Anglian Water

PR19 DRAFT DETERMINATION OUTCOMES TECHNICAL APPENDIX

Draft Determination Representation, August 2019

RESPONSIBLE BUSINESS OF THE YEAR 2017
BUSINESS IN THE COMMUNITY

THE QUEEN'S AWARDS FOR ENTERPRISE: SUSTAINABLE DEVELOPMENT 2015

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OUTCOMES TECHNICAL APPENDIX

This section of our representation is supplementary to our chapter on Outcomes and provides further detail in areas where Ofwat has requested it for certain performance commitments. This covers:

- A finalised metric for measuring performance against implementing our Natural Capital strategy
- A finalised metric for measuring performance against implementing our Social Capital strategy
- A response to Ofwat's actions asking us to provide further information on our Risk of sewer flooding in a storm performance commitment definition
- A response to Ofwat's sector wide actions asking us to provide further information on our Risk of restrictions in a drought performance commitment
- A response to Ofwat's action to be fully compliant with the standard definition for the common Per capita consumption performance commitment by April 2020
- The rationale behind the P10 and P90 performance levels that we have provided in the Outcomes Representations Data Template tables OC1, OC2.1, OC2.2 and OC2.3

1.1 Natural Capital

In this section we make representations on Ofwat's Action ANH.OC.A60 and provide a full definition for this performance commitment.

Our September Plan and April IAP Response

In our September plan, we set out that we are a natural capital business and we are embedding six capitals into our decision making, and this is reflected in out Integrated Annual Report and Accounts. We have already developed a natural capital balance sheet and proposed a natural capital performance commitment developed in collaboration with our Customer Engagement forum and Sustainability and Resilience Panel. We highlighted the evidence that our customers feel that protecting the environment is a key priority.

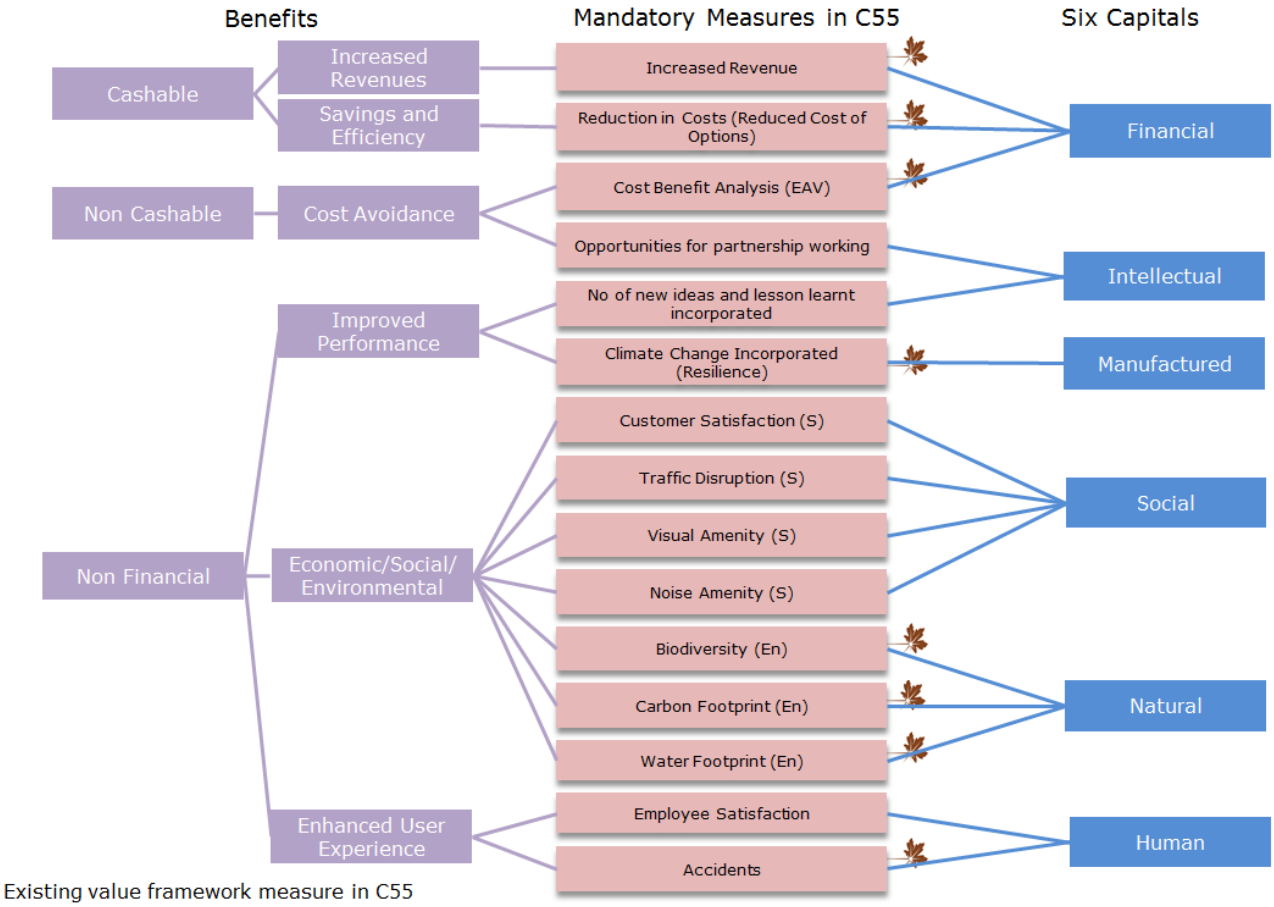
We highlighted that the performance commitment should be reputational to reflect its overlap with other performance commitment and the evolving nature of the concept of natural capital. Through the performance commitment we will record and report the impact we have on natural capital and demonstrate how we use this information to inform decision making.

In our IAP response we highlighted that we have established a six capitals project board to oversee our six capitals framework. We also worked with our Sustainability and Resilience Panel, which includes representation from Natural England, the Environment Agency, RSPB and Friends of the Earth to develop the metrics to be used in our performance commitment and to create trusted baselines for our existing level of performance.

Representation update

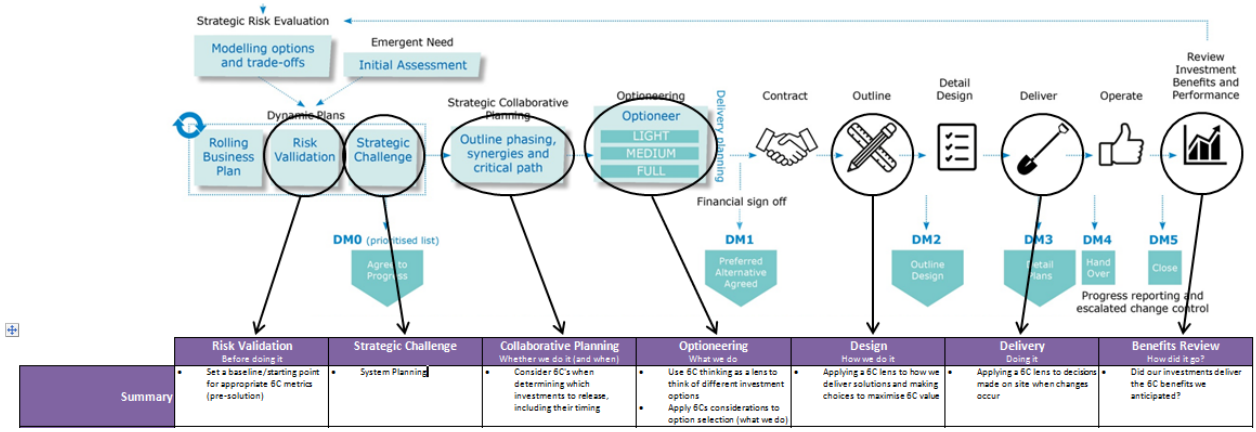
We have always included environmental and social considerations in our thinking and some elements, such as carbon, have been part of our formal decision making process for some time. That is why we have been able to drive down the levels of carbon in our business; reducing capital carbon by 58% from a 2010 baseline, and operational carbon by 29% since 2015. In creating our business plan during PR19 we decided to build on this success and develop an approach to embed metrics for all six capitals (Natural, Social, People, Intellectual, Financial and Manufactured) into our investment decision making processes. This will ensure that we look at our investments through a lens of six capitals from conception and assessment of need, through optioneering and the selection of the solution, to commissioning and benefits realisation.

Figure 1 Benefits and six capital alignment



Existing value framework measure in C55

Figure 2 Summary of strategic risk evaluation



Why is this important? We believe that by taking this approach throughout the investment system we will keep our obligations to customers, communities and the environment at the front of mind and will unlock and deliver more innovative solutions with wider value (such as the development of Ingoldisthorpe natural treatment system delivered in AMP6).

We are developing similar systems to ensure that we use the six capitals lens to inform our decision making across the business not just in investment delivery. Our commitment to working in the public interest has now been enshrined in the changes to our Articles of Association, putting environmental and social considerations in line with financial returns. The six capitals approach will

give us a clear line of sight from the Board to our decision making. These metrics and others at the corporate level will be reported annually in our Annual Integrated Report and more than this we are working with others across our region to understand how collectively we can use capitals thinking to contribute to a more efficient and effective system for recording and managing these resources at a landscape scale. This has started with the most advanced of the six capitals – Natural Capital, with the development of a multi-sector group Natural Capital East, which comprises of a range of businesses, Local Enterprise Partnerships, Academics, regulators and developers. This group has already established links with the largest development in our region and is now inputting into the creation of the Ox-Cam ARC Local Natural Capital Plan.

In summary, in addition to the Performance Commitments (PCs) that we outline below, we have created the governance for six capitals review in our investment decision making processes and have metrics which are already being tested. We have further metrics which will be used and reported at the corporate level and we are working with regional multi-sector groups to establish metrics which can be used at the landscape scale.

We recognise that a number of important elements of Natural Capital already have separate Performance Commitments;

- Pollution Incidents
- Bathing Water attaining excellent status
- Abstraction Incentive Mechanism
- Water Industry National Environment Programme
- Operational Carbon
- Capital Carbon

Therefore to support these existing PCs the Natural Capital PC will be a basket of metrics that pick up the remaining elements which are; water quantity, surface and ground water quality, biodiversity and regional collaboration. These will be considered as a single Natural Capital PC and will only be considered to be successful if the Performance Commitment Level if four or more of the five metrics achieve their targets in 2024-25.

Table 1 Summary of natural capital PC

Natural capital theme	Rationale	Performance Commitment	Target
Water Resources	Water is our most critical natural capital. Without it we have no business and no economy This metric measures the volume of water we abstract from the environment.	Total water abstracted over time. (3 year rolling average normalised by population served) 17/18 baseline is 240 litres per person per day	220 litres per person per day by 2025
Ground water quality	50% of our water comes from ground water and it is threatened by diffuse pollution, which can impact resilience This metric measures activities to prevent nitrate from entering the soil and ground water system.	Engagement with farmers (in targeted catchments) resulting in evidence of positive action being taken e.g. change in cropping practice, soil management This is in line with the Measures Specification Forms agreed with the EA to show evidence that the scheme has reduced nitrate input/ leaching over the five year period	80 % of engaged farmers altering farming practices by 2025

Surface water quality	Our region's water bodies are in a poor state, which impacts the wider environment and peoples' enjoyment. This metric measures the reduction of phosphate discharged by our WRCs and therefore the improvement of river water quality.	Km of river improved and reduction in nutrient load discharged by WRCs P load reduction will be based on 6mg/l Total Phosphorus concentration entering the WRC at the permitted DWF (e.g. 6 * 100mcd dwf/1000 = 0.6kgd) this gives the baseline load currently being discharged to the water body The km of river improved arsing from the obligation is stated in the WINEP	Km of river improved The new TP permit limit is then used to arrive at the reduced TP load to the water body, for example if the new limit is 2mg/l the load reduction will be 0.6 – 0.2 = 0.4kgd.
Biodiversity	Biodiversity underpins the health of the planet and provides many benefits to society and the economy. We have a legal obligation to protect and enhance biodiversity, including (in the future) delivering net gain. This metric measures the positive addition to biodiversity from our activities.	Biodiversity net gain (measures implemented to achieve net gain) % change in biodiversity units based upon condition and extent of biodiversity as a result of our activities. This includes changes affected by us on our land and beyond as a result of our construction and land management activities.	10% biodiversity net gain resulting from our investment programme by 2025 from a 2020 baseline
Natural Capital East	We want to drive the development of a regional approach to assessing and considering natural capital in strategic planning and decision making. This metric measures the collaborative and innovative approach to measuring and managing natural capital beyond our operational boundaries.	Bring together a multi-sector group, Natural Capital East, to create a strategy to explore and implement the development of agreed natural capital metrics, processes for evaluation and governance at the regional scale.	Have a strategy, agreed set of metrics and baseline across the East of England by 2025.

As part of the six capitals strategy we are developing an assurance process for the governance of the complete set of metrics. We are currently discussing with both consultants and academics how best we provide this.

1.2 Social Capital

In this section we make representations on Ofwat's Action ANH.OC.A64 and provide a full definition for this performance commitment.

Rationale for performance commitment

Our on-going commitment to social capital

In July 2019 the Board of Anglian Water, in conjunction with our shareholders approved a fundamental change which legally enshrines public interest objectives within our constitution. We were the first utility company to make changes to our Articles of Association to enshrine our long-term commitment to deliver wider public interest outcomes for society and the environment by altering the core documents that govern the overall management of the business. We already act in this way, but this change locks in those behaviours for the long term.

It signals our cast-iron commitment to the wellbeing of communities in the East of England, going far beyond the provision of clean drinking water and effective treatment of used water. It's also the natural next step of the journey we've been on for years.

We have always recognised that our business operates at the heart of the communities we serve, and have many long running programmes which have a positive impact on our social capital. Examples of this include our community education programme which has been active in communities for over ten years and our wide-ranging community regeneration work in Wisbech.

Understanding the interplay between the six capitals - Natural, Social, People, Manufactured, Financial and Intellectual - is not something new to our business. Since 2015 we have recognised this framework, in our Integrated Annual Report and Accounts, and illustrated how these are at work in delivering our business plan. In AMP7 we'll build an understanding and use of the six capitals into our decision making and further develop an effective suite of metrics for this purpose. We will use this as a basis to report the progress of our business plan within our Integrated Annual Report and Accounts.

This performance commitment is being proposed, building on feedback from our Board and Customer Engagement Forum.

We engaged customers through the online community on our proposals. In our Acceptability research on the SDS, positive impact on communities was seen as important by 81% of customers, and ranked eighth of the 10 outcomes in terms of importance. The vast majority of customers are supportive, although unsurprisingly they view these activities as less important than delivering the 'core' service. In particular customers feel it is important to shape a generation of future customers who will be more focused on water conservation.

Although we always seek to have a positive impact we know there are some areas where we can have a negative social impact. For example, in terms of impact of the company on the community, the main complaint is about leaks in public places.

Online community

In engagement through our online community, customers were supportive of this PC. They felt that the emphasis should be on initiatives that link to our core functions and have a regional and local focus. There was support for our aspirations in this area.

"It is a caring attitude that big businesses sometimes lack. And this attitude pushes companies like AW into a different bracket than others."

"I agree with maximising benefit for the community. I'm just wary of money being spent on other community benefits that may not be directly water-related."

Rationale for incentive type

We are proposing a reputational incentive for this performance commitment. The concept of social capital is still evolving and we do not believe this performance commitment is sufficiently mature for a financial incentive. This also avoids overlap with other performance commitments which are listed below, some of which provide financial incentives.

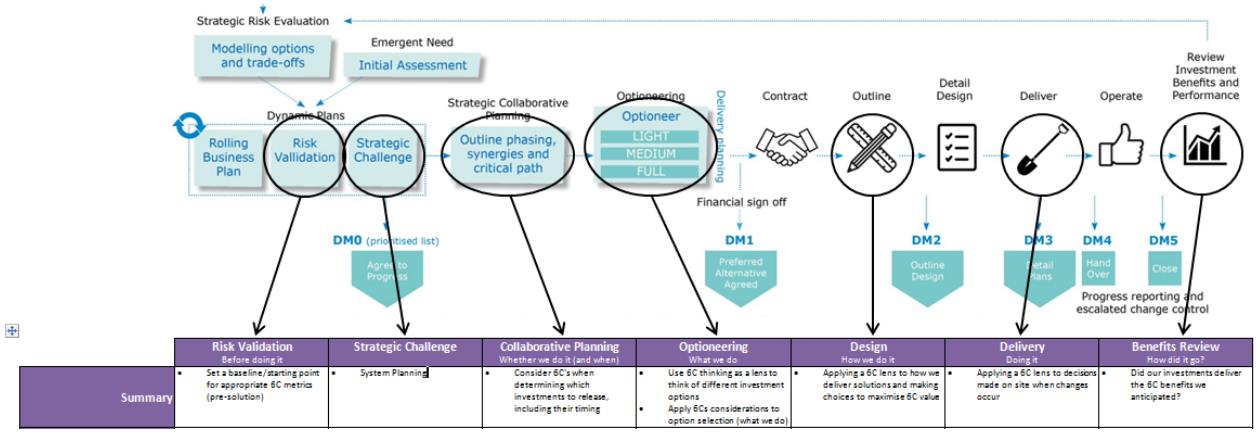
Setting the performance commitment level

The concept of social capital has developed rapidly over recent years and is still developing. We have contributed to this work, for example by creating a natural and social capital account for our RiverCare and BeachCare Programme, contributing to UK Water Industry Research work on a natural and social capital accounting tool for the water industry, and contributing to the 'Accounting for Sustainability' Natural and Social Capital Accounting Guide. We have also sponsored a Senior Research Fellow for the next three years, through the Cambridge Institute for Sustainability Leadership, to support the development of practical implementation of metrics in the field of natural and social capital.

Our proposal is to build on our strong base of understanding and commitment to social capital. This will be part of our long-term six capitals approach, the most important element is that we plan not just to record and report the impact we have on social capital at the corporate level but to develop measures to influence decisions at a project, programme and strategy level.

We have always included social and environmental considerations in our thinking and some elements have been part of our formal decision making process for some time. In creating our business plan during PR19 we decided to build on our success to date and develop an approach to embed metrics for all six capitals (Natural, Social, People, Intellectual, Financial and Manufactured) into our investment decision making processes. This will ensure that we look at our investments through a lens of six capitals from conception and assessment of need, through optioneering and the selection of the solution, to commissioning and benefits realisation.

Figure 3 Summary of strategic risk evaluation



Why is this important?

We believe that by taking this approach throughout the investment system we will keep our obligations to customers, communities and the environment at the front of mind and will unlock and deliver more innovative solutions with wider value (such as the development of Ingoldisthorpe natural treatment system delivered in AMP6).

We are developing similar systems to ensure that we use the six capitals lens to inform our decision making across the business not just in investment delivery. Our commitment to working in the public interest has now been enshrined in the changes to our Articles of Association, putting social and environmental considerations in line with financial returns. The six capitals approach will give us a clear line of sight from the Board to our decision making. These metrics and others at the corporate level will be reported annually in our Annual Integrated Report.

In summary, in addition to the Performance Commitments that we outline below, we have created the governance for 6 capitals review in our investment decision making processes and have metrics which are already being tested. We have further metrics which will be used and reported at the corporate level.

Performance Commitments

We recognise that a number of important elements of Anglian Water's Social Capital already have separate Performance Commitments. The social capital performance commitment should therefore be seen in the context of the following performance commitments:

Our relationship with our customers and other organisations/engagement:

- Customer services measure of experience (C-MeX).
- Developer services measure of experience (D-MeX).
- Non-household retailer satisfaction

Mitigating negative impacts:

- Internal sewer flooding
- Risk of severe restrictions in a drought
- Risk of sewer flooding in a storm

- Percentage of population supplied by a single system
- Properties at risk of persistent low pressure
- External sewer flooding
- Water Quality contacts
- Water supply interruptions

Making a positive difference:

- Bathing Waters Attaining Excellent Status
- Per capita consumption
- Leakage

Vulnerability:

- Priority services for customers in vulnerable circumstances
- British Standards Institutions – standard for inclusive service
- Helping those struggling to pay

Therefore to support these existing performance commitments the Social Capital PC will be a basket of metrics that pick up the remaining elements which are; Community Investment and engagement, trust, and relationships with suppliers. These will be considered as a single Social Capital PC and will only be considered to be successful if the performance commitment level of 3 or more of the 4 metrics achieving their targets is met in 2024-25.

There are also a number of social capital metrics and prompts which we are in the process of building into the heart of decision making tools in the business. Although we will not report on these as part of the performance commitment, we will share our progress through our capitals reporting.

Table 2 Summary of social capital PC

Social capital theme	Rationale	Performance Commitment	Target
Community Investment and Engagement	This measure will capture the traditional elements of social capital – the community investment programmes through which we make a positive difference, and through which we add social value to our communities.	Number of beneficiaries of our community and charitable programmes, including those run by our Alliances in the course of their work with Anglian Water. To measure this we will use the London Benchmarking Group framework, which is seen as the global standard in measuring and managing corporate community investment.	To increase the number of beneficiaries of community and charitable programmes using the London Benchmarking Group framework by 5% by the end of the AMP (from a 2020 baseline).
Trust and relationships	Our relationship with our customers is a critical element of social capital. Their trust in us is captured through this metric and would be affected by our ability to enhance our positive impact, and mitigate any negative impacts we could have.	CCW Water Matters, Trust metric The customer trust score is calculated from the CCWater's survey question in which customers are asked to what extent they trust their water company.	Trend to show an increase in trust over the five years of the AMP. The survey results are expressed as a percentage of customers that agree with each statement. The resulting ODI measure is expressed as the difference between the company score and the WaSC

			average (less a baseline adjustment for our starting position).
Supplier relationships	Our supply chain is a significant part of our impact as an organisation.	Ethical risk assessments of framework spend.	100% of framework spend to to have undergone an ethical risk assessment focusing on (where appropriate) modern slavery, health and safety and anti-bribery and corruption. Over the course of the AMP we'll explore how we expand this to other categories of spend.
Community Investment and Engagement	Working with customers and communities to build on the industry public interest commitment - developing a strategy which delivers significant positive impact, with progress reported annually.	Annual Public Interest Commitment reporting, including progress against the sector targets below; - Triple the rate of sector-wide leakage reduction by 2030. - Make bills affordable as a minimum for all households with water and sewerage bills more than 5% of their disposable income by 2030 and develop a strategy to end water poverty. - Achieve net zero carbon emissions for the sector by 2030. - Prevent the equivalent of 4 billion plastic bottles ending up as waste by 2030. - Be the first sector to achieve 100% commitment to the Social Mobility Pledge. We are currently co-creating additional commitments with our customers which will be confirmed in Autumn 2019.	Build strategy and report on it annually.

As part of the 6 Capitals strategy we are developing an assurance process for the governance of the complete set of metrics. We are currently discussing with both consultants and academics how best we provide this.

1.3 Sewer flooding resilience

In this section we make representations on Ofwat's Action ANH.OC.C6.

We answer the four elements of this request below. These responses are consistent with our APR table 3S submission.

1. *Confirm if we are using the updated parameters in the catchment vulnerability assessment (and set out any additional criteria that we intend to use).*

We are using the methodology published by Ofwat on 4th April 2019. By the end of AMP6 we will have 100% model coverage of all catchments, covering foul, combined and surface water sewers. As the methodology states, the metric and the information gathered to inform the overall reported figures is aimed at providing a means to identify priority areas for interventions. As these are undertaken it is important that the assessment for the specific catchment is repeated to be able communicate the difference the intervention has made. Due to our modelling coverage, it is appropriate to use Option 1b to ensure a consistent and repeatable approach is taken to understanding the risk to customers in a 1:50 ARP event. As all of our catchments are modelled, we consider that they all fall under the Grade 5 vulnerability criteria, and Option 1b remains the most appropriate option for undertaking this vulnerability assessment.

In 2018/19 Option 1b was used to assess 622 catchments by hydraulic modelling, equating to 91% of the total population. The remaining 9% of the population had their results extrapolated from the hydraulic modelling. By the end of 2019/20, 100% of the population will be modelled. The results from the 622 modelled catchments were used to extrapolate and produce values for the remaining catchments for the total Number of Nodes Predicted to Flood, the count of Internal Flooding During Worst Case 1:50 Event and the count of External Flooding During Worst Case 1:50 Event (excluding where internal flooding occurs).

2 *Report the extent to which we use 2D or simpler modelling; and have adopted FEH13 rainfall as standard and if not when we expect to do so.*

All models use 2D flood extent modelling. Hydraulic modelling is currently undertaken using FEH99. From 2019/20 onwards, FEH13 will be used.

3 *Provide any modelling assumptions and full reporting tables from the model.*

Anglian Water has 1,157 catchments, serving a population of over 6.2 million people. Although the majority of catchments (843) are smaller than 2,000pe, we have not excluded any catchments from our assessment. This will give us a truer picture of the risk to our customers (as we cannot be sure that there would be no issues in these catchments for a 1:50 ARP event), as well as help with future reporting – any movement in the pe at risk will be representative of the whole region, rather than just the largest 314 catchments.

As we use 2D flood extent modelling, we use the ground model to predict where the flood water is most likely to congregate and assessing flooded properties along the flood path, rather than applying buffer zones that reflect predicted flood volumes. This is as outlined in the Atkins methodology (p.47).

Full reporting tables are outlined below:

Table 3 Detailed reporting - metric coverage

Total number of catchments	Total number of catchments pe > 2000	Total number of catchment pe < 2000	Total pe served	Total pe in included catchments	Total pe in excluded catchments
1,157	314	843	6,239,827	6,239,827	-

Percentage of total pe in excluded catchments	Total pe Option 1a	Percentage of total pe option 1a	Total pe Opion 1b	Percentage of total pe Option 1b
0%	-	-	6,239,827	100%

Table 4 Detailed reporting - Option 1b collated

high-level vulnerability grade	Total number of catchments	Total number of nodes modelled	Total number of nodes predicted to flood	Percentage of nodes predicted to flood
5	1,157	658,191	81,379	12%

Total pe in modelled catchments at vulnerability risk grade	Total pe associated with flooding nodes	pe associated with flooding nodes as a percantage of total modelled pe	Assessed overall model confidence grade
6,239,827	893,040	14.31%	BX

Table 5 Vulnerability of population

Vulnerability risk grade	Percentage of total population served
Low	85.69%
Medium	N/A
High	14.31%

4. Confirm it will achieve 100% model coverage by April 2020.

By the end of AMP6 we will have 100% model coverage of all catchments, covering foul, combined and surface water sewers.

1.4 Drought resilience

In this section we make representations on Ofwat's Action ANH.OC.C7.

Response to Draft Determination query: Risk of Severe Restrictions in a Drought Performance Commitment

Our performance commitment levels are reflective of our WRMP 2019 position. In line with WRMP guidance, this does not include potential benefit from drought orders or permits as these cannot be guaranteed.

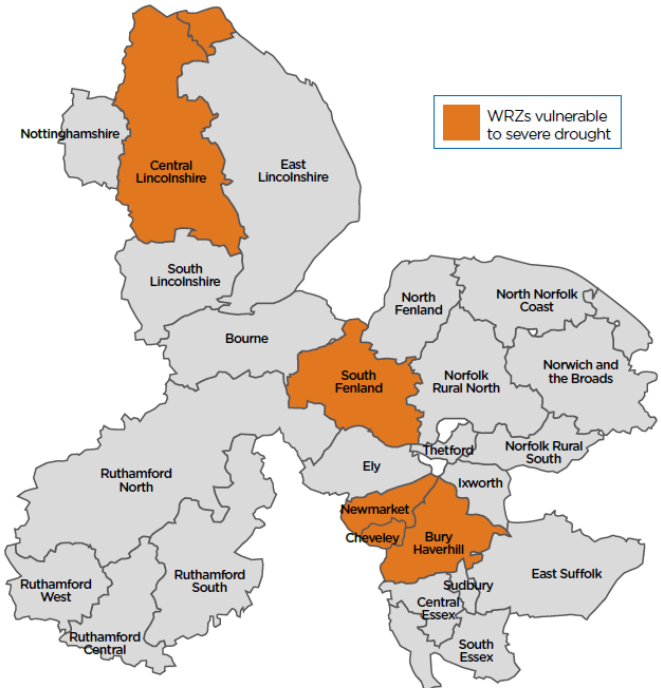
The Water Resource Zones (WRZs) where a 1 in 200 year drought would lead to risk of severe restrictions (rota cuts) have been identified in the WRMP 2019 planning process as:

- Bury Haverhill
- Central Lincolnshire
- Cheveley
- Newmarket
- South Fenland

These zones see drought impacts on supply side deployable output. In the draft WRMP 2019 these WRZs have measures in place to avoid severe supply restrictions in a 1 in 200 year drought by AMP7 (2025), so the populations in these zones are only at risk for the first five years of the planning period. The interim risk will be managed through a combination of supply-demand headroom and temporary transfers from adjacent zones.

Ruthamford South and South Essex have also been identified to have a potential risk of severe restrictions if a 1 in 200 year drought occurred in the 2020-25 period, due to a baseline supply-demand balance deficit. However drought vulnerability analysis has not identified deployable output in these zones to be directly affected by drought, and non-drought investment will eliminate this deficit.

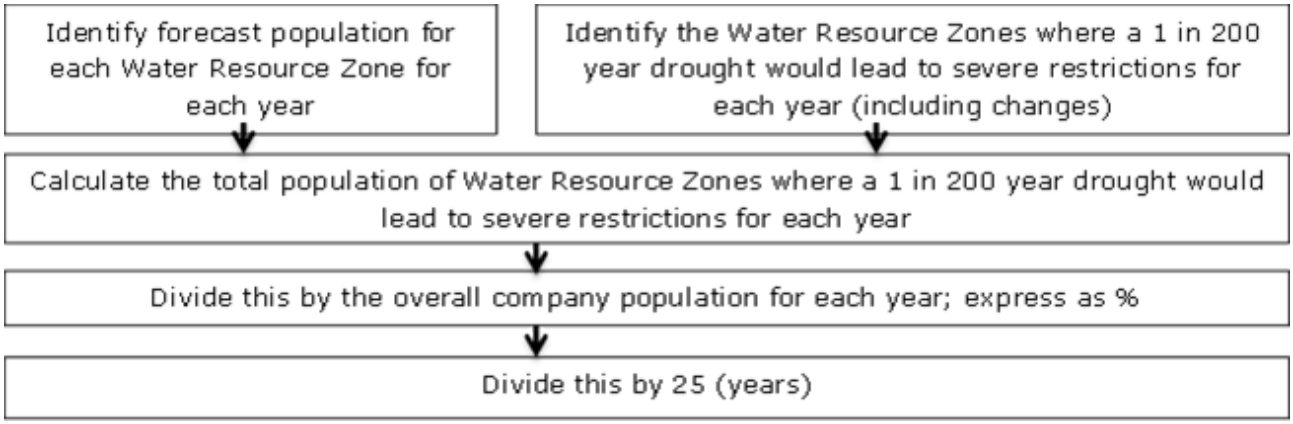
Figure 4 WRZs at risk of severe restrictions



Calculation process

The flowchart below illustrates the process to derive the 25-year average value.

Figure 5 Calculation process



The population of Water Resource Zones at risk of severe supply restrictions is summed. It is then divided by the total company population to give the reported value. The population for each Water Resource Zone is derived from the AWS regional population based upon ONS data, updated for the reporting year. It includes household and communal populations. The methodology follows Ofwat guidance based on a fixed 25-year period (2020-2045).

The 25-year average is re-calculated each year to reflect current population forecasts, but in line with Ofwat guidance assumptions related to DO, climate change, population and target headroom do not change. Whilst the guidance does allow changes in relation to demand [it is assumed that this relates to consumption and possibly leakage] and outage, these have also been kept constant

as per the WRMP 2019 supply-demand balance, as any changes to these are not considered significant to affect the risk commitment. The principal change to populations at risk will be the delivery of scheme(s) to remove the risk of severe supply restrictions, which are outlined below.

WRMP 2019 schemes that will affect populations at risk

We have identified the schemes that are driven by drought risk only in the draft WRMP 2019. These are listed in the table below. If these are not delivered there is a greater risk of severe restrictions to customers in these zones. Other zones which have identified drought risks are mitigated by schemes with multiple drivers.

Table 6 Schemes that are driven by drought risk only

Year	WRZ	Scheme	Comment
2024-25	South Humber Bank	Pyewipe Water Reuse	Provides additional non-potable water, freeing up potable water for elsewhere in the system
2024-25	Central Lincs	South Humber Bank to Central Lincs transfer	Allows water made available from Pyewipe to be transported to Central Lincs and mitigate the drought risk in this zone[1]
2024-25	Cheveley	Newmarket to Cheveley transfer	Allows water sharing between zones to mitigate the drought risk in this zone[1]

1 in an existing drought resilience planning scenario, existing surplus in Central Lincolnshire is used as input to the interconnectors

1.5 Per Capita Consumption

In this section we make representations on Ofwat's Action ANH.OC.A14.

We have reported in our Annual Performance Report, under the shadow reporting table, that we won't be compliant with the common definition for this measure in two areas. Ofwat's summary of our responses and our subsequent replies are below:

> *4g) Unmeasured household consumption - Meters are selected to provide sufficient granularity to detect low continuous flows indicative of plumbing losses or leakage short duration flow variations. The value of meter under registration is less than the company's average meter stock - the company states it applies the same MUR to its IHM meters as for domestic meters and currently has no plans to replace these meters with higher spec versions.*

We currently have c350k properties paying for their water via unmeasured charges. PCC for unmeasured properties is calculated from two cohorts: enhanced meter customers where a meter has been installed but the customer has chosen not to switch (c100k properties) and true unmeasured customers (c250k properties). For the first cohort actual meter reads are used and for the second we use our individual household monitor (sodcon) consisting of 1000 properties who pay by unmeasured charges but have a meter specially installed. We have a further 33,500 enhanced meter fits planned for AMP7.

Our Plan for AMP7 includes the installation of Smart meters meaning that over the next AMP the number of unmetered customers will decrease.

We are currently reviewing our overall meter under-registration model and as part of this work will produce a specific meter under registration figure for the meters used in our individual household monitor.

However we feel that as the unmeasured base will reduce further in AMP7, the impact of not having higher accuracy meters is minimal on overall PHC/PCC. As only a low proportion of our households supplied do not have meters installed (less than 10%) the impact of meter under registration in unmetered areas affects us less than most other companies. For other companies with lower meter penetration it would be a more significant impact on their water balance calculation.

Should Ofwat agree we could report this element as Green in 2019-20 due to the minimal impact on PCC reporting accuracy that this element will have provided that the impact can be shown to not impact PCC to within the levels of reporting accuracy required for this measure (l/p/d to one decimal place).

> *4i) Unmeasured household consumption - Where unmeasured non-household reported volume is less than 2% of total non-household demand, data from a per property consumption study is refreshed every five years - the company states that unmeasured non-household consumption is not part of the household consumption calculation and it does not believe it is relevant for reporting per capita consumption.*

The PCC performance commitment relates to domestic consumption only so we don't understand why this requirement included. This is not relevant to the calculation of PCC and while we do not currently comply with the requirement it does not impact the accuracy of our reported figures for PCC. We note that the same requirement also appears under the leakage reporting guidelines and whilst it is currently amber under the leakage section as well, work planned for 2019-20 will turn this green for both measures.

We note that the Performance Commitment Level is set as a baseline percentage reduction compared with our 2019-20 performance. As required by the definition for this performance commitment we will explain any changes in this performance level compared with that originally forecast in our business plan in our 2019-20 Annual Performance Report.

1.6 P10 and P90 Rationale

This section provides the rationale behind the P10 and P90 performance levels that we have provided in the Outcomes Representations Data Template tables OC1, OC2.1, OC2.2 and OC2.3. These are used to drive financial performance in tables OC1, OC2.1, OC2.2 and OC2.3.

Table 7 Summary of rationale for P90 and P10 performance levels

Performance commitment	P90 Rationale	P10 Rationale
Water quality compliance (CRI)	Average industry upper quartile for the last three years.	We have selected these figures based on our judgement of the effect of our largest historic CRI exceedences occurring at some of our largest works, reservoirs and zones.
Water supply interruptions	By end of AMP7, based on our expert judgement of possible improvements. We believe this represents the maximum level attainable in our context.	Worst performance in recent years (2014/15) is 19:00 but our investments and proactive approach mean we are less likely to outturn such a high level again.
Leakage	End of AMP7, based on outperforming the WRMP.	Our sustainable economic level of leakage.
Per capita consumption	Based on the 'Aspirational' high option considered as part of the WRMP.	Based on current industry average.
Mains repairs	Best historical performance.	Worst historical performance.
Unplanned outage	Frontier WaSC performer in 2018-19.	Based on current industry average plus one standard deviation.

Risk of severe restrictions in a drought	10% reduction from PCL in first four years. 0% in final year as minimum possible.	This is the risk we expect with no investment in AMP7.
Priority services for customers in vulnerable circumstances	By end of AMP7, based on our estimate of the number of customers who may be in vulnerable circumstances at any one time.	This is based on the worst lowest forecast for any company.
Internal sewer flooding	20% better than PCL by end of AMP7, through continuous improvement and innovation.	Our worst recent performance.
Pollution incidents	20% better than PCL by end of AMP7, through continuous improvement and innovation.	Industry lower quartile.
Risk of sewer flooding in a storm	20% better than our best performance (based on there being a small dataset).	20% worse than our worst performance (based on there being a small dataset).
Sewer collapses	The current industry frontier.	AMP6 Reference level proportioned up for all sewers.
Treatment works compliance	Our best ever performance.	Our judgement of possible poor performance, based on historic performance in the industry.
Percentage of population supplied by a single supply system	Based on delivery of schemes planned for AMP8 as part of the WRMP during AMP7.	No improvement from end AMP6.
Properties at risk of persistent low pressure	20% better than PCL by end of AMP7, through continuous improvement and innovation.	Our end of AMP5 performance.
External Sewer Flooding	20% better than best ever by end of AMP7, through continuous improvement and innovation.	Worst recent performance.
Reactive Mains Bursts	The P90 for this measure is based on our target, which is our best ever performance.	Total number of mains bursts (2016/17).
Bathing Waters Attaining Excellent Status	A glidepath to 41 based on delivery of schemes and investments identified for AMP8, working with third parties and possible investment on third party assets during AMP7.	Based on worst recent performance.
Abstraction Incentive Mechanism	See IAP table App3 commentary for individual abstraction site P90 and rationale.	See table IAP App3 commentary for individual abstraction site P10 and rationale.

Supporting customers in vulnerable circumstances (qualitative)	Based on highest panel assessment score achieved by an energy company in the Ofgem vulnerability assessment	This is based on max 'weak' performance score, improving to 'fair/weak' from year 3 onwards.
Managing void properties	Based on halving current performance in year 1, reaching end of AMP PCL by year 2, then continuing to drive down the figure by 10% per year.	A 0.1% increase at the start of the AMP, performance improves to reach current level at end AMP.
Operational carbon	This is based on a reduction that is double our PCLs.	This is based on a reduction that is half our PCLs.
Capital carbon	This is based on a reduction at 2% above our PCLs.	This is based on a reduction at 2% below our PCLs.
Non-household Retailer Satisfaction	By end of AMP7, 35 NPS based on excellent performance in line with Marks and Spencer and Apple and 100% OPS and MPS.	Based on -27.5 for NPS (worst UK water company) and maintaining current performance for OPS (84%) and (MPS 78%).
Water Industry National Environment Programme	Obligations above PCL each year, representing outperformance up to the incentive cap.	This assumes that we deliver 10% of the schemes late each year.
Water quality contacts	Based on improvements resulting from additional investment, not currently included within the business plan.	Significant underperformance based on industry average in 2013.
Event Risk Index (ERI)	This is based on the best WaSC score to date.	This is based on the 2018 industry median score.
British Standards Institution - Standard for Inclusive Service	This is a binary measure and the best outcome is "maintained".	This is a binary measure and the worst outcome is "not maintained".
Helping those struggling to pay	This is based on delivering 10% above the PCL.	This is based on delivering 10% below the PCL.
Smart metering delivery	This is based on 115% of our delivery profile.	This is based on 50% of our delivery profile.
Internal interconnection delivery	This is in line with our PCL, as we do not envisage outperforming.	This is based on 25% of the programme being delivered.
Value for Money	This is based on our historical best performance.	This is based on our historical worst performance.
WINEP Delivery	This is a binary measure and the best outcome is "met".	This is a binary measure and the best outcome is "not met".
Natural Capital	This is based on delivering all elements of our strategy.	This is based on missing our PCL by not delivering on three elements of our strategy.

Social Capital	This is based on delivering all elements of our strategy.	This is based on missing our PCL by not delivering on three elements of our strategy.
Cyber	This is based on 100% of the actions being completed, the maximum possible.	This is based on 50% of the actions being completed.
Water housing and estate mains	An assumption of 10% more connections occurring, associated with Oxford-Cambridge Arc.	Calculated in line with the lowest figure for new connections over the last five years. This was 15,078. This figure is assumed to be the P10 figure for each year of the AMP.
Surface water drainage	An assumption of 10% more sites being enabled, associated with Oxford-Cambridge Arc.	This is based on an assumption of 20% fewer sites needing to be enabled in AMP7.
Growth at water recycling centres	An assumption of 10% more sites being enabled, associated with Oxford-Cambridge Arc.	This is based on an assumption of 20% fewer sites needing to be enabled in AMP7 with a corresponding 10% reduction in the level of capacity delivered.

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