

E062

NWG

Copperleaf valuations

Research report January 2023

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**“Quality is never an
accident it is always the
result of intelligent
effort”**

Introduction

An overview of the project background, objectives and methodology.

Introduction

Project background and objectives

NWG is in the process of developing their PR24 business plan which will be underpinned by extensive customer research and engagement. A draft plan is currently in development and will undergo acceptability testing in 2023.

As part of an iterative process to develop and refine a plan which will be presented to customers in acceptability testing, NWG has deployed the decision analytics solution Copperleaf to define a best value plan based on a range of inputs. One of the inputs required by Copperleaf was customer valuations for service improvements across all measures that will be included in the plan.

A research project was therefore required to derive customers valuations for all 24 measures that will be included in the plan for Northumbrian Water and all 14 measures for Essex & Suffolk Water. The measures included in the project included:

- Business Demand
- Mains Repairs
- Sewer Collapses
- Reduced number of blockages
- Water Quality - Taste & Odour
- Water Quality - Appearance
- Bathing Water Quality
- Pollutions Incidents (total)
- Serious pollution incidents
- Discharge permit compliance
- River Water Quality
- Storm Overflows



- Operational GHG
- Biodiversity
- Water Environments (Blue Spaces)
- Internal Flooding
- External Flooding
- Repeat Sewer Flooding
- Water Supply Interruptions 3 hrs
- Interruptions 12 hours
- Interruptions 1 - 3 hours
- Reduced unplanned outage
- Leakage
- PCC
- Visible Leak Repair Time

It was important to NWG that customers were able to consider all measures collectively, making trade offs where needed and identifying those measures where they would like to see NWG be the most ambitious.

It was also key that the methodology ensured the cognitive validity of results and that customers were able to make informed choices and trade-offs without being overwhelmed with information and choices.

The methodology taken to achieve these objectives is described in the following section.



Methodology

Traditionally customer valuations for business planning are derived using stated preference methodologies which use choice modelling, however these methodologies only allow respondents to consider a limited number of measures (usually up to around 8) so this method would not meet the objective of enabling respondents to consider all measures as a whole. In addition, this methodology can be difficult for respondents to engage with given the need to make repeated choices about different packages.

It was also recommended that the chosen methodology involve face to face research to enable respondents to easily view all of the investments in one go without the restrictions of screen dimensions. The face to face approach also enabled the exercise to be tactile bringing to life the decisions that were being made and allowing respondents to easily “play around” with their choices.

On this basis a board game methodology was developed and 2,000 surveys completed via a series of hall tests.

Hall tests

Hall tests were carried out in various locations across the North East, Essex and Suffolk. The hall tests were set up as shown in the images below, with a researcher based at each table to run through the activity with each respondent. Members of the public were invited to take part, after completing a recruitment survey to ensure they were eligible and met the demographic requirements.



The table below shows the locations of the hall tests:

Location	Number of respondents
North East <ul style="list-style-type: none">- South Shields- Durham- Newcastle Upon Tyne- Alnwick- Darlington- Bishop Auckland- Hexham	1000
Essex <ul style="list-style-type: none">- Chelmsford- Romford- Southend on Sea	648
Suffolk <ul style="list-style-type: none">- Great Yarmouth- Lowestoft	352

Board game

The board game concept built on ODI research NWG conducted during PR19. Respondents were presented with large activity sheets detailing all the performance measures. For each measure there was:

- A short description
- An indication of current performance and how this compared to the rest of the industry (where possible)
- A potential future service level



As shown in the image below, respondents were provided with a number of plastic coins representing money they would pay over and above their current water/water and wastewater bill and asked to allocate the coins across the measures to demonstrate how much they would be willing to pay to see NWG achieve this service level.



The exercise was unconstrained with respondents able to use as few or as many coins as they wished. In Northumbrian Water areas, due to the greater number, measures were presented in themes. There were four themes in total, with varying numbers of measures under each theme:



Respondents viewed the themes first and allocated coins to each theme. They then carried forward the coins they had allocated to that theme and spread them across the individual measures. Respondents could request more coins for each theme or return some if they needed to once they had allocated coins to each measure. Throughout the process the researcher continually checked that respondents were happy with their total, and they were able to make as many changes as they wanted.

Respondents were asked if they knew how much they paid per month or year for their water (and wastewater) services. If the respondent was aware of their monthly bill, the researcher then calculated the annual bill. If the respondent didn't know how much their bill was, the researcher used the



showcard below to identify a typical bill. This figure was then used to show how much their annual bill would be once additions for each of the measures had been made.

ESSEX & SUFFOLK WATER *living water*

Metered
 You have a water meter, so you pay for the water you use.

- 1-2 people**
 Prefers showers to baths
 No garden watering
 Low use of washing machine/dishwasher
- 2-4 people**
 Frequent showers and some baths
 Occasional use of hosepipe
 Regular use of washing machine/dishwasher
- 4+ people**
 Frequent showers and baths
 Regular use of hosepipe and sprinkler
 Heavy use of washing machine/dishwasher

Unmetered
 You don't have a water meter, and your bill is calculated using Rateable Value*

- 3-4 bedroom house**
- Large 4+ bedroom house**
- Flat or two bedroom house**

*Rateable values were decided by the Valuation Office and can be different for every home. Rateable values were frozen in 1990, when council tax was introduced, and they have stayed the same since.

All activity sheets were printed on A2 ensuring all information could be easily viewed, with all information shown at the same time. The activity sheets can be found in Appendices three and four.

Sample profile

Sampling was undertaken to ensure respondents were representative of the Northumbrian Water and Essex and Suffolk Water customer base. The tables below show the demographics supplied by NWG which sampling was based on. We also ensured that at least 25% of all respondents were either financially vulnerable or had a health vulnerability.

Age

Age range	NW region		ESW region	
	No.	%	No.	%
16-24	298,268	14%	176,370	12%
25-34	345,456	16%	238,343	17%
35-44	302,523	14%	237,617	17%
45-54	363,878	17%	247,137	17%
55-64	350,414	16%	209,122	15%
65-74	290,731	13%	175,667	12%



75-84	167,249	8%	104,899	7%
85+	64,392	3%	47,514	3%
TOTAL	2,182,911	100%	1,436,669	100%

Gender

Female	51%
Male	49%

SEG

Grade	Description	Approx % of North East Population (2011)	Approx % of Essex Population (2011)	Approx % of Suffolk Population (2011)
A	Upper middle class	16.6%	22.5%	20.5%
B	Middle class			
C1	Lower middle class	29.6%	33.5%	30.2%
C2	Skilled working class	21.7%	22.5%	24.3%
D	Working class	32.0%	21.4%	25.0%
E	Non-working			

Data cleaning, analysis and report

Once the research stage was complete, all data was checked and verified to ensure accuracy. This involved looking for any incomplete or duplicate responses within the data and verifying 10% of data input for accuracy.

All data was passed on to NWG in order for them to calculate the valuations required for Copperleaf, therefore the results of this project are provided in a separate report from NWG. The profiling information of all respondents can be found in this report in the next section.





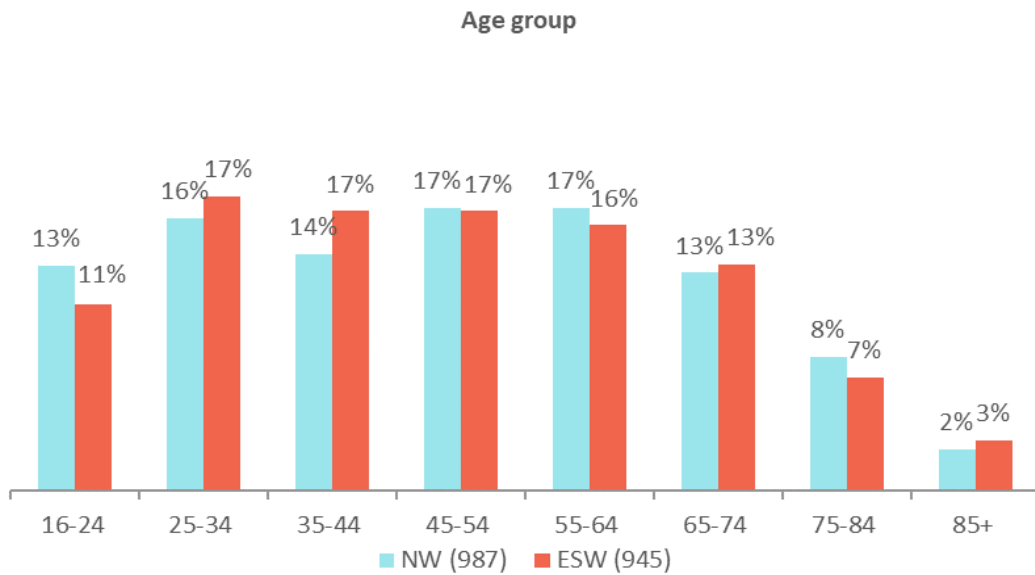
**“The best vision is
insight”**

Respondent profile

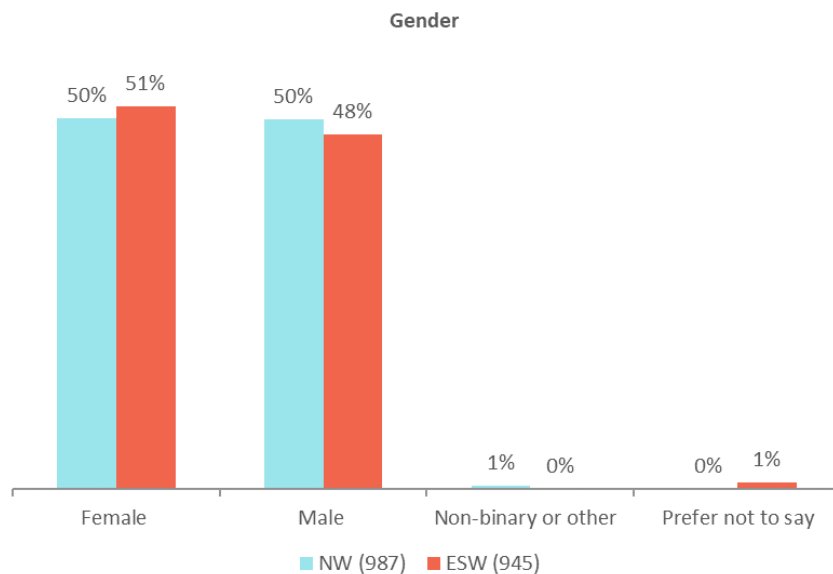
An overview of the profile of respondents who participated in the research.

Respondent profile

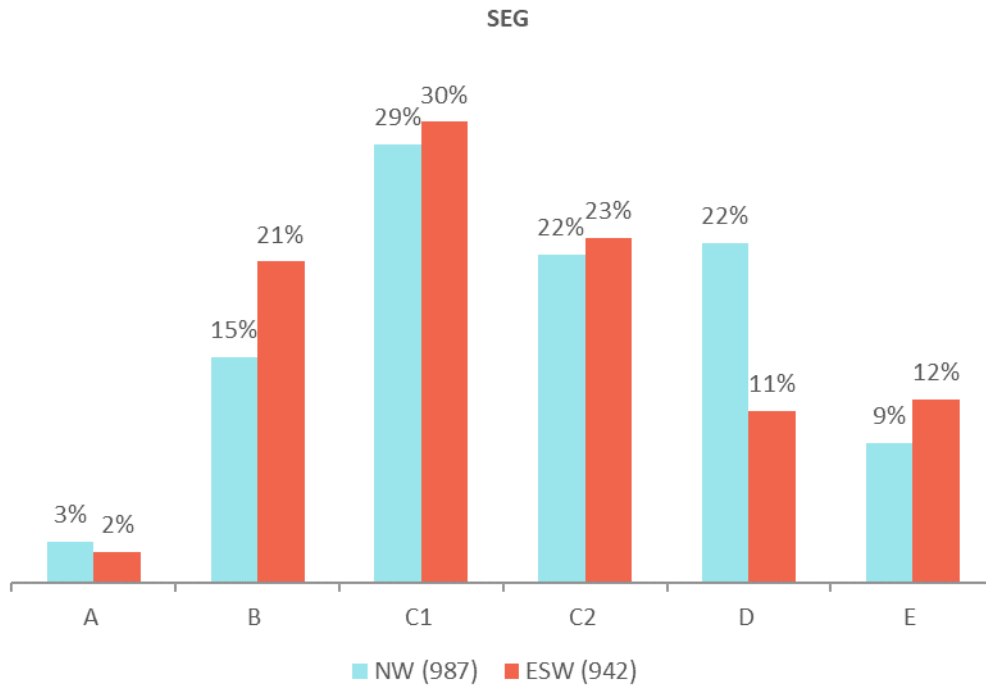
The graphs below show the demographic profile of all respondents. Please note figures may not always equal 100% due to rounding. In line with demographics of NWGs customers, there was a wide spread of age groups included in the research.



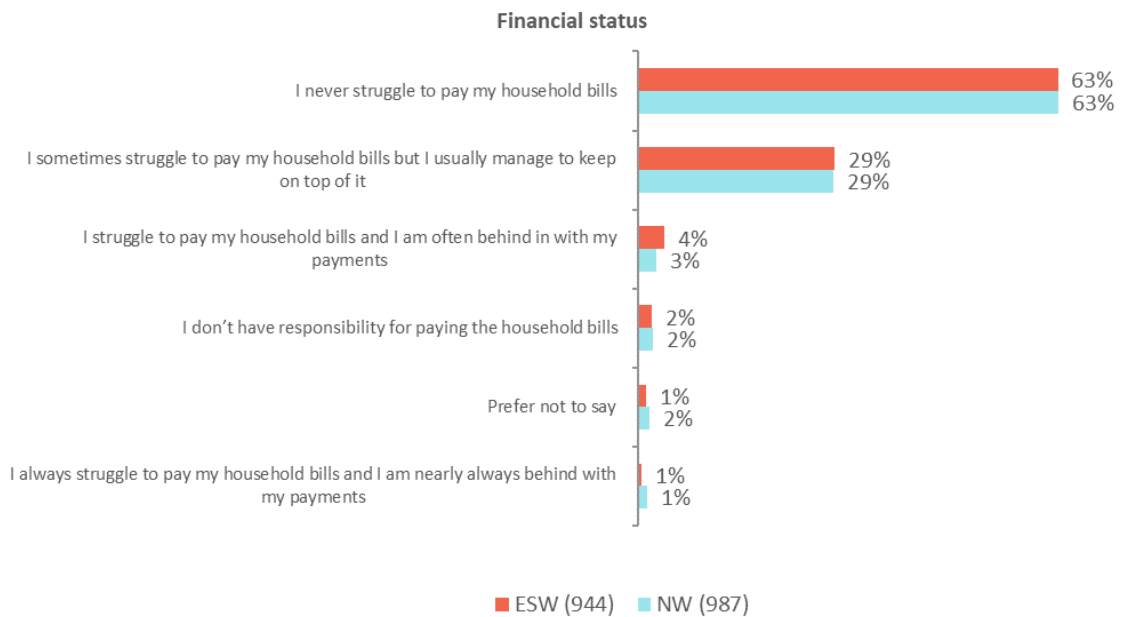
There was also an even split across genders, with slightly fewer male respondents in Essex and Suffolk Water.



In both regions the socio-economic group with the highest number of participants was C1, followed by C2.

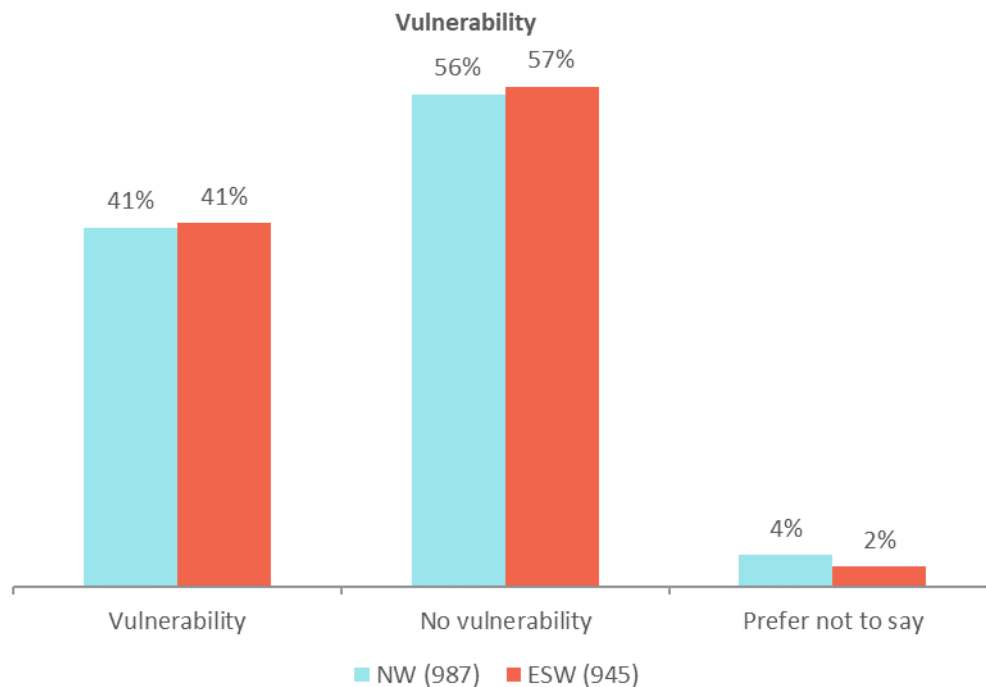


Looking at financial status, around a third of respondents across both areas said they struggled to pay their bills sometimes or often.



41% of respondents in both regions were classed as having a vulnerability. Those identified as having a vulnerability answered 'yes' to one or more of the following:

- I or another member of my household is disabled or suffer(s) from a debilitating illness
- I or another member of my household have/has a learning difficulty
- I or another member of my household relies on water for medical reasons
- I or another member of my household is visually impaired (i.e. struggles to read even with glasses)
- I or another member of my household am/is over the age of 75 years old
- I or another member of my household speaks English as a second language
- I or another member of my household is deaf or hard of hearing
- I or another member of my household is a new parent



The logo for 'explain' is contained within a white speech bubble with a tail pointing towards the bottom-left. The word 'explain' is written in a lowercase, sans-serif font. A small icon of a document with a speech bubble is positioned above the 'i' in 'explain'.

explain

The background of the slide is a photograph of a woman with long, wavy hair, smiling warmly at the camera. She is sitting at a desk with a laptop in front of her. The entire image is overlaid with a semi-transparent teal color.

**“Quality is not an act; it is
a habit”**

Appendices

Supporting documentation can be found in this section.

Appendices

Appendix 1 – Questionnaire

Copperleaf valuation recruitment questionnaire - NWG

Good morning/afternoon. My name is from Explain Market Research. I'm working on behalf of Northumbrian Water who would like to invite their customers to take part in an activity to share their views on their water and wastewater services. The activity is about how much you value improvements to different aspects of the services Northumbrian Water deliver.

This should take no longer than 20 minutes of your time and you will receive a £10 high street voucher as a thank you for taking part.

- Q1 Would you be willing to spend up to 20 minutes to take part in this activity?
Yes 1 No (close)..... 2
- Q2 Are you a customer of Northumbrian Water?
Yes and I am solely or jointly responsible for paying my water bill (continue) 1
Yes and I pay my water bill as part of my rent (continue) 2
No, because I do not currently pay a water bill but someone I live with does (thank and close) 3
None of the above (thank and close) 4
- Q3 Which of the following age bands do you fit into? (Check quota)
16-24 1 45-54 4 75-84 7
25-34 2 55-64 5 85+ 8
35-44 3 65-74 6
- Q4 Which gender do you identify with? (Check quota)
Male 1 Non-binary or other 3
Female 2 Prefer not to say 4
- Q5 What is the occupation of the main wage earner in your household? (before retirement, if retired)
- Q6 Researcher to code SEG (Check quota)
 A C1 D
 B C2 E
- Q7 Interviewer name
- Q8 Date of interview



Introduction to activity

First of all please watch this video. [RESEARCHER TO PLAY INTRO TO NW VIDEO]

Q9 Have you had any contact with Northumbrian Water in the last 12 months (other than receiving your bill)?
Yes¹ No² Don't know³

Q10 On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how satisfied are you with Northumbrian Water?
0 1 2 3 4 5 6 7 8 9 10 D K

Q11 If there was one thing you could improve about the service you receive from Northumbrian Water, what would that be?

Next please watch this second video. [RESEARCHER TO PLAY VIDEO 2 – INTRO TO THE PLAN]

Within the Northumbrian Water business plan there are 25 areas of performance that the company will measure and report back to Ofwat on. Today we want to share the 25 measures with you and understand how much you would value improvements in each one.

Q12 Do you know how much you pay for your water and wastewater services per year?
 Yes (Record below and go to activities) No (Go to Q13)

Q13 Do you know how much you pay for your water and wastewater services per month? [Researcher to use this to calculate annual bill]
 Yes (Record below, and times by 12 to calculate annual bill, confirm this with the respondent then go to the activities) No (Go to Q14)

Q14 Here are some typical bills for customers in the region. Which of these most closely describes your circumstances? [SHOWCARD A]

<input type="radio"/> Metered - 1 to 2 people	A typical bill for someone like you is £220 per year
<input type="radio"/> Metered - 2 to 4 people	A typical bill for someone like you is £315 per year
<input type="radio"/> Metered - 4 people plus	A typical bill for someone like you is £699 per year
<input type="radio"/> Unmetered - 3 to 4 bedroom house	A typical bill for someone like you is £417 per year
<input type="radio"/> Unmetered - 4 plus bedroom house	A typical bill for someone like you is £800 per year
<input type="radio"/> Unmetered - flat or 2 bedroom house	A typical bill for someone like you is £321 per year

Throughout the activities we are about to go through, remember your current annual bill/ or the bill for someone like you is £X per year.



Closing questions

Q15 [On completion of all of the activities, the researcher to total up all of the coins spent and note this value below]

Q16 You have allocated £X in total across the activities. Are you happy with this or would you like to make some changes?

Happy..... 1 Go to Q18

Would like to make changes. 2 Go to Q17

Q17 [If the respondent opts to make changes, record the revised amounts on each individual sheet and record the new total in the box below once they are happy with it]

Q18 Which of the following statements best describes your situation?

I never struggle to pay my household bills 1

I sometimes struggle to pay my household bills but I usually manage to keep on top of it 2

I struggle to pay my household bills and I am often behind in with my payments 3

I always struggle to pay my household bills and I am nearly always behind with my payments 4

I don't have responsibility for paying the household bills 5

Prefer not to say 6

Q19 Do any of the following apply to you

I or another member of my household is disabled or suffer(s) from a debilitating illness 01

I or another member of my household have/has a learning difficulty 02

I or another member of my household relies on water for medical reasons 03

I or another member of my household is visually impaired (i.e. struggles to read even with glasses) 04

I or another member of my household am/is over the age of 75 years old 05

I or another member of my household speaks English as a second language ... 06

I or another member of my household is deaf or hard of hearing 07

I or another member of my household is a new parent 08

None of these apply to me 09

Prefer not to say 10

Q20 Thank you for your answers. The answers you give will not be attributed to you personally. For the purposes of this research, however, Explain Research may contact you to ask about your experience when speaking with me today. Would you be happy for them to do this?

Yes (CAPTURE NAME AND TELEPHONE NUMBER) 1

No (thank and close) 2

Q21 Name

Q22 Telephone number

Thank you for your time today! (ADMINISTER VOUCHER)



Appendix 2 - Showcards

Metered
 You have a water meter, so you pay for the water you use.

1-2 people
 Prefers showers to baths
 No garden watering
 Low use of washing machine/dishwasher

2-4 people
 Frequent showers and some baths
 Occasional use of hosepipe
 Regular use of washing machine/dishwasher

4+ people
 Frequent showers and baths
 Regular use of hosepipe and sprinkler
 Heavy use of washing machine/dishwasher

Unmetered
 You don't have a water meter, and your bill is calculated using Rateable Value*

3-4 bedroom house

Large 4+ bedroom house

Flat or two bedroom house

*Rateable values were decided by the Valuation Office and can be different for every home. Rateable values were frozen in 1990, when council tax was introduced, and they have stayed the same since.

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 You don't have a water meter, and your bill is calculated using Rateable Value*

3-4 bedroom house

Large 4+ bedroom house

Flat or two bedroom house

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Appendix 3 – Activity Sheets Northumbrian Water

ACTIVITY 1: VALUING IMPROVEMENTS TO THEMES













The 25 measures fall into four themes which we will look at in a moment.

I am going to give you some plastic coins. I want you to imagine this is your own money, and in addition to what you already pay to Northumbrian Water for your water and wastewater services.

We are going to review the four themes below. I then want you to use your coins to demonstrate how much you would be willing to pay on top of your current annual bill for Northumbrian Water to improve service in each of these areas. You can have as few or as many coins as you like. Remember this is in addition to your current water and wastewater bill which is [RESEARCHER TO REMIND] and your bill will also increase by inflation. This is per year and would start from 2025.

After this activity, we will then look at the measures within each theme. For any coins you have allocated to each theme, we will ask you how you would like to spend them across the measures. Remember that whatever money you allocate is multiplied by all Northumbrian Water customers. This means that the amount Northumbrian Water is available to invest in these areas in their final business plan will be based on what they can charge all 1.3 million households.



ASSET HEALTH	ENVIRONMENT	WASTEWATER	WATER
 <p>This is a theme of three measures that are all related to work Northumbrian Water does to maintain and replace its assets to keep them in good working order.</p> <p>Northumbrian Water's assets include things like pipes, sewers, water treatment works and sewerage treatment works.</p> <p>Investment in this area reduces the number of failures that occur. The measures are:</p> <ul style="list-style-type: none"> • Reducing the number of water mains that burst • Reducing the number of sewers that collapse • Reducing the number of blockages that are found in the sewer <p>All of these areas can cause interruptions to your water or wastewater service as well as local impacts such as flooding or disruption to traffic.</p>	 <p>This theme includes nine measures all related to the environmental impact of Northumbrian Water activities. The measures are:</p> <ul style="list-style-type: none"> • Investment to reduce the carbon footprint of the business • Investment to reduce the number of pollution incidents caused by Northumbrian Water's operations • Investment to reduce how often wastewater is spilled into seas and rivers during storms • Improvements to river water quality • Improvements to bathing water quality • Investment to improve the amenities at rivers and coastal waters • Investment to encourage biodiversity e.g. plants and wildlife at Northumbrian Water's sites 	 <p>This theme includes three measures related to sewer flooding.</p> <p>A failure in the sewerage system, for example caused by a blockage can cause sewer flooding.</p> <p>Internal sewer flooding is flooding to the inside of a property caused by sewage escaping from the sewerage pipes. It can be caused by things like blockages and heavy rainfall.</p> <p>External sewer flooding is similar, but where the flooding occurs outside of a property, for example in a garden, yard or driveway.</p> <p>Repeat flooding is where the same property is flooded by sewage more than once in five years.</p> <p>Investment in this area can reduce the number of sewer flooding incidents that happen.</p>	 <p>This theme includes nine measures that make sure you always have the quality water that you need.</p> <p>Some of these measures are about making sure we have enough water for the future. For example through:</p> <ul style="list-style-type: none"> • Reducing leakage from the water network and fixing leaks quickly when they do happen • Encouraging homes and businesses to be more water efficient, and use less water <p>Some of these measures are about reducing the number of times customers experience an interruption to their water supply and ensuring our water treatment plants are in good working order.</p> <p>There is also a measure about ensuring customer drinking water is high quality in terms of taste, smell and appearance.</p>
<p>TOTAL VALUE ALLOCATED</p> 	<p>TOTAL VALUE ALLOCATED</p> 	<p>TOTAL VALUE ALLOCATED</p> 	<p>TOTAL VALUE ALLOCATED</p> 
<p>TOTAL VALUE AFTER REDUCTIONS</p> 	<p>TOTAL VALUE AFTER REDUCTIONS</p> 	<p>TOTAL VALUE AFTER REDUCTIONS</p> 	<p>TOTAL VALUE AFTER REDUCTIONS</p> 

In total you have spent [RESEARCHER TO TOTAL] is that okay? Or would you like to make any changes? [RESEARCHER TO RECORD INITIAL AND FINAL TOTAL]



ACTIVITY 2: ASSET HEALTH










[Researcher to carry forward coins assigned to asset health in the previous exercise. Respondent able to request more coins if required.]

You allocated X to the asset health theme, I now want to understand how you would allocate that money to each of the measures within the asset health theme. You can request more coins if you would like.

The measures are described in the table below. For each measure you can see a description and Northumbrian Water's current performance as well as an improved level of performance.

For some of these measures Northumbrian Water can compare their current performance with other water and wastewater companies and this information is included. Northumbrian Water has also predicted how the improved performances would compare to others in the industry. However please note that this is an estimate as other companies will also be looking to improve services.



Title	<p>Reducing the number of water mains that burst</p> 	<p>Reducing the number of sewers that collapse</p> 	<p>Reducing the number of sewer blockages</p> 
<p>Description of measure</p>	<p>A water main is an underground pipe used for supplying water to houses, businesses and other properties. Sometimes water mains burst. This could cause the surrounding area to flood, local homes and businesses to be without their water supply for a period of time and depending on where the burst is its repair can result in local delays to traffic, due to roadworks, while the water main is fixed.</p>	<p>Sewers can collapse due to their age or changes in ground movement or things like tree roots pushing their way into the pipe. A sewer collapse can cause local flooding and local delays to traffic, due to roadworks, while the sewer is fixed.</p>	<p>Sewer blockages are typically caused when people flush items down the toilet which are not designed to be flushed or wash food and oil down the sink. Amongst other things blockages can be caused by; sanitary products, tissues, condoms, cotton buds and fats, oil and grease. This can build up in the sewer and cause a blockage. This could mean you are unable to flush your toilet or that your bath or sink would drain slowly.</p>
<p>Current performance</p>	<p>2,900 mains bursts per year. Northumbrian Water is better than average compared to the industry.</p>	<p>260 sewer collapses per year. Northumbrian Water is better than average compared to the industry.</p>	<p>Northumbrian Water currently experience 11,991 blockages per year. Northumbrian Water is better than average compared to the industry.</p>
<p>Improved performance</p>	<p>How much would you be willing to pay for Northumbrian Water to reduce the number of bursts to 2,500 per year? Northumbrian Water would be in the top 25% of companies.</p>	<p>How much would you be willing to pay for Northumbrian Water to reduce the number of collapses to 200 per year? Northumbrian Water would be in the top 25% of companies.</p>	<p>How much would you be willing to pay for Northumbrian Water to reduce the number of blockages to 9,000 per year? Northumbrian Water would continue to be better than average.</p>
<p>Total value allocated</p>			
<p>Total value after revisions</p>			

[RESEARCHER TO CONFIRM HOW MUCH THE RESPONDENT HAS ALLOCATED TO EACH MEASURE] Is that okay? Or would you like to make any changes? [RESEARCHER TO RECORD INITIAL AND FINAL TOTAL]





ACTIVITY 3: ENVIRONMENT

[Researcher to carry forward coins assigned to environment in the previous exercise. Respondent able to request more coins if required.]

You allocated X to the environment theme. I now want to understand how you would allocate that money to each of the measures within the environment theme. You can request more coins if you would like.

The measures are described in the table below. For each measure you can see a description and Northumbrian Water's current performance as well as an improved level of performance.

For some of these measures Northumbrian Water can compare their current performance with other water and wastewater companies and this information is included. Northumbrian Water has also predicted how the improved performances would compare to others in the industry. However please note that this is an estimate as other companies will also be looking to improve services.

Title	Improving the quality of sea water at beaches	Reducing the number of pollution incidents caused by NW	Reducing the number of major and significant pollution incidents caused by NW	Ensuring the treated wastewater that is returned to rivers and seas is sufficiently clean	Reducing the number of times NW spill heavily diluted wastewater into rivers and seas during heavy rainfall	Managing river water quality	Improving rivers, reservoirs and coastlines that the public can access	Reducing the NW carbon footprint	Using NW sites to improve biodiversity
Description of measure	The Environment Agency, one of Northumbrian Water's regulators, monitors how clean sea water is. Every year they give the water at each beach, that is designated as being safe to swim in, a rating of excellent, good, sufficient or poor.	Pollution incidents can occur as a result of Northumbrian Water operations, for example: <ul style="list-style-type: none"> • Sewer blockages or collapses causing wastewater to go into a river or stream • Things going wrong at a wastewater treatment works Some incidents have more impact on the environment than others.	These are the most serious incidents caused by Northumbrian Water operations. These are spills and other pollution events that have had a major, persistent or significant impact on the environment, people or property.	Northumbrian Water take the wastewater away from homes and businesses and treat it so that it is clean enough to be released back into rivers and seas. There are standards Northumbrian Water needs to meet in terms of how clean this water is.	Storm overflows act as safety valves in the sewerage system. Heavy rainfall can cause the sewerage system to reach full capacity. In these cases heavily diluted wastewater is spilled through storm overflows into rivers and seas. This is to avoid internal and external sewer flooding.	Phosphorus is naturally contained in human waste. Northumbrian Water remove most of the phosphorus from wastewater when they clean it before it is released back into the environment - to rivers or the sea. Phosphorus is a natural fertiliser and too much in the water can cause algae which interrupts the environment. This is also caused by farmers fertiliser washing into rivers and seas. This has a bigger impact than phosphorus that enters the wastewater system as human waste.	The amount of improvements made to water environments such as rivers, reservoirs and coastlines that the public can access. Improvements could be made to facilities and recreation, wildlife and biodiversity and the quality of water.	Net zero is about balancing the amount of harmful greenhouse gases being put into the atmosphere with those being taken out. Northumbrian Water is a leading water and wastewater company at reducing carbon emissions from their operations and are committed to reducing carbon footprint and greenhouse gas emissions further.	Northumbrian Water can make improvements to land that they own to encourage biodiversity. Biodiversity is the variety of plant and animal life in a location. This could be done, for example, by planting wildflowers to create habitats for bees, creating hedgehog houses, installing bat houses, etc.
Current performance	Out of 34 beaches: <ul style="list-style-type: none"> • 25 are excellent • 7 are good • 1 is sufficient • 1 is poor (this is Cullercoats and the issues are largely out of NW control) Northumbrian Water is in the top 25% of companies.	56 pollution incidents per year. Northumbrian Water is in the top 25% of, close to industry leading.	1 major or significant pollution incident per year. Northumbrian Water is in the top 25% of companies, close to industry leading.	An average of 98.8% (last two years) compliance with standards Northumbrian Water performance is in line with the industry average.	On average each storm overflow spills 22 times per year. Some storm overflows never spill. Northumbrian Water is in the top 25% of companies, close to industry leading.	Northumbrian Water has made a large amount of investment in this area in the last 10 years.	248km of water environments have been improved.	Since 2019-20 Northumbrian Water has reduced the net carbon footprint caused by their operations by 65%	Northumbrian Water sites look like this: 
Improved performance	How much would you be willing to pay for Northumbrian Water to improve beaches so that 30 out of 34 are rated as excellent? Northumbrian Water performance would be close to industry leading.	How much would you be willing to pay for Northumbrian Water to reduce this to 25 incidents per year? Northumbrian Water performance would be industry leading.	How much would you be willing to pay for Northumbrian Water to reduce major and significant pollution incidents to zero? Northumbrian Water performance would be industry leading.	How much would you be willing to pay for Northumbrian Water to be 100% compliant with standards? Northumbrian Water performance would be industry leading.	How much would you be willing to pay for Northumbrian Water to reduce storm overflows to an average of 17 times per year. This would allow Northumbrian Water to meet the national target, in line with the rest of the industry.	How much would you be willing to pay for Northumbrian Water to reduce their impact on phosphorus released into rivers and seas by 25%?	How much would you be willing to pay for Northumbrian Water to improve another 252km of water environments?	How much would you be willing to pay to reduce Northumbrian Water's carbon footprint from their operations to net zero by 2027? Northumbrian Water performance would be industry leading and ahead of the government target.	How much would you be willing to pay for Northumbrian Water to encourage biodiversity at their sites as demonstrated below? 
Total value allocated									
Total value after revisions									

[RESEARCHER TO CONFIRM HOW MUCH THE RESPONDENT HAS ALLOCATED TO EACH MEASURE] is that okay? Or would you like to make any changes? [RESEARCHER TO RECORD INITIAL AND FINAL TOTAL]












ACTIVITY 4: WASTEWATER

[Researcher to carry forward coins assigned to wastewater in the previous exercise. Respondent able to request more coins if required.]

You allocated X to the wastewater theme. I now want to understand how you would allocate that money to each of the measures within the wastewater theme. You can request more coins if you would like.

The measures are described in the table below. For each measure you can see a description and Northumbrian Water's current performance as well as an improved level of performance.

For some of these measures Northumbrian Water can compare their current performance with other water and wastewater companies and this information is included. Northumbrian Water has also predicted how the improved performances would compare to others in the industry. However please note that this is an estimate as other companies will also be looking to improve services.

Title	<p>Reducing sewer flooding inside customer properties</p> 	<p>Reducing sewer flooding on the outside of customer properties</p> 	<p>Reducing the number of properties that experience sewer flooding more than once</p> 
Description of measure	Internal sewer flooding is flooding to the inside of a property caused by sewage escaping from the sewerage pipes. It can be caused by things like blockages and heavy rainfall.	External sewer flooding is where the flooding occurs outside of a property, for example in a garden, yard or driveway.	Repeat flooding is where the same property is flooded internally by sewage more than once in five years
Current performance	260 incidents per year. Northumbrian Water performance is better than average for the industry.	3000 incidents per year Northumbrian Water performance is worse than average for the industry.	23 properties per year
Improved performance	<p>How much would you be willing to pay for Northumbrian Water to reduce this to 160 incidents per year?</p> <p>Northumbrian Water performance would be in the top 25% of the industry.</p>	<p>How much would you be willing to pay for Northumbrian Water to reduce this to 2400 incidents per year?</p> <p>Northumbrian Water performance would move towards the average performance of the industry.</p>	<p>How much would you be willing to pay for Northumbrian Water to reduce this to 15 properties per year?</p>
Total value allocated			
Total value after revisions			

[RESEARCHER TO CONFIRM HOW MUCH THE RESPONDENT HAS ALLOCATED TO EACH MEASURE] is that okay? Or would you like to make any changes? [RESEARCHER TO RECORD INITIAL AND FINAL TOTAL]



ACTIVITY 5: WATER



[Researcher to carry forward coins assigned to water in the previous exercise. Respondent able to request more coins if required.]

You allocated X to the water theme. I now want to understand how you would allocate that money to each of the measures within the water theme. You can request more coins if you would like.

The measures are described in the table below. For each measure you can see a description and Northumbrian Water's current performance as well as an improved level of performance.

For some of these measures Northumbrian Water can compare their current performance with other water and wastewater companies and this information is included. Northumbrian Water has also predicted how the improved performances would compare to others in the industry. However please note that this is an estimate as other companies will also be looking to improve services.

Title	Improving the taste, smell and appearance of drinking water	Reducing leakage from the water network	Repairing visible leaks quicker	Reducing water supply interruptions that last over three hours	Reducing water supply interruptions that last between one and three hours	Reducing the number of properties that experience a water interruption that lasts more than 12 hours	Reducing the chance of a fault at a water treatment works	Water efficiency in homes	Water efficiency in businesses
Description of measure	This measure is about customer satisfaction with the taste, smell and appearance of drinking water.	A proportion of the water that passes through Northumbrian Water pipes and network is lost to leakage.	This is about the time it takes to fix a leak that has been reported by a customer.	Customer water supplies can be interrupted for a number of reasons. Ofwat asks Northumbrian Water to measure the number of interruptions that last three hours or more.	Although Ofwat asks Northumbrian Water to focus on interruptions longer than three hours, they also feel it is important to reduce water interruptions that last between 1 and 3 hours.	Occasionally there may be a major incident that causes water supplies to be interrupted for over 12 hours.	When Northumbrian Water is unexpectedly unable to produce water from one of their water treatment works because of a fault. This is measured by the % of time that is lost during the fault. In the last three years, faults of this nature have not impacted on customer water supplies.	Northumbrian Water needs to reduce the amount of water used by customers to make sure we always have enough water and to reduce impact on the environment. Northumbrian Water can help customers to reduce the amount of water they use by sharing advice, providing support to choose water efficient white goods, retrofitting devices such as water efficient shower heads and repairing leaking toilets, etc.	Northumbrian Water needs to reduce the amount of water used by businesses, including in schools and community buildings. Northumbrian Water can help businesses reduce water use through advising on the design of buildings, fixtures and fittings to maximise water efficiency and providing data on water consumption
Current performance	4,300 customers contact Northumbrian Water every year about an issue with the taste, smell or appearance of their tap water. Northumbrian Water performance is in the top 25% of the industry.	130 megalitres per day are lost to leakage. There are around 2.5 megalitres of water in an Olympic swimming pool. So that is 52 swimming pools. Northumbrian Water performance is in line with the industry average.	It takes an average of 6.7 days to fix a leak.	The average that each property is off supply per year over three hours is 4 minutes and 25 seconds. Northumbrian Water performance is better than average.	The average time per property off supply for between one and three hours is 7 minutes 15 seconds.	235 properties per year experience an interruption lasting more than 12 hours.	Across a year, 2.54% of production time is lost. Northumbrian Water performance is lower than average.	Customers use around 157.8 litres of water per person per day. It takes around 80 litres of water to fill a bath tub. Northumbrian Water performance is below the industry average.	Northumbrian Water is already providing advice to businesses in this area.
Improved performance	How much would you be willing to pay to improve water quality to in turn reduce the number of customer contacts to 3,600. Northumbrian Water performance would be in the top 25% of the industry.	How much would you be willing to pay to reduce leakage to 100 mega litres per day? So that would be 40 swimming pools. Northumbrian Water performance would be in the top 25% of the industry.	How much would you be willing to pay to reduce average leak repair time to 3.5 days?	How much would you be willing to pay to reduce the average time per property off supply over three hours, to 2 minutes 30 seconds? Northumbrian Water performance would be industry leading.	How much would you be willing to pay to reduce the average time per property off supply between 1 and 3 hours, to 6 minutes 30 seconds?	How much would you be willing to pay to reduce interruptions over 12 hours to 150 properties per year?	How much would you be willing to pay to reduce production time lost to 1%? Northumbrian Water performance would be in line with industry average.	How much would you be willing to pay for Northumbrian Water to support customers to reduce to 130 litres per person per day? Northumbrian Water would continue to be below industry average because we expect all other companies to improve too.	How much would you be willing to pay for Northumbrian Water to support their business customers to reduce demand for water by 9%?
Total value allocated									
Total value after revisions									

[RESEARCHER TO CONFIRM HOW MUCH THE RESPONDENT HAS ALLOCATED TO EACH MEASURE] is that okay? Or would you like to make any changes? [RESEARCHER TO RECORD INITIAL AND FINAL TOTAL]



Appendix 4 – Activity Sheets Essex & Suffolk Water

ACTIVITY SHEET (1 of 2)

I am going to give you some plastic coins. I want you to imagine this is your own money, and in addition to what you already pay to Essex & Suffolk Water for your water services.






















We are going to review the 14 measures below. I then want you to use your coins to demonstrate how much you would be willing to pay on top of your current annual bill for Essex & Suffolk Water to improve service in each of these areas. You can have as few or as many coins as you like. This is per year and would start from 2025.

Remember that whatever money you allocate is multiplied by all Essex & Suffolk Water customers. This means that the amount Essex & Suffolk Water is available to invest in these areas in their final business plan will be based on what they can charge all 800,000 households.

The measures are described in the table below. For each measure you can see a description and Essex & Suffolk Water's current performance as well as an improved level of performance.
























For some of these measures Essex & Suffolk Water can compare their current performance with other water companies and this information is included. Essex & Suffolk Water has also predicted how the improved performances would compare to others in the industry. However please note that this is an estimate as other companies will also be looking to improve services.

Remember this is in addition to your current water bill which is [RESEARCHER TO REMIND] and your bill will also increase by inflation. You also pay a wastewater bill to Anglian Water or Thames Water.

Title	Improving the taste, smell and appearance of drinking water 	Reducing leakage from the water network 	Repairing visible leaks quicker 	Reducing water supply interruptions that last over three hours 	Reducing water supply interruptions that last between one and three hours 	Reducing the number of properties that experience a water interruption that lasts more than 12 hours 	Reducing the chance of a fault at a water treatment works 
Description of measure	This measure is about customer satisfaction with the taste, smell and appearance of drinking water.	A proportion of the water that passes through Essex & Suffolk Water pipes and network is lost to leakage.	This is about the time it takes to fix a leak that has been reported by a customer.	Customer water supplies can be interrupted for a number of reasons. Ofwat asks Essex & Suffolk Water to measure the number of interruptions that last three hours or more.	Although Ofwat asks Essex & Suffolk Water to focus on interruptions longer than three hours, they also feel it is important to reduce water interruptions that last between 1 and 3 hours.	Occasionally there may be a major incident that causes water supplies to be interrupted for over 12 hours.	This is when Essex & Suffolk Water is unexpectedly unable to produce water from one of their water treatment works because of a fault. This is measured by the % of time that is lost during the fault. In the last three years, faults of this nature have not impacted on customer water supplies.
Current performance	4,300 customers contact Essex & Suffolk Water every year about an issue with the taste, smell or appearance of their tap water. Essex & Suffolk Water performance is in the top 25% of the industry.	59 megalitres per day are lost to leakage. There are around 2.5 megalitres of water in an Olympic swimming pool. So that is 24 swimming pools. Essex & Suffolk Water performance is in line with the industry average.	It takes an average of 6.7 days to fix a leak.	The average that each property is off supply per year over three hours is 4 minutes and 25 seconds. Essex & Suffolk Water performance is better than average.	The average time per property off supply for between one and three hours is 7 minutes 15 seconds.	235 properties per year experience an interruption lasting more than 12 hours.	Across a year, 2.34% of production time is lost. Essex & Suffolk Water performance is lower than average.
Improved performance	How much would you be willing to pay to improve water quality to in turn reduce the number of customer contacts to 3,800? Essex & Suffolk Water performance would be in the top 25% of the industry.	How much would you be willing to pay to reduce leakage to 46 megalitres per day? So that would be 18 swimming pools. Essex & Suffolk Water performance would be in the top 25% of the industry.	How much would you be willing to pay to reduce average leak repair time to 3.5 days?	How much would you be willing to pay to reduce the average time per property off supply over three hours, to 2 minutes 30 seconds? Essex & Suffolk Water performance would be industry leading.	How much would you be willing to pay to reduce the average time per property off supply between 1 and 3 hours, to 6 minutes 30 seconds?	How much would you be willing to pay to reduce interruptions over 12 hours to 150 properties per year?	How much would you be willing to pay to reduce production time lost to 1%? Essex & Suffolk Water performance would be in line with industry average.
Total value allocated							
Total value after revisions							



ACTIVITY SHEET (2 of 2)

Title	<p>Reducing the number of major and significant pollution incidents caused by ESW</p> 	<p>Improving rivers, reservoirs and coastlines that the public can access</p> 	<p>Reducing the ESW carbon footprint</p> 	<p>Using ESW sites to improve biodiversity</p> 	<p>Reducing the number of water mains that burst</p> 	<p>Water efficiency in homes</p> 	<p>Water efficiency in businesses</p> 
<p>Description of measure</p> <p>These are spills and other pollution events that have had a major, persistent or significant impact on the environment, people or property.</p> <p>These pollution incidents can occur as a result of ESW operations. For example, if a mains burst ran into a river this would release drinking water into the environment. Drinking water is treated with chlorine and this can have a negative impact on fish and other animal and plant life.</p>	<p>The amount of improvements made to water environments such as rivers, reservoirs and coastlines that the public can access.</p> <p>Improvements could be made to facilities and recreation, wildlife and biodiversity and the quality of water.</p>	<p>Net zero is about balancing the amount of harmful greenhouse gases being put into the atmosphere with those being taken out.</p> <p>Essex & Suffolk Water is a leading water and wastewater company at reducing carbon emissions from their operations and are committed to reducing carbon footprint and greenhouse gas emissions further.</p>	<p>Essex & Suffolk Water can make improvements to land that they own to encourage biodiversity. Biodiversity is the variety of plant and animal life in a location.</p> <p>This could be done, for example, by planting wildflowers to create habitats for bees, creating hedgehog houses, installing bat houses, etc.</p>	<p>A water main is an underground pipe used for supplying water to houses, businesses and other properties. Sometimes water mains burst. This could cause the surrounding area to flood, local homes and businesses to be without their water supply for a period of time and depending on where the burst is its repair can result in local delays to traffic, due to roadworks, while the water main is fixed.</p>	<p>Essex & Suffolk Water needs to reduce the amount of water used by customers to make sure we always have enough water and to reduce impact on the environment.</p> <p>Essex & Suffolk Water can help customers to reduce the amount of water they use by sharing advice, providing support to choose water efficient white goods, retrofitting devices such as water efficient shower heads and repairing leaking toilets, etc.</p>	<p>Essex & Suffolk Water needs to reduce the amount of water used by businesses, including in schools and community buildings.</p> <p>Essex & Suffolk Water can help businesses reduce water use through advising on the design of buildings, fixtures and fittings to maximise water efficiency and providing data on water consumption</p>	
<p>Current performance</p> <p>1 major or significant pollution incident per year.</p> <p>Essex & Suffolk Water is in the top 25% of companies, close to industry leading.</p>	<p>248km of water environments have been improved.</p>	<p>Since 2019-20 Essex & Suffolk Water has reduced the net carbon footprint caused by their operations by 65%</p>	<p>Essex & Suffolk Water sites look like this:</p> 	<p>There are currently an average of 2,900 mains bursts per year. Essex & Suffolk Water is better than average compared to the industry.</p>	<p>Customers use around 157.8 litres of water per person per day. It takes around 80 litres of water to fill a bath tub.</p> <p>Essex & Suffolk Water performance is below the industry average.</p>	<p>Essex & Suffolk Water is already providing advice to businesses in this area.</p>	
<p>Improved performance</p> <p>How much would you be willing to pay for Essex & Suffolk Water to reduce major and significant pollution incidents to zero?</p> <p>Essex & Suffolk Water performance would be industry leading.</p>	<p>How much you would be willing to pay for Essex & Suffolk Water to improve another 252km of water environments?</p>	<p>How much you would be willing to pay to reduce Essex & Suffolk Water's carbon footprint from their operations to net zero by 2027?</p> <p>Essex & Suffolk Water performance would be industry leading and ahead of the government target.</p>	<p>How much you would be willing to pay for Essex & Suffolk Water to encourage biodiversity at their sites as demonstrated below?</p> 	<p>How much you would be willing to pay for Essex & Suffolk Water to reduce the number of bursts to 2,500 per year?</p> <p>Northumbrian Water would be in the top 25% of companies.</p>	<p>How much would you be willing to pay for Essex & Suffolk Water to support customers to reduce to 130 litres per person per day?</p> <p>Essex & Suffolk Water would continue to be below industry average because we expect all other companies to improve too.</p>	<p>How much would you be willing to pay for Essex & Suffolk Water to support their business customers to reduce demand for water by 9%?</p>	
<p>Total value allocated</p> 							
<p>Total value after revisions</p> 							

[RESEARCHER TO CONFIRM HOW MUCH THE RESPONDENT HAS ALLOCATED TO EACH MEASURE] is that okay? Or would you like to make any changes? [RESEARCHER TO RECORD INITIAL AND FINAL TOTAL]





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