreed by us and the Environment Agency).
- If a delivery of a WINEP WFD driven scheme is found to be unfeasible, for example, a landowner does not give permission for the scheme to proceed.
- Once a scheme and associated river length has been scoped and decided through delivery of the Natural Environment Research Council Section 41 Fish and Lamprey habitat fund.

Ofwat and the Yorkshire Forum for Water Customers will be alerted to any changes to the 2020-2025 target from that agreed in the PR19 Final Determination before the 31 March 2023. This is required to reflect the uncertainty in delivering WFD schemes. In other words, they have to be technically feasible and cost-beneficial under WFD rules and this can only be assessed during delivery. In addition, the new Natural Environment Research Council Section 41 fish and lamprey habitat fund will not have a defined scope until stakeholders have been consulted early in the 2020-2025 period. As such, our delivery against our targets for the total length of river improved will be determined at the end of the 2020-2025 period.

For the identification of clean water fish passage schemes, river tributaries too small to be displayed on a 1:50,000 map and tributaries upstream of identified natural barriers (for example waterfalls) have been excluded.

Any other information relating to the performance commitment

The river length improved performance commitment is relevant to the Water Resources and Wastewater Networks Plus price controls.

The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised at the end of the 2020-2025 period. Performance will be measured and reported annually.

The performance commitment embodies our big goal relating to the environment; We will remove surface water from our sewer and recycle all waste water, protecting the environment from sewer flooding and pollution.

The performance commitment is an amendment to the current 2015-2020 performance commitment. The definition has been amended in the following ways:

- Non WFD schemes are eligible for contribution to the target.
- Schemes not associated with our assets, or not on our land are eligible, but must be funded by us.

Where two or more improvements (for example, two fish passes) or elements (for example phosphorus and ammonia) are improved on the same river reach, in alignment with Environment Agency principles that 'length of river improved' can contribute towards the target more than once.

Full definition of the performance commitment

The number of kilometres of river improved in the Yorkshire Water region.

Scheme improvements can occur on land owned by us and land not owned by Yorkshire Water. Assets and land owned by us can relate to wastewater and clean water investment schemes. All relevant WINEP obligations will be included in the measurement of the performance commitment.

For clean water improvements, additional schemes will be agreed in advance with the Yorkshire Forum for Water Customers.

Regulatory and legislative drivers include:

- WFD;
- NERC Act;
- Urban Wastewater Treatment Directive (UWWTD); and
- Salmon Five Point Approach.

Length of river improvements will be determined through a number of processes depending on whether the improvement is a result of clean water or wastewater obligations. These processes remain unchanged from those used in the 2015-2020 period. For clarity, we have split this section by clean and wastewater schemes.

Wastewater schemes

We have identified the wastewater assets that we propose to make quality improvements to as part of WINEP. This is based on raising the status of river reaches under the WFD for individual determinants.

Wastewater improvements to river reaches may benefit from an improvement in status to 'good' and consequently those improvements often continue downstream. There will also be some improvements that will take river reaches to a status other

than to 'good', for example from 'poor' to 'moderate'. There will also be stretches of rivers that are improved in quality, but only within their existing class.

The exact location of those river improvements in relation to the wastewater treatment works depends on the local geography. For many river systems, the change in status will start from the point of discharge into the receiving water. Where the available dilution is low however, as is the case where small treatment works are sited at the headwaters of streams, some improvements to 'good' status will only occur as a result of greater dilution downstream. Some reaches may achieve 'high', because of additional dilution downstream.

The process for defining the wastewater length of river improved is:

- Calculation of river length improved for obligations included in WINEP for the 2020-2025 period, which includes identifying lengths improved by multiple improvement schemes.
- Delivery of WFD improvement schemes.
- Confirmation that identified solutions to achieve regulatory obligation have been delivered and the environment has received the benefit.

On completion, the relevant river length can be claimed. An overview of the length of river benefiting from waste water improvements is outlined in Annex A.

Wastewater river length calculation

The river length improved performance commitment comes from a river modelling simulation of the associated river system. Each river length improved is linked to quality improvement at one or more wastewater treatment works to achieve an identified regulatory obligation of a new, or tighter, quality permit limit. Where several wastewater treatment works improvements are required to improve a single river reach, the river improvement will only be claimed when all necessary improvement works have been made. These groupings are identified on the 'length of river improved' calculation spreadsheet. This defines specific lengths that will:

- be improved to good status for the specified determinant(s);
- undergo a class improvement (including from 'good' to 'high'); and
- undergo a within class improvement.

The 'length of river improved' is calculated by comparing the end of 2015-2020 baseline model versus the quality improvements identified for the 2020-2025 period. The length of river improved is the calculated, comprising two parts:

- A summary, ordered by determinant, captures the individual stretches of river predicted to be improved by the proposed investments, including their associated lengths in Km.
- The current quality, classification and the predicted quality after investment are also captured, including the detailed individual river distances. The improvement, to 'good', or 'within class' is identified.

Some 'length of river improved' schemes are a result of urban pollution management storm discharge modelling. These are assessed against the UK Technical Advisory Group's recommended intermittent standards for protecting WFD 'good' status. Where intermittent wet weather performance exceeds the fundamental intermittent standards or 99th percentile standards, a solution will be developed to ensure we do not exceed the assessed target. Any solutions are regulatory obligations and deliver improved river water quality by reducing intermittent wet weather discharges to the environment. The length improved is measured using the national grid reference (NGR) to the downstream model boundary NGR and is stated to two decimal places.

Delivery of schemes

We deliver the regulatory obligations identified in the WINEP to achieve nutrient and/or sanitary quality improvements to benefit the receiving watercourse. Once the scheme is delivered and the environment has received the benefit, the length of river improved can be claimed.

Where multiple assets contribute to a 'length of river improved', each one must be delivered before 'length of river as improved' status can be claimed.

Confirmation that schemes have delivered the intended outcome

Due to the fluctuating nature of the environment and the number of external factors affecting a watercourse, it is not possible to confirm that schemes have delivered the exact intended river improvement. Delivery of the regulatory obligation is sufficient to claim the 'length of river improved' status.

All schemes that contribute to a river improvement must be delivered before 'length of river improved' status can be claimed. It is not feasible to apportion the percentage contribution of each asset improved to the associated length of river improved. This also ensures no length of river is double counted.

In order to claim the river length, the scheme(s) must complete before the WINEP regulatory compliance date. At this point, confirmation is needed that the river has benefitted from the scheme by way of final effluent achieving the WINEP regulatory obligations.

Clean schemes

The process for defining through to claiming a 'length of river improved' status follows a four-step process:

1. calculation of river length for schemes included in 2020-2025 target;
2. Environment Agency sign off of river lengths;
3. delivery of schemes; and
4. confirmation that a scheme has delivered the intended output, or outcome if required.

On completion relevant river length can be claimed.

An overview of the length of river benefiting from clean scheme improvements is outlined in Annex A.

Clean water river length calculation

For clean water schemes, the 'length of river improved' is identified through a combination of:

- map measurements (Ordnance Survey 1:50,000 map);
- Environment Agency fisheries officer knowledge; and
- river walkover surveys, where ground truthing is required.

For fish passage solutions, the improved reach is associated with the habitat opened up to fish. Measurements are taken as the distance from the identified barrier to the upstream limit of suitable habitat. Tributaries too small to be displayed in a 1:50,000 map and tributaries upstream of identified natural barriers (for example waterfalls) have been excluded. In addition, where structures present a downstream migration barrier to fish, the length measured to the next obstruction/barrier is also measured and included in the improved length.

For flow measures, the initial length of the river from the reservoir to the next major confluence is taken as the improved reach. The Strahler stream order is used to define 'major' confluences.

For river restoration schemes, the 'length of river improved' is measured from the most upstream point of restoration, down to the end of the WFD waterbody. This is subject to an Environment Agency check based on local knowledge of whether any site-specific issues would prevent improvement of the whole river downstream of the restored site.

The methodologies used to calculate river length for fish passage and flow schemes are the same as those used in 2015-2020 period.

River restoration schemes are an addition to the programme for the 2020-2025 period, and therefore the methodology is new.

Environment Agency sign off of the river lengths

The confirmation of Environment Agency signoff of river length can take various formats (for example emails, spreadsheets), held on our systems. Verbal agreement will not constitute a formal sign off.

Delivery of schemes

A scheme will be considered delivered once the beneficial completion date is confirmed. For example, once a fish pass has been built and the Environment Agency has confirmed the asset meets the requirements, the scheme can claim the agreed 'length of river improved'.

Confirmation that schemes have delivered the intended outcome

Demonstration of outcome achievement may not be part of a scheme scope, and therefore only needs to be demonstrated if stipulated in the scope. For example, ecological monitoring to demonstrate successful outcome of a fish pass is typically only required if a novel fish pass design is constructed.

If demonstration of successful outcome is required for clean schemes, only once the required monitoring has been undertaken and achieved regulatory sign off, can the 'length of river improved' be claimed.

Methodology for changes to the programme affecting length of river improved

Changes to the programme may occur within the reporting period, which could impact on the 'length of river improved' status against the performance commitment target. This could occur due to:

- obligation(s) are no longer required by the regulator;
- regulatory obligation(s) found to be technically unfeasible or disproportionately costly;
- delivery of additional improvement schemes, which benefit the environment; and
- the scope of a regulatory obligation may change for reasons outside our control.

Wastewater

We ensure wastewater regulatory obligations are delivered. There are rarely occasions where a wastewater obligation requires amendment that would impact on the associated 'length of river improved'.

Where regulatory obligation(s) are no longer required, the length of river target will be reassessed based on the remaining relevant obligations. The existing performance commitment target will be reset under these circumstances.

It is unlikely following the release of WINEP that regulatory obligations at wastewater treatment works would be technically unfeasible or disproportionately costly. This is because WFD obligations are identified based on industry agreed technical limits and are subject to cost-benefit analysis prior to inclusion in the WINEP.

Changes to storage solutions following urban pollution management investigations could occur through investigation and design. This could impact on the 'length of river improved' and in such cases, we aim to protect the original length of river identified for improvement.

Clean Water

Within the 2020-2025 period changes may occur to the programme resulting in a forecasted shortfall of the 'length of river improved' against the performance commitment target. In other words, if a scheme is found to be technically infeasible, or is disproportionately costly and is removed as a regulatory obligation. In this instance, we will deliver the shortfall in accordance with an updated version of the 2015-2020 eligibility procedure methodology. This methodology was developed and agreed with the Environment Agency and the Yorkshire Forum for Water Customers' sub group and will be updated to reflect the changes in 'length of river improved' performance commitment from the 2015-2020 period to the 2020-2025 period (for example increased drivers, delivery on assets or land not owned by us).

The 'eligibility test' procedure follows the below steps. For each scheme, if all steps are met then the 'length of river improved' associated with that scheme is deemed eligible to contribute to the overall clean water target. A scheme will be eligible where:

1. The problem is attributable to us. This could be due to one of our assets or our actions and should adhere to the 'polluter pays' principle.
2. The WFD driver, confirmed by the Environment Agency, is based on evidence.
3. The investment (either capital or operational expenditure) will be made.
4. The Environment Agency agreement that the scheme will contribute towards either WFD Good Ecological Status (GES) or Good Ecological Potential (GEP).
5. The Environment Agency sign off the new/updated scheme scoping document.
6. The schemes are cost-beneficial from a WFD perspective. Cost benefit assessments are undertaken throughout delivery of every WFD scheme using a methodology agreed by the Environment Agency and us, and not delivered unless deemed cost-beneficial.

In addition, the new Natural Environment Research Council Section 41 Fish and lamprey habitat fund (WINEP scheme ID: YOR00139) currently has an undefined 'length of river improved' target, as the scope of improvements will be defined in 2020-2025 period.

Once defined and the associated length of river improved agreed, the overall clean length of river improved target will be increased to reflect this change.

Ofwat and the Yorkshire Forum for Water Customers will be notified of any changes (increase or decrease) in the overall clean target before the 31 March 2023.

Assumptions and exclusions

Wastewater

- Modelled river lengths for wastewater schemes are based on the models used at the start of the investment. Any subsequent changes to models will not change the river length attributable to the scheme.

- If the delivery of a wastewater scheme materially changes the original assumptions, (for example transfer of flows or change in discharge point) then the models will be re-run to ascertain the impact on river length.
- Delivery of the identified 'length of river improved' status is automatic based on the delivery of the regulatory obligation and the environment receiving the benefit of that improvement.
- There are no lengths of river improved identified for WFD 'no deterioration' or WFD chemical obligations. These are to maintain current river water quality, and not to generate improvements.

Where two or more elements (e.g. phosphorus and ammonia) are improved on the same river reach, in alignment with Environment Agency principles, that 'length of river improved' target can contribute towards the performance commitment more than once.

Clean water

Where there are two or more improvements (for example two fish passes) on the same river reach, in alignment with Environment Agency principles that 'length of river improved' can contribute towards the performance commitment more than once.

A change to the end of the target for the 2020-2025 period for 'length of river improved' for clean water schemes will be made in the following situations only:

- If a WINEP WFD scheme is not found to be cost beneficial during delivery (using the cost benefit analysis methodology agreed by us and the Environment Agency).
- If a delivery of a WINEP WFD driven scheme is found to be unfeasible, for example, a landowner does not give permission for the scheme to proceed.
- Once a scheme and associated river length has been scoped and decided through delivery of the Natural Environment Research Council Section 41 Fish and Lamprey habitat fund.

Ofwat and the Yorkshire Forum for Water Customers will be alerted to any changes to the 2020-2025 target from that agreed in the PR19 Final Determination before the 31 March 2023. This is required to reflect the uncertainty in delivering WFD schemes. In other words, they have to be technically feasible and cost-beneficial under WFD rules and this can only be assessed during delivery.

The new Natural Environment Research Council Section 41 fish and lamprey habitat fund will not have a defined scope until stakeholders have been consulted early in the 2020-2025 period.

For the identification of clean water fish passage schemes, river tributaries too small to be displayed on a 1:50,000 map and tributaries upstream of identified natural barriers (for example waterfalls) have been excluded.

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Biosecurity implementation

Short definition

The number of pathways of invasive species spread, where biosecurity interventions have reduced the risk of that spread.

Invasive species and pathogens can have a large impact on our operations, our environment and our customers. Different species spread from place to place through a variety of methods. These can be grouped into common pathways, for example through dirty equipment, or through untreated water.

The best way to prevent damage by these species is to stop them arriving in the first place. This can be done through good biosecurity, the term given to interventions designed to stop their spread. We have identified the pathways under our control and will implement biosecurity along these pathways to prevent the spread of invasive species and pathogens.

Measurement

The commitment will measure the number of pathways of spread where we have implemented biosecurity interventions as agreed with the Environment Agency and other relevant stakeholders.

Pathways are defined as the vector by which invasive species or pathogens can arrive at, or spread, from one site to another.

To enable measurement, the categorisation of routes of spread into defined pathways has been agreed with the Environment Agency. These 12 pathways are detailed below:

- operational maintenance;
- capital works;
- site surveys and sampling (land);
- site surveys and sampling (water);
- raw water transfer;
- grounds management;
- bioresource movements;
- forestry operations;
- farming;
- anglers;
- boats and water sports; and
- public recreation and amenity.

An independently reviewed management plan will be produced for each pathway, and specific actions must be achieved and evidenced before biosecurity interventions can contribute to the performance commitment measurement.

The pathway plans will be reviewed and agreed by the Environment Agency in advance. All actions must be complete and signed off by the Environment Agency before we can consider a pathway implemented.

The commitment will be measured and reported at the end of 2020-2025 period. Progress towards the target will be reported annually.

Mitigation / exceptions

Based on the GB Non-Native Species Secretariat (GBNNSS) approach to pathway management plans, we have categorised pathways where invasive species can spread. Some of these are outside our control. The list below sets out the six pathways excluded from the performance commitment:

- wind dispersal (for example, wind-blown seeds);
- vegetative spread (for example, spread of a rooted plant);
- flight dispersal (for example, birds);
- overland dispersal (for example, mammals);
- water dispersal (for example, natural river flow); and
- plant/animal vector (for example, burrs on animal fur).

Any other information relating to the performance commitment

Our Pathway Management Plans are modelled on pathway action plans produced by GBNNSS and build on its existing work. GBNNSS is responsible for coordinating efforts to follow the EU Invasive Alien Species Strategy in England.

The performance commitment supports the Water Industry National Environment Programme (WINEP) drive to reduce the spread of Invasive Non-Native Species (INNS). Additionally, through our catchment management work, research and development activity and partnership with the Yorkshire Invasive Species Forum (YISF), we will co-ordinate the treatment of INNS across South and West Yorkshire.

The biosecurity implementation performance commitment is held at appointee level and spans the Water Resources and Bioresources price controls.

The performance commitment embodies our big goal related to the environment; We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

The biosecurity implementation performance commitment is a new measure for the 2020-2025 period and has a proposed non-financial incentive. The commitment will be measured and reported at the end of 2020-2025 period. Progress towards the target will be reported annually.

Full definition of the performance commitment

The number of pathways of invasive species spread where we have implemented biosecurity interventions to reduce the risk of that spread.

The provision of biosecurity will safeguard the environment by preventing the spread of:

- Invasive Non-Native Species (INNS); and
- relevant pathogens.

Invasive Non-Native Species (INNS)

A species can be classed as a Non-Native Species when it is transported outside of its native range by accidental or intentional movement. After arrival these species become established in their new range. Most of these species cause no harm in their new range, however a small percentage (10-15%) cause considerable economic, social and ecological damage. These are classed as Invasive Non-native Species (INNS)¹³.

INNS are spread in a wide variety of ways, however the usual pathway of introduction into the UK is through human intervention, usually horticulture, agriculture, aquaculture or transport. Once inside the UK, INNS can be spread via several different pathways such as recreational users, landscape management, operational and capital works.

We are concerned about the introduction and spread onto and across our sites and the wider environment in Yorkshire.

INNS present a substantial risk for us across several areas of the business. For example:

- loss of function on assets due to New Zealand Pygmyweed growth on filter beds;
- damage to property from growth of Japanese Knotweed around our assets;
- harm to staff from contact with Giant Hogweed sap;
- impact to customers from spread of INNS onto property;
- the use of reservoirs for recreation is prevented; and
- detrimental to biodiversity, disruption of habitats and species.

There are around 2000 INNS present in the UK. The rationale behind interrupting their pathways of spread is that simple interventions can protect against hundreds of different species. Emphasis will be placed on species listed on the Invasive Species Regulations (EU regulation No. 1143/2014) and Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

¹³ The Economic Cost of Invasive Non-Native Species on Great Britain, 2010, CABI

Relevant pathogens

A pathogen is classed as a virus, bacterium or other microorganism that can cause disease. We are already responsible and are regulated on the removal of pathogens critical to human life that arise through the operation of providing clean water and removal of sewage, such as Cryptosporidium, Salmonella or Streptococcus. The focus of this performance commitment is to limit the spread of relevant, non-regulated pathogens such as sudden oak death or crayfish plague.

A high proportion of these pathogens come from abroad in infected plants and animals; the main pathways are human-mediated (for example, horticulture, aquaculture, agriculture and trade/tourism) or via INNS themselves. The popularity of landscaping with exotic plants and trees has led to a demand for semi-mature trees and shrubs, a high proportion of which come from overseas carrying the relevant pathogens. In addition, INNS themselves carry pathogens that impact our native species.

The presence and spread of pathogens on our sites will impact our operations. For example:

- Prevention of access to sites for routine maintenance and woodland management through tree pathogens such as Ash dieback.
- Impact customer activities as presence of a pathogen may prevent tenants from using their land or recreational users accessing sites.
- Detrimental to the natural environment by causing death to native species.

Pathways

A pathway is the mechanism by which specific INNS or pathogens can be introduced or spread between assets and the wider environment (for example, spreading aquatic species through moving water, or spreading plants by using boats across different sites). To target the introduction and spread of INNS or pathogens, we must identify and manage the pathways that transmit them.

Biosecurity

Biosecurity encompasses the reasonable and practicable measures to prevent the spread of harmful organisms, such as plants, animals, fungi or pathogens. These measures include risk avoidance, behavioural awareness and practical precautions to prevent spread.

Once introduced, the management of species can be costly and ineffective, and eradication is unlikely. Therefore, biosecurity is a more effective risk management strategy to safeguard our operations and the environment. Under the GB Non Native Species Strategy¹⁴, biosecurity and the prevention of spread is prioritised over early

¹⁴ GB Invasive Non-native Species Strategy, 2015, GBNNSS

detection, rapid response and long-term management, as it reduces the potential for adverse impacts and costs.

Biosecurity is the only approach to:

- Provide broad-spectrum protection against the risk of INNS or pathogen spread.
- Address and potentially close multiple INNS/ pathogen dispersal pathways.
- Do so with relatively modest requirements for changes in existing procedures or investment in necessary facilities (cleaning, signage, training materials etc).

Harmful organisms, such as INNS and pathogens present a significant compliance, financial, operational and reputational risk to our business. The management of INNS and their prevention of spread falls under the Wildlife and Countryside Act 1981 (as amended) and Invasive Species Regulations (EU regulation No. 1143/2014). The Anti-social behaviour, Crime and Policing Act 2014c and Infrastructure Act 2015 apply pressure on our management of INNS if we are not seen to be acting as a reasonable landowner. The easiest way to prevent this action is to stop these organisms from entering our sites, or containing them to prevent their spread across our assets and into the wider environment. This is in alignment with the GB INNS Strategy that prioritises prevention over early detection and long-term management. Prevention is the least environmentally damaging intervention and maximises the reduction in adverse impact and costs associated with tackling invasions.

Pathway Management Plan definition

The Pathway Management Plan will be an externally reviewed and agreed document, that details the interventions required to implement an appropriate level of biosecurity across a specified pathway of spread. The plan will detail the required interventions, list sites where implementation is required, and specify success criteria.

The implementation of these plans will help to prevent the spread of INNS or pathogens onto new assets, between assets, and the wider environment. While we may want to respond to a high-risk INNS on a species-by-species basis, overall focus will be on pathway management, which helps us to manage a variety of INNS at one time across all relevant sites.

Process

Identification of pathways of spread

During 2015-2020, we undertook an investigation to understand the scale of the potential problem with INNS and how to best manage the potential risks posed by INNS. The report identified 21 pathways that were relevant to our operations. Of these 21 pathways, any natural dispersal pathways were excluded as being outside of our ability to mitigate. The full list of the six excluded pathways is:

- wind dispersal (for example, wind-blown seeds);
- vegetative spread (for example, spread of a rooted plant);
- light dispersal (for example, birds);
- overland dispersal (for example, mammals);
- water dispersal (for example, natural river flow); and
- plant/animal vector (for example, burrs on animal fur).

From the remaining 15 pathways, soil transfer and landscape planting and releases (unauthorised) were incorporated into other relevant pathways because they require similar biosecurity interventions. This produced the 12 pathways below (Table 2).

Table 2. Identified pathways that are classified as high-risk for the spread of INNS

Pathways	Definition
Operational maintenance	All activities undertaken by us to maintain assets on a day-to-day basis (for example, maintenance of waste treatment works)
Capital works	All activities undertaken by us on capital schemes. This includes large scale works with contractors, large machinery and heavy footfall. These are therefore a high-risk pathway. This pathway includes incidental spread of INNS through transfer of arisings/spoil between sites.
Site surveys and sampling (land)	All activities undertaken by our staff or contractors in terrestrial habitats. For an INNS to be spread by this pathway it needs to be introduced (passively or actively), capable of being dispersed by seeds/spores, propagules and/or individuals via vehicles, machinery, equipment and or/clothing.
Site surveys and sampling (water)	All activities undertaken by our staff or contractors in aquatic or wetland habitats. Water poses a greater risk due to the frequent spread of INNS via water transfer. For an INNS to be spread by this pathway it needs to be capable of being dispersed by seeds/spores, propagules and/or individuals via vehicles, machinery, equipment and or/clothing.

Raw water transfer	The movement of untreated (raw) water between our assets, including transfer by pipeline or open culvert or watercourse. Water movement from upstream to downstream reservoirs in the same group is considered a raw water transfer rather than a natural water movement, in order to place weight on the potential role of reservoirs as major sinks and sources of INNS. Inter-catchment and raw water connections were identified with reference to the Water Resources and Assets Plan (WRAP) we provided.
Grounds management	Grounds management covers landscape management. Any active management of terrestrial, freshwater or wetland habitats for amenity, or other landscape maintenance or nature conservation purposes. INNS may be the focus of management or be an incidental or dominant component of vegetation under management. For an INNS to be spread by this pathway it needs to be capable of being introduced (passively or actively) or dispersed as viable seeds/spores, propagules and/or individuals via vehicles, machinery and/or clothing used in routine landscaping management activities or as cut or dredged material moved off site.
Bioresource movements	Bioresource movements incorporate the movement of sludge from our operations. For INNS to be transmitted via this pathway, seeds/spores, propagules or individuals need to be able to survive the sewage treatment process or be capable of colonising the treated output from this process prior to its movement and dispersal.
Forestry operations	Includes all forestry operations except movement of planting stock. For an INNS to be spread by this pathway it needs to be capable of being dispersed as viable seeds/spores, propagules and/or individuals via vehicles, machinery and/or clothing used in forestry activities, and/or forestry products (timber). Includes pathogens that may be transmitted by this means.
Farming	Includes all farming operations, including movement of livestock. For an INNS to be spread by this pathway it needs to be capable of being dispersed as viable seeds/spores, propagules and/or individuals via livestock, vehicles, machinery and/or clothing used in farming activities.
Anglers	Recreational fishing activity managed by third-party fishing clubs or us. This may also involve deliberate authorised releases of native or non-native fish by us, or other organisations. Includes pathogens that may be transmitted by this means.

Boats and water sports	Any activity linked to the use of any one of our assets for sailing or water sports. Taken to include movements within and between assets, or between assets and third-party sites. While most assets used by boats will have surfaced access to a formal launch site, the possibility of interaction with terrestrial and wetland habitats cannot be entirely discounted and certain INNS associated with these habitats may be transmissible by this pathway.
Public recreation and amenity	Applies to INNS seeds/spores, propagules or individuals that can be passively dispersed by members of the public and their pets and livestock (horses). It includes vehicle movements but excludes activities definable as sailing or water sports.

Production of Pathway Management Plans

The development of Pathway Management Plans will be based on guidance from the GB Non-Native Species Secretariat (GBNNS) 'Zoos Pathway Action Plan'¹⁵. The 12 plans will be developed using the Pathway Management process:

1. Understand the key issues within the pathway that allow the spread of INNS and pathogens.
2. Review the key issues and create action points from these, detailing required interventions and sites where implementation is required. As an example, action points will include interventions such as the construction of wash down facilities for anglers, or the delivery of required biosecurity training, as appropriate to the pathway.
3. The definition of success will be created for each action point with some form of measure attached. For example, by March 2025, 100% of our owned angling sites will have had any required by-law changes enacted. The measurement will ensure that we can track the progress of the action point to ensure completion.
4. External review and agreement by regulators to challenge action points and success measures.
5. Action points are delegated to specific individuals who are responsible for activities within the pathway (for example, felling plan in forestry management).
6. Actions are implemented across our operations.
7. Action points are reviewed against the success criteria.
8. Successful implementation of Pathway Management Plan is signed off by the Environment Agency.
9. Pathway Management Plans are audited to review the implementation of the action points within. The audit will assess the completion of each Pathway Management Plan.

¹⁵ GB Non-Native Species Secretariat, 2016, *GB Non-Native Species Pathway Action Plan: Zoos*

Defining success

To confirm that biosecurity has reduced the risk of spread of INNS via a pathway, the following process must be followed:

1. Each Pathway Management Plan will have specified success measures against each action point which will be independently reviewed and agreed with the Environment Agency.

Each action point will have a specified success measure, for example:

- Confirmation required that infrastructure has been built and evidence provided to the Environment Agency as appropriate (for example, as built drawings/photographic evidence).
 - A simple yes/no (in other words, alter a tenancy agreement to include biosecurity agreements).
 - Surveys (in other words, the percentage increase of individuals implementing biosecurity after training).
 - People engaged (in other words, the number of homeowners targeted with direct mail).
2. The Pathway Management Plan can only be considered completed once all action points have been implemented and signed off by our regulators and our auditor.
 3. In addition to the success measure, there will be an evaluation of the engagement, learning and behavioural change across our business, which can be used to inform future policies across various sectors of the organisation. Each Pathway Management Plan will feed into the development of the 2025-2030 business plan to ensure that different sectors of the business take responsibility for their own biosecurity in the long-term future.

The action points identified below are an example of a Pathway Management Plan for anglers.

Example actions points case study: anglers

1. By March 2025, 100% of angling sites owned by us will have had
 - a. A biosecurity audit
 - b. Any required by-law changes enacted
 - c. Any required infrastructure built
 - d. Any required stakeholder training undertaken
 - e. Post implementation review of engagement and uptake, and remedial actions identified and enacted.

2. By March 2025, 90% of leased angling sites will have had
 - a. A biosecurity audit
 - b. Any required by-law changes enacted
 - c. Any required infrastructure built
 - d. Any required stakeholder training undertaken
 - e. Post implementation review of engagement and uptake, and remedial actions identified and enacted.
3. By March 2025, to have held a biosecurity discussion with 80% of external angling sites on our property (third party rights holders):
 - a. Where appropriate and agreed by all parties, for infrastructure and training support to be provided.
4. By March 2025, for support to have been given to the Angling Trust and other relevant stakeholders to deliver a minimum of 10 angling focused biosecurity training events across the region.
5. For a learning document to have been completed and reviewed by regulators and relevant stakeholders, by August 2022 (prior to PR24 submission).

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Carbon

Short definition

The reduction in our total carbon footprint (CO₂e).

This commitment is focused on maintaining and further enhancing our success in substantially cutting the greenhouse gas emissions (herein, referred to as 'carbon') from our operations and asset management, whilst also increasing the carbon stored in our land estate. We recognise that climate change is a real, material challenge for society, specifically for the water and wastewater services on which our customers rely. We are acting to reduce carbon emissions as a result of our operations.

Our activity for, and the outcomes of, this commitment deliver multiple benefits for customers and society: supporting the long-term resilience of water and waste water services; playing our part in reducing environmental harm and the growing consequences for people; and, facilitating partnership and innovative approaches that help reduce waste and improve efficiency to keep water bills low.

Measurement

The reduction in carbon will be measured by taking the expected emissions from our plans for the 2020 – 2025 period and from our predicted energy usage over that period and subtracting the actual emissions over that time once known in 2025.

The measurement of our performance commitment will cover three areas of our carbon footprint:

1. **Operational emissions** – The carbon that results from our operational activities, which is dominated by the energy we use. It is standard water industry practice to measure operational carbon emissions using the Carbon Accounting Workbook (CAW)
2. **2020-2025 Business Plan emissions** – The carbon that results from our investments to maintain and enhance our water and waste water assets.
3. **Land emissions** – The net balance of the carbon emissions that are sequestered (meaning absorbed and locked away) in our land or released from our land.

To determine our overall carbon footprint, we will use this equation:

$$\text{Carbon footprint} = \text{Operational emissions} + \text{2020-2025 Business Plan emissions} \pm \text{Land emissions}$$

We will add land emissions if we have a net release from our land, or we will deduct

our land emissions if we have a net sequestration benefit in our land.

We describe the methodologies for each aspect below, in the section 'full definition of the performance commitment'.

The commitment will be measured in kilo tonnes of carbon dioxide equivalent (KT CO₂e), reported to 1 decimal place. This level of detail is appropriate to the accuracy in best practice carbon accounting.

The commitment will be measured and reported at the end of 2020-2025 period. It is necessary to measure the performance commitment over a five year period due to the timescales inherent in changing land management practices sufficient to deliver measurable impact, and also due to the substantial annual variance in the scale of the asset management investment programme.

Progress towards the target will be reported annually to provide transparency of our progress towards the 2025 target. We will report the total carbon footprint and the three component parts.

The performance of this measure is based on the current asset management programme, including WINEP schemes. Ofwat and the Yorkshire Forum for Water Customers will be alerted to any change to the 2020-2025 target from that agreed in the PR19 Final Determination before the 31 March 2023. This is required to reflect the uncertainty in delivering Water Framework Directive (WFD) schemes and aligns with the approach adopted for the 'Length of River Improved' performance commitment.

Mitigation / exceptions

Data collected for the Carbon Accounting Workbook (CAW) will have no exclusions of any significance. Any allowable exclusions will be explained in the guidance on the CAW given to different data providers. This represents than 1% of the carbon footprint. This is the standard industry approach to carbon reporting.

A large uncertainty associated with the annual reduction in carbon emissions is the National Grid emission factor for electricity, over which we have no control 75% of Yorkshire Water emissions are associated with electricity consumption. We will calculate our projected operational carbon based on the current governmental reduction forecasts. Should the emission factor vary by more than 13% from the current government predictions, appropriate adjustments will be made to normalise the figures to represent the proactive reductions that have been made. 13% represents the average annual reduction in emissions over the past 4 years.

In calculating our embedded emissions, we will include the emissions on every 2020-2025 asset management investment that has reached project completion stage in the 5 year period. We will also include emissions relating to schemes that continue between the 2015-20 period and the 2020-2025 period ('overhand' schemes').

As we own a very large area of land, our process to calculate the change in the net emissions locked in (or released from) our land involves remote surveying and estimations rather than direct, on-site measurement. We will externally audit this process and calculation to ensure a best practice methodology, and we will share the findings of the audit with the Yorkshire Forum for Water Customers.

In measuring the carbon sequestered in our land holdings we are, by definition, focused on the carbon in the land and associated vegetation. We are not seeking to measure the human activities on that land, such as a farmer's property and use of fuels in their vehicles and equipment.

We produce an annual account of the carbon emissions that result from all operational activities in Yorkshire Water and its customer service sister company called Loop. We exclude all other parts of the Kelda Group, including the business retail element because this supports efforts for management separation and the emissions do not relate to the regulated business.

Any other information relating to the performance commitment

The carbon performance commitment is held at appointee level and spans the Water Resources, Water Network Plus, Wastewater Network Plus and Bioresources price controls.

The performance commitment relates to our big goal of Environment: we will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

The performance commitment is a new measure for the 2020-2025 period. The performance commitment has a proposed outperformance payment and underperformance payment, to be at the end of the 2020-2025 period. Performance will be measured and reported annually.

The UK has a legally-binding commitment to achieve an 80% reduction in its carbon emissions by 2050. The infrastructure sector has control over almost one sixth of total emissions and therefore has a key role to play in contributing to carbon reduction. As we have a major infrastructure programme, we have a responsibility to reduce the associated carbon impact.

We have been measuring our operational carbon emissions since 2004 and have achieved significant reductions over recent years. Our leading performance has been independently verified through our ongoing ability to retain the Carbon Trust Standard.

We own approximately 28,000 hectares of land, much of which is carbon-rich peatland and woodland. There is strong evidence and research showing how land management choices can impact the amount of carbon stored or released by vegetation and land, with complementary links between the actions required to protect water quality and increasing carbon sequestration.

Full definition of the performance commitment

The reduction in our total carbon footprint (CO₂e).

This commitment is focused on maintaining and further enhancing our success in substantially cutting the greenhouse gas emissions (herein, referred to as ‘carbon’) from our operations and asset management, whilst also increasing the carbon stored in our land estate. We recognise that climate change is a real, material challenge for society, specifically for the water and wastewater services on which our customers rely. We are taking action to reduce carbon emissions as a result of our operations.

Our activity for, and the outcomes of, this commitment deliver multiple benefits for customers and society: supporting the long-term resilience of water and waste water services; playing our part in reducing environmental harm and the growing consequences for people; and, facilitating partnership and innovative approaches that help reduce waste and improve efficiency to keep water bills low.

Measurement

The reduction in carbon will be measured by taking the expected emissions from our plans for the 2020 – 2025 period and from our predicted energy usage over that period and subtracting the actual emissions over that time once known in 2025.

The measurement of our performance commitment will cover three areas of our carbon footprint:

1. **Operational emissions** – The carbon that results from our operational activities, which is dominated by the energy we use. It is standard water industry practice to measure operational carbon emissions using the Carbon Accounting Workbook (CAW)
2. **2020-2025 Business Plan emissions** – The carbon that results from our investments to maintain and enhance our water and waste water assets.
3. **Land emissions** – The net balance of the carbon emissions that are sequestered (meaning absorbed and locked away) in our land or released from our land.

To determine our overall carbon footprint, we will use this equation:

$$\text{Carbon footprint} = \text{Operational emissions} + \text{2020-2025 Business Plan emissions} \pm \text{Land emissions}$$

We will add land emissions if we have a net release from our land, or we will deduct our land emissions if we have a net sequestration benefit in our land.

The commitment will be measured in kilo tonnes of carbon dioxide equivalent (KT CO₂e), reported to 1 decimal place. This level of detail is appropriate to the accuracy in best practice carbon accounting.

The commitment will be measured and reported at the end of 2020-2025 period. This five-year approach is necessary because of the timescales inherent to changing land

management practices sufficient to deliver measurable impact, and also because of the substantial annual variance in the scale of the asset management investment programme.

The performance of this measure is based on the current asset management programme, including WINEP schemes. Ofwat and the Yorkshire Forum for Water Customers will be alerted to any change to the 2020-2025 target from that agreed in the PR19 Final Determination before the 31 March 2023. This is required to reflect the uncertainty in delivering WFD schemes.

Operational emissions

The carbon accounting process involves the collection of a wide range of data from across the business, such as our energy consumption, transport and ozone production. The raw data requirements are defined and will be entered into the UK Water Industry's Carbon Accounting Workbook (CAW). The CAW is a best practice standardised tool used across the UK water industry (<https://www.ukwir.org/carbon-accounting-workbook-update-v12-march-2018>). The CAW converts raw data into carbon emission using the nationally agreed approach and latest carbon emission conversion factors. The CAW is updated annually to ensure it is always using latest available information.

To determine the net operational emissions, data regarding fuel and energy consumption is collected from across the business and captured in a 'Master Proforma' spread sheet before being entered into the CAW which then calculates the carbon emissions.

There are processes in place to ensure that the CAW is populated each year to produce a reliable operational carbon account for Yorkshire Water. This involves:

- Internal data quality assurance and external audit.
- Working with the data providers to check data to ensure accuracy and completeness
- Collecting and providing data from outsourced operators who report on their fuel and energy used in their activities which support us
- Responding to any queries received from Ofwat about the Greenhouse Gas (GHG) report.

Our operational emissions account for all our Scope 1 and 2 emissions and some Scope 3 emissions, as defined below in the 'key terms' and excluding the insignificant exceptions we outlined in the section above 'mitigation / exceptions'.

Embedded emissions

We will keep account of the carbon emissions embedded in the assets we have completed building or altering as part of capital schemes in our 2020-2025 asset investment programme.

Whilst monitoring and challenging the carbon in every scheme, overall performance will be reported by aggregating this data to show the emissions of the entire 2020-2025 asset management programme.

Data on completed assets is saved in the Yorkshire Waters' Data Capture Toolbox (DCT). The data is input in the form of volumes or weights of materials. The quantity of each material used in a solution is multiplied by the material's emission factor to calculate a carbon footprint. The carbon factors are obtained from Department for Environment, Food and Rural Affairs (DEFRA) (<https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>) based on the initial research conducted by the University of Bath. The University of Bath factors are inclusive of mining, etc. of the raw materials, transporting them to a works for refining and completion of manufacture ready for transportation to site. This is a Cradle to Gate calculation.

The transportation to site is included in the contractors Indirect Costs which also includes; site set up, temporary works, testing and commissioning, and all other costs not directly associated with individual assets plus design and supervision, fuel, labour and programme.

Included in all of Yorkshire Water's carbon models will be details about what materials were modelled and quantities of energy consumed by activities such as materials extraction, manufacturing and transport.

Land emissions

We will produce an account of the net change in emissions from Yorkshire Water owned land at the end of the 2020-2025 period. This will show the net position of how much additional carbon has been locked into, or released from, our land estate and its vegetation between 2020 - 2025.

Through our land management programmes, we are working to restore, maintain and enhance our land to deliver a range of benefits to the water environment and wider society, including carbon sequestration. For example, we will have a carbon benefit through our work to plant 1 million trees in Yorkshire over a ten year period.

We will produce the carbon account by monitoring changes to the management approach and resulting state of the land and its vegetation. We will use remote monitoring techniques (satellite imagery and drone technology, for example) as well as engaging with our land tenants to capture local information. As with other carbon accounting, we will use best practice carbon conversion rates for different types of land use and vegetation to determine the resultant carbon emissions.

Ofwat and the Yorkshire Forum for Water Customers will be alerted to any changes to the 2020-2025 target from that agreed in the PR19 Final Determination before the 31 March 2023. This is required to reflect the uncertainty in delivering WFD schemes.

Key terms

Carbon: a term used as shorthand for the Carbon Dioxide equivalent of all greenhouse gasses.

Carbon Dioxide equivalent (CO₂e): the scientific term and process for describing the global warming impact of the different greenhouse gases in a common, comparable unit.

Operational carbon emissions: are those associated with the day to operations of our business and services, particularly our use of electricity and fuels. It is analogous to operational cost. Our operational emissions include all Scope 1 and 2 emissions, and some Scope 3 emissions, as defined below.

Embedded carbon emissions: are those associated with the creation of an asset, particularly the carbon in concrete and metal used in our assets. Embedded carbon can also be referred to as embodied carbon or capital carbon, which can be abbreviated as 'CapCarb'

Scope 1: Direct GHG emissions. These occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers or vehicles, or controlled process equipment.

Scope 2: Electricity indirect GHG emissions. This accounts for carbon emissions from the generation of purchased electricity consumed by a company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated. Scope 2 emissions also include purchased heat or steam; however, Yorkshire Water does not purchase heat or steam from third parties.

Scope 3: Other indirect GHG emissions. This covers all other indirect emissions which are a consequence of the activities of the company, but occur in the supply chain not from sources owned or controlled by the company. The aspects of Scope 3 emissions included in our operational carbon accounting include those from our use of public transport and those from activities carried out by our repair and maintenance contract partner(s). The aspects of Scope 3 emissions included in our embedded carbon accounting are those from activities carried out by our asset management contract partners.

Carbon sequestration: The trapping and storing of greenhouse gasses in vegetation and soils such as trees and peat.

Outcome: We will always provide you with enough safe water, we will not waste water and always protect the environment.

Company performance commitment reference: Education

Short definition

The number of learning hours that we provide to raise understanding of the value of water.

We will provide education sessions that:

- raise awareness of the value of water;
- develop understanding of the clean and wastewater treatment processes;
- inform people about our services; and
- show how people can use water and our sewerage systems wisely.

All our activities are designed to be interactive and have a lasting impression on all the people that we engage with. Where appropriate, content is linked to the national curriculum.

Our main focus is educating children through on-site visits, we will also deliver sessions to community groups, universities and businesses. The performance commitment covers operational tours, open days, workshops, subject specific talks and assemblies.

Measurement

- We will measure the total number of hours delivered through face-to-face educational visits and programmes.
- The total number of hours of education will be calculated from the total number of people directly engaged with, multiplied by the hours of engagement, for each visit or programme.
- This will be measured to the nearest hour.

Mitigation / exceptions

Attendance numbers are achieved on the basis that all sessions are completed. In the event of short notice cancellations out of our control, due to bad weather incidents, OFSTED visit notifications, teacher shortages or operational incidents, hours scheduled will not be counted towards the performance commitment measurement.

Any other information relating to the performance commitment

The education performance commitment spans the Water Resources, Water Network Plus, Wastewater Network Plus and Bioresources price controls.

The performance commitment embodies our big goal related to customers: we will always provide you with enough safe water, we will not waste water and always protect the environment.

The education performance commitment is new for the 2020-2025 period. The performance commitment has a proposed underperformance payment, to be recognised annually.

Full definition of the performance commitment

The number of learning hours that we provide to raise understanding of the value of water.

Our approach to delivering the education programme will be varied and will depend upon customers' needs. We will approach it in such a way that we reduce our environmental impact.

Ways of engagement:

- education centres based on operational treatment works;
- outreach workshops and talks in schools and at community hubs; and
- open days at operational treatment works.

Programme topics include:

- clean water treatment;
- wastewater treatment;
- WaterAid;
- the urban water cycle (water conservation, fats oil and grease, capital schemes);
- sustainable urban drainage solutions; and
- water safety.

We have offered visits to our education centres for decades, and we currently have three education centres on our operational sites. This includes two operational water treatment works education centres, where we focus on the water treatment and supply process. We have a third new facility at Tophill Low Nature Reserve, where we focus on the natural water environment.

The education centre programmes are delivered by our education team and meets National Curriculum requirements. Health and safety on operational sites is our highest priority.

Our education centres hold a learning outside the classroom accreditation for external transparency and assurance. Our colleagues involved in leading our programmes are enhanced Disclosure and Barring Service cleared.

We make sure our sessions are delivered face-to-face, and comprise the minimum engagement in:

- clean water operational site visits (one-hour minimum);
- wastewater operational site visits (one-hour minimum);
- nature reserve site visits (one-hour minimum);
- WaterAid workshops, (one-hour minimum);
- school assemblies (15 minutes minimum);
- talks in schools/community hubs (30 minutes minimum);
- workshops in schools/community hubs (45 minutes minimum); and
- site open days comprising of a minimum of (one-hour minimum).

While our primary focus is to educate children, we will also deliver programmes to universities, colleges and community groups.

We consider all visit types and timings when creating our minimum activity duration.

Outcome: We will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Company performance commitment reference: Creating value from waste

Short definition

The additional environmental, social and financial benefit we create from resources currently under-used or classified as waste.

We aim to increase the value realised from the resource streams that currently exist in our business, including:

- operational sludges;
- fats, oils and greases;
- grit and screenings;
- heat;
- land;
- construction waste; and
- repair and maintenance waste.

The commitment supports our efforts to identify and implement cost-effective ways to convert under-used resources and waste into valuable resources by embedding circular economy models and pushing materials up the waste hierarchy. The commitment is about helping us unlock even more efficiencies by using new approaches and innovations while also responding to growing pressures on finite resources.

A range of benefits can be secured through working towards this performance commitment:

- stretching our environmental performance;
- enhancing natural capital;
- reducing costs;
- encouraging partnerships and innovative solutions, and
- improving efficiency, resilience and reliability of systems.

The benefits will be quantified in terms of the six capitals value created: natural, social, financial, intellectual, human and manufactured.

Measurement

The measurement for this performance commitment is the net economic value created by implementing approaches that improve resource use. As each resource is measured in different units, these are translated into a monetary benefit (£), and the value is derived from:

- cost savings from avoided landfill, transportation or re-processing;
- income from sale of resources; and
- avoided cost from resource re-use which replaces the purchase of virgin materials, including energy costs avoided from saving Kilowatt hours (kWh).

This will be a net measure, accounting for any costs necessary in delivering the efficiency improvements. This will be measured to the nearest £ million.

In addition, the economic monetary value may relate to financial, manufactured, natural, human, intellectual, and/or social capital (the six capitals approach) as set out by the International Integrated Reporting Council. This methodology considers the value of the environment and society as well as financial values and aligns with international best practice Natural and Social Capital Protocols.

The under-used resource and waste types included in the scope of the performance commitment are:

- **Grit and screenings:** these enter and accumulate in the sewer network or arrive and accumulate at the wastewater treatment works (tonnes).
- **Fats, oils and greases (FOG):** these enter and accumulate in the sewer network or arrive and accumulate at the wastewater treatment works (tonnes).
- **Water and wastewater sludges** (including potential calorific, mineral and nutrient value): these are produced through the water and wastewater treatment processes. There are also sludge lagoons, a legacy of historic operational practices (tonnes).
- **Heat lost to the natural environment:** from sewage and from water and wastewater treatment plants, including our energy generation assets (kWh).
- **Construction, repair and maintenance waste:** These activities produce a range of under-used materials including, for example, excavation materials and redundant kit from sites (tonnes).
- **Land:** This includes areas of our operational sites that are not currently needed, or not expected to be needed in the foreseeable future, for operational purposes (hectares). It also includes our catchment land where further value can be taken by increasing recreation and environmental improvements.

The list is not exhaustive, and there may be more opportunities for creating additional value from our existing resources. Any additions to the scope of this commitment will be subject to external audit and agreement by the Yorkshire Forum for Water Customers.

Our methodology will be subject to external audit and agreement by the Yorkshire Forum for Water Customers.

Through this process we will assess total impact and value, looking beyond the traditional financial bottom line to assign economic costs and benefits to a broader range of impacts and applying this to improve decisions and shape our approach.

The benefit values for each type of resource will be calculated annually on 31 March and aggregated to provide the total amount of benefit value created across the relevant resource and waste streams.

There will be costs and benefits associated to each improvement initiative, which we will assess as part of our process. We will only pursue approaches that are cost-effective to help keep bills low.

Mitigation / exceptions

None

Any other information relating to the performance commitment

The performance commitment is an evolution from the existing performance commitment measuring the diversion of waste from landfill currently in place for 2015-2020 period. By maturing the aim from a focus on only landfill avoidance and widening out the resources and waste which are considered for reuse or reduction, the new performance commitment offers greater benefits for our business operations, the environment and wider society.

Delivering benefits from our under-used resources is likely to involve a wide range of third parties and may best be delivered through other organisations once an approach reaches the right stage in its development. For example, Keyland Developments, also part of the Kelda Group, develops group assets in partnership with other organisations. Other organisations and approaches may also best deliver the value creation, for example community interest companies, charities or other organisations. This helps reduce risk to water customers while ensuring success and secured benefits to customers and wider society by engaging the right skills and experiences. The highly innovative approach we have taken to sustainable housing development at our Esholt site demonstrates how this multi-entity working creates value significantly beyond approaches we might achieve working alone.

Work under this commitment complements others such as managing carbon, land conserved and enhanced and integrated catchment management performance commitments. Aligning closely with our working with others performance commitment, they incentivise how we approach and conduct our operations in a responsible and efficient way, achieving as much as we can. We have ensured that the interactions have not resulted in duplicate incentives. We are committed to ensuring that information on our performance is easily accessible to all. We will be

promoting our annual performance against non-financial incentives through a wide range of media channels and focussed customer campaigns.

The performance commitment is held at appointee level and spans the Water Network Plus, Wastewater Network Plus and Bioresources price controls. Performance will be measured at the end of the 2020-2025 period. Progress towards the target will be reported annually.

The performance commitment embodies our big goal relating to bills; we will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Full definition of the performance commitment

The additional environmental, social and financial benefit we create from resources currently under-used or classified as waste.

The performance commitment is intended as an evolution from the existing commitment measuring the diversion of waste from landfill during the current 2015-2020 period. By maturing the aim from a focus on only landfill avoidance and widening out the resources and waste considered for reuse or reduction, the new performance commitment offers greater benefits for our business operations, the environment and wider society.

Disposing of material at landfill is both a cost and a lost opportunity and should only be adopted as a last resort. Central to the delivery of this performance commitment is the ability to transform under-used resources or waste for more beneficial, value-added uses, either internally or by working in partnership with third parties. This commitment aims to build a circular economy approach into operations. It also recognises creation of value in line with the six capitals approach, as set out by the International Integrated Reporting Council¹⁶.

Key terms

Waste:

The Waste Framework Directive provides the UK's framework for waste regulation, defining waste as: 'any substance or object which the holder discards or intends or is required to discard'. For this performance commitment, we are considering 'waste' as any of our physical resources that are a by-product of its operations which are sent to landfill.

The Waste Hierarchy:

The widely accepted method to rank waste management according to what is best for the environment. The order of rank is:

- prevention (avoiding a waste);

¹⁶ <https://integratedreporting.org>

- preparing for re-use;
- recycling;
- other recovery (e.g. thermal treatment such as waste to energy); and
- disposal (without any other beneficial recovery).

Under-used resources:

Under-used resources refer to a range of physical resources that are currently either unused, sent to landfill, or which currently have a low value use that can be enhanced.

Resource recovery:

Resource recovery refers to transforming low value resources and wastes into valuable resources – includes re-use, recycling, and recovery of heat and energy, and materials for sale or beneficial re-use. This means reducing waste sent to landfill and/or creating new value from an under-used resource.

Circular economy:

Circular economy looks beyond the traditional linear 'take, make and dispose' industrial model and focuses on whether our waste or resource can be recovered or re-processed.

Six capitals:

A concept in integrated reporting that highlights how we depend on all forms of capital (not just financial). The six capitals are:

- financial;
- human;
- manufactured;
- intellectual;
- social; and
- natural

The impact on these capitals may be assessed using a variety of tools including: Extended Input Output Analysis, Ecosystems Services Assessment, and Bespoke 'Capital' assessments.

The list of resources which are considered for the performance commitment includes:

- **Grit and screenings:** these enter and accumulate in the sewer network or arrive and accumulate at the wastewater treatment works (tonnes).
- **Fats, oils and greases (FOG):** these enter and accumulate in the sewer network or arrive and accumulate at the wastewater treatment works (tonnes).
- **Water and wastewater sludges** (including potential calorific, mineral and nutrient value): these are produced through the water and wastewater treatment processes. There are also sludge lagoons, a legacy of historic operational practices (tonnes).

- **Heat lost to the natural environment:** from sewage and from water and wastewater treatment plants, including our energy generation assets (KWh).
- **Construction, repair and maintenance (R&M) waste.** These activities produce a range of under-used materials including, for example, excavation materials and redundant kit from sites (tonnes).
- **Land:** This includes areas of our operational sites that are not currently needed, or not expected to be needed in the foreseeable future, for operational purposes (hectares). It also includes our catchment land where further value can be taken by increasing recreation and environmental improvements.

The list is not exhaustive, and there are likely to be further, currently unexplored opportunities for creating additional value from our existing resources.

Any proposed additions to the scope of this commitment will be subject to external audit and agreement by the Yorkshire Forum for Water Customers.

Measuring value from this performance commitment

The measurement for this performance commitment is the net economic value created by implementing approaches that improve resource use. As each resource is measured in different units, these are translated into a monetary benefit, the value is derived from:

- Cost savings from avoided landfill, transportation or re-processing
- Income from sale of resources.
- Avoided cost from resource re-use which replaces the purchase of virgin materials, including energy costs avoided from saving KWh.

This will be a net measure, accounting for any costs necessary in delivering the efficiency improvements.

In addition to tangible financial values (those that can appear on a traditional balance sheet), we will quantify the economic costs and benefits of a series of attributes across the six capitals.

The benefit values for each type of resource will be calculated and aggregated annually on 31 of March to provide the total benefit created across the relevant resource and waste streams.

Not all benefits can be monetised, and where they can, the monetary benefits calculated under the five non-financial capitals may not always be relevant to a traditional balance sheet, but maybe beneficial to the environment or the wider society.

Our six capital methodology is set out as part of the PR19 business planning process, and will be subject to external audit and agreement by the Yorkshire Forum for Water Customers. We will use the methodology we developed for our Total Impact and Value Assessment (TIVA) which we openly published on our website at

yorkshirewater.com/capitals. We will also use the cutting-edge capitals functionality we have embedded in our new Decision Making Framework. We will keep our methodology up to date with latest best practice methods for estimating the economic value of an activity across the capitals.

There will be costs and benefits associated to each improvement initiative, which we will assess as part of our process. We will only pursue approaches that are cost-effective to ensure the activity reported under this commitment does not present any pressure to increasing bills for our customers but can only add to our efficiency to help keep bills low for customers.

Outcome: We will always provide you with enough safe water, we will not waste water and always protect the environment.

Company performance commitment reference: Water recycling

Short definition

The volume of water recycled in our clean and wastewater treatment sites, reducing the volume of water abstracted from the environment.

The performance commitment includes:

- the re-use of process water in our clean and wastewater treatment sites, and
- the use of final effluent from our wastewater treatment sites for commercial applications.

Measurement

- Volume of water is measured in megalitres per day (Ml/d) to two decimal places.
- The performance commitment will be measured annually against the target on 31 March.

Mitigation / exceptions

Rainwater harvesting and grey water recycling are excluded from this measure.

Any other information relating to the performance commitment

The performance commitment is a new measure for 2020-2025. It applies to the Water Networks Plus and Wastewater Networks Plus price controls.

The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised annually in-period.

The performance commitment embodies our big goal related to water supply; we will always provide you with enough safe water, we will not waste water and always protect the environment.

The success of this performance commitment relies on cooperation with commercial and industrial users, and a more detailed investigation of the impact of effluent reuse will need to be completed.

Full definition of the performance commitment

The volume of water recycled in our clean and wastewater treatment sites, reducing the volume of water abstracted from the environment.

Recycling water in the context of a water company is the process of converting wastewater into water of a suitable quality that can be used for other purposes. By reducing the need to provide potable water, we reduce water abstraction from the environment.

This may include using recycled water in our existing treatment processes by substituting some commercial potable water supplies for final effluent from our wastewater treatment sites.

Key terms

Water recycling:

Converting wastewater used in our own processes or by our customers into a suitable quality for other uses. This includes re-using process water, commercial use of final effluent, and grey water systems.

Re-use of process water:

Wastewater created during the process of treating raw water for potable supply can be recycled by removing the solids material and returning it to the beginning of the treatment process. Re-use of process water also refers to the use of final effluent within the wastewater treatment process. Currently potable water is used for filter washing and polymer make up, in some cases this can be substituted by using final effluent.

Substitution of potable water supplies with final effluent:

Potable water is used in many industrial and commercial processes such as cooling systems or open space irrigation. This potable supply could in many cases be replaced with sub-potable water (that is final effluent). We will need to set up commercial agreements with businesses to achieve this.

Sub-Potable Water:

Water which is not fit for human consumption but can be used for other purposes.

Measurement

- Process water re-use at our water treatment works will be recorded by industry standard flow measuring devices. The exact location of these devices will be site specific. This will include existing and newly installed flow measurement devices. These will be calibrated and maintained as per our company standard. The volume of water recycled (Ml/d) will be recorded daily and reported annually.
- Final effluent from our wastewater treatment works will be used under commercial agreements. This will be recorded by industry standard flow

measuring devices. These will be newly installed, calibrated and maintained as per our company standard. The volume of final effluent re-used, and the volume of potable water supplied to the property will be recorded at the same frequency. The volumes will be reported in MI/d and reported annually.

Volume of water is measured in megalitres per day (MI/d) to two decimal places.

The performance commitment will be measured annually against the target on 31 March.

Outcome: We will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Company performance commitment reference: Affordability of bills

Short definition

The percentage of residential customers who find their water and sewerage bill affordable.

This is taken to be the percentage of residential customers who, when surveyed, agree that they find their water bill affordable.

Measurement

The Consumer Council for Water (CCWater) complete an annual survey known as Water Matters. The measure is the percentage of customers in Yorkshire who respond positively to the question within the survey, “How much do you agree or disagree that the water and sewerage charges that you pay for are affordable to you?”

The possible responses will be:

- strongly agree
- tend to agree
- neither agree nor disagree
- tend to disagree
- strongly disagree
- don't know

‘Strongly agree’ and ‘tend to agree’ will be considered positive responses.

The number of positive responses will be expressed as a percentage of overall responses. This will be measured to the nearest percentage.

The commitment will be measured annually and reported after the reporting year when results are published by CCWater. This is normally in June or July.

Mitigation / exceptions

None

Any other information relating to the performance commitment

The performance commitment relates to the Residential Retail price control and is a new measure for the 2020-2025 period.

The performance commitment is a non-financial incentive.

The performance commitment embodies our big goal related to customer bills; we will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Full definition of the performance commitment

The Consumer Council for Water (CCWater) complete an annual survey known as Water Matters. The measure is the percentage of customers in Yorkshire who respond positively to the question within the survey, “How much do you agree or disagree that the water and sewerage charges that you pay for are affordable to you?”

The possible responses will be:

- strongly agree
- tend to agree
- neither agree nor disagree
- tend to disagree
- strongly disagree
- don't know

‘Strongly agree’ and ‘tend to agree’ will be considered positive responses.

The number of positive responses will be expressed as a percentage of overall responses. The survey consists of a minimum of 200 telephone interviews with household water bill payers.

Water Matters surveys the views of household water bill payers across England and Wales. Respondents are responsible, either solely or jointly, for paying their household's water bill.

Recent survey samples have been structured according to the Office of National Statistics (ONS) Census Data, 2011. Quotas were set for each water company, based on gender, age and socio-economic classification (SEC5) within the relevant census region for each water company.

A random digit dial (RDD) approach ‘enhanced’ by appending additional contact telephone numbers and lifestyle data to the selected sample to help target calls, reduces the likelihood of unbalanced response rates and ensure quotas were met, particularly for harder to reach groups, such as those in the younger age groups.

The commitment will be measured annually and reported after the reporting year when results are published by CCWater. This is normally in June or July.

Outcome: We will develop the deepest possible understanding of our customers’ needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

Company performance commitment reference: Direct support given to customers

Short definition

The number of our residential customers who receive financial support through one of our approved schemes each year.

Measurement

We will measure the total number of our residential customers who receive financial support through one of the following financial support schemes:

Scheme	Description
WaterSure	Tariff for vulnerable households
WaterSupport	Social tariff
Temporary Help	Part bill reduction
Resolve	Payment matching
Community Trust	Charity awards
Fresh start	Live debt write-off
Domestic Meter Option (for those in debt)	Promotion of metering to those struggling to pay their bill

The total number of customers will be measured annually, at the end of the reporting year, on 31 March.

Mitigation / exceptions

Each scheme is designed to provide financial help to meets the customers own circumstances. This could be in the form of a one-off payment, a one-off reduction in bill value or a reduced tariff. For this reason, any residential customer registered for financial support within the 12 month period will be counted including those who move home during the reporting year, as they will have received financial help whilst living in our area. Any customer who received financial aid, irrespective of the length of time they receive the aid for, will be counted. This is to reflect that customers in vulnerable circumstances may need support for varying amounts of time.

If a customer receives financial support under more than one of the valid schemes during the reporting period, they will be counted as a single customer.

Any other information relating to the performance commitment

The performance commitment relates to the Residential Retail price control and is an existing measure for the current 2015-2020 period, and it will be continued for the 2020-2025 period. The performance commitment has a non-financial incentive.

The performance commitment embodies our big goal related to our customers; we will develop the deepest possible understanding of our customers' needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

Full definition of the performance commitment

The number of our residential customers who receive financial support through one of our approved schemes each year.

Any residential customer registered for financial support for any duration will be included in the total. This includes customers who are no longer customers of ours, for example, people who registered for the scheme during the reporting year but who have subsequently moved home outside our region during the reporting year.

Only schemes promoted by us, or those operated and promoted via partner agencies are considered valid for this measure. Our current schemes are listed below:

Scheme	Funding	Description
WaterSure	Tariff for vulnerable households	High water usage, on benefits and/or large family.
WaterSupport	Social tariff	Low income, high bill
Temporary Help	Part bill reduction	Hard to reach with a life changing event.
Resolve	Payment matching	In debt. Aimed at changing payment behaviour.
Community Trust	Charity awards	In debt with us and others
Fresh start	Live debt write-off	Hard to engage with. In debt year on year.
Domestic meter option for those in debt	Promotion of metering to those struggling	Those paying on rateable value but switch to be better off on a meter.

If a customer receives financial support under more than one of the valid schemes during the reporting period, they will be counted as a single customer.

The total number of customers will be measured annually, at the end of the reporting year, on 31 March.

Outcome: We will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Company performance commitment reference: Cost of bad debt

Short definition

The cost of unrecovered residential customers' bills ('bad debt') to all customers, expressed as a proportion of the average annual bill.

Bad debt costs are applied annually to bill paying residential customers to cover the cost of interest on revenues not collected, debt written off and debt management costs incurred. These are calculated as a percentage of the average annual water and sewage bill.

Measurement

The cost of bad debt is will be measured as a percentage of the average annual residential bill, measured to two decimal places.

This will be calculated as $A + B + C = D$, where:

- A = annual cost of interest on revenue outstanding, divided by number of residential customers.
- B = annual revenue written off, divided by number of residential customers.
- C = annual debt management costs, divided by number of residential customers.
- D = annual cost of debt per property (expressed as a percentage of the average residential annual bill).

Cost will be measured in pound sterling.

The cost of bad debt includes any of the following incurred within the reporting period:

- any outstanding water and/or sewage bill associated with a residential customer that is not collected;
- the cost of interest on outstanding debt;
- the cost of managing that debt through customer contact and debt collection activities; and
- any outstanding debt that is written off.

The average annual water and sewage bill will be calculated as the total residential revenue billed to residential customers divided by the total number of residential customers.

Mitigation / exceptions

None.

Any other information relating to the performance commitment

The cost of unrecovered residential customers' bills ('bad debt') to all customers, expressed as a proportion of the average annual bill.

The performance commitment applies to the residential retail price control. Cost of bad debt is an existing measure for the current 2015-2020 period, and it will be continued for the 2020-2025 period. The performance commitment has a non-financial incentive.

The performance commitment embodies our big goal of bills; we will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Full definition of the performance commitment

The cost applied annually to bill paying residential customers to cover the cost of interest on revenues not collected, debt written off and debt management costs incurred, as a percentage of the average annual water and sewage bill.

The cost of bad debt includes any of the following incurred within the reporting period:

- any outstanding water and/or sewage bill associated with a residential customer that is not collected;
- the cost of interest on outstanding debt;
- the cost of managing that debt through customer contact and debt collection activities; and
- any outstanding debt that is written off.

The above costs will be calculated at the end of the reporting period. These figures will be divided by the number of residential customers to obtain a value expressed as a percentage of the average annual bill.

Standard accountancy practice will be followed to capture the cost associated with bad debt from the financial accounts.

The performance commitment is calculated as $A + B + C = D$, where:

- A = annual cost of interest on revenue outstanding, divided by number of residential customers.
- B = annual revenue written off, divided by number of residential customers.
- C = annual debt management costs, divided by number of residential customers.

- D = annual cost of debt per property (expressed as a percentage of the average residential annual bill).

Key terms

Cost of interest:

The monetary value derived from the interest weighted cost of capital of the revenue uncollected during the report year.

Revenue outstanding:

The uncollected charges billed to customers during the report year.

Debt management costs:

The operational expenditure associated with debt collection related activity.

Outcome: We will develop the deepest possible understanding of our customers' needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

Company performance commitment reference: Priority services awareness

Short definition

The percentage of customers that are aware of the services provided under the Priority Services Register.

The Priority Services Register is a water and energy industry name for free services provided to customers in vulnerable circumstances.

We have a responsibility to protect vulnerable customers and we want them to be able to access all our services in a way that fits their needs.

We want to increase awareness and uptake of this dedicated service for customers who may require extra help. Examples of help that we offer are providing priority support in the event of an interruption to supply, assisting with meter readings, and arranging large print or braille bills.

Measurement

The commitment will be measured using the results of the Water Matters Report conducted by an independent company on behalf of Consumer Council for Water (CCWater).

The Water Matters survey covers household water bill payers in England and Wales. The respondents are responsible, either solely or jointly, for paying their household's water bill.

The sample is structured according to the Office of National Statistics (ONS) Census Data, 2011. Quotas are set for each water company, based on gender, age and socio-economic classification within the relevant census region for each water company.

The age groups used in the analysis of the survey data reflect the revised 2011 census data bandings.

The age band quotas were adjusted to represent not just the area make up but the percentage responsible for paying bills.

The survey is telephone based and is comprised of a random sample of households across England and Wales. A random digit dial approach 'enhanced' by appending additional contact telephone numbers and lifestyle data to the selected sample to help target calls, reduce the likelihood of unbalanced response rates and ensure

quotas were met, particularly for harder to reach groups, such as those in the younger age groups.

CCWater commissioned 200 interviews for each of the 10 Water and Sewerage Companies and 150 for the 13 Water only companies which equates to 3,950 interviews.

Each water company was given the opportunity to boost interview numbers and seven companies do so:

- Anglian – 200 additional interviews
- Dŵr Cymru Welsh Water – 200 additional interviews
- Severn Trent – 200 additional interviews
- United Utilities – 200 additional interviews
- Wessex – 300 additional interviews
- Yorkshire – 200 additional interviews
- South East – 150 additional interviews

The following question is used in the survey:

Are you aware of any additional services offered by your water company, such as large print or braille bills for people who need them, passwords to check that company callers are genuine, or liaison with customers on dialysis who need a constant supply of water?

- Yes, have heard of it but do not need it
- Yes, have subscribed to it
- No, but would like to know more
- No, but do not need it
- Don't know

The measurement is the percentage of customers surveyed that answer the above question with either:

- Yes, have heard of it but do not need it
- Yes, have subscribed to it

This is reported to the nearest percentage.

The CCWater survey for Yorkshire Water with a sample size of 400 is expected to provide a statistical reliability of ± 2.94 at 10%/ 90% confidence level. Further detail can be found on the CCWater water matters report:

www.ccwater.org.uk/research/water-matters-household-customers-views-of-their-water-and-sewerage-services-2017/

Mitigation / exceptions

Customers who are already on our Priority Services Register will be included in the measurement. This is because the CCWater methodology includes all customers. The data means there is no way to exclude those customers already on the PSR. We are satisfied that establishing total awareness amongst all customers is suitable as we will also be monitoring uptake of the PSR along with our other performance commitment and activities to ensure that we are catering for the needs of all customers.

Any other information relating to the performance commitment

The performance commitment relates to the Residential Retail price control. It is a new measure for the 2020-2025 period. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised in-period.

The performance commitment embodies our big goal related to our customers; we will develop the deepest possible understanding of our customers' needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

The performance commitment supports our approach to making our services accessible to all, and includes working closely with local charities to build knowledge in the community about the Priority Services Register. This is in addition to using our existing customer engagement and participation work to provide information in a way that is suitable.

We will raise awareness about the Priority Services Register through working with community organisations and charities to engage with customers that we have traditionally found harder to reach. These partners include (but are not limited to):

- Northern Powergrid;
- West Yorkshire Police;
- Bradford Director of Public Health; and
- Alzheimer's Society.

These relationships will also provide us with information and knowledge to ensure that all aspects of our service are accessible and fit for purpose. This performance commitment allows to compare ourselves against other water companies and look for opportunities to share good practice.

Internally we will monitor awareness of the PSR through our domestic tracker which runs monthly to allow us to understand what impact our activities have on this figure. This allows us to be effective and efficient in this area.

Full definition of the performance commitment

The percentage of customers that are aware of the services provided under the Priority Services Register.

Our ambition is to provide a fully inclusive service, but this can only be achieved if we are aware of the individual needs of our customers. Raising awareness of the Priority Services Register means more customers can register for services relevant to them. Services within the Priority Services Register include:

- braille bills;
- braille information;
- card warnings;
- CD bills;
- priority supply connection;
- home dialysis;
- large print bills;
- large print information;
- delivery of bottled water in a water supply incident;
- nominated person to handle the customer's account;
- password on accounts;
- meter readings;
- talking bill;
- text telephone contact; and
- visit in person.

Increased awareness allows family, friends and organisations to help us contact anyone who may need these services.

The commitment will be measured using the results of the Water Matters Report conducted by an independent company on behalf of CCWater.

The Water Matters survey covers household water bill payers in England and Wales. The respondents are responsible, either solely or jointly, for paying their household's water bill.

The sample is structured according to the Office of National Statistics (ONS) Census Data, 2011. Quotas are set for each water company, based on gender, age and socio economic classification within the relevant census region for each water company.

The age groups used in the analysis of the survey data reflect the revised 2011 census data bandings.

The age band quotas were adjusted to represent not just the area make up but the percentage responsible for paying bills.

The survey is telephone based and is comprised of a random sample of households across England and Wales. A random digit dial approach 'enhanced' by appending additional contact telephone numbers and lifestyle data to the selected sample to help target calls, reduce the likelihood of unbalanced response rates and ensure quotas were met, particularly for harder to reach groups, such as those in the younger age groups.

CCWater commissioned 200 interviews for each of the 10 Water and Sewerage Companies and 150 for the 13 Water only companies which equates to 3,950 interviews.

Each water company was given the opportunity to boost interview numbers and seven companies do so:

- Anglian – 200 additional interviews
- Dŵr Cymru Welsh Water – 200 additional interviews
- Severn Trent – 200 additional interviews
- United Utilities – 200 additional interviews
- Wessex – 300 additional interviews
- Yorkshire – 200 additional interviews
- South East – 150 additional interviews

The following question is used in the survey:

Are you aware of any additional services offered by your water company, such as large print or braille bills for people who need them, passwords to check that company callers are genuine, or liaison with customers on dialysis who need a constant supply of water?

- Yes, have heard of it but do not need it
- Yes, have subscribed to it
- No, but would like to know more
- No, but do not need it
- Don't know

The measurement is the percentage of customers surveyed that answer the above question with either:

- Yes, have heard of it but do not need it
- Yes, have subscribed to it

This is reported to the nearest percentage.

The CCWater survey for Yorkshire Water with a sample size of 400 is expected to provide a statistical reliability of ± 2.94 at 10%/ 90% confidence level. Further detail can be found on the CCWater water matters report:

www.ccwater.org.uk/research/water-matters-household-customers-views-of-their-water-and-sewerage-services-2017/

Outcome: We will develop the deepest possible understanding of our customers' needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

Company performance commitment reference: Priority services satisfaction

Short definition

The percentage of residential customers on our Priority Services Register who are satisfied with their experience of the Priority Services Register.

This is taken to be the percentage of residential customers on the Priority Services Register who, when questioned, agree that they are satisfied with the Priority Services Register.

The Priority Services Register is a water and energy industry name for free services provided to customers in vulnerable circumstances.

The performance commitment ensures a focus on the service received by those who may be in vulnerable circumstances. It tracks customer satisfaction in relation to the services provided, along with the overall experience since being on the Priority Services Register.

Measurement

The commitment will be measured monthly through our customer survey. The monthly responses will be totalled annually on 31 March.

At the end of the reporting year we will calculate the percentage of respondents who responded positively to the question, "How much do you agree with the following statement? I am satisfied with my experience of the Priority Service Register?"

The possible responses will be:

- strongly agree;
- somewhat agree;
- neither agree nor disagree;
- somewhat disagree; and
- strongly disagree.

'Strongly agree' and 'somewhat agree' will be considered positive responses. This will be reported to the nearest percentage.

The customer survey will be performed by an independent third-party research agency with a Market Research code of conduct qualification or equivalent.

Participation in the survey will be optional for selected respondents.

The survey will be administered by telephone, unless additional accessibility options are required under the Priority Services Register requirements.

The survey questionnaire will only include those customers who have been registered in on the Priority Service Register within the reporting year.

We will also track this measure against a similar question in the Consumer Council for Water's research 'Water Matters' survey.

Mitigation / exceptions

Customers on the Priority Service Register who do not wish to be contacted for marketing purposes will not be included in the survey.

Respondents who are on the Priority Service Register but have not needed to use the services will be excluded from the survey. For example, someone with reduced mobility who has requested bottled water delivery in the event of a supply interruption but has not been affected by such an event. Within the survey, respondents who do not have any experience of the services will be identified.

Any other information relating to the performance commitment

The performance commitment relates to the Residential Retail price control. It is a new commitment for the 2020-2025 period. The performance commitment has a proposed non-financial incentive.

The performance commitment embodies our big goal related to our customers; we will develop the deepest possible understanding of our customers' needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

The performance commitment supports our approach to making our services accessible to all and includes working closely with local charities to build knowledge in the community about the Priority Services Register. This is in addition to using our existing customer engagement and participation work to provide information to in the way that is suitable.

We will raise awareness about the Priority Services Register through working with community organisations and charities to engage with customers that we have traditionally found harder to reach. These partners include (but are not limited to):

- Northern Powergrid;
- West Yorkshire Police;
- Bradford Director of Public Health; and
- Alzheimer's Society.

These relationships will also provide us with information and knowledge to ensure that all aspects of our service are accessible and fit for purpose.

Full definition of the performance commitment

The percentage of residential customers on our Priority Services Register who are satisfied with their experience of the Priority Services Register.

This is taken to be the percentage of residential customers on the Priority Service Register who, when questioned, agree that they are satisfied with the Priority Service Register.

The Priority Services Register is a water and energy industry name for free services provided to customers in vulnerable circumstances.

The commitment will be measured monthly through our customer survey. The monthly responses will be totalled annually on the 31 March.

At the end of the reporting year we will calculate the percentage of respondents who responded positively to the question, "How much do you agree with the following statement? I am satisfied with my experience of the Priority Service Register?"

The possible responses will be:

- strongly agree;
- somewhat agree;
- neither agree nor disagree;
- somewhat disagree; and
- strongly disagree.

'Strongly agree' and 'somewhat agree' will be considered positive responses.

The question will be asked to a minimum of 600 customers annually, as part of our monthly customer survey. The survey will include a representative sample of customers who are registered for each of the services we offer.

The customer survey will be performed by an independent third-party research agency with a Market Research code of conduct qualification or equivalent.

Participation in the survey will be optional for selected respondents.

The survey will be administered by telephone, unless additional accessibility options are required under the Priority Services Register requirements.

The survey questionnaire will only include those customers who have been registered in on the Priority Service Register within the reporting year.

The survey will include additional questions relating to the accessibility of our services, the specific service provision options, and what elements customers expect or would like. The additional information will help to ensure that we continue to update and improve the services our customers expect from us.

A customer is considered vulnerable when circumstances, temporary or permanent,

reduce their ability to access or benefit from our services. This is typically due to their physical or mental health, life stage, language, or financial situation.

The Priority Services Register is a water and energy industry name for free services provided to customers in vulnerable circumstances. Services within the Priority Services Register include:

- braille bills;
- braille information;
- card warnings;
- CD bills;
- priority supply connection;
- home dialysis;
- large print bills;
- large print information;
- delivery of bottled water in a water supply incident;
- nominated person to handle the customer's account;
- password on accounts;
- meter readings;
- talking bill;
- text telephone contact; and visit in person.

Outcome: We will develop the deepest possible understanding of our customers' needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

Company performance commitment reference: Inclusive customer service

Short definition

The percentage improvement in the services provided to customers in vulnerable circumstances, as reviewed and assessed by a panel of independent third-party organisations and charities.

The review will cover customer accessibility of our service provision, the types of services provided and the effectiveness of delivery of those services, against the expectations of the panel. The review will output a quantitative score and the results will provide our customers with evidence of our current performance and provide an ongoing commitment to develop our service provision for customers in vulnerable circumstances to improve our standards year on year.

Measurement

Performance will be measured as the percentage improvement. This will be calculated as the percentage change in score from the score obtained in 2019-2020 to the score obtained in 2024-2045. For example, if the score were to improve by 1 point, this is equivalent to a 20% improvement.

The score is determined through the annual assessment by the panel. The assessment will cover three areas:

1. How accessible our services are to the relevant customers
2. How well the services we offer cater for the needs of all
3. How effectively the services are delivered

Each of the three criteria will be scored by individual organisations based on a scale of 1 to 5 (1=low competence, little evidence of performance, 5=highly competent, strong evidence of performance). A "criteria average score" (total score for each criteria divided by the number of organisations) will be obtained from their results. We will publish each criteria score for transparency purposes.

The overall score will be the average score across all criteria (i.e. the sum of all the scores divided by the number of scores). The review and assessment will cover details of our overall strategy, staff training, customer journey maps, details of services provided and results of our other two performance commitments relating to vulnerable circumstances.

The panel member organisations will be selected with guidance and approval from the Yorkshire Forum for Water Customers.

Mitigation / exceptions

The performance commitment is new for the period of 2020-2025. The full scope of the assessment criteria, information provision and selection of the independent panel will be designed in conjunction with the Yorkshire Forum for Water Customers during 2018-2019 and will be in place ahead of the 2020-2025 period.

The assessment will be piloted in 2019-2020 to provide the base performance score from which the improvement over the period 2020-2025 will be measured against.

Any other information relating to the performance commitment

The performance commitment relates to the Residential Retail price control. It is a new commitment for the 2020-2025 period. The performance commitment has a proposed non-financial incentive. The performance commitment will be measured and reported at the end of the 2020-2025 period. Progress will be reported annually.

The performance commitment embodies our big goal related to our customers; we will develop the deepest possible understanding of our customers' needs and wants and ensure that we develop a service tailored and personalised to meet those needs.

The performance commitment has been designed to work alongside two other performance commitments:

1. Priority services awareness
2. Priority services satisfaction

Full definition of the performance commitment

The percentage improvement in the services provided to customers in vulnerable circumstances, as reviewed and assessed by a panel of independent third-party organisations and charities.

We regard a customer as being vulnerable when circumstances, temporary or permanent, reduce their ability to access or benefit from our services. This is typically due to their physical or mental health, life stage, language, or financial situation.

Our review will be performed by a panel of selected national and regional charities and organisations who are experts in understanding different areas of vulnerability. For example, organisations including the Alzheimer's Society, RNIB, Mind and the Business Disability Forum have confirmed that they will be able to assist with the review and assessment process. The panel will be formed each year with the objective to ensure that areas where we are under-represented within our customer base are taken account of by the panel. The panel will be governed by a clear terms

of reference, and the process and results will be overseen by the Yorkshire Forum for Water Customers.

Recognising that the charities we contract with are not professional auditors, we will develop a straightforward framework that will be guided and approved by the Yorkshire Forum for Water Customers. We will use independent auditing expertise to assist in the design of the process. This will provide structure and objectivity to the review whilst giving the external stakeholders the support needed to conduct this review with a high level of accuracy and consistency.

The main areas being reviewed will cover:

1. How accessible our services are to the relevant customers
2. How well the services we offer cater for the needs of all
3. How effectively the services are delivered

The panel reviewers will be provided with customer journey maps, details of the services we provide, training material and results of our other two performance commitment measurements and details of our strategy to meet the needs of customers in vulnerable circumstances. This will provide the panel with an ability to review the overall service we provide to those customers who may be in vulnerable circumstances.

Each of the three criteria will be scored by individual organisations based on a scale of 1 to 5 (1=low competence, little evidence of performance, 5=highly competent, strong evidence of performance). A “criteria average score” (total score for each criteria divided by the number of organisations) will be obtained from their results. We will publish each criteria score for transparency purposes.

The overall performance commitment score will be the mean score across all criteria (i.e. the sum of all the scores divided by the number of scores).

Performance will be measured as the percentage improvement. This will be calculated as the percentage change in score from the score obtained in 2019-2020 to the score obtained in 2024-2045. If the score were to increase by 1 point, this is the equivalent of a 20% improvement.

This commitment recognises that we can learn from and work with experts on vulnerability with the drive to continually improve.

Outcome: We will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Company performance commitment reference: Gap sites

Short definition

The percentage of all legitimate identified gap sites added to the billing file within 12 months of identification. Identified gap sites will be from both customer contacts and proactively from annual billing file reconciliation with external data sets.

In the interest of being fair to all our customers, and ensuring that bills are affordable, it is important that any properties that are consuming water are registered as customers and being managed through the bill payments system. This measure is targeted at improving our performance by identifying the number of properties that are unrecorded on our billing system.

The number identified as previously unrecorded will be based on those accounts set up as a result of information received or investigation. All properties set up through the companies documented procedure for new supplies will be excluded providing the customer has not previously requested a bill.

Measurement

The percentage of gap sites added to the billing file within 12 months of identification, measured to the nearest percentage. Identified gap sites will be from both customer contact and proactively from annual billing file reconciliation with external data sets.

Properties identified and matched to new installation details prior to customer contacts requesting a bill as part of the standard set up procedure will be excluded.

The number of historical gap sites have not previously been reported. The measures is therefore based on sample data captured in 2017.

Mitigation / exceptions

All properties set up through the companies documented procedure for new supplies prior to customer contact for a bill will be excluded.

Cases identified proactively that have already been identified reactively will not be counted again in the calculation.

Any other information relating to the performance commitment

The performance commitment relates to the Residential Retail price control and will

be measured annually at the end of the reporting year on 31st March. The measure is a new performance commitment for the 2020-2025 period. The performance commitment has a proposed non-financial incentive.

The performance commitment embodies our big goal of bills; we will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Full definition of the performance commitment

The percentage of all legitimate identified gap sites added to the billing file within 12 months of identification. Identified gap sites will be from both customer contacts and proactively from annual billing file reconciliation with external data sets.

In the interest of being fair to all our customers, and ensuring that bills are affordable, it is important that any properties that are consuming water are registered as customers and being managed through the bill payments system. This measure is targeted at improving our performance at identifying the number of properties that are unrecorded on our billing system.

Gap sites will be identified through two main routes

- i) Through proactive searches and third party notification.
- ii) From information obtained from customers notifying of occupation of a property or change of use.

The number reported is based on those cases set up on the billing system as chargeable. The commitment is expressed as a percentage of the following, counted from April to March:

Those set up after a customer contact + those set up proactively

divided by

Those notified to us by customers + those notified to us proactively

All cases identified proactively must be set up on the system to be included in the measure.

This design of the measure incentivises the company to improve how effective it is at setting up new properties. Improvements to the speed of set up and accuracy of data reduces the number of unnecessary contacts from customers.

Proactively identifying gap sites will also improve performance by increasing the total volume of cases in the above calculation.

Outcome: We will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Company performance commitment reference: Voids verification

Short definition

The percentage of residential properties in the Yorkshire Water region verified as voids.

Voids are properties that are verified by us as vacant or uninhabited. In the interest of being fair to all our customers, and to ensure that bills are affordable, it is important that any property that is using water is registered to a bill paying customer.

Measurement

The commitment will measure:

- the total number of properties verified as void by us; and
- the total number of connected properties in our region.

The total number of void properties will be expressed as a percentage of the total number of connected properties measured to the nearest percentage. This will be measured annually as the number on record on 31 March.

Mitigation / exceptions

To be included in the registered void figure:

- Properties have to be registered on our records as empty for more than three months before being identified as void. By including a time-bound element of three months ensures there is an incentive to identify and bill customers as early as possible. This is in the interests of individual households by preventing an unnecessary large first bill and protects income, keeping bills low for everyone.
- Water usage is less than nine cubic meters (m³) since the last reading taken by us.

Any other information relating to the performance commitment

The performance commitment relates to the Residential Retail price control and is a new performance commitment for the 2020-2025 period. The performance commitment has a non-financial incentive.

The performance commitment embodies our big goal of bills; we will use innovation to improve service, eradicate waste and reduce costs so no one need worry about paying our bill. We will not waste money.

Full definition of the performance commitment

The percentage of residential properties in the Yorkshire Water region verified as voids.

Voids are properties that are verified by us as vacant or uninhabited. In the interest of being fair to all our customers, and to ensure that bills are affordable, it is important that any property that is using water is registered to a bill paying customer.

Properties become vacant because of information received from:

- customers;
- third parties; and
- intelligence from colleagues.

For example, if a customer tells us they are vacating the property, we close their record and create a new account for the property showing that it is empty. After three months, if no new customer has registered at that address, we register the property as void and the void verification process starts.

Void verification process

At year end properties will be classified as either a verified void or an unverified void. During the year unverified voids may step through our process multiple times. Where evidence is inconclusive cases will remain as unverified. Typically, this could be because we have had no response from the occupier and have not made contact or credit checks do not indicate there is an occupier there.

To determine whether a property is void one or more of the following need to be carried out:

- visit the property;
- take a meter reading;
- request that the occupier contact us using our data mailer form response; and
- carry out a detailed credit check.

A property will not be verified as a void if:

- it has been vacant or uninhabited for less than three months; or
- the water usage perimeter reading cycle is more than nine cubic meters (m³).

Once enough information is gathered a property may be verified and be removed from the void list. Wherever possible this process is automated.

As an example:

A property that does not return a decisive credit check, this might indicate the property is occupied. It is then classed as silver or bronze status and may be credit

checked again the next time the data is shared with the credit reference agency.

Where the property has a meter installed, this may be supported by a zero meter read or water usage is less than nine cubic meters (m³). We will also attempt to make contact with the resident to verify the status.

Internal data analysis has determined that nine cubic meters (m³) during a six-month period might indicate a leaking appliance. Consumption that steeply increases above this level, indicates the property is occupied.

The total number of void properties will be expressed as a percentage of the total number of connected properties and will be measured annually as the number on record on 31 March.

Outcome: We will always provide you with enough safe water, we will not waste water and always protect the environment.

Company performance commitment reference: Drinking water contacts

Short definition

The number of contacts received about drinking water (taste and odour, and appearance)

The performance commitment relates to the quality of the water we supply to our customers, measuring the number of customer contacts we receive per 10,000 population relating to the appearance, taste and odour of the water we supply and will be reported annually on the 31 March.

This performance commitment is defined via the Drinking Water Inspectorate (DWI) guidance from the Information Letter 1/2006, for the areas of appearance, taste and odour:

- **Annual Provision of Information on Consumer Contacts**
(http://dwi.defra.gov.uk/stakeholders/information-letters/2006/01_2006.pdf)

Measurement

We will measure the number of customer contacts we receive per 10,000 population regarding the concern about drinking water quality in its appearance, taste or odour each financial year.

We will ensure that multiple contacts which deal in part with drinking water quality are recorded as a customer contact about drinking water quality. We will establish from the consumer whether any second or subsequent contact is a new event or a continuation of the former one. Where this remains unclear each contact should be separately recorded in the dataset.

Mitigation / exceptions

A contact will be recorded and categorised only when it is clear that the consumer's concern about their drinking water quality is based on an observation (or a perception) that its appearance, taste or odour is other than "normal". Exceptions from this can be:

- Customer contact relates to water supplied by another water company will not be included in the dataset.
- Contacts may be received by companies through their websites. Many of these are from school children and college students seeking information to help them with an educational assignment – these contacts should be excluded from the dataset as many are not company specific.
- We have dedicated numbers for the public to ring and report specific matters e.g.

leaks or use of hoses in a drought (these are not contacts about drinking water quality).

- It can be difficult to establish the nature of a contact, for example, where English is not the first language of the caller or the call is made on behalf of a customer by somebody else. We will strive to take all reasonable steps to establish if a call is a contact about drinking water quality and where it is unclear to take the precautionary approach by including such contacts in the dataset.
- When a contact is investigated because it is also a “complaint” and the complaint is subsequently considered to be unjustified, the contact should still be retained in the dataset. However, when we receive frequent contacts from one customer (or household) over a long period of time (sometimes referred to as a vexatious caller) and another agency, such as Consumer Council for Water, the Local Authority or the Inspectorate, has investigated the matter and concurs with our judgement, all the contacts from the customer can be recorded as a single contact.
- Contacts from representatives of customers such as a local councillor or an MP usually relate to a water quality incident or to a customer’s complaint and inclusion of these would duplicate information already recorded.
- Some contacts relate to the quality of drinking water in a public building or commercial premises and involve several different callers. These may be recorded as a single contact if they clearly relate to the same building or water system.
- On investigation some contacts will be found to relate to a private supply of water and not the company’s public water supply, these contacts will be excluded.
- DWI notifiable incidents (reference level of 15 contacts) are excluded as these are reported and investigated separately and would be double counting.
- Contacts received as DWI category of illness will be excluded as per Discover Water reporting methodology.

Any other information relating to the performance commitment

The performance commitment is a revision to the current 2015-2020 measure and relates to the Water Networks Plus price control. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised annually in-period.

The performance commitment embodies our big goal related to water supply; we will always provide you with enough safe water, we will not waste water and always protect the environment.

Full definition of the performance commitment

The number of contacts received about drinking water (taste and odour, and appearance)

The performance commitment relates to the quality of the water we supply to our customers, measuring the number of customer contacts we receive per 10,000

population relating to the appearance, taste or odour of the water we supply and will be reported annually on the 31 March.

A customer contact about drinking water quality is any communication about drinking water quality initiated by a customer living or working in the area supplied by the water company including phone, letter, fax, email, in person, website request form and message left on a helpline.

Categorisation

Contacts received are record and categorised as:

Discoloured water – brown/black/orange the colour of the water is the focus of the contact even though this may be understood by the company to be accompanied by mains deposits suspended in the water (also include here staining of laundry due to discoloured water and concerns arising from problems with tanks and boilers due to mains deposits after a burst).

Discoloured water – blue/green the colour of the water is the focus of the contact (do not include here if the colour is only mentioned as being present on deposits adherent to a tap, bath or shower tiles/tray – these should be recorded in the General Conditions category, see below).

Particles – the focus is reported as visible particles, either floating in the water or settled out in the bottom of a glass or jug (the water would be reported as clear).

White – air the contact refers to white or milky looking water and the glass test confirms that the cloudiness clears from the bottom up leaving no sediment.

White – chalk the contact refers to white or milky looking water and the glass test confirms that the cloudiness clears from the top down leaving white sediment on the bottom.

Animalcules the contact refers to seeing a creature, living or dead, typically these will be either chironomid larvae or *Ascellus* but include here any contact where a specimen is subsequently provided and identified by the company's water quality scientist as an aquatic animal. (Exclude contacts about slimes adhering to a tap or water fitting – these should be recorded in the General Conditions category, see below).

General conditions the contact relates to the appearance of a deposit or slime or colour that is present on the outside of a tap or water fitting, included here are contacts about hardness deposits in kettles, staining of the sink, bath, shower cubicle, tiles etc. This category of contact deals with common consumer concerns where the water itself appears normal (it is clear and bright in appearance and free from taste and odour) and the phenomenon is arising within the household environment. A typical cause being inadequate ventilation combined with the use of aerosol dispensed household or personal products. This category should also be used for contacts relating to the quality of water in hot water systems or

heating/cooling systems and humidifiers.

Chlorine the consumer states that the taste or odour is due to chlorine in the water. This category will include all chlorine related descriptions, for example, TCP taste, disinfectant/medicinal odours on boiling a kettle or taking a shower, smells like a swimming pool (exclude burning sensation in the mouth – these should be classified as illness as the description relates to a symptom not to the water). Department for Environment, Food and Rural Affairs Home Page: www.dwi.gsi.gov.uk E mail: dwi.enquiries@defra.gsi.gov.uk Llywodraeth Cynulliad Cymru Welsh Assembly Government 5.

Earthy/Musty the consumer description of the taste or odour is such that it is clear they perceive a natural taste or odour relating to soil or vegetation (include here specific tastes known to be due to algae such as MIB or geosmin as well as general descriptions such as musty or stagnant, companies may wish to use this category for recording contacts where the investigation has shown conditions that give rise to warming of the mains water supply, long runs of pipe etc).

Petrol/Diesel the consumer description of the taste or odour is such that they clearly perceive the presence of petroleum or hydrocarbon based substances (include here specific odours such as petrol, diesel, creosote, as well as general descriptions such as oily, solvent).

Other taste or odour this category covers the less frequently encountered tastes and odours such as bitter, metallic, sweet, salty/saline. This category should also be used for any taste or odour not specifically mentioned in any other taste and odour category. Care should be taken in classifying contacts reporting a metallic taste because some consumers describe chlorine in the water in this manner.

Outcome: We will always provide you with enough safe water, we will not waste water and always protect the environment.

Company performance commitment reference: Significant water supply events

Short definition

The number of supply interruption events lasting for a duration of 12 hours or longer, irrespective of whether it was planned, unplanned or caused by a third party.

The number of water supply interruptions 12 hours or longer, will be reported annually on the 31 March.

The performance commitment reflects how resilient both our assets are and the operational response to events that could impact the long-term supply of water to our customers.

Measurement

We will measure the number of events where one or more properties has an interruption of 12 hours or longer, each financial year.

- A water supply interruption event starts when water is no longer available at the first tap, whether a residential or business property.
- The duration of a supply interruption is determined by the time taken between the initial notification of the interruption and the time of the restoration of supply.
- One or more properties must experience a supply interruption of 12 hours or longer to count as an event for measurement in the performance commitment.
- Events of 12 hours or longer, will be reported annually on the 31 March.

Mitigation / exceptions

- Water supply interruptions resulting from private issues will not be measured. Following an isolated customer contact of no water, we will investigate if it is an issue with our assets, by examining other available data such as logged pressure and flow and operational activity. We have a robust Root Cause Analysis process to identify whether it is a Yorkshire Water related asset that has caused the interruption or whether this is a private issue. A private issue is defined as where a non-Yorkshire Water asset caused the interruption, such as a pump set failure in a block of flats.
- Low pressure to a property will not be considered a supply interruption. Low pressure is defined as ten metres head of pressure, at the external stop tap, at a flow of nine litres per minute, supplying water constantly at a pressure to reach the upper floors of properties. Because of the difficulties in measuring pressure and flow at the external stop tap, we measure against a surrogate

level of 15m head in the adjacent distribution main.

- Extreme events such as weather will be included in the performance commitment, to ensure the resilience of our assets is measured.
- All properties within a shut off are reported as impacted regardless of status; empty properties and voids are included.

Any other information relating to the performance commitment

We have modified this performance commitment from the current 2015-2020 Stability and Reliability performance commitment sub-measure of interruptions greater than 12 hours (properties) to the proposed interruptions 12 hours or longer (events) for the 2020-2025 period.

The current sub measure has been amended from 'properties' to 'events' for the 2020-2025 performance commitment due to:

- The total number of properties impacted by a supply interruption is captured in the common performance commitment 'Customer Minutes Lost'. Measuring properties of 12 hours or longer in a separate performance commitment will result in double counting properties with supply interruptions;
- The 'Customer Minutes Lost' performance commitment encourages companies to target events where a large number of properties are impacted by a supply interruption for long periods of time. However, we recognise that a supply interruption of 12 hours or longer is a significant inconvenience for any customer, therefore it is important to reflect this as a performance commitment. By counting number of events, instead of number of properties, we are ensuring a focus on all significant supply interruptions, regardless of the scale of the incident.

The performance commitment will be measured annually on the 31 March and applies to the Water Network Plus Price Control. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised annually in-period.

The performance commitment embodies our big goal related to water supply; we will always provide you with enough safe water, we will not waste water and always protect the environment.

Full definition of the performance commitment

The number of supply interruption events lasting for a duration of 12 hours or greater, irrespective of whether it was planned, unplanned or caused by a third party.

Key terms

Supply:

Supply is defined as water that is supplied from our network to our customers (residential and business).

Water Supply Interruption:

A water supply interruption is when there is no water available at the first tap.

Event:

An event is defined as an interruption to one or more properties. An event is both spatially and temporarily variable. As such, based on the location and time of notifications, an event will be classified by the following two conditions:

1. All notifications received downstream of the point of interruption, will be considered as one event.
2. Notifications received between the time of the first notification and the time of resolution of the interruption for that notified area, will be considered as one event, if the notifications are also within the same area of the network, as described in condition one.

Where a single customer notification of loss of supply is received, we will investigate to ensure that it is an issue with one of our assets, rather than a private supply. In such instances, we will use other available data, such as logged pressure, flow and operational activity, to establish the nature of the interruption. We have a robust Root Cause Analysis process to identify whether it is one of our assets that has caused the interruption or whether this is a private issue. Where it is identified as a private issue, this will not be included as an event.

Duration:

The duration of a supply interruption is determined by the time taken between the initial notification of the interruption to the restoration of supply.

The notification of an event is determined by the time that:

- logged data showing a discernible difference in pressure or flow;
- the time of the first customer call notifying us of a supply interruption where this is a result of our asset; and/or
- time works starts, as recorded by our staff, or suppliers, undertaking planned or unplanned works.

The resolution of an event is the time that supply is restored to the property. This is recorded by:

- logged data;
- our staff, or suppliers, undertaking the works; and/or
- customer call-back confirming water restored at first tap.

Events of 12 hours or greater, are logged and reported annually on the 31 March.

Outcome: We will always provide you with enough safe water, we will not waste water and always protect the environment.

Company performance commitment reference: Low pressure

Short definition

The number of properties receiving low water pressure.

The performance commitment relates to the total number of properties we supply which, at the end of the year, have received, and are likely to continue to receive, a pressure or flow below the reference level. The reference level of service is a flow of 9l/min at a pressure of 10m head on the customer's side of the main stop tap (MST). This performance commitment is defined via Ofwat's final definition of Low Pressure for PR19:

- **Properties at risk of receiving low pressure** (<https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Properties-at-risk-of-receiving-low-pressure.pdf>)

Measurement

The number of properties receiving low water pressure.

For two properties, a flow of 18l/min at a pressure of 10m head on the customers' side of the MST is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS6700 or Institute of Plumbing handbook.

Due to the difficulties in measuring pressure and flow at the MST, we measure against a surrogate level. We use a surrogate of 15m head in the adjacent distribution main.

We operate a procedure for dealing with customer complaints of low pressure by measuring flow and pressure at the customers tap. Where this is inadequate the service is excavated at the property boundary to check adequacy of supply. Any inadequate communication pipes are replaced at the time of excavation. Since these problems are rectified upon identification they do not result in additions to the register.

Mitigation / exceptions

All properties identified as having received pressure or flow below the reference level must be reported, unless we can confirm that they are covered by one of the following exclusions:

- **Abnormal demand** – This covers abnormal peaks in demand and not the daily, weekly or monthly peaks in demand which are normally expected. We apply **Option 1 from the guidance document** - During the report year, we may exclude for each property a maximum of 25 days of low pressure caused by abnormal demand in a rolling five-year period. In years where demand is normal (i.e. the exclusion is not being used), properties affected by relevant low pressure

incidents should be reported as receiving low pressure (unless covered by one of the other exclusions).

- Planned maintenance - We report low pressures caused by planned maintenance and maintain sufficiently accurate records to verify that low pressure incidents that are excluded because of planned maintenance.
- One-off incidents - This exclusion covers a number of causes of low pressure:
 - mains bursts
 - failures of company equipment
 - firefighting
 - action by a third party

If problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.

- Low pressure incidents of short duration - Properties affected by low pressures which only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded from the reported figures.

We carry out continuous pressure logging year round, low pressure incidents of less than one hour may be excluded. Where short term or intermittent logging is used, if all low pressure incidents lasting less than one hour are excluded then there is a danger that properties which are actually below the reference level will be missed from the figures. In this case a suitable minimum duration depends on the exact methodology used but may be 30 or even 15 minutes, but never more than 1 hour.

We maintain verifiable, auditable records of all the exclusions that they apply in order to confirm the accuracy and validity of their information.

Any other information relating to the performance commitment

The performance commitment is a continuation of the current 2015-2020 measure. This will be measured annually on the 31 March, and applies to the Water Network Plus Price Control. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised annually in-period.

The performance commitment embodies our big goal related to water supply; we will always provide you with enough safe water, we will not waste water and always protect the environment.

Full definition of the performance commitment

The number of properties receiving low water pressure.

The performance commitment relates to the total number of properties we supply which, at the end of the year, have received, and are likely to continue to receive, a pressure or flow below the reference level. The reference level of service is a flow of 9l/min at a pressure of 10m head on the customer's side of the main stop tap (MST).

This performance commitment is defined via Ofwat's final definition of Low Pressure for PR19:

- **Properties at risk of receiving low pressure** (<https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Properties-at-risk-of-receiving-low-pressure.pdf>)

Outcome: We will always provide you with enough safe water, we will not waste water and always protect the environment.

Company performance commitment reference: Repairing or replacing customer owned pipes

Short definition

The total number of residential supply pipe repairs and renewals carried out by us each year.

The supply pipe is owned by the customer, and transports water from our stop tap at the property boundary to an internal tap inside the customer's property. Some of these pipes are in a poor condition, so repairing or replacing them will help to maintain excellent water quality, pressure and flow to the customer.

Measurement

We will measure and report the total number of residential supply pipe repairs and renewals completed within each year (1 April to 31 March).

- Pipe repairs will be classified as:
 - repair leaking supply pipe;
 - repair leaking external supply pipe; and
 - repair leaking supply pipe private.
- Pipe renewals will be classified as:
 - renew leaking supply pipe less than 10m;
 - renew leaking supply pipe greater than 10m; and
 - renew lead supply pipes.

Mitigation / exceptions

Any job incorrectly reported as a supply pipe repair or renewal, when it is, for example a leaking communication pipe or stop tap, will not form part of this performance commitment.

Business properties will not be included in this performance commitment.

Any other information relating to the performance commitment

The repairing or replacing customer owned pipes performance commitment is in the Water Network Plus price controls. The performance commitment is a new measure for the 2020-2025 period. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised in-period.

The performance commitment embodies our big goal of water supply; we will always provide you with enough safe water, we will not waste water and always protect the

environment.

Full definition of the performance commitment

The total number of residential supply pipe repairs and renewals carried out by us each year.

There are three main types of pipes that supply potable water: water mains, communication pipes and supply pipes.

- Water mains pipes are large pipes which transport water around the area and are usually laid in the highway. These are our responsibility.
- Communication pipes transport water from the main to our stop tap. These are usually at the boundary of the property and our responsibility.
- Supply pipes transport water from our stop tap to the internal stop tap or first tap in the property. These are the responsibility of the property owner.

Categorisation

The repair or renewal of the supply pipe may be the result of a customer related need (e.g. failed flow or lead pipe), to resolve a leakage related issue, or as part of some other network requirement.

- To repair a supply pipe, we usually fit a small clamp to the pipe, Repairs will be classified as:
 - repair leaking supply pipe;
 - repair leaking external supply pipe; and
 - repair leaking supply pipe private.
- Renewal means to replace the entire pipe length. Renewals are classified as:
 - renew leaking supply pipe less than 10m;
 - renew leaking supply pipe greater than 10m; and
 - renew lead supply pipe.

The work orders are raised under differing “job types” (according to the need) within the company’s work management system. The number of completed supply pipe jobs is recorded by the service partner and, according to the codes used, this enables a report to be produced.

Some jobs may be raised as a communication pipe repair or renewal, but upon digging to carry out the work, it is found that the repair is on the supply pipe. Any job incorrectly reported as a supply pipe repair or renewal, when it is, for example a leaking communication pipe or stop tap, will not form part of this performance commitment.

The supply pipe is not our legal responsibility, but that of the property owner. The property owner is responsible for repairing any supply pipe leak in a timely manner, at their own cost. However, to support our commitment, we are offering a leaking

pipe repair service for leaking pipes. This is available for all residential properties that receive a domestic bill from us.

This service only applies to the supply pipe, which is the underground pipework, including fittings, from the boundary of the street, up to the first point of entry into the property. In other words, pipework laid in private land (see the 'Whose pipe is it?' leaflet, on yorkshirewater.com/pipework).

The property owner, or occupier (on behalf of the property owner), must sign a disclaimer form, authorising us to carry out the supply pipe repair.

The supply pipe repair will normally be attempted within 14 days, as it is not intended as an emergency service. We will prioritise all repairs based on the impact and severity of the leak.

Where a supply pipe leak on a residential property is having a detrimental impact on our water network, we reserve the right to intervene using our statutory powers as defined in Sections 73-75 of the Water Industry Act 1991. These powers allow us to isolate the water supply and/or locate and repair the leak within the boundary of the residential property.

Supply pipes in poor condition

If we find that a leaking supply pipe is not suitable for repair, has had previous repairs undertaken, or is not made from our preferred material (polyethylene), and:

- the supply pipe is 20 metres or less, we will replace part or all of the supply pipe, subject to access.
- the supply pipe is greater than 20 metres, we will provide the property owner with a quotation for a subsidised supply pipe relay. If the property owner does not wish to accept the quotation, we will serve a Section 75 notice. This will give the owner 14 days to resolve the leak through alternative means. If the leak is not repaired by the property owner, we will resolve it and all costs incurred will be recharged to the property owner.

Joint supply pipes

If a property is supplied from a joint supply, which is not suitable for repair, we may choose to disconnect the property from the joint supply and install a separate supply pipe directly to our mains network, subject to access and cost.

Reinstatements

We may need to excavate more than one hole to locate and repair the leak, or relay the supply pipe, depending on the technique used. We aim to return the area to its original state, remove all waste material, leaving it clean and tidy.

We will not carry out any specialist reinstatement work, i.e. block paving, coloured tarmac or pressed concrete. This remains the property owner's responsibility, and they will have to make their own arrangements to complete the reinstatement.

Policy exclusions

The following section details our exclusions to the supply pipe repair service. While all repairs or replacements carried out on customer supply pipes will be measured within the performance commitment, the following exclusions will not be eligible for the supply pipe repair service:

Business properties:

Properties that receive a bill for water services from a retailer, including Yorkshire Water Business Services.

'New build' residential properties:

Properties less than two years old.

Residential properties with internal leaks:

Where we identify that a leak is inside the property, or at point of entry to the property, or within the cavity wall.

Supply pipes under residential properties:

Where we identify that, the leak is under a structure, i.e. a kitchen extension or garage.

Third party damage:

Where we identify that the leak has been caused by accidental, reckless or deliberate damage to the supply pipe.

We will measure and report the total number of residential supply pipe repairs and renewals completed within each year (1 April to 31 March).

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: External sewer flooding

Short definition

The number of external flooding incidents per year caused by the escape of water originating from public sewers, affecting properties or single curtilages.

The performance commitment definition will follow the published guidance for "External Sewer Flooding" as set out in our information notice and PR19 methodology.

The performance commitment will reduce, manage and prevent external flooding incidents to properties or single curtilages that are used for residential, public, community and business purposes. External flooding will be categorised into normal incidents, which arise from hydraulic overloading, operational activities and third-party interference.

This performance commitment is defined via Ofwat's final definition of External Sewer Flooding for PR19:

- Reporting guidance – Sewer flooding (<https://www.ofwat.gov.uk/publication/reporting-guidance-sewer-flooding/>)

Measurement

The performance commitment refers to three measurements:

- The number of properties (or curtilages) flooded per year during each flooding event from a public sewer
- How many incidents have been included due to activities that were carried out to determine the number of neighbouring properties affected
- Incidents arising from assets transferred to us in 2011 and 2016

Where flooding has occurred, and flooding subsides, any subsequent flooding shall be counted as a separate incident. This shall be regardless of the time between events and if any investigation or follow on work has started or been completed.

Mitigation / exceptions

Flooding caused by the blockage or failure of a gully, shared by two or more properties and connected to a public sewer, or blockage of the gully grating, or the failure of any pipework above ground, shall be excluded. It should be noted that this

is not to be taken as an opinion on the legal status of these aspects of drainage apparatus.

Flooding due to surface water run off which has not originated from public sewers:

- Fluvial flooding,
- Coastal flooding,
- Ground water which has not originated from a public sewer,
- Flooding from water mains etc.; or
- Incidents caused by highway drains
- Incidents caused by private assets (including drains). The Water UK “Guide to Transfer of Private Sewers Regulations 2011”, published on 30th September 2011 shall be applied to assess if the flooding incident should be attributed to the undertaker or a private asset such as a drain.

Areas shall be excluded from the reported numbers: ‘highways’ – including footpaths; and ‘public’ open space; agricultural land; car parks including overflow.

Any other information relating to the performance commitment

The performance commitment is a revision of the current 2015-2020 measure and relates to the Wastewater Networks Plus price control. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised annually in-period.

The performance commitment embodies our big goal relating to the environment; we will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Full definition of the performance commitment

The full definition of the performance commitment is as described in Ofwat’s Final reporting guidance for PR19, ‘*Reporting guidance – Sewer flooding*’ published in April 2018.

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Bathing water quality

Short definition

The number of designated bathing waters where we exceed European Union Bathing Water Directive requirements.

The performance commitment is based on Environment Agency bathing water samples taken at designated bathing beaches. This is the number of bathing waters where samples prove that the water quality is good, or excellent (better than the minimum standard of sufficient).

Measurement

- The performance commitment measures the number of bathing waters where the samples taken in a bathing water season, prove that the water quality is good or excellent.
- Measurement of bathing water quality is in line with the existing Environment Agency reporting requirements.

Mitigation / exceptions

- Bathing waters which have been de-designated, either in previous years or during the period of 2020-2025, will not be included in the performance commitment.

Any other information relating to the performance commitment

The performance commitment is reported by bathing season in the following year. For example, the bathing season in 2020 would be reported in the calendar year of 2021 to 2022 (1 January to 31 December).

The performance commitment is a continuation of the current 2015-2020 measure and relates to the Wastewater Networks Plus price control. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised annually in-period.

The performance commitment embodies our big goal relating to the environment; we will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Full definition of the performance commitment

The number of designated bathing waters where we exceed European Union Bathing Water Directive requirements.

The performance commitment is based on Environment Agency bathing water samples taken at designated bathing beaches. This is the number of bathing waters where samples prove that the water quality is good, or excellent (better than the minimum standard of sufficient).

For every designated bathing water in England, the Environment Agency monitors *Escherichia coli* (E.coli) and intestinal Enterococci in the water, throughout the bathing season. Values can vary depending on a number of factors including but not limited to, weather, pollution from agricultural and urban sources and storm water overflows. Readings taken over the last four bathing seasons determine the annual classification for that water. The classifications are:

- excellent, the highest, cleanest class;
- good, generally good water quality;
- sufficient, the water quality meets the minimum standard; and
- poor, the water quality has not met the minimum standard.

The 19 designated bathing waters in Yorkshire are:

- Bridlington North Beach;
- Bridlington South Beach;
- Cayton Bay;
- Danes Dyke;
- Filey;
- Flamborough South Landing;
- Fraisthorpe;
- Hornsea;
- Reighton;
- Robin Hoods Bay;
- Runswick Bay;
- Sandsend;
- Scarborough North Bay;
- Scarborough South Bay;
- Skipsea;
- Tunstall;
- Whitby;
- Wilsthorpe; and
- Withernsea;

Bathing quality monitoring

In order to assess water quality at designated bathing waters against the Bathing Water Directive standards, the Environment Agency undertakes regular monitoring. A minimum of four samples is taken at each designated Bathing Water throughout the Bathing Season (1 May to 30 September), and is agreed annually by Defra.

The samples collected are sent to an accredited laboratory for analysis where Faecal Indicator Organisms (FIO's), E.coli and intestinal Enterococci. A count is made of the colony forming units (cfu) per 100ml of water.

A statistical representation using a four-year rolling average, provides a quality rating of either excellent, good, sufficient or poor.

This data is summarised in Defra's 'Annual Bathing Water Compliance Report'.

Assessment and classification of results

The bathing water quality assessment and classification is described in the UK Bathing Water Regulations SI 2008 (BWR) and is based on bathing water quality data compiled during the previous four bathing seasons. The Environment Agency applies the following standards:

Standards for coastal and transitional waters

Parameter	"Excellent"	"Good"	"Sufficient"
Intestinal enterococci ⁽¹⁾	100 ⁽²⁾	200 ⁽²⁾	185 ⁽³⁾
<i>Escherichia coli</i> ⁽¹⁾	250 ⁽²⁾	500 ⁽²⁾	500 ⁽³⁾

(1) Colony forming units per 100 millilitres ("cfu/100 ml").

(2) Based upon a 95-percentile evaluation – see paragraph 2.

(3) Based upon a 90-percentile evaluation – see paragraph 2.

The following is taken directly from the 'Bathing Water Regulations 2013' statutory instrument;

Assessment

10.—(1) At the end of every bathing season, for every bathing water, the appropriate agency must —

(a) prepare a set of bathing water quality data for that season; and

(b) carry out a bathing water quality assessment using the set of bathing water quality data compiled in relation to that season and the relevant assessment period.

(2) In this regulation, the "relevant assessment period" is—

(a) the immediately preceding three bathing seasons;

(b) the immediately preceding two bathing seasons, if the appropriate agency so determines in accordance with paragraph (3); or (c) the number of immediately preceding bathing seasons, being less than three, that the appropriate agency determines in accordance with paragraph (4).

(3) The appropriate agency may make a determination under paragraph (2)(b) where—

(a) it has consulted the appropriate Minister; and

(b) it is at least five years since the last change in the relevant assessment period.

(4) The appropriate agency may make a determination under paragraph (2)(c), if—

(a) it has consulted the appropriate Minister;

(b) the set of bathing water quality data used is based on at least 16 samples; and

(c) it considers that any factors identified in the bathing water profile as likely to affect the Classification of the bathing water under regulation 11 have changes, and the set of bathing water quality data used is based only on samples taken since those factors have changed.

Classification

3.—*(1) At the end of every bathing season, the appropriate agency must classify a bathing water as “poor” if, in the set of bathing water quality data used, the percentile values for microbiological concentrations are higher than the “sufficient” standards set out in paragraph 1.*

(2) At the end of every bathing season, the appropriate agency must classify a bathing water as “sufficient” if—

(a) in the set of bathing water quality data, the percentile values for microbiological concentrations are equal to or lower than the “sufficient” standards set out in paragraph 1; and

(b) the bathing water is not classifiable as “good” or “excellent”.

(3) At the end of every bathing season, the appropriate agency must classify a bathing water as “good” if—

(a) in the set of bathing water quality data, the percentile values for microbiological concentrations are equal to or lower than the “good” standards set out in paragraph 1; and

(b) the bathing water is not classifiable as “excellent”.

(4) At the end of every bathing season, the appropriate agency must classify a bathing water as “excellent” if, in the set of bathing water quality data used, the percentile values for microbiological concentrations are equal to or lower than the “excellent” standards set out in paragraph 1.

Data sources

The results from Environment Agency sample analysis are sent to us on a weekly basis. We use this information to monitor our performance.

Before the bathing season begins, Defra publishes a report summarising the results of the bathing season, along with the cumulative four-year average. This confirms the bathing water quality standard for each of our designated bathing beaches, giving us an annual target position for this performance commitment.

Assumption and exclusions

Only designated bathing waters are included in the Environment Agency sampling programme.

We assume that the Yorkshire Bathing Water Partnership will continue to work in collaboration with us to ensure focus on designated waters, which deteriorate or do not meet the minimum standard of ‘sufficient’ under the revised Bathing Water Directive (rBWD).

We assume that we will still have access to the Environment Agency’s Pollution Risk Forecasting system to enable short term pollution sample discounting, as referenced in the Bathing Water Directive. At the moment this system only uses rainfall data for predictions, however, the Environment Agency has plans to improve reliability by adding tidal, UV treatment and sewer model data. This system allows discounting of high samples if the water quality can be predicted and information on this is appropriately disseminated.

Data systems and quality checks

It is assumed that all Environment Agency sample data has been quality assurance checked before release and complies with the standards set out by the rBWD;

Our telemetry data must be checked to ensure that there are no telemetry issues or false information being sent; and

All UV treatment reported downtime must be checked for validity and missing data found and inserted into the report.

Key terms

Legislative bathing water quality standards

These standards are defined by Ofwat as the number of 'designated' bathing waters that meet or exceed the minimum water quality requirement of 'Sufficient' under the European Commission rBWD 2006/7/EC. This is concerned with protecting human health and the aquatic environment from pollution.

For further information on the definition for this performance commitment, please refer to:

- the European Union (EU) revised Bathing Water Directive (rBWD 2006/7/EC); and
- the Bathing Water Regulations 2013.

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Surface water management

Short definition

The number of Hectares (Ha) of surface water run-off removed or attenuated from the public sewer network as a result of blue-green infrastructure or surface water disconnection.

The performance commitment will mitigate pressures from climate change and urbanisation, and enable sustainable growth, by managing storm water flows entering the public sewer network, primarily by reducing connected impermeable surfaces.

The performance commitment refers to three measurements:

- surface water removed through blue-green infrastructure solutions;
 - an approach that mimics the natural water cycle
- surface water removed through disconnection;
 - an approach that uses underground pipes to take surface water straight to source
- surface water attenuated by blue-green infrastructure;
 - an approach to slow the flow of surface water into our network, managed in a more natural way to ensure continuity of our network.

Measurement

- Hectares (Ha) of surface water run-off removed or attenuated from the public sewer network, reported to the nearest Ha.
- Ha removed or attenuated will be measured annually at the end of the financial year on 31 March.

Any surface water removed or attenuated is measured as an area where water runs off into the public sewer system. This is usually measured using a geographic information system (GIS). A polygon is drawn around the area that drains into the public sewer to calculate the number of Ha removed or attenuated.

A blue-green infrastructure solution or surface water disconnection solution which results in the removal of surface water run-off from the public sewer will be measured in Ha.

We will measure Ha removed or attenuated once the scheme has been delivered and has reached practical completion. It will be signed off in consultation with our flood partnership steering group.

Mitigation / exceptions

- Any activity that contributes to surface water attenuation that is not classified as blue-green infrastructure will not be counted towards the performance commitment. These activities include grey infrastructure solutions such as storm tanks. However, the use of domestic water butts and commercial or industrial onsite storm water management should be included as part of this performance commitment.
- Any activities which contribute to surface water removed or attenuated but which occur as a result of investment outside of the Wastewater Network Plus price control.

Any other information relating to the performance commitment

The surface water removed performance commitment is held within the Water Network Plus and Wastewater Network Plus price controls.

Surface water removed is a new performance commitment for the 2020-2025 period. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised in-period.

The performance commitment embodies our big goal relating to the environment; we will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Full definition of the performance commitment

The number of Hectares (Ha) of surface water run-off removed or attenuated from the public sewer network as a result of blue-green infrastructure or surface water disconnection.

The principal aim of this initiative is to reduce flooding and pollution by transforming impermeable surfaces currently draining to our sewer network into functional green space. This includes creating rain gardens and natural drainage areas allowing rainwater to filter through and soak away into the ground, or enter the sewer network slower. These activities will protect and enhance our capacity to facilitate future growth and will provide resilience for the network. Without action, we could be vulnerable to flooding even during normal rainfall.

There are three measures of surface water removal using blue-green infrastructure solutions which include the reduction of surface water entering our combined sewerage network. The three measures are:

- **Surface water removed through blue-green infrastructure solutions:** impermeable areas no longer drain to our sewer network. In their place blue-green infrastructure directs the surface water to watercourses.
- **Surface water removed through disconnection:** impermeable areas are directed via underground pipe directly to watercourse, no longer entering our

sewer network.

- **Surface water attenuated by blue green infrastructure:** impermeable areas continue to drain to our network, but flows are controlled by blue-green infrastructure to limit them during storm events. This ensures our network can adequately cope at times of stress.

The performance commitment will be measured by the area of impermeable surface (Ha), removed or attenuated from the public sewer network, using blue-green infrastructure solutions or surface water disconnection.

What counts toward the performance commitment

Any blue-green infrastructure or surface water disconnection solutions which result in an area of surface water being removed or attenuated from the public sewer, whether delivered in isolation by us or in partnership with our customers and stakeholders.

Key terms

Blue-green infrastructure:

Blue-green infrastructure is a term that covers a broad range of practices and solutions, it is an approach to water management that mimics the natural water cycle. Doing this regulates flow and treats storm water run-off naturally, resulting in a reduction in peak flows and cleaner water being discharged to water courses. Blue-green infrastructure solutions include what is known as Sustainable Drainage Systems.

Impermeable area:

Refers to solid surfaces that do not allow water to penetrate, forcing it to run off. (also known as impermeable surfaces).

Permeable area:

Surfaces that allow water to percolate into soil to filter out pollutants and recharge the water table. (Also known as permeable surfaces).

Public sewer:

Refers to a pipe that carries wastewater from more than one property and is operated and maintained by the local sewerage undertaker.

Surface water:

Relates to the rainwater collected from drains (including highways) and gutters that drain to the public sewers.

Surface water attenuated:

Impermeable areas which drain into the public sewer with controlled flows to limit them, ensuring that the sewer network can adequately cope at times of stress.

Surface water disconnection:

Underground pipe designed to convey surface water directly to a water course.

Surface water removed:

Impermeable areas which no longer drain to our sewer network. In their place blue-green infrastructure directs the surface water to watercourses.

Surface water run-off:

Relates to water flow over the ground surface to the drainage system. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense. (CIRIA SuDS Manual C753 definition).

Sustainable drainage systems (SuDS):

Drainage systems that are considered environmentally beneficial, causing minimal or no long-term detrimental impact (CIRIA SuDS Manual C753 definition).

Outcome: We will always provide you with enough safe water, we will not waste water and always protect the environment.

Company performance commitment reference: Abstraction Incentive Mechanism

Short definition

The reduction in the environmental impact of abstractions at environmentally sensitive sites during periods of low surface water flows

Measurement

The abstraction incentive mechanism (AIM) is:

- measured in megalitres (MI); and
- calculated as a function of the reduced abstraction rate below an agreed threshold, and the duration that the reduced abstraction has applied.

For example, if the threshold for a given abstraction was set at 5 MI/d, and during a 25-day period of low flow only 3.5 MI/d was abstracted, leaving an additional 1.5 MI/d in the environment, the AIM would be evaluated as 37.5 MI (= 25 days x 1.5 MI/d).

Mitigation / exceptions

None.

Any other information relating to the performance commitment

The AIM performance commitment is held in the Water Resources price control and is a new measure for 2020-2025. The performance commitment has a proposed outperformance payment and underperformance payment, to be recognised in-period.

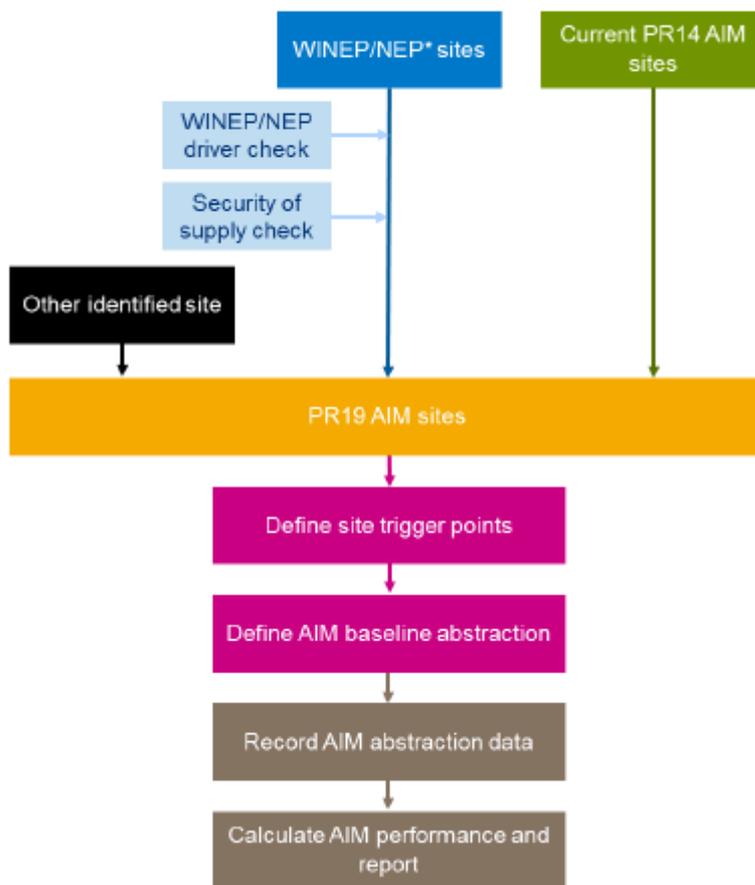
The performance commitment embodies our big goal relating to water supply; we will always provide you with enough safe water, we will not waste water and always protect the environment.

Full definition of the performance commitment

We have followed the process for identification of potential AIM sites provided in *Appendix 2: Delivering outcomes for customers* to the Ofwat document *Delivering Water 2020: Our methodology for the 2019 price review*. This process is shown in Figure 1.

Additionally, in determining abstraction sites appropriate for AIM we have followed the *Guidelines on the abstractive incentive mechanism* published by Ofwat in February 2016.

Figure 1 - The process for the abstraction incentive mechanism (AIM)



The AIM is a regulatory incentive mechanism designed to complement existing tools to reduce abstraction from sensitive sites (such as ‘hands-off-flow’ licence conditions where abstraction is stopped during period of low flow).

Following the process, sites for AIM can be current PR14 AIM sites, sites identified in liaison with the Environment Agency from WINEP lists or other sites not included in WINEP where there is evidence that current abstraction rates are causing harm and that reductions in abstraction at low flows would provide environmental benefit.

Many environmentally damaging abstractions have already been addressed through the Environment Agency's Restoring Sustainable Abstraction (RSA) programme. The AIM allows environmental protection of sites where there is no RSA programme or where the cost benefit analysis excludes sites from the RSA programme.

The existing RSA process is mature (having come into existence in 1999) and is effective. We have worked in conjunction with the Environment Agency and Natural England to investigate potentially damaging licences identified through the RSA process to confirm impacts and define the scope and extent of solutions. This work has typically led to two generic results:

1. Investigation demonstrates that damage is not occurring and no solution is needed. Usually this is because the investigation improves the technical understanding of the hydrology and identifies that factors other than our abstraction are the main cause of damage. In these cases, if a solution (e.g. reduction in abstraction) were implemented, it would have been at considerable cost to customers without delivering any environmental benefit.
2. Investigation confirms damage. In which case we have implemented a range of solutions to address the damage. These have included changes in abstraction, hands off flows, compensation releases and the delivery of physical mitigation measures such as river restoration.

For the 2015-2020 period, the outstanding RSA requirements in Yorkshire related to two small sources and to addressed:

- Water Framework Directive (WFD)
- Heavily Modified Water Body (HMWB)
- Good Ecological Potential (GEP).

Our current 2015-2020 plan includes work to meet GEP and addresses the resulting minor water resources deficit. Our plan ensures that we continue to maintain a strong and resilient water resource management plan. All this work falls within the scope of the current National Environment Programme (NEP). Any AIM sites would have been over and above this programme.

PR19: identifying abstraction sites for the AIM

October 2013 list

In October 2013, the Environment Agency compiled a list of our abstractions associated with potentially impacted WFD environmental flow bands 1, 2, and 3.

At the time of the PR14 business plan submission, two licences were potentially suitable for inclusion in the AIM: Hazel Head Springs and the River Laver Intakes. These sites were subsequently investigated, and in both cases the Environment Agency recommended that the sites should be removed.

No additional sites for AIM in Yorkshire have been proposed by the Environment

Agency since October 2013, so there won't be any sites included for the AIM as a result of the WFD in the 2020-2025 period.

Other sites

In addition to the list from October 2013, Ofwat's guidance states that companies can propose other sites for inclusion in the AIM.

To identify if any sites are causing a potentially unacceptable impact on the environment, we considered those that fall under the following classifications:

1. RSA programme solution not yet been implemented. These are sites that are currently shown on WINEP (sites not associated with abstractions are excluded). We have identified 15 sites that fall into this classification.
2. Sites considered in early PR19 WINEP, but subsequently removed, or sites not included in WINEP. We have identified 12 sites that fall into this classification.
3. Environmental Damage Regulation sites ("Serious Damage"). Our screening has identified one site that falls into this category.

We have reviewed the above sites against known impacts, as well as known and planned activity. As a result, we have filtered out all the above sites for the AIM.

We continue to discuss the AIM with the Yorkshire Forum for Water Customers and other local stakeholders. The Environment Agency is in broad agreement with our conclusion: there are no suitable sites for the AIM in Yorkshire. Should the Environment Agency propose potential AIM sites during the 2020-2025 reporting period, we will include these.

We may consider introducing one, or more, sites under the AIM when we have completed AMP7 investigations in 2022. At present for those investigation sites we do not have sufficient information to establish whether there is any flow related adverse environmental impact, or what an appropriate threshold would be for agreeing the AIM.

If the 2020-2025 reporting period investigation process identifies an environmental impact and appropriate thresholds, and a site falls within other relevant AIM criteria (for example, reducing abstraction during periods of low flow would not put the resilience of water supplies at risk) then we may consider introducing the AIM in the middle of the 2020-2025 reporting period. The AIM could run until we have agreed permanent changes to arrangements, for example reduced abstraction licence at low flows, or capital investment required to reduce dependency on the abstraction.

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Quality agricultural products

Short definition

The percentage of biosolids sent to agricultural land that achieves Biosolids Assurance Scheme (BAS) certification.

The commitment will measure the quality of biosolids sent to agricultural land that we produce as part of our bioresources business. This includes any sludge imports that are processed through our treatment works and recycled to agricultural land. It also includes any sludge the business exports to other parties for treatment and recycling to agricultural land – there will be a requirement that those third parties are BAS certified as appropriate. The aim is to ensure that we are consistently producing biosolids of sufficient quality to be spread on agricultural land.

Measurement

The percentage of biosolids recycled to agricultural land achieving BAS certification is calculated as a proportion of total Tones Dry Solid (TDS) post treatment, receiving BAS certification.

- Amount of biosolids recycled is measured in Tonnes Dry Solid (TDS) post treatment.
- Measurement will be rounded to the nearest TDS.
- BAS certification includes individual requirements for:
 - sludge treatment
 - biosolids ‘transport and storage’
 - application to agricultural land
 - Our certification will be for all three aspects, and the same will apply to any third parties used for treatment and recycling of sludge to agricultural.
- Conformance to the Scheme Standard must be audited by the Certification Body appointed by the Assured Biosolids Limited before biosolids can be considered to be conforming to the Standard and awarded Certified Biosolids status.
- Measurement will be taken annually throughout the 2020-2025 period at all our Sludge Treatment Centres and any third-party sludge treatment sites, ensuring BAS certification.
- Measurement of ‘transport and storage’ and application to land will also be taken annually throughout the 2020-2025 period at all our Sludge Treatment Centres and any third-party sludge treatment sites, ensuring BAS accreditation certification
- The performance commitment will be measured annually, at the end of the

financial year.

- Any process that fails to achieve BAS certification, or deviates from the certified process, will be noted, and TDS at that site will be represented as a failure of the performance commitment only if that material was sent to agricultural land.

Mitigation / exceptions

This commitment covers biosolids sent to agricultural land, but not to land restoration. Sludge to land restoration is outside the scope of BAS and therefore cannot be certified.

Any other information relating to the performance commitment

The performance commitment relates to the Bioresources price control and is a new measure for 2020-2025. The performance commitment has a proposed underperformance payment, to be recognised in-period.

The performance commitment embodies our big goal relating to the environment; we will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Full definition of the performance commitment

The percentage of biosolids sent to agricultural land that achieves Biosolids Assurance Scheme (BAS) certification.

The commitment will measure the quality of biosolids recycled to agriculture that we produce as part of our bioresources business. The aim is to ensure that we are consistently producing biosolids of sufficient quality to be spread on agricultural land.

Sludge recycling across the UK typically involves the recycling of biosolids that are the product of the anaerobic digestion of sewage sludge. These biosolids are used by farmers to spread on agricultural land. Biosolids are a cheaper alternative to commercial fertilisers, are more environmentally sustainable and provide a good source of organic matter, improving soil structure.

Biosolids recycling is subject to a range of environmental legislation that seeks to protect the environment from pollution and protect the food chain from untreated sewage sludge.

The Biosolids Assurance Scheme (BAS) consolidates all the legislation and relevant Codes of Practice into one scheme. The BAS and associated documents have been prepared by Assured Biosolids Limited in consultation with the water industry.

Scheme Applicants and Scheme Members (as the suppliers of biosolids) are responsible for meeting the Standard on source materials, treatment, transport and storage of biosolids (as specified on their certificate) and also for soil testing and

biosolids application to agricultural land.

Activities within the scope of the Scheme (treatment, transport and storage and application to agricultural land) conforming to the Scheme Standard may be issued with a Certificate of Conformity by the Certification Body and the resulting biosolids in a certified chain may be claimed to be Certified Biosolids by Scheme Members.

Participants in BAS must submit to annual independent auditing of their operations to ensure that all their activity has been compliant with appropriate legislation and best practice. Participants who are successful in audit are awarded certification for the scope of their operations that has been submitted for approval. For the performance commitment, we will submit all our operated sites where the biosolids are destined for agricultural land, for certification.

The Scheme Standard is largely (but not exclusively) based on the requirements of:

- The Water UK report; The application of HACCP procedures in the water industry: biosolids treatment and use on agricultural land.
- The Code of Practice for the Agricultural use of Sewage Sludge, 1996
- The Environment Permitting (England & Wales) Regulations, 2010 – exemption arrangements.
- The Waste Management Licensing (Scotland) Regulations, 2011 – exemption arrangements.
- The Sludge (use in Agriculture) Regulations, 1989
- The Safe Sludge Matrix, 2001.
- Protecting our Water, Soil and Air: A Code of Good Agricultural Practice for Farmers Growers and Land Managers (England & Wales).
- Prevention of Environmental Pollution from Agricultural Activity (PEPFAA) A code of good practice (Scotland).
- The Nitrate Pollution Prevention Regulations, 2015 (England).
- The Nitrate Pollution Prevention (Wales) Regulations, 2013.
- The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2008; amended 2013.

If BAS standards change in any year 2020-2025 period, the performance commitment will uphold the new standards from the next reporting year.

For us to retain BAS certification, we will need to continue to demonstrate that any operating processes and activities are BAS compliant including, where necessary, the certification of third-party operators handling biosolids on our behalf.

Once each process has been BAS certified, the amount of biosolids that has passed through the site over the year will be certified as having received BAS certification for all three individual aspects.

Annually, the volume of biosolids at each site, which were sent to agriculture land will be aggregated to provide a total volume of biosolids produced. Any process that fails to achieve BAS certification, or deviates from the certified process, will be noted, and

TDS at that site will be represented as a failure of the performance commitment only if that material was sent to agricultural land.

Outcome: We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Company performance commitment reference: Renewable energy generation

Short definition

The gigawatt-hours of energy generated from the biogas we produce.

This includes use of biogas in our boilers and combined heat and power (CHP) generators onsite. We may also supply biogas into the grid or use as fuel for our vehicles.

The performance commitment focuses on renewable energy generation in the Bioresources price control. It will be measured annually and reported against the annual performance commitment target.

Measurement

- Energy generation of biogas is measured in Gigawatt-hours (GWh) produced by assets and operations within the Bioresources price control.
- The energy content of biogas is measured by measuring the volume of gas produced (corrected to standard temperature and pressure) multiplied by the methane content of the gas produced, and the lower heating value of methane at standard temperature and pressure. The conversion calculation is outlined below.
- The properties of methane can be found here:
https://www.engineeringtoolbox.com/fuels-higher-calorific-values-d_169.html
- GWh is calculated annually at the end of the financial year on 31 March.
- Gas which is produced but not utilised (flared) is not included in the definition.
- The feedstocks to our digesters are sewage sludge.
- Measurement will be rounded to the nearest GWh.
- The Bioresources price control is defined in line with the Regulatory Accounting Guidelines (RAGs) 4.07 as set out by Ofwat in 2017.
- The GWh of biogas generation will be expressed as an absolute value.

Biogas energy measurement will be achieved with two methods listed below in order of preference:

- Where possible energy supply will be measured directly by metering of gas flow into assets where beneficial use is achieved. Gas quality analysers will measure the aggregated performance on the system.
- Where gas flow measurement into an asset is not possible, derived gas usage values will be calculated using a substituted measurement (e.g. for boiler gas usage, the run hours multiplied by usage rate will be used).

Conversion of gas volume and gas quality into energy (GWh):

- Biogas generation is calculated by converting the volume of methane in the biogas into energy.
 - Biogas generation (kWh) = Biogas volume (m³) x 9.994 kWh/m³ x gas quality (%CH₄)
 - Where 9.994 is the energy in kWh contained in 1 m³ of methane (CH₄) at standard temperature and pressure, and gas quality is a measurement of the proportion of methane (CH₄) in the biogas.
 - Unit conversion: 9.994 kWh = 35.8 MJ, as 1 Joule = 1 Watt second. Low calorific value of methane = 35.8 MJ/m³ from reference: https://www.engineeringtoolbox.com/fuels-higher-calorific-values-d_169.html
 - Unit conversion 1 GWh = 1,000,000 x kWh.

Mitigation / exceptions

Renewable energy generated from activities not included within the bioresources price control do not count towards the performance commitment.

The following types of power generation on our operational sites are excluded from the performance commitment:

- solar;
- wind; and
- hydroelectric.

Any other information relating to the performance commitment

The performance commitment is part of the Bioresources price control. This performance commitment is a revision to the 2015-2020 measure and has a non-financial incentive. Performance will be measured and reported annually.

The performance commitment embodies our big goal relating to the environment; We will remove surface water from our sewers and recycle all waste water, protecting the environment from sewer flooding and pollution.

Full definition of the performance commitment

The gigawatt-hours of energy generated from the biogas we produce.

This includes use of biogas in our boilers and combined heat and power (CHP) generators onsite. We may also supply biogas into the grid or use as fuel for our vehicles.

Our bioresources business is responsible for the safe and efficient service of sludge transport, treatment and recycling. The process of sludge treatment typically involves the anaerobic digestion of sewage sludge, a process that produces two valuable products; a digestate 'biosolids' that is recycled to agricultural land, and a

renewable fuel 'biogas' that can be used in various forms of energy use.

The effectiveness of our bioresources business to produce biogas and efficiently supply the fuel so that it can be put to beneficial use is important for the economic efficiency of our business, and the environmental sustainability of our operations.

Our bioresources business can improve the supply of biogas fuel so that it can be put to beneficial use by optimising the reliability of our energy generation assets (CHPs and boilers), and by reducing the amount of biogas wasted via gas flaring.

The biogas that we supply into beneficial use is measured as an absolute value of energy generated in GWh.

Examples of beneficial use include, but are not limited to the supply of biogas to:

- CHPs for onsite energy generation;
- boilers for onsite heat generation for supply to treatment processes or buildings;
- conversion process for injection into natural gas grid; and
- conversion process for vehicle fuels.

Examples of supply that are not considered beneficial use include but are not limited to:

- Supply of biogas into a flare stack where biogas is burnt off and heat is released into the atmosphere.
- Atmospheric loss of biogas during the sludge treatment process.

Biogas energy measurement will be achieved with two methods listed below in order of preference:

- Where possible energy supply will be measured directly by metering of gas flow into assets where beneficial use is achieved. Gas quality analysers will measure the aggregated performance on the system.
- Where gas flow measurement into an asset is not possible, derived gas usage values will be calculated using a substituted measurement (e.g. for boiler gas usage, the run hours multiplied by usage rate will be used).

Conversion of gas volume and gas quality into energy (GWh):

- Biogas generation is calculated by converting the volume of methane in the biogas into energy.
 - $\text{Biogas generation (kWh)} = \text{Biogas volume (m}^3\text{)} \times 9.994 \text{ kWh/m}^3 \times \text{gas quality (\%CH}_4\text{)}$
 - Where 9.994 is the energy in kWh contained in 1 m³ of methane (CH₄) at standard temperature and pressure, and gas quality is a

- measurement of the proportion of methane (CH₄) in the biogas.
- Unit conversion: 9.994 kWh = 35.8 MJ, as 1 Joule = 1 Watt second.
Low calorific value of methane = 35.8 MJ/m³ from reference:
https://www.engineeringtoolbox.com/fuels-higher-calorific-values-d_169.html
- Unit conversion 1 GWh = 1,000,000 x kWh.

Key terms

Biogas

Biogas is a mixture of different gases produced by the breakdown of organic matter (sewage sludge) in the absence of oxygen.

Beneficial use

Beneficial use is a term used to describe how biogas is used to add value to our business, either by using it onsite to convert into heat or power, or by conversion into a saleable product that others use as a fuel or commodity.

Note on Renewable Energy Guarantees of Origin certificates

Generating stations in Great Britain and Northern Ireland that produce electricity from eligible renewable energy sources can apply for and receive Renewable Energy Guarantees of Origin certificates (REGOs). Applications for accreditation for REGOs are made through our Renewables and CHP Register. Where you are applying for the REGO and/or Renewables Obligation (RO) or Feed-in Tariff (FIT) schemes, you can make one combined application. Fuelled stations must also provide information to support the renewable qualifying percentage of fuels used to generate electricity.

REGOs are needed where the electricity produced needs to be certified as renewable (eg if you want to sell it as green to a third party). It's not appropriate for gas to own boiler use.

Annex A: Length of river improved supporting information

Overview

Following the submission of our draft performance commitments in May 2018, Ofwat provided us with feedback:

“To achieve improved clarity and for the completeness of this definition, you may wish to attach to this definition, an annex identifying the individual WINEP requirements included in the assessment of performance. The annex might also include the length of river associated with each WINEP requirement. You may also wish to provide assurance that no double-counting is involved, in specifying the actual stretch of river being improved by each scheme.”

The following appendix sets out the individual WINEP requirements included within the performance commitment and the length of associated river improved. For further details on the WINEP schemes and investments, please see the PR19 WINEP Investment Technical Appendix.

We have also included the Environment Agency advice for reporting river length improvements to this annex. The advice sets out that the counting of cumulative benefits is appropriate:

“Cumulative benefits are key to achieving WFD, protected area and protected species objectives. This means each separate contribution to address pressures should be recorded. Following multiple actions, the km enhanced could therefore be greater than the actual length of the water body.

This approach encourages integrated catchment scale delivery and avoids any incentive to stop work in a catchment once the first action has been put in place, even though it is known other actions are required. We recognise that this could be interpreted as ‘double counting’ – however, we think this is an acceptable alternative to the risk of introducing a disincentive to integrated delivery that would arise from excluding multiple

overlapping projects. The risk will be actively monitored going forward.”¹⁷

We believe alignment with the Environment Agency approach offers the best approach to delivery of the performance commitment, as well as ensuring that we are able to report transparently and consistently to all our stakeholders.

¹⁷ Reporting KPI 1311 / Corporate Scorecard Measure 1 EA 1 - km enhanced Environment, Operational instruction 167_18. Environment Agency, 04/04/2018. Section 4: Cumulative Benefits

Length of river improved

The table below outlines the length of river improved by determinad. Where a river shows improvement against more than one determinand, there is the potential that the same length or part of the same length of river, will benefit. It not possible to specify exactly at this stage if the cumulative benefits would happen, as these are based on modelled numbers.

Catchment	River	Length of river improved (km)			
		Waste water improvement schemes			Clean water improvements
		Phosphorus	Ammonia	AMP6 UPM Solutions	
Aire Calder	Bridgehouse Beck	2.78			
	Eller Beck	2.41			
	Haw Beck	0.31			
	Holme (Trib of Colne)	6.83			
	Lin Dike	3.34			
	Mag Brook	3.74			
	Oakenshaw Beck	3.72			
	River Aire	99.22			53.33
	River Calder	70.66			0.94
	River Colne	7.24			
	River Ryburn	3.90			
	River Worth	7.19			
	Wyke Beck	0.71			
	Pudsey Beck			12.56	
	TOTAL	212.05	0	12.56	54.27
Derwent	Bishop Wilton Beck	4.10			
	Blackfoss Bk	11.32			
	Pocklington Beck	2.17			
	Walmouth Beck	6.40			
	TOTAL	23.99	0	0	0
Don Rother	Bentley Mill Stream	1.34		1.18	
	Cawthorne Dike	1.74			
	Ea Beck	16.65		4.5	
	Grimethorpe Dike	3.73			
	Redleadmill Brook	0.15			
	River Dearne	36.78		4.1	
	River Doe Lea	10.81	8.44		
	River Don	87.41			24.58
	River Dove	6.78			
	River Drone/Whitting	6.80			
	River Rother	46.06	7.39		

Catchment	River	Length of river improved (km)			
		Waste water improvement schemes			Clean water improvements
		Phosphorus	Ammonia	AMP6 UPM Solutions	
	River Went	24.19			
	Silkstone Beck	6.81			
	The Skell	5.82			
	Trib of R.Dearne (Bretton Brook)	1.46			
	Trib of R.Went	3.07			
	Little Don			2.1	
	Loxley				0.44
	TOTAL	259.6	15.83	11.88	25.02
Rivers Swale, Ure, Nidd and Ouse (SUNO)	River Burn				13.56
	Crimple Beck	4.45			
	Cundall Beck	9.23			
	Hambleton Beck	3.52			
	Healam Beck	4.83			
	Kex Beck	9.76			
	New Parks Beck	10.43			
	Otterington Beck	6.44			
	River Foss	25.19			
	River Nidd	27.25			
	River Ouse	0.95			
	River Skell	2.36			
	Selby Dam	8.86	8.86		
	Thornton Beck	2.61			
	Upper Fox Drain	1.26	1.27		
	Ure				6.49
	Wharfe				5.11
TOTAL	117.14	10.13	0	25.16	
	Total by determinand	612.78	25.96	24.44	104.45
	Total waste	663.18			
	Total clean				104.45

Environment Agency guidance



Environment Agency

Reporting KPI 1311 / Corporate Scorecard Measure 1 EA 1 - km enhanced

Operational instruction 167_18 **Issued 04/04/2018**

What is this document about? This document provides advice on reporting of key performance indicator (KPI) 1311, which is reported by Government as part of the Corporate Scorecard (CSC) as measure 1 EA 1 - 'the water environment is healthier'.

Who does this apply to?

This document is intended for area Integrated Environmental Planning (IEP) teams, who will co-ordinate reporting of the measure.

It is also relevant to other teams who have responsibility for providing information to IEP:

- Environment Programme
- Environment Management - Land & Water, Waste and Installations
- Partnership and Strategic Overview
- Asset Performance
- Flood and Coastal Risk Management Programme
- Fisheries, Biodiversity and Geomorphology
- Groundwater and Contaminated Land
- Sustainable Places
- Hydrology & Telemetry
- National Capital Programme Management Service

Contact for queries and feedback

- [Claire Reece](#) Integrated Environment Planning, Leadership and Data, Environment & Business
- Please give [anonymous feedback](#) for this document.

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Kilometres enhanced - background and definition

Background to the KPI

The KPI presents a simple and meaningful indicator of the progress the Environment Agency and others are making to improve the water environment. Reporting focuses on enhancements across the whole of England (including the Dee and Solway Tweed River Basin Districts). This measure complements the Water Framework Directive (WFD) classification status/potential (from here on wherever you read status it includes potential). It covers all water body types (groundwater, river, lake, estuary and coast) and focusses on the length of water body enhanced in kilometres.

The kilometres enhanced from actions reported through this metric, **should not** be used to prioritise the funding or implementation of activities. Km enhanced does not take into account, or give, an environmental, economic or social benefit for the actions.

KPI 1311 is reported publicly through Defra and the Environment Agency's Corporate Scorecard measure 1 EA 1, "the water environment is healthier". Prior to their introduction in April 2016, we used solely the WFD classification status as an indicator of progress. Whilst good ecological status is still the ultimate aim of the work that we all deliver, the lag time and complexity inherent to the formal classification system means that ecological status has not always reflected the great work undertaken by stakeholders in the water environment.

Definition of enhancement

An "enhancement" will result from action taken to reduce a known pressure/Reasons for Not Achieving Good status (RNAGs) on the water environment by anyone, within the Environment Agency or externally, regardless of Environment Agency involvement or influence. We have a target to deliver at least 8,000km of enhancements by 2021; the figure was derived from the length of water bodies where one or more element was predicted to improve because of measures in the updated River Basin Management Plans (RBMPs).

The action must be a real physical change that will contribute towards achieving an agreed environmental objective – these include RNAGs, Protected Area and protected species ([See Appendix B for full list of protected species](#)) objectives.

The core objectives for Protected Areas (e.g. bathing waters/drinking waters/habitat and species) and WFD water bodies are those within the updated RBMPs. You can view RNAGs on the Catchment Planning System (CPS) and the Catchment Data Explorer (CDE). Some detail on core objectives for Protected Areas can also be found CPS and CDE. An exception to this is that enhancements at a sample point level can be included where local improvement is needed, if a waterbody is at Good status but a sample point is less than good.

! Important. The KPI is intended to capture the efforts being made to deliver these objectives, which were signed off by the Secretary of State.

Actions should form part of an integrated package of measures, with a clear aim of achieving good or better status by 2021 or 2027, or meeting the Protected Area/Protected Species objective. Elements that do not have an improved status objective should not be reported (i.e. are classified as moderate now and have an objective of moderate in 2027).

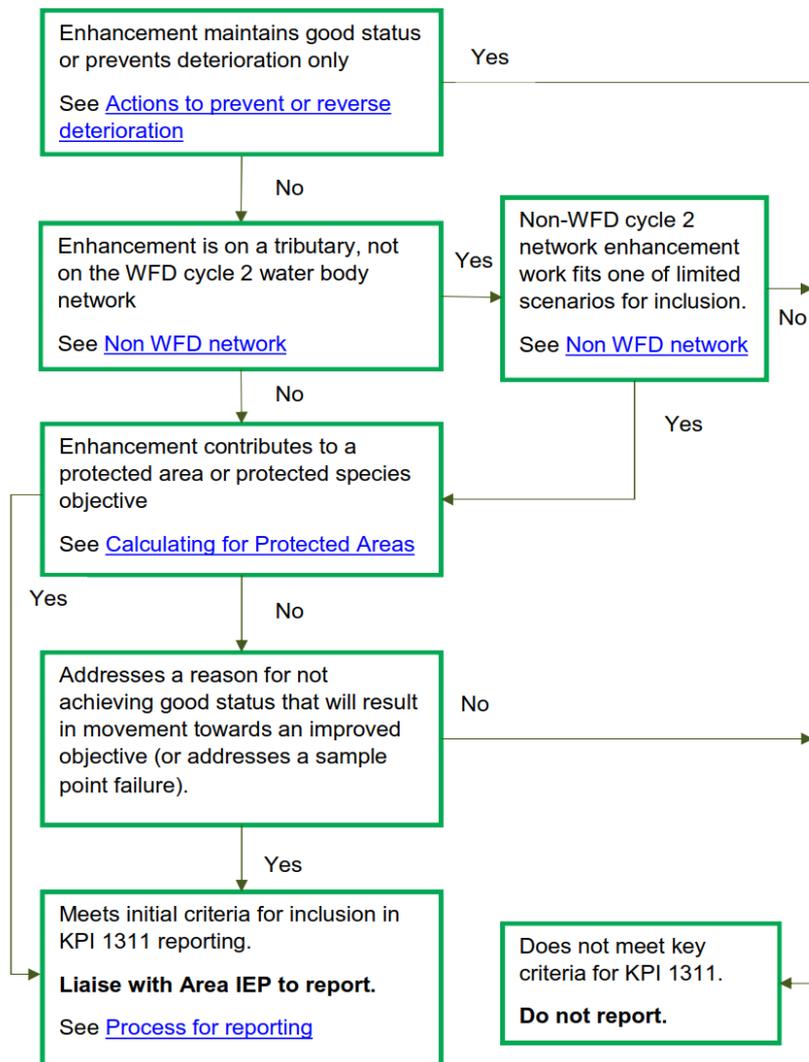
! Important. In order to include an enhancement in the KPI report, it is not necessary for it to fully achieve an environmental objective, improve status

by a step change or achieve a Protected Area objective.

What can be reported?

Decision making

Use the flow diagram below to assess work against the key KPI criteria. Links to more detailed sections of this guidance on some aspects are included.



Exclusions from reporting

Non-WFD network

Actions must make enhancements on the official WFD Cycle 2 water body network.

The Cycle 2 water body network is available in [Easimap2](#), adding the Water Framework Directive Cycle 2 layer and viewing the different water body layers.

Enhancements to tributary streams that are not on the network or land off the network can only be included if:

- An action delivered on a tributary or land off the network has been identified as needed to address a reason for not achieving good, in this example the length of enhancement **once it reaches the network** can be reported
- A change to a groundwater licence remote from the network that leads to an improvement in base flow on the WFD network, where flow is an RNAG, the length of enhancement **once it reaches the network** can be reported
- An action will contribute towards achieving a protected species or Protected Area objective, then the length on and off the network can be reported

Examples when km from tributaries or land off the network can be reported:

- Blocking of grips in peat uplands to stabilise flows across a catchment to contribute to colour improvements in Drinking Water Protected Areas
- The impact of sediment run off from a farm can be traced from the network up a tributary, action to prevent the sediment run off can be included when the benefits reach the network
- Benefits from fish passage to important spawning areas off the network, here tributaries with spawning habitat can be included

Enhancement delivered at a sewage treatment works to reduce bacterial load in a small (non-reportable) coastal water body, can be reported once the benefit reaches the estuarine or coastal waters improving a bathing or shellfish water Protected Area

Some actions are outside the scope of KPI1311. Examples of these include:

- Grip-blocking in upland catchments, undertaken purely to develop terrestrial carbon-capture plant communities like Sphagnum Bog with no link to protected area improvements
- Successful installation of a reed bed to remove ochre downstream of a mine water discharge in a tributary to the WFD river water body network, where the enhancement does not stretch as far as the water body network

Advice and guidance

Significant effort, through day job or project activity goes into provision of advice and guidance to people and businesses. Examples include through the Town and Country Planning process, agricultural campaigns or following pollution incidents.

When advice is given, an enhancement is dependent on a 3rd party taking action. We can only report km enhanced when we have evidence that the voluntary action has been implemented – for instance through a revisit or provision of paperwork/photographs. We recognise that resource is not always available to collect this evidence.

'No deterioration' actions

Actions to maintain good status and prevent or reverse deterioration are outside the scope of the KPI and are excluded. ([See section 'Actions to reverse or prevent deterioration'](#))

Examples of activities that are primarily to prevent or reverse deterioration:

- Addressing a new pressure that has caused deterioration
 - Invasive species such as floating pennywort that has spread causing a deterioration
- Mitigation to prevent deterioration due to new activities
 - Working with construction companies to de-silt run off from sites to prevent contamination entering a water course
 - Consenting a new discharge
- Action to address risk and prevent future deterioration
 - Managing mine waters to prevent a future impact on surface and groundwater's
 - Reducing unused licence quantity (headroom) in abstraction licences
 - Including constraints (hands-off flow) with the primary objective to prevent deterioration in status

Modelled outputs

For some activities, such as Catchment Sensitive Farming, research to model and understand the percentage uptake of actions is done. Models run to calculate environmental change, or km enhanced based on assumed uptake of a suite of activities should not be captured in the KPI. Only include known activities in known locations.

Permitting changes

In many cases, changes made to permits will not come under the scope of this KPI. There is a substantial amount of work in water resources happening to identify unused or underused abstraction allowances. This work is primarily to prevent deterioration and therefore is beyond the remit of KPI1311 ([See section 'Actions to reverse or prevent deterioration'](#)). However, if during this process a licence holder reduces their abstraction in a waterbody identified with a flow related pressure, this should then be reported as an enhancement.

Calculating km enhanced

Cumulative benefits

Cumulative benefits are key to achieving WFD, protected area and protected species objectives. This means each separate contribution to address pressures should be recorded. Following multiple actions, the km enhanced could therefore be greater than the actual length of the water body.

This approach encourages integrated catchment scale delivery and avoids any incentive to stop work in a catchment once the first action has been put in place, even though it is known other actions are required. We recognise that this could be interpreted as 'double counting' – however, we think this is an acceptable alternative to the risk of introducing a disincentive to integrated delivery that would arise from excluding multiple overlapping projects. The risk will be actively monitored going forward.

Often several actions are needed to address multiple pressures in a waterbody and cumulatively these make progress towards good status.

Addressing one action alone may make small improvements but an integrated plan is more likely to achieve an improvement in status.

In practical terms, if it were a single project addressing two pressures on the same stretch of watercourse (e.g. a misconnection influencing ammonia and phosphate or a physical modification influencing fish and flow pressure), we would only count it once. If it were two separate projects managing the same pressure on the same watercourse (e.g. improved discharge from contaminated land and sewage to benefit invertebrates), we would count it twice, as there have been 2 actions delivered to enhance the waterbody.

We are interested in the length of water environment enhanced, so we do not record the length of the left and right bank separately if a single project has been carried out on both sides.

Where an agreed programme of action is being delivered over time, and the intended overall 'km enhanced' by the programme is known, the proportion of the programme delivered can be used to report a proportion of the 'km enhanced'. Therefore, if 25% of the programme required to enhance 10km is completed, it is valid to report 2.5km enhanced.

Where a single action delivering many parcels of enhancement in a waterbody or catchment is reported, the km enhanced at each location should be added together (not including any overlap) and reported as one action per waterbody.

Principles for calculating length of enhancement

In most situations, calculating km enhanced is based on expert judgement and local knowledge. However, Annex A gives examples of how to calculate km enhanced for different activities. There are also some general principles that can be followed, for example:

- The length newly uncovered by removing a culvert in a heavily modified water body (HMWB). When reporting a mitigation measure only the footprint of the scheme would be reported, unless it will also enhance a biological element, RNAG, then any additional length of improvement could also be included.
- The length of works carried out, e.g. the length of fencing installed to prevent livestock accessing a watercourse or the linear length of buffer strips or trees planted
- The length between a point source input which has been improved down to the next polluting input or tributary
- Benefits to flow improvement should be recorded from the point of the abstraction / augmentation to the next significant downstream abstraction point, sewage treatment works outlet or confluence
- The km enhanced by removal of a barrier to migration or through installing a fish/eel pass, is the distance upstream to the next barrier

There will be occasions even for these examples when local knowledge should be sought:

- The removal of a culvert in a HMWB that was preventing fish passage
- Where there is evidence of enhancement that goes beyond the physical work carried out
- When an improved input is so significant, dilution from a tributary or additional input will not limit enhancement
- If a fish pass has been designed to enhance down as well as upstream migration for those species, which rely on downstream migration to complete their life cycle, (e.g. salmon, sea trout, eel, river lamprey, sea lamprey). A site-specific decision would have to be made with input from fisheries experts.

Wider considerations

In more complex scenarios, for example determining the impact from resolving misconnections or resolving chronic diffuse pollution incidents, further considerations can be taken into account as part of applying local expert knowledge.

- Taking a proportionate approach, some or all of the considerations below can be taken into account.

Aspect	Points to consider
Visual	What information is available? Through site visit, photographs etc. Previous interventions have used presence / absence of sewage fungus/sediment load to determine enhancement length.
Slope	A steep slope will have a higher impact, with more runoff to the watercourse. Enhancements on a steep slope have the potential for benefits to extend further down a watercourse.
Distance from water body	The further away a land-based enhancement is from the watercourse, the smaller the length of enhancement that is likely.
Bedrock	Additional enhancements may need to be reported if the bedrock is an aquifer (e.g. chalk/limestone/sandstone). Greater permeability could change enhancements because of increased or decreased flow and dilution, both to and from groundwater.
Flow	A high flow volume will have a dilution effect, meaning the enhancement will not travel downstream as far. A fast flow rate will result in a longer enhancement, for example through the flushing of sediment.
Land use type	Land use, or crop type will influence the amount of run off from land. Presence of buffer strips will trap sediments and other pollutants.
Other inputs / confluences	Enhancements will generally stop where there is another source of pollution to a water body (such as a sewage treatment works discharge) or a confluence of significant volume proportionate to the enhanced water body
Monitoring	Sample point or Sonde data may provide evidence to support decisions.

Calculating km enhanced for non-river water bodies

Lakes, coastal, estuarine waters and groundwater

Enhancements in lakes, estuaries and coasts would normally be discussed in terms of their area, and in the case of groundwater, volume, rather than as a linear extent. For simple communication, improvements in these water body types should be converted to km length on a like for like basis (1km² = 1km), unless otherwise stated in specific examples.

Groundwater

A guiding principle for groundwater is to apply a length based on the scale of the action and/or the persistence of the contaminant;

- Record 0.05km (50m) for a 'small intervention', small improvement in ground water balance or 'rapidly degrading substance' such as resolving a problem with a single sewage treatment plant or a single tank containing rapidly degrading hydrocarbons
- Record 0.25km (250m) for a larger scale enhancement, or more persistent compound such as stopping poor pesticide management, significant (for that water body) reduction in abstraction, or decontaminating a large area of land

This guide is subject to local expert judgement where for example, you may have modelled data on the length of a plume.

Where a single action to achieve good status or protected area objective has been identified or one large enough to improve quality and/or quantity at an abstraction point is implemented the distance between the action and the furthest affected abstraction point can be recorded.

Where an action to a groundwater abstraction licence results in improvement to both the groundwater body and surface water body, record both the improvement to the groundwater body and the improvement to the surface water body.

Where a single action results in multiple improvements for example, it reduces saline intrusion and improves the groundwater balance, record the improvement with the greatest km enhanced.

Calculating km enhanced for Protected Areas

Protected Areas

The approach for Protected Areas does not generally differ, there are however some guiding principles for bathing waters and shellfish waters and Drinking Water Protected Areas

Bathing Waters and Shellfish Waters

A suggested approach for schemes in Shellfish Waters and Bathing Waters, subject to local expert judgement, and dependent on the characteristics of the bathing or shellfish water, is to:

- Apply 0.25km (250m) for "small" enhancements, such as contaminated surface water outfalls or septic tank improvements
- Apply 0.5km (500m) for "large" projects, such as caravan park sewerage improvements or improvements to sewage treatment works
- For a major scheme, affecting the whole of the designated area then the whole shoreline length of beach/shellfish water or the designated area

converted to km can be used.

! Important. The extent of some bathing waters will be less than the lengths above – if this is the case the lengths should be altered accordingly

Some projects will take place where Shellfish Waters and Bathing Waters overlap. Where there is a single driver for action (for example Bathing Water), only count and record additional benefit in the Shellfish Water if there are specific compliance issues which will be addressed by the Bathing Water driven scheme.

Where a project is delivered in freshwater to secure an improvement in a TraC/coastal water body, an additional enhancement can be recorded in the freshwater water body, if it can be linked to an existing RNAG as well as reporting the TraC/coastal enhancement. This would generally exclude an ultraviolet scheme done to reduce bacteria, but could include combined sewer overflow (CSO) schemes.

Drinking Water Protected Areas

Many SgZ action plan measures involve the provision of advice and guidance. These measures cannot be captured in KPI 1311 unless there is evidence of a physical intervention as a result ^[1].

As a general principle, and subject to local knowledge and checks for additional enhancements, DrWPA measures should be recorded as the length of the physical intervention. Where multiple actions are delivered in one SgZ, each enhancement should be included. A single action delivered for multiple 'at risk measures' should only be reported once.

Calculating km enhanced for invasive non-native species

Invasive non-native species

Where action is taken on INNS for the purposes of enhancements, such as heavily modified mitigation measure actions, the following scenarios and approaches can be used to determine the extent of enhancement:

- Eradication / intensive control of a species where it is causing a water body to fail, for example eradicating top mouth gudgeon from a lake. In this scenario the entire water body benefits, area should be converted from km² to km for reporting. This approach is valid for all INNS actions in still water bodies
- For eradication of floating pennywort record the length removed, or the year on year reduction if it is an ongoing approach
- Control of a species to mitigate the secondary impacts of INNS, for example, removing Himalayan Balsam in catchments with soft geology, to address a sediment RNAG. In this scenario, record the length of water body where action is taken, unless local evidence suggests an additional downstream benefit (e.g. visual sediment or monitoring point/investigation identifies ecological impact)

Habitat improvement to mitigate impacts of an INNS causing failure, for

^[1] SGZ actions are set out in a national spreadsheet (contact [Elinor Smith](#)). Advice and guidance actions can be filtered out by filtering for actions in the worksheet titled "Updates required 2017-18" marked as "Physical Interventions, Physical Interventions – Enforcement, and Pilots / Trials" in column Y, there are 237 in total across England (as of July 17).

example, improving marginal habitat in a water body with impacts from invasive shrimp. In this scenario, record the length of water body where action is taken, unless local evidence suggests an additional downstream benefit

Actions to address invasive non-native species (INNS) for preventing deterioration should not be captured within KPI 1311. [See section 'Actions to reverse or prevent deterioration'](#).

Process for reporting

Reporting process

IEP teams lead on collating and reporting km enhanced information on a quarterly basis, as set out in the Integrated Service Level (ISL). Each area has a [KPI1311 Lead](#) who can provide support for reporting.

We use a [reporting spreadsheet](#) to capture the required detail of all enhancements. Enhancements are captured on a water body by water body basis. Catchment scale improvements should be reported at the water body level. Where enhancements straddle more than one water body the enhancement should be captured separately for each water body enhanced. Reporting the data consistently using the national tools enable the data to be assessed and utilised efficiently in different ways at a range of scales, and mapped to support communication and promotion of the work.

The headline km enhanced figure is reported at the end of each quarter via the normal KPI process, using the Performance and Monitoring (PAM) system supported by Business Planning and Performance. The cumulative km enhanced for the current year is entered along with commentary on the end of year forecast.

! Important. Please ensure the km enhanced figures in the reporting spreadsheet and PAM are the same. Figures reported in Environment Programme Outcomes and Outputs datasheet and water company National Environment Programme must also match.

At the same time completed reporting spreadsheets should be returned to KPI1311@environment-agency.gov.uk

Other teams, including FCRM Programme, FBG, Land and Water, GWCL and EP have a responsibility (via their ISL) to contribute timely information. Refer to the section '[Sources of information](#)' below for the process of reporting information. Where possible this is done using existing processes. The KPI lead (in IEP) will initiate contact to request information for reporting.

Some enhancements are reported on a quarterly basis, for example:

- Regulatory efforts
- Asset maintenance
- External partnerships or industry that is not part of CaBA activity

Programmes reporting annually in quarter 1 of the following year are;

- Water company investment (schemes on the Water Industry National Environment Programme, WINEP)
- Environment Programme
- Countryside Stewardship
- Partners through the Catchment Based Approach (CaBA) Monitoring and Evaluation form

FCRM programme which reports outcomes measures (OM4 d, e, and f) on the Programme and Project Management Tool (PPMT)

Sources of Information

Funding Types The table below identifies the process for obtaining information.

Programme	Information source and timing
Water Industry National Environment Programme (WINEP) (Report Q1)	<p>Water industry enhancements will be reported retrospectively for the previous year in Q1, following sign off and reporting to Ofwat, using information provided by National River Basin Management Service (NRBMS).</p> <p>There is no further reporting during the year.</p> <p>The figures provided will follow a consistent methodology and will cover:</p> <ul style="list-style-type: none"> • Water quality (WQ) schemes • Water resources (WR) schemes • Fisheries and biodiversity schemes <p>NRBMS will ensure the information provided meets the reporting criteria through a review of WINEP drivers. Where several small improvements are being implemented together to achieve an outcome, such as upgrades to several emergency overflows within a single water body, they will be grouped to report as a single enhancement. DrWPA schemes will be reported in Q4 via the areas DrWPA leads. See section 'calculating km enhanced for protected areas' on how to calculate DrWPA enhancements.</p>
Area environment programme (Report Q1)	<p>Area Environment Programme enhancements report retrospectively for the previous year in Q1. There is no further reporting during the year.</p> <p>Data is collected as part of the Environment Programme's annual "Outputs and Outcomes" process. Environment Programme (EP) teams will review projects and provide details on km enhanced with support from area KPI leads. Data entered into Outcomes and Outputs and km enhanced should be agreed between EP and Integrated Environment Planning (IEP) and must match.</p> <p>This information is formatted nationally and provided back to IEP for inclusion in KPI reporting.</p> <p>Multi-year projects can be recorded following a pro-rata contribution approach.</p>
Area environment programme (WR component) (Report Q1)	<p>A few projects in the WR component of the Environment Programme will have an environmental enhancement; these will be captured as part of the annual outcomes and outputs reporting by the EP teams, and will be reported retrospectively for the previous year in Q1. There is no further reporting during the year.</p>

	This information is formatted nationally and provided back to IEP for inclusion in KPI reporting.
FCRM (Flood and Coastal Risk Management)	<p>FCRM capital schemes For capital funding projects, FCRM record information onto the Programme & Project Management Tool (PPMT) system for Outcome Measure 4 d, e and f on a quarterly basis. OM4 guidance can be found here.</p> <p>IEP and Partnership and Strategic Overview (PSO) teams should engage and collectively agree the figures for both metrics prior to reporting. Some rules for reporting OM4 and km enhanced do differ, e.g. OM4 is not restricted to the WFD waterbody network and therefore there could be some differences between figures reported for the same project.</p> <p>Enhancements from the capital programme reported via PPMT will be formatted nationally and provided back to IEP for inclusion in KPI reporting retrospectively for the previous year in Q1.</p> <p>FCRM revenue maintenance For maintenance, projects, local liaison between IEP and Asset Performance (AP) is required to secure and agree information. It is not reported via PPMT; this liaison should continue through the year and can be reported during any quarter. The KPI lead will initiate this contact towards the end of a quarter for reporting. However, AP can contact the KPI lead through the year to update and agree km to claim.</p>
FCRM capital schemes (Report Q1)	
FCRM revenue maintenance (Report each quarter)	
EA regulatory and other action (Report each quarter)	<p>This data comes from within the Areas from individual teams or virtual catchment teams and can be reported during any quarter.</p> <p>Examples of what to include are:</p> <ul style="list-style-type: none"> • Impact of inputs to the Town and Country Planning process, through Area Fisheries, Biodiversity and Geomorphology (FBG), Strategic Planning (SP) or Groundwater and Contaminated Land (GWCL) teams • Enhancements from enforcement activities • Remediation of chronic pollutions that are linked to RNAGs. (Not one off acute incidents) • Advice and guidance is excluded (see section 'Exclusions from reporting - Advice and guidance')
Other partner(ship) projects CaBA (Report Q1)	<p>This category refers to relevant 3rd party interventions where water, land and biodiversity funding is not the predominant funding stream (although it may be used as a "seedcorn" for some CaBA projects).</p> <p>Catchment Co-ordinators provide a key role in identifying and reporting these enhancements to</p>
Other external	

delivery (Report each quarter)	<p>their IEP teams.</p> <p>These enhancements can be reported during any quarter; However, (from 17/18) the CaBA National Steering Group gathers a collated data set of CaBA activities during Q4. This data will be formatted nationally and provided back to IEP for inclusion in KPI and can be reported retrospectively for the previous year in Q1 along with other datasets.</p>
Conservation projects database (Report Q1)	<p>A national extract from the conservation projects database (CPD) will be made available annually, in quarter 1 ready for Q1 reporting. This will be based upon information entered by areas, usually in FBG. The extract can be used as a basis for conversation, km enhanced reported in this database does not link to achieving WFD objectives and therefore may under or over claim enhancement. For example, fish easement projects only report the footprint of the intervention and not the length of waterbody opened up to fish.</p>
Countryside stewardship (Report Q1)	<p>The E&B Monitoring team will gather countryside stewardship delivery from Natural England once nationally. They will assess km enhanced per waterbody and the data will be provided to IEP teams via the IEP, Leadership and Data team for reporting.</p> <p>Enhancements delivered in 2016 will be reported in Q4 (April) 2018, thereafter reporting will move to annual, being reported in Q1.</p>

Reporting methodology

Completing the reporting spreadsheet

The reporting spreadsheet should be filled in as follows:

Field	Expected content
Area Name	Select from pick list of area names
Waterbody ID	<p>Provide the water body id (GB code) for the water body being enhanced.</p> <ul style="list-style-type: none"> Only enter one water body id in each row. Do not enter anything other than the water body id.
Waterbody type	<p>Select from pick list of water body types.</p> <ul style="list-style-type: none"> Don't enter anything that's not on the pick list
What does the measure address?	Select whether the enhancement is for an RNAG, Protected Area, protected species, or a combination of these, reverses deterioration or prevents deterioration. (See section 'Actions to

	<p>reverse or prevent deterioration')</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Main Protected Area / species type	<p>Select the most appropriate Protected Area, protected species, combination or N/A.</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Short description of measure	<p>Summarise the nature of the enhancement in 1 - 2 sentences. This should be clear and meaningful to an internal and external reader.</p> <ul style="list-style-type: none"> • If the enhancement is part of a wider project, start with the project title and then explain the specific activities.
Primary Pressure	<p>Select the primary pressure that the measure addresses from the pick list</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Programme	<p>Select the most relevant programme the action is being delivered through from the pick list. (further detail on programmes is in the sources of information table above)</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Km enhanced	<p>State (to no more than 2 decimal places) the km enhanced because of the activity.</p>
Quarter delivered	<p>Select from the pick list that quarter and year the work delivered is in.</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Justification for km enhanced figure, including assumptions	<p>Provide a short explanation about how you have calculated the km enhanced figure. For example, if based on modelling, length of physical works, local expert judgement, assumptions made etc.</p>
Do we have permission to use 3rd party data externally as Open Data?	<p>The options available for this column are restricted, based on the programme column selection.</p> <p>No additional work is required to obtain data sharing permissions from the water industry or catchment partnerships - this is secured once nationally.</p> <p>(a form is available to facilitate this)</p>
Sector causing problem	<p>Select from the pick list the main sector responsible for the main RNAG, deterioration (See section 'Actions to reverse or prevent deterioration') or protected area compliance issue that the enhancement addresses.</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Sector delivering the enhancement	<p>Select from the pick list the main sector putting the enhancement in place. This may vary from the sector providing the funding.</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Was a CaBA partnership involved?	<p>This column is used to provide an indication of CaBA involvement.</p> <p>Select "yes" if the project was put in place by partnership or an individual or group of organisations as part of implementing a wider</p>

	<p>CaBA action plan.</p> <p>Select "no" if an organisation is acting independently, in pursuit of their own individual priorities or in isolation outside of CaBA, or as part of a regulatory duty etc.</p>
Reporter name	<p>Provide a contact who knows about the activity and km justification.</p>
Action Aim	<p>A high-level, strategic environmental issue that the action is aiming to control such as controlling or managing pollution, abstractions or invasive non-native species and improving regulated flows and habitats</p> <p>These data standards align to CPS to allow better future reporting and improve consistency</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Action Group	<p>A broad classification of activities that support the achievement of Action Aims, such as improving sewerage drainage systems, preventing introduction of invasive non-native species, improving or modifying structures</p> <p>These data standards align to CPS to allow better future reporting and improve consistency</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list
Action Type	<p>A more detailed classification of Actions that could be undertaken to implement a chosen Action Group, such as prohibiting use of certain substances, relocating a discharge, removing or softening a hard bank.</p> <p>These data standards align to CPS to allow better future reporting and improve consistency</p> <ul style="list-style-type: none"> • Don't enter anything that's not on the pick list

Actions to prevent or reverse deterioration

Reporting deterioration

! Important. Actions to prevent or reverse deterioration are not included within the scope of KPI1311 and Corporate Score Card 1 EA 1.

However, in December 2017 we started capturing deterioration actions through the same process. This means that although these will not count towards the KPI/corporate scorecard measure, we will still capture the work being done to tackle these high priority issues for WFD, and use this evidence base to develop our approach to reporting this important work in the future.

If a single action is to address both a deterioration and an enhancement, the action should be reported once as a deterioration action, as it has a higher WFD priority.

Calculating km deterioration reversed or prevented should be done in the same way as for km enhanced.

Definition of deterioration

There are two types of actions for deterioration, reverse deterioration and prevent deterioration. Deterioration may be for WFD, Protected Area or protected species. An action to address either of these must meet certain criteria, in the same way as enhancements.

Deterioration type	Definition
Reversing	<p>In order to reverse a deterioration, there must be a real deterioration to tackle. You can identify where there is a real deterioration by looking in CPS. In a deteriorating element classification lozenge, there will be a downward arrow on the left. By hovering over this arrow, you will be able to see the certainty of the deterioration.</p>  <p>We should only be acting on deteriorations which are quite certain, very certain or highly certain. To be able to report an action as reversing deterioration, it must also address an identified 'reason for deterioration' (RFD). These can be viewed via the 'Reasons assigned' circle to the right of the element name.</p>
Preventing	<p>Preventing deterioration is based on risk. You would use 'preventing deterioration' if an action to stop something from happening had been delivered. These kind of actions will not always have a physical intervention on the ground.</p>

Deterioration examples

Examples of actions to reverse deterioration may include:

- Action carried out at a sewage treatment works to reverse a downward trend in discharge quality from either population growth or poor performing equipment
- Alteration of groundwater abstraction permits to reduce abstraction and reverse deterioration due to saline intrusion

- Advice to a farmer, resulting in land management change, after a crop rotation resulted in a field being used that was less suitable leading to an increase in manure/sediment run off and deterioration of invertebrates and phosphate

Examples of actions to prevent deterioration may include:

- Conditions have been placed on a planning application to prevent effluent being released to a small water body/protected area with little or no dilution, success in this example would result in no physical intervention
 - A decision to stop pumping at a mine head has been reversed as not pumping would lead to mine water discharge entering a sensitive water body
 - Action to eradicate invasive non-native species such as Himalayan Balsam from the bank of a water body where there is a risk of unstable banks and increased sediment load
 - Sustainable Development team have successfully engaged a developer to incorporate sustainable urban drainage systems (SUDS) into a large development reducing the risk of pollution and flow problems beyond normal expectation
 - An agricultural campaign has prevented a change of practice on an 'at risk' field that could have been damaging
 - Remediation of contaminated land to prevent contaminants in the soil and groundwater impacting surface waters and the wider groundwater body
 - Action to remove unused abstraction licence headroom (reducing the annual or daily licence quantity) to prevent future use
-

Related documents

Links

Guidance documents and Area best practice can be found on the [KPI 1311 SharePoint site](#). Please send examples of best practice to [KPI1311 Support](#) Integrated Environment Planning, Leadership and Data, E&B

Appendix A: Enhancement examples

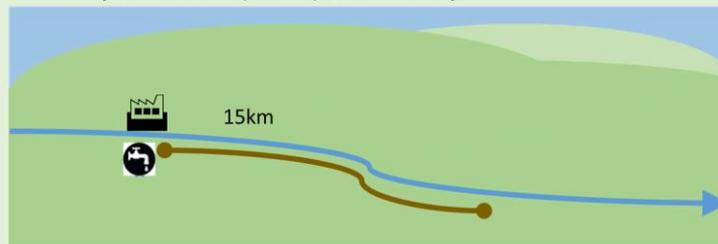
Examples of calculated enhancements

The following examples show how km enhanced should be calculated for different activities:

1) Point source improvement (e.g. industrial/sewage treatment works discharge or reduction in abstraction)

A point source discharge, such as a sewage works/industrial discharge or a reduction in abstraction identified as a reason for not achieving good status or not achieving Protected Area or protected species objectives will count towards the target. When determining length of enhancement take into consideration the demonstrable improvement in water quality or flow downstream. Practically, this length may be determined by the distance to the next significant discharge, abstraction or tributary downstream, or with reference to the models used to justify the scheme. It would rarely be appropriate to simply report the length of the entire downstream catchment.

Schemes should be reported individually, at the installation level. Where several small improvements are being implemented together to achieve an outcome, such as upgrades to multiple emergency overflows or abstractions within a single water body, they should be grouped and the overall km enhanced, without adding overlaps, would be reported. Catchment scale improvements or improvements spanning more than 1 water body should be reported per water body.



In this instance, a 15km length has been improved.

2) Physical modification (e.g. installation of a fish pass)

Where an in-river modification has been addressed to provide fish/eel passage, the upstream length (or indeed downwards for certain species) opened up will contribute to the target. The length of river opened up to allow fish to get to spawning grounds should be reported. Tributaries can be included if they also have suitable spawning habitat for those species that will benefit from the fish passage, tributaries without suitable spawning habitat should not be included. This length enhanced may be dictated by the distance to the next significant barrier or the spawning habitat if no other barriers exist. For 'bankside' enhancements (for instance habitat restoration in heavy modified water bodies), we will report the length of habitat restored.



In this example, 10km of upstream migratory habitat has been enhanced, plus a 2km tributary with important spawning areas.

3) Diffuse pollution (e.g. rural land management project)

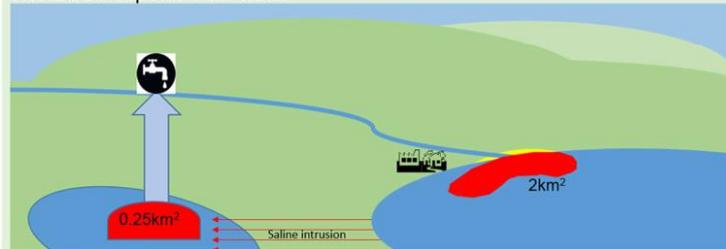
Where we are logging improvements arising from diffuse pollution projects, that have resulted in real physical change, the enhancements we report will be for the extent of surface water habitat that sees a direct downstream benefit towards a water body objective. Activities or projects that are undertaken at a number of locations to alleviate rural diffuse pollution reasons for not achieving good status (such as tree planting or surface water drainage improvements), can be grouped at a project scale within the water body for efficiency. The total extent of enhancement reported would be the lengths where works (for example fencing) takes place and if evidence is available to justify it, the extent of any downstream benefit towards water body objectives.



In this example, we have delivered 4.5km of enhancements working across multiple landholdings.

4) An enhancement to an area or volume of water (e.g. coastal water/groundwater)

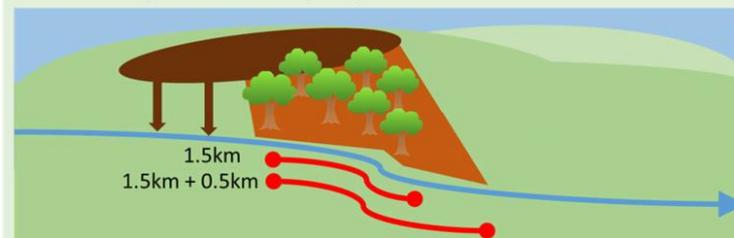
Where we have undertaken interventions to deliver outcomes in lakes, estuaries, groundwater or coastal waters we would usually report those enhancements in area (km²) or volume (km³). For the simplicity of this metric all enhancements must be recorded as a linear length (km). Volume and area should be directly converted, e.g. 100 hectares or 1km² should be reported as 1km.



In this example, 2 enhancements have been implemented. A point source improvement has been carried out to improve a failing bathing water, this action is the sole reason the failing the Protected Area objective. It is estimated that 2km² have been enhanced as a result. This scheme would contribute 2km to the KPI target. Note that the resulting reduced bacterial load to the feeder stream does not contribute to the target, as it is not a relevant WFD pressure in that water. Action has been taken to amend an abstraction causing saline intrusion. The amendment will create a large scale enhancement to the groundwater (0.25km²), contributing 0.25km to the KPI target. Additional enhancement could be recorded on the surface water waterbody if enhancement there was also expected.

5) Land based activity (e.g. tree planting)

Where we have undertaken activity on an area of land to improve a water body, we would normally record the extent of work using hectares or km². To ensure we only report the length of water body moving towards achieving WFD/Protected Area/protected species objectives and for simple communication, land area must be converted to the linear km length of water body improved.



In this example, 3km² (or 300ha) of woodland has been created to prevent sediment flow to the river. The planting and enhancements has happened along a 1.5km length of river. Local knowledge suggests there is an additional downstream benefit of 0.5km (500m) due to the direction of flow to the waterbody due to slope, beyond the extent of the woodland. If this can be justified, 2km of enhancement can be reported.

6) 'In Combination'

Accumulating enhancements is a key aspect of the measure. Contributions from multiple programmes of measures will be cumulative. This approach encourages integrated delivery of action at a catchment scale and avoids the incentive to stop work in a catchment once the first action has been delivered.



This example combines the enhancements delivered under the first three examples. The length of river we are working in (marked a-b in the diagram) is 20km long. The work we have undertaken with partners across multiple programmes of measures would contribute 31.5km to the target.

Appendix B: List of priority species in which the Environment Agency has a lead role

Introduction

This appendix lists the priority species where the EA is the lead partner for their conservation. These species have been prioritised according to their protection under European and National legislation. The presence of these species and habitats varies across the country so you should have considered whether it is necessary to target all of them in your Area.

Priority Species

The following are considered to be high priority:

- Freshwater Pearl Mussel - *Margaritifera margaritifera*
- White-clawed crayfish - *Austropotamobius pallipes*
- Narrow-mouthed Whorl Snails - *Vertigo angustior*
- Desmoulins Whorl Snails - *Vertigo moulinsiana*
- Atlantic Salmon - *Salmo salar*
- Coregonids/ Whitefish (Vendace)- *Coregonus albula*
- Coregonids/ Whitefish (Gwyniad/Schelly)- *Coregonus lavaretus*
- European Eel - *Anguilla anguilla*
- River Lamprey- *Lampetra fluviatilis*
- Sea Lamprey - *Petromyzon marinus*
- Brook Lamprey - *Lampetra planeri*
- Bullhead - *Cottus gobio*
- Shads (Allis)- *Alosa alosa*
- Shads (Twaite)- *Alosa fallax*
- Spined Loach - *Cobitis taenia*
- ~~European otter - *Lutra lutra* (not relevant to this KPI)~~
- ~~Water Vole - *Arvicola amphibious* (not relevant for this KPI)~~

The following are considered to be medium priority:

- **Depressed River Mussel** - *Pseudanodonta complanata*
- **Fine-lined Pea Mussel** - *Pisidium tenuilineatum*
- **Glutinous Snail** - *Myxas glutinosa*
- **4 x River Shingle Beetles** - *Hydrochus nitidicollis* / *Meotica anglica* / *Thinobius newberyi* / *Bembidion testaceum*
- **Hairy Click Beetle** - *Synaptus filiformis*
- **River Jelly Lichen** - *Collema dichotomum*
- **Ribbon-leaved Water Plantain** - *Alisma gramineum*
- **Greater Water Parsnip** - *Sium latifolium*
- **Arctic Charr** - *Salvelinus alpinus*
- **Smelt** - *Osmerus eperlanus*
- **Brown/Sea Trout** - *Salmo trutta*.