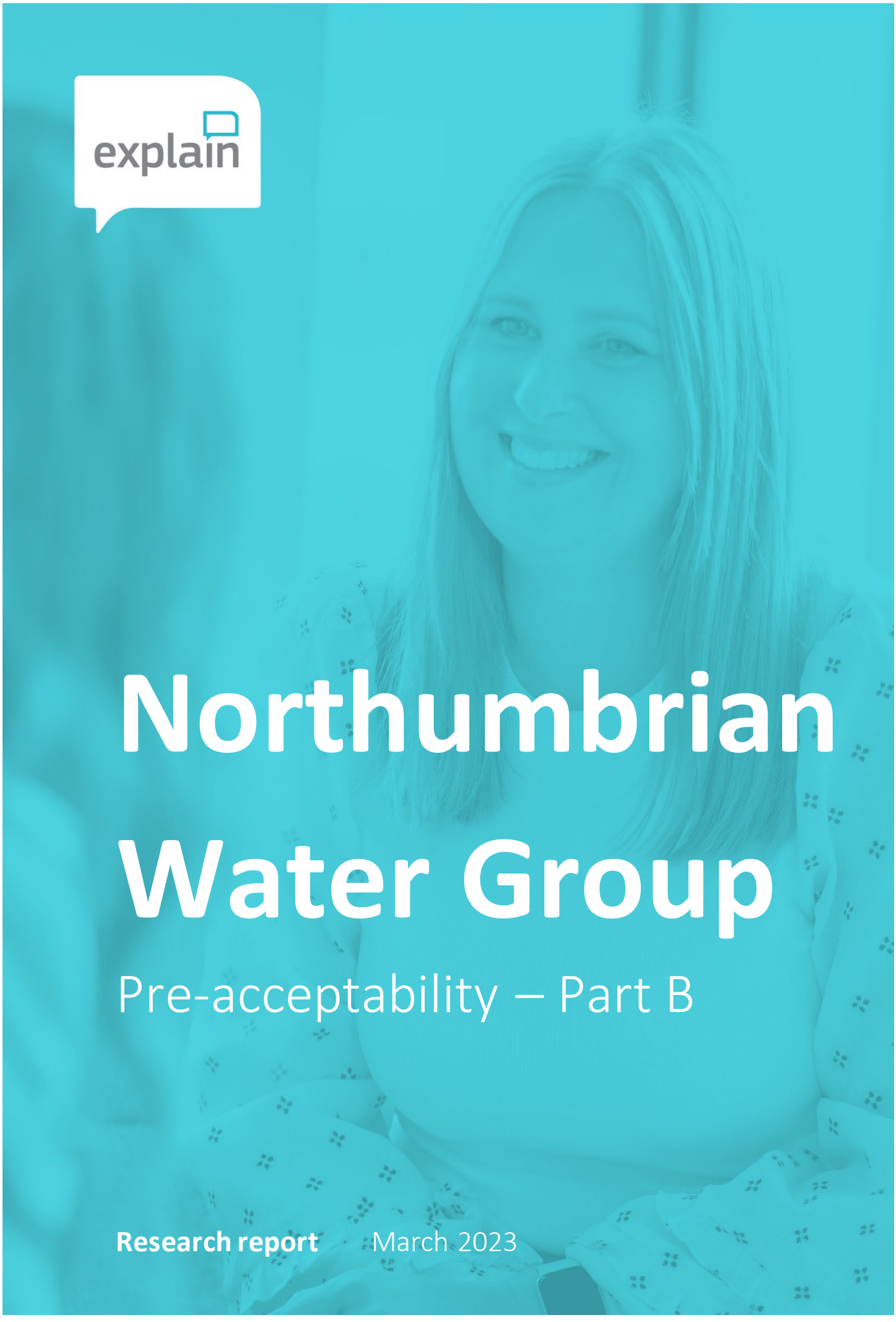


Northumbrian Water Group

Pre-acceptability – Part B

Research report March 2023

Executive summary

Overview of the research

In quarters 2 and 3 of 2023, NWG will be conducting affordability and acceptability testing with their customers in preparation for the submission of their PR24 business plan. Ahead of this, NWG commissioned Explain to conduct pre-acceptability research. This will contribute to the development of the business plan packages that will be presented during affordability and acceptability testing.

Part A of the pre-acceptability research was conducted in January 2023 and sought to understand customers' views on three potential business plan packages – a 'must do' plan, a 'proposed' plan and an 'alternative' plan.

In this strand of the pre-acceptability research (part B), investment areas of the plan were discussed in more detail, and customers were asked to build their ideal business plan by choosing the most important investments whilst balancing cost implications. All respondents had already been provided with a high-level description of each potential investment within the business plan during Part A of the research. In this project a more detailed description of each investment area was provided, including intended customer benefits, impact on risk and the cost per investment.

The aim of this project was to gain an understanding of customers' views on the proposed investment areas, in particular:

- Understand perceptions and sentiment towards each investment and how important it was to respondents that NWG invested in each area
- Understand which investments were most important to respondents whilst taking the cost implications into consideration
- Understand when respondents think work should begin on each of the investment areas – now or in the future.

A series of deliberative workshops and focus groups were undertaken to meet these objectives. All respondents had participated in the Part A deliberative workshops. Therefore, they came into the sessions with a basic level of knowledge about the business plan and the different investments within it. The audiences engaged in the deliberative sessions during February 2023 are summarised below.

- Deliberative online workshops with customers living in the Northumbrian Water (NW) and Essex & Suffolk Water (ESW) regions who are part of the ongoing monthly People Panels

- Deliberative online workshop with future young customers, who are part of the ongoing monthly People Panels, living in the NW and ESW regions

- Deliberative online workshop with customers (non-People Panel members) served by Essex & Suffolk Water (ESW)

- One face-to-face (F2F) workshop in the Northumbrian Water (NW) region at Fenham, Newcastle Upon Tyne (non-People Panel members) with digitally disengaged customers

Please note, the People Panels are regular, monthly online panels, conducted with customers of NW and ESW.

Explain worked closely alongside NWG and the Customer Engagement Panel (CEP) to ensure materials were clear and accurate. All workshops were attended by a NWG representative.

In the deliberative sessions, respondents took part in a series of discussions. At the end of the session, respondents completed a short survey (Appendix C and Appendix D) to determine:

- Which of the investments they felt NWG should invest in as part of their PR24 business plan

- Which investments should be pushed back to 2030

- Which investments they did not want NWG to invest in at all.

By doing so, each respondent was able to create their personalised preferred business plan package. Quantitative results of each group are presented in Appendix E and Appendix F, with overall discussions and insights provided in the final section of this report.

The cost of investments outlined per region

The table below provides an overview of the six areas of investment discussed across both regions, and the additional three areas of investment discussed with customers in the Northumbrian Water region.

Area	Area to invest in	NW	ESW
Essex & Suffolk Water and Northumbrian Water			
Environmental improvements	Non statutory environmental investment such as improvements to water environments 'bluespaces' the public can access	£2.78	16p
Lead pipes	To replace lead pipes	78p	£1.22
Water quality	To address risks to drinking water quality	£1.88	£2.92
Net Zero	To replace 900 diesel vans with electric vans	40p	27p
Climate change resilience	To protect water treatment works (from flooding)	£1.08	44p
	To protect water treatment works (from power interruptions)	£1.73	47p
Asset health	For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs)	56p	88p
	(water treatment works)	27p	44p
	(wastewater treatment works)	£2.66	n/a
Northumbrian Water only			
Storm overflows	To reduce the use of storm overflows	£31.48	n/a
Removal of nutrients from wastewater	To introduce natural solutions to reduce nutrients (like nitrogen) in water environments	£1.68	n/a
External sewer flooding	To reduce external sewer flooding	£1.88	n/a
Overall potential total to add across each region		**£47.18**	**£6.80**

Summary of findings

As noted, in all sessions, respondents were able to discuss their views on each investment and then take part in a final survey which allowed them to personalise their preferred business plan package. Overall findings from both exercises are shown below.

Investment areas relating to **climate change resilience** and **asset health** were most important to **invest in now**, for respondents across all regions

Non-statutory environmental improvements, across both regions, was **prioritised the least** when considering areas to include in the plan

For **NW respondents**, the areas prioritised the most for investment now were **asset health** for **service reservoirs** (70%), asset health for protecting **water treatment works** from flooding (67%) and drinking **water quality** and **removal of lead pipes** (both 64%)

For **ESW respondents**, the areas prioritised the most for investment now were **asset health** for protecting **water treatment works** from flooding (93%), asset health for **service reservoirs** (91%) and **flooding in relation to climate resilience** (91%)

For each of the areas of investment discussed, respondents highlighted the following:

Storm overflows was an area with **mixed feedback** in terms of importance, however the majority of respondents thought NWG should **invest half now and half later**. It was agreed that areas of **higher environmental risk** should be **prioritised. (NW only)**

External sewer flooding was considered to be **somewhat important** for most respondents, therefore they felt that NWG should **continue at their current rate of work** rather than investing more. This was mostly due to cost implications. This differed for the Young People Panel who thought the work should be accelerated. **(NW only)**

Removal of nutrients from wastewater - there was substantial **support for natual solutions**, rather than using engineering solutions, with the majority of respondents preferring to **invest now**. **(NW only)**

Climate change resilience was most **strongly supported** in ESW where the bill impact was lesser and there was less sceptisism about climate change generally. Overall respondents emphasised that having high quality drinking water should be a priority for NWG.

Asset health, across both regions, was considered to be an **important** area that should be invested in now. **Transparency** as to how costs would be minimised for customers was emphasised and, due to the cost and cost-of living crisis, a minority felt this **could be pushed back** to reduce customer bill impacts.

Non statutory environmental improvements were of a **lower priority, overall**, for respondents across both regions, when considered alongside other areas of investment. It was felt this was a 'nice to have' for the future, but **not an essential for now**.

Net Zero gathered **mixed views** across respondents; with some ESW People Panel groups viewing it **important to invest in now**, whilst the majority of the NW respondents were **sceptical, at best**, towards electric vehicle use. Overall, it was felt that investing in this area could be **pushed back**.

Lead pipes were seen as an **important** issue across both regions due to potential health risks, and the majority included it in their ideal plan. There were some minority views that replacement of lead pipes should be the responsibility of the homeowner rather than NWG.

Water quality was seen as an **important** issue across both regions and most respondents included it in their ideal plan. However, a minority felt the effects of **climate change** weren't an immediate threat, with others put off by the **higher costs** associated with this issue. There was **a preference for solutions like sand filters over chlorine.**

Content page

“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

In quarters 2 and 3 of 2023, NWG will be conducting affordability and acceptability testing with their customers in preparation for the submission of their PR24 business plan.

Ahead of this, NWG commissioned Explain to conduct pre-acceptability research. This will contribute to the development of the business plan packages that will be presented during affordability and acceptability testing.

Part A of the pre-acceptability research was conducted in January 2023 and sought to understand customers' views on three potential business plan packages – a 'must do' plan, a 'proposed' plan and an 'alternative' plan.

In this strand of the pre-acceptability research (part B), investment areas of the plan were discussed with customers in more detail. Please note that, within part A of the research, customers had already been provided with a high-level description of each proposed investment. However, in this research (part B) a more detailed description was provided, including intended customer benefits, impact on risk and the cost per investment. Customers were also asked to build their ideal business plan by choosing the most important investments whilst also balancing the associated cost implications.

Objectives

The aim of this project was to gain an understanding of customer views on the proposed investment areas, in particular:

- Understand perceptions and sentiment towards each investment and how important it was to respondents that NWG invested in each area
- Understand which investments were most important to respondents whilst taking the cost implications into consideration
- Understand when respondents think work should begin on each of the investment areas – now or in the future.

Methodology

Respondents who took part in pre-acceptability part A customer engagement were reconvened for this project. People Panel and new recruits were put into separate sessions to ensure consistency of existing knowledge. The People Panels are regular, monthly online panels, conducted with customers of NW and ESW.

Deliberative workshops and focus groups, took place in February 2023, as summarised below.

- Deliberative online workshops with customers living in the NW and ESW regions who are part of the ongoing monthly People Panels
- Deliberative online workshop with future young customers, who are part of the ongoing monthly People Panels, living in the NW and ESW regions
- Deliberative online workshop with customers served by ESW (non-People Panel members)
- One face-to-face (F2F) workshop in the NW region at Fenham, Newcastle Upon Tyne with digitally disengaged customers (non-People Panel members)

For each session, a slide deck was developed outlining the problems and solutions in each investment area, and the associated potential increase to the average annual bill for customers. Based on feedback from the Customer Engagement Panel (CEP), the slide deck was kept concise with two slides presented for each investment. The first slide focussed on the problem the investment was addressing and the proposed solution to tackle the problem. The second slide focussed on the choice NWG had to make in terms of making this investment and the risks of delaying any investment. The second slide also detailed the bill impact of the investment based on an average customer bill in 2030, without inflation. A copy of the slide decks can be found in Appendices A and B. Twenty minutes was allocated to each investment area, allowing ten minutes for a detailed explanation of each investment area and questions, and a further ten minutes to facilitate a discussion on the importance of each area of the plan, and when work should begin on each investment area.

At the end of each session, respondents completed an online survey in which they built their own preferred business plan package. For each of the investments they were asked to decide whether to include it in the PR24 plan, postpone investment until 2030 or ask NWG not to invest in the area at all. The costs of each investment were clearly displayed, and the survey calculated a total bill impact for 2025 to 2030 based on the choices respondents made. Respondents were able to go back and change

their answers to ensure that the final package that they generated was acceptable and affordable. This survey can be found in Appendices C and D.

Explain worked closely alongside NWG and the CEP to ensure materials were clear and accurate. All workshops were attended by a NWG representative, and the majority were also observed by a CEP or Water Forum member. In accordance with Ofwat guidance, NWG representatives were only permitted to participate if invited by the group facilitator to respond to a technical question and were present without audio or visual during the online sessions.

As a thank you for their time, respondents who attended the NW groups received £85, and ESW respondents received £80. This is because the ESW sessions were slightly shorter due to having fewer investment areas.

Attendance at each session

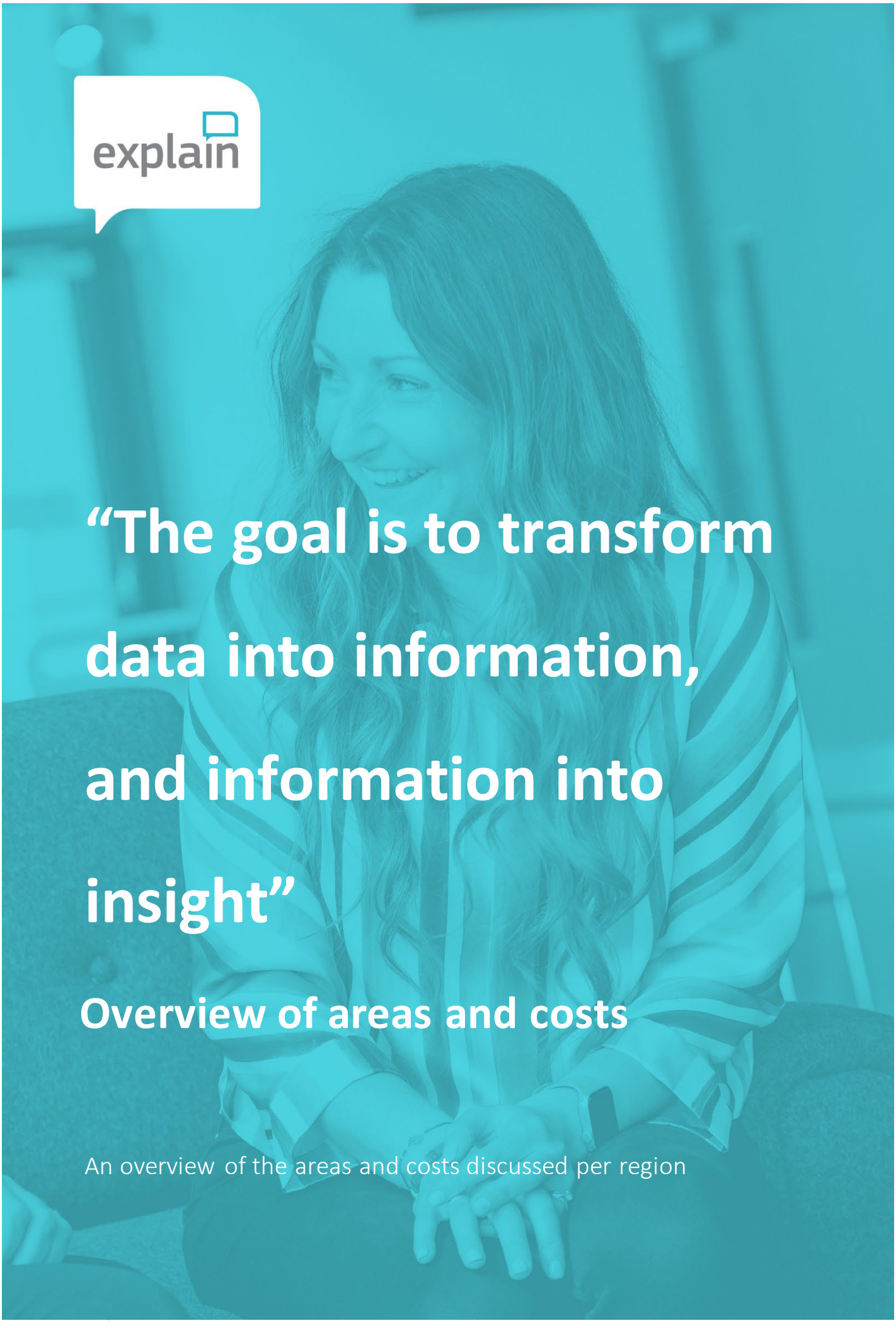
The following table summarises the participation in this research by area and audience.

Group session 11: 'Pre-acceptability Part B'	Total no. of attendees
Northumbrian People Panel (online) Monday 20th February	**13**
Northumbrian F2F (Fenham) Tuesday 14th February	**19**
Essex People Panel (online) Wednesday 22nd February	**14**
Essex additional (online) Monday 13th February	**7**
Suffolk People Panel (online) Monday 13th February	**12**
Suffolk additional (online) Thursday 16th February	**9**
Young People Panel (online) Wednesday 15th February	**9** (7 NW + 2 ESW)
Total attendees:	**83**

Participants of the Young People Panel live in either the Northumbrian Water (7 participants) or Essex & Suffolk Water (2 participants) regions.

A note on reporting results

The report presents findings from across the group sessions, putting the thematic analysis of discussions alongside the quantitative results of the surveys.



“The goal is to transform data into information, and information into insight”

Overview of areas and costs

An overview of the areas and costs discussed per region

Overview of areas and costs

The table below provides an overview of the six areas of investment discussed across both regions, and the additional three areas of investment discussed with customers in the Northumbrian Water region.

Area	Area to invest in	NW	ESW
Essex & Suffolk Water (ESW) & Northumbrian Water (NW)			
Environmental improvements	Non statutory environmental investment such as improvements to water environments 'bluespaces' the public can access	£2.78	16p
Lead pipes	To replace lead pipes	78p	£1.22
Water quality	To address risks to drinking water quality	£1.88	£2.92
Net Zero	To replace 900 diesel vans with electric vans	40p	27p
Climate change resilience	To protect water treatment works (from flooding)	£1.08	44p
	To protect water treatment works (from power interruptions)	£1.73	47p
Asset health	For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs)	56p	88p
	(water treatment works)	27p	44p
	(wastewater treatment works)	£2.66	n/a
Northumbrian Water only			
Storm overflows	To reduce the use of storm overflows	£31.48	n/a
Removal of nutrients from wastewater	To introduce natural solutions to reduce nutrients (like nitrogen) in water environments	£1.68	n/a
External sewer flooding	To reduce external sewer flooding	£1.88	n/a
Overall potential total to add across each region		**£47.18**	**£6.80**

The table below summarises the analysis of the survey exercise. The investment areas with a majority support have been shaded in green below, whilst those shaded in orange had more mixed views. No area of investment had a majority of no support. Across both regions, areas prioritised the most included **asset health for service reservoirs** (NW 70%; ESW 91%) and **water treatment works** (NW 67%; ESW 93%), **water quality** (NW 76%; ESW 70%) and **lead pipe replacement** (NW 64%; ESW 77%).

Northumbrian Water respondents also prioritised the **removal of nutrients** (NW 60%). Essex & Suffolk Water respondents prioritised **climate change resilience against flooding** (ESW 91%) and **power interruptions** (ESW 84%).

		Yes – invest now	Push back to 2030 onwards	No – don't invest at all
Storm overflows	NW	14 of 33 (42%)	16 of 33 (48%)	3 of 33 (9%)
External sewer flooding	NW	15 of 33 (45%)	12 of 33 (36%)	6 of 33 (18%)
Removal of nutrients (nitrogen)	NW	20 of 33 (60%)	7 of 33 (21%)	6 of 33 (18%)
Climate change resilience- power interruptions	NW	15 of 33 (45%)	12 of 33 (36%)	6 of 33 (18%)
	ESW	37 of 44 (84%)	6 of 44 (14%)	1 of 44 (2%)
Climate change resilience - flooding	NW	16 of 33 (48%)	12 of 33 (36%)	5 of 33 (15%)
	ESW	40 of 44 (91%)	3 of 44 (7%)	1 of 44 (2%)
Service reservoirs (asset health)	NW	23 of 33 (70%)	6 of 33 (18%)	4 of 33 (12%)
	ESW	40 of 44 (91%)	2 of 44 (5%)	1 of 44 (2%)
Water treatment works (asset health)	NW	22 of 33 (67%)	5 of 33 (15%)	6 of 33 (18%)
	ESW	41 of 44 (93%)	3 of 44 (7%)	0 of 44 (0%)
Wastewater treatment works (asset health)	NW	17 of 33 (52%)	10 of 33 (30%)	5 of 33 (15%)
Environmental improvements	NW	8 of 33 (24%)	11 of 33 (33%)	14 of 33 (42%)
	ESW	16 of 44 (36%)	10 of 44 (23%)	17 of 44 (39%)
Net Zero	NW	9 of 33 (27%)	9 of 33 (27%)	15 of 33 (45%)
	ESW	23 of 44 (52%)	16 of 44 (36%)	5 of 44 (16%)
Lead pipes	NW	21 of 33 (64%)	6 of 33 (18%)	6 of 33 (18%)
	ESW	34 of 44 (77%)	7 of 44 (16%)	3 of 44 (7%)
Water quality	NW	25 of 33 (76%)	4 of 33 (12%)	3 of 33 (9%)
	ESW	31 of 44 (70%)	11 of 44 (25%)	3 of 44 (5%)

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Storm overflows

In-depth findings of the acceptability of investing in storm overflows

Storm overflows

This section concerns the findings of 'storm overflows' and is organised according to the following:

Context of storm overflow investment

The **problem** presented to respondents was that the government has introduced regulation that water companies must reduce the average number of spills per storm overflow in environmentally sensitive areas.

The **solution** presented to customers outlined the wider context of the Drainage and Wastewater Management Plan (DWMP) and explained that this had already been consulted on with customers in past research. It was then explained that the DWMP will include a combination of four main mechanisms of working. How these were explained to customers is outlined below:

(1) diverting excess water to reduce the chance of floodings. It was explained that this is the cheapest method and would be undertaken wherever possible
(2) using natural solutions to reduce the amount of water going into sewers. It was explained that the emphasis on natural solutions within the plan was as a result of previous customer consultation
(3) using concrete tanks to store excess water. It was explained that natural solutions are not always practicable, and, in these situations, concrete storage tanks would be built
(4) undertaking surface water separation. It was explained that this is the most expensive option and would only be undertaken where no other method was possible.

The **choice** presented to respondents concerned the timing of the plan. Again, it was emphasised that reduction in the use of the Storm Overflows is a statutory obligation and that there is large programme of work necessary to fulfil the plans outlined in the DWMP in order to meet this obligation. As a consequence of this, it was explained to respondents that NWG's preferred option would be to undertake the work in phased approach, half in the 2025 to 2030 business planning period and half in the 2030-to-2035-time frame. However, it is possible for all the work to be deferred to 2030.

The **risk** that was explained to respondents was that, whilst delaying the work would lower bill increases for 2025-30, it would increase the possibility that statutory obligations may not be met.

Summary of findings

The results from the final poll are outlined in the table below. Overall, the results were **mixed**, with a similar number of respondents preferring to **push back on investment to 2030 (48%)** for storm overflows, or to **invest now (42%)**.

Yes – invest now	Push back to 2030 onwards	No – don't invest at all
14 of 33 (42%)	16 of 33 (48%)	3 of 33 (9%)

The results split by each of the groups in the Northumbrian Water region are indicated below.

NW group (Base 33)	To reduce the use of storm overflows (+£31.48)
Face-to-face (Northumbrian) (Base 12)	**Yes** (6 yes; 5 push back; 1 not at all)
Northumbrian People Panel (Base 14)	**Push back to 2030 onwards** (6 yes; 7 push back; 1 not at all)
Young (NW) People Panel (Base 7)	**Push back to 2030 onwards** (2 yes; 4 push back; 1 not at all)

It was felt that prioritising sensitive areas, such as areas used by swimmers, could be a way to target improvements

There were suggestions to stagger costs over years, as concerns were shared regarding the cost-of-living, and it was agreed that spreading the costs would be best

Acceptability

The slight majority of respondents across the groups agreed that NWG **should do half of the investment now and half later**, rather than pushing it all back until 2030. It was suggested that the company would be more likely to reach the target if they started now, and that there is no point putting something off that needs to be done.

- *"Well, we're going to get cracking and start it, haven't you? Because it's a quite a big target to make, so just get on with it. And like X said, it doesn't seem an awful lot £31.48 over a year and that will be over the five-year period I think. I don't think they have any choice really" - Online Workshop (Northumbrian People Panel)*
- *"2025. The sooner they start, the sooner it's sorted" - Face-to-face workshop (Northumbrian)*

- *"I don't see the point in putting something off that has to be done. What's the point in putting something off in case it doesn't happen? We've got sewers running into our seas. We've got grandkids and children…" - Face-to-face workshop (Northumbrian)*

Conversely, a slight majority of those in the Northumbrian and Young Northumbrian People Panel thought the **work should be delayed until 2030**, or as long as possible, as they **didn't feel that they would personally be affected** and also didn't want the additional **cost** at the moment.

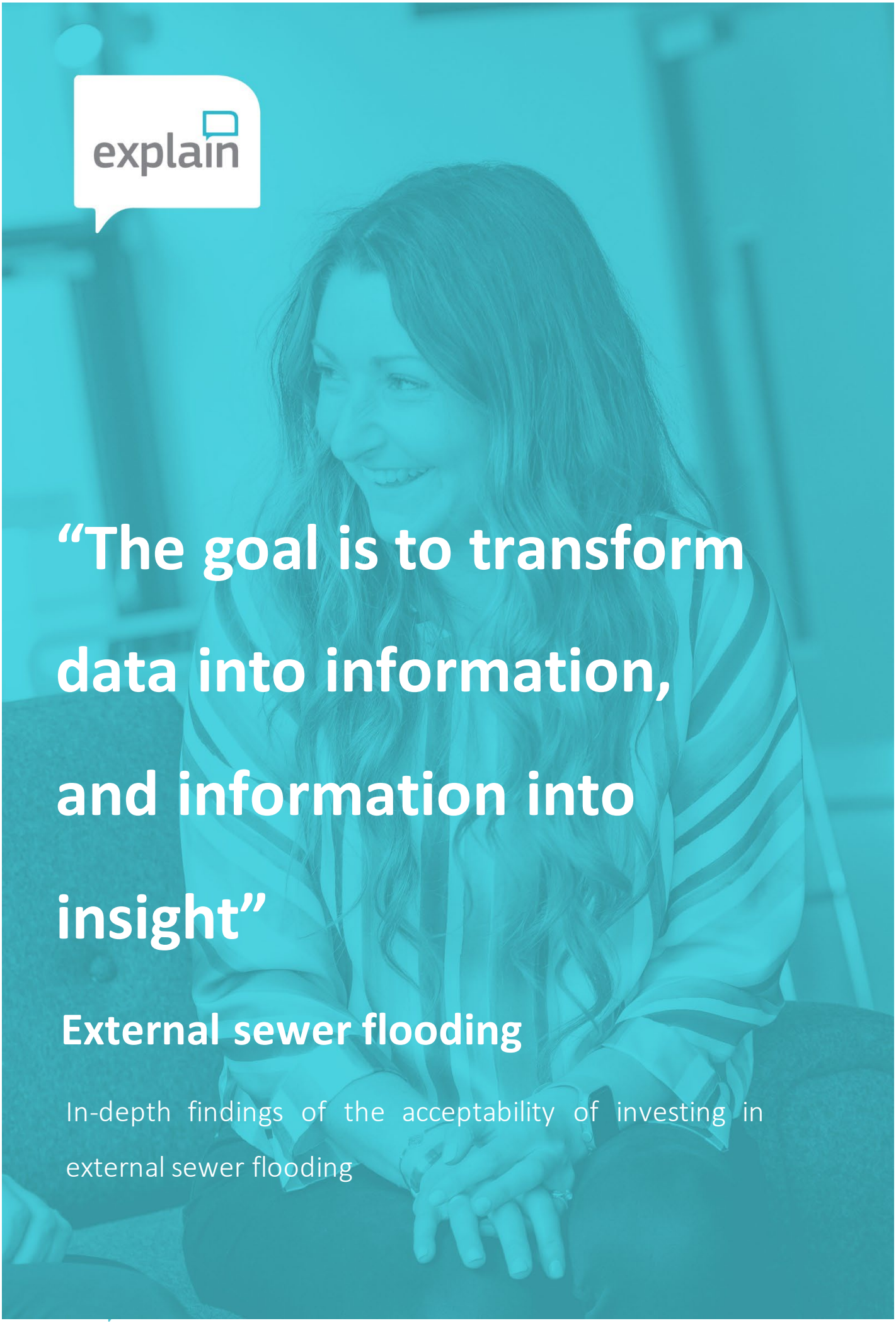
- *"I think I would rather that the work be delayed, and the cost not have to quickly increase. I'd much rather it be delayed because I feel like, for me, it's not as important… It's selfish, but it doesn't affect me. So, I would much rather it be delayed, so that there's a gradual increase in bills rather than them starting straight away and getting it done as quickly as possible" - Online Workshop (Northumbrian, Young People Panel)*
- *"Yeah, I would save it until later. Wait as long as possible. Twenty years so I'm not here and I'll be gone. Someone else can pay for it" - Face-to-face workshop (Northumbrian)*

When thinking about **prioritising the areas where the environmental risk was higher**, it was agreed that this was a good idea, with no one disagreeing with this approach. Respondents explained that, to them, this form of prioritisation made economic sense. They also accepted the underlying concept of prioritising those areas most susceptible to harm from storm overflows.

- *"I think we should prioritise the most high-risk areas before …where's the most high risk of the bathing water getting contaminated, where's the place that has the most frequent outages of water? And it should be like a prioritised tier system" - Online Workshop (Northumbrian, Young People Panel)*
- *"I think priority makes the most sense. It makes the most economic sense as well, with the cost of living, you don't know how much projects are going to go up by. So, I think that will just be the smartest idea overall" - Online Workshop (Northumbrian, Young People Panel)*
- *"Well, if you live in one of them areas, I suppose… well, I live along the coastline, so Saltburn and a lot of areas like that, it does affect people's health quite badly, swimmers, a lot of swimmers. So, I think it's a very important thing to tackle" - Online Workshop (Northumbrian, Young People Panel)*

However, in the Fenham face-to-face group, it was suggested that they **should start investing in the areas with lower costs first**. It was felt that this approach would ensure that work was being started but would also allow NWG to identify better approaches over time.

- *"What about making a start on the first option, the cheaper option. Make a start on something. The really bad places that need diversions, so make a start on just…so it's not the big, expensive stuff" - Face-to-face workshop (Northumbrian)*
- *"Something rather than doing nothing but doing the cheaper bit so that if new technology comes along, we haven't spent a fortune on concrete and things" - Face-to-face workshop (Northumbrian)*



explain

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External sewer flooding

In-depth findings of the acceptability of investing in external sewer flooding

External sewer flooding

This section concerns the findings of 'external sewer flooding' and is organised according to the following:

Context of external sewer flooding investment

The **problem** explained to respondents was that Northumbrian Water report higher than average numbers of external sewer flooding incidents. There were 3,454 incidents in 2021-22 and there are targets to reduce this to 2,647 by 2024-25. However, this will mean that Northumbrian Water are still not performing well in comparison to other water companies.

The **solution** presented to respondents was that, with extra funding, Northumbrian Water could accelerate the rate of progress in reducing external sewer flooding incidents.

The **choice** presented to respondents concerned the rate of work. Northumbrian Water could continue at their current rate of work to decrease external sewer flooding incidents, or they could do more (with extra funding).

The **risk** was that, if continuing at their current rate of work, it will take a longer period of time to reduce the number of external sewer flooding incidents. This also means the time taken to reach targets will increase. However, should respondents want to accelerate the rate of work, there would be an increase on the average bill (NW +£1.88).

Summary of findings

The results from the final poll are outlined in the table below. Overall, the views were **mixed**, with a similar number of respondents preferring to **invest now (45%)** for external sewer flooding, or **to push back to 2030 onwards (36%)**.

Yes – invest now	Push back to 2030 onwards	No – don't invest at all
15 of 33 (45%)	12 of 33 (36%)	6 of 33 (18%)

The results split by each of the groups in the Northumbrian Water region are indicated below.

NW group (Base 33)	To reduce external sewer flooding (£1.88)
Face-to-face (Northumbrian) (Base 12)	**Inconclusive** (4 yes; 4 push back; 4 not at all)
Northumbrian People Panel (Base 14)	**Yes** (7 yes; 5 push back; 2 not at all)
Young (NW) People Panel (Base 7)	**Yes** (4 yes; 3 push back; 0 not at all)

The direct impact that external sewer flooding has on people makes this an important area overall; with a minority (18%) viewing this as an area to not invest in at all

Respondents who preferred to push back investment to 2030 onwards highlighted that, whilst important, they had concerns surrounding cost-of-living currently, so would prefer that the current rate of work continued

Acceptability

Those who supported investment in this area agreed that this issue was important because external sewer flooding **wouldn't be a nice experience** for anyone to have. This was particularly prevalent in the young people panel, who consequently felt that the work should be accelerated. However, it was also acknowledged that that they might feel different if they were the ones paying the bills.

- *"I think for me, this is very important, because, I mean, nobody wants, you know, the external sewer flooding. So, if they are willing to put in, you know, an additional investment to, you know… improve the service, and improve when this does happen, and happening a lot less … personally, I would go for it" - Online Workshop (Northumbrian, Young People Panel)*
- *"Yeah, this was quite important to me because… it's obviously not very nice to do it and with it only being £1.88 extra a year, I just think you should just go for it. Why wouldn't you do it? Obviously I also understand the other side of it where, obviously I don't pay the bills, so I'm not in that situation, so if that is just a bit extra that you just don't want to pay, but personally, I would pay it" - Online Workshop (Northumbrian, Young People Panel)*
- *"I pretty much agree with what everyone else has said, the fact that no one wants their street overflowing with sewage. Yeah, I mean, it's not the most expensive cost annually we've seen on this list. I think, like most things on the list, it can only bring benefits, really. I mean, I can understand*

people might not want to pay that, might not be able to afford to pay that. But personally, I think yeah they should seek the investment, it'll be a good benefit. Yeah" - Online Workshop (Northumbrian, Young People Panel)

However, amongst all bill payers it was consistently agreed **that NWG should continue at their current rate of work**, mainly due to the cost-of-living crisis and customers being **unable to afford the cost increase**.

- *"Everybody's struggling with massive increases in bills that haven't really hit home yet. They haven't even realised how much their bills are going up. People are going to be driven into absolute poverty and this is the least thing they need. All very nice, to have these extra things, but we can't afford them. Electricity bills are through the roof, gas, food. People can't afford it. People aren't getting the wages to pay this" - Face-to-face workshop (Northumbrian)*
- *"They're asking for quite a substantial increase [on bills] and I don't think, for most of them, this is the time for that. Most people are absolutely on the bones of their backsides" - Face-to-face workshop (Northumbrian)*
- *"If they're going to reach the targets by just doing it the way they're doing it now, then I think that's fine, rather than trying to do it quicker" - Online Workshop (Northumbrian People Panel)*

“The goal is to transform data into information, and information into insight”

Removal of nutrients from wastewater

In-depth findings of the acceptability of investing in the removal of nutrients from wastewater

Removal of nutrients

This section concerns the findings of the 'removal of nutrients from wastewater' and is organised according to the following:

Context of the removal of nutrients from wastewater investment

The **problem** expressed to respondents was an explanation of the impact of excess nitrogen in water and the negative environmental consequences of this (i.e., risks to biodiversity). They also understood that NWG have a statutory obligation to reduce the levels of nitrogen.

The **solution** explained to respondents was the development of nature-based solutions to reduce nitrogen. These included restoring seagrass and oyster beds, seaweed and shellfish farming, wetland creation. It was explained that the alternative approach to the reduction of nitrogen was to build a new sewage treatment works that is capable of nitrogen extraction from sewage. This approach was not NWG's preferred route as it would be more expensive and would be energy intensive, and therefore less ecologically sound. However, this engineering solution is currently the government's mandated approach. NWG and others, including The Rivers Trust, are in consultation to ensure the use of natural solutions is approved.

Respondents were made aware that their **choice** was whether to support NWG in pursuing the cheaper, nature-based solutions and accept a lower bill increase or to accept a higher bill increase which would enable the engineering solution.

The **risk** within the first option would be an acceptance that the Government may still mandate the use of engineering solutions and, if this occurred, NWG would be forced to increase bills within the PR24 time period.

Summary of findings

The results from the final poll are outlined in the table below. Overall, **most respondents (NW respondents 60%) preferred to invest now** to remove nutrients from wastewater.

Yes – invest now	Push back to 2030 onwards	No – don't invest at all
20 of 33 (60%)	7 of 33 (21%)	6 of 33 (18%)

The results split by each of the groups in the Northumbrian Water region are indicated below.

NW group (Base 33)	To introduce natural solutions to reduce nutrients (like nitrogen) in water environments (£1.68)
Face-to-face (Northumbrian) (Base 12)	**Yes** (6 yes; 4 push back; 2 not at all)
Northumbrian People Panel (Base 14)	**Yes** (11 yes; 2 push back; 1 not at all)
Young (NW) People Panel (Base 7)	**Inconclusive** (3 yes; 1 push back; 3 not at all)

Respondents recognised the benefits of natural solutions, compared to engineering solutions

Concerns over the higher bill increase associated with engineering solutions were discussed

Some respondents were concerned about the risk of having to also invest in engineering solutions in future, if regulations were to change

Acceptability

There was substantial **support across the groups for the natural solutions** to remove nutrients from wastewater, rather than the engineering solution. Respondents noted the economic benefits of this cheaper option and preferred the risk of a later bill increase rather than an immediate larger increase.

> *"I think the best thing that they can do is to go ahead with the like, cheaper nature-based solutions, instead of doing the mechanical solutions… we're better off just paying less now. And even if it does go up, it was going to go up anyway. So, it's better to just delay it. And then they might not even like, say that we need to do the mechanical?" - Online Workshop (Northumbrian, Young People Panel)*

- *"I agree with going for the cheaper option now. Because, like X and X said, the bills will increase anyway, but they're going to increase at a later date. So, it kind of slowly introduces the idea that bills are going to increase, and, like the natural option, they might turn around, say, oh, that is good enough, you can keep that, rather than increasing the bills right now for a more expensive option that maybe we didn't even have to do" - Online Workshop (Northumbrian, Young People Panel)*
- *"If it's only a £2 bill increase in this next five years or a possible £20 bill increase in this, I think I'd probably rather pay £2 now and the option of possibly saving £20…" - Online Workshop (Northumbrian, Young People Panel)*

Several respondents also preferred the natural solution as it would be **better for the environment**, with questions raised about why the government would insist on the engineering solution given it's detrimental impact on the environment.

- *"It is the better financially, environmentally as well" - Online Workshop (Northumbrian People Panel)*
- *"Well, I like the natural sound of it anyway. It's a no-brainer really, as long as it works" - Face-to-face workshop (Northumbrian)*
- *"The amount of pollution it would cause just to create them with all the diesel machines that they'd need to use and all the generators, I just don't understand the concept. So, we want to look after this, the ecosystem and, be zero by that year but at the same time, we are willing to pollute everything in the process. So, I just don't get the thought process. I really don't" - Online Workshop (Northumbrian People Panel)*

A minority of respondents from the young People Panel noted **concern over the risk of a higher bill increase**. Despite this note of caution, the overall preference was still for the nature-based solutions.

- *"I'm not too sure, I feel 50/50. And I think whatever works out best financially, and for the good of the planet, is the best option. It's got to be a good balance" - Online Workshop (Northumbrian, Young People Panel)*
- *"I think it's, I can see like both sides, but I mean, me personally, I think the £1.68 increase for what they're proposing, isn't too bad. But then again, as we previously said, like the other point, like I can see the other side of it, because a lot of people, you know, wouldn't want that. So, I can see*

both sides of it. But I think, you know, seeking funding for the cheaper nature-based solutions is probably the better option, for now" - Online Workshop (Northumbrian, Young People Panel)

A minority of respondents questioned whether NWG should invest in the nature-based approaches with the risk that they would **also have to invest in the engineering in the future**. This 'double investment' led them to preferring the engineering solutions.

- *"Seeking funding for the mechanical ones since the government might just require those ones anyway. So, you would just be investing that money in the nature-based solution, when you will have to change anyway to the mechanical one" - Online Workshop (Northumbrian, Young People Panel)*
- *"…if you all are saying, right, well, I tell you what, no, we're going to come back to you and you're still going to have to pay the money that you would have paid for the mechanical option in two, three years' time, that would impact a lot of people's decisions" - Online Workshop (Northumbrian, People Panel)*

“The goal is to transform data into information, and information into insight”

Climate change resilience

In-depth findings of the acceptability of investing in climate change resilience

Climate change resilience

This section concerns the findings of 'climate change resilience' and is organised according to the following:

Context of climate change resilience investment

The **problem** presented to respondents was that NWG's analysis using data from climate change projections shows that storms and flooding are likely to get worse over time. If a water treatment works experiences a flood or power cut, as a result of a storm, that could cause service interruptions.

The **solution** presented to customers was two-fold: a plan to minimise the impact of flooding, and a plan to improve security of power supply.

The **choice** presented to respondents concerned the timing of the plan, as NWG are not required to do this now.

The **risk** was that, whilst delaying the work would lower bill increases for 2025-30, it would increase the possibility of supply interruptions and/or pollution incidents. This is due to the increased likelihood of flooding or power cuts due to extreme weather, which will impact the functionality of treatment works and pumping stations.

Summary of findings

As there were two solutions, and two different costs for investing in resilience against power interruptions or flooding, respondents were able to vote on each aspect individually. Subsequently, the results have been presented independently.

Power interruptions

The results from the final poll are outlined in the table below. Overall, a similar number of votes by respondents in the Northumbrian Water region selected to invest now (45% NW respondents) for resilience against power interruptions, or to push back to 2030 onwards (36% NW respondents).

Respondents in the Essex & Suffolk regions supported investment in this to a much greater extent than those in the Northumbrian Water region, with the majority (84% ESW respondents) preferring to invest

now. The greater support amongst Essex & Suffolk Water respondents is likely to have been impacted by the lower cost of this investment in the ESW region (NW £1.73 vs ESW 47p).

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	15 of 33 (45%)	12 of 33 (36%)	6 of 33 (18%)
ESW	37 of 44 (84%)	6 of 44 (14%)	1 of 44 (2%)

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk Water regions are indicated below.

NW group (Base 33)	To protect water treatment works from power interruptions (£1.73)
Face-to-face (Northumbrian) (Base 12)	**Yes** (7 yes; 2 push back; 3 not at all)
Northumbrian People Panel (Base 14)	**Push back to 2030 onwards** (3 yes; 7 push back; 3 not at all)
Young (NW) People Panel (Base 7)	**Yes** (4 yes; 3 push back; 0 not at all)
ESW group (Base 44)	**To protect water treatment works from power interruptions (47p)**
Essex People Panel (Base 14)	**Yes** (12 yes; 2 push back; 0 not at all)
Essex Additional (Base 7)	**Yes** (5 yes; 1 push back; 1 not at all)
Suffolk People Panel (Base 12)	**Yes** (12 yes; 0 push back; 0 not at all)
Suffolk Additional (Base 9)	**Yes** (6 yes; 3 push back; 0 not at all)
Young (ESW) People Panel (Base 2)	**Yes** (2 yes; 0 push back; 0 not at all)

Flooding

The results from the final poll are outlined in the table below. Overall, there were similar numbers of respondents who stated a preference to **invest now (48% NW respondents)** for resilience against flooding, or **to push back to 2030 onwards (36% NW respondents)**.

Respondents in the Essex & Suffolk regions supported investment in this to a far greater extent than those in the Northumbrian Water region, with the **vast majority (91% ESW respondents) preferring to invest now**. It is likely that the greater cost of investment for Northumbrian Water respondents

(+£1.08) compared to the cost for Essex & Suffolk Water respondents (44p) contributed towards respondents' preferences.

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	16 of 33 (48%)	12 of 33 (36%)	5 of 33 (15%)
ESW	40 of 44 (91%)	3 of 44 (7%)	1 of 44 (2%)

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk Water regions are indicated below.

NW group (Base 33)	**To protect water treatment works from flooding (£1.08)**
Face-to-face (Northumbrian) (Base 12)	**Yes** (7 yes; 2 push back; 3 not at all)
Northumbrian People Panel (Base 14)	**Push back to 2030 onwards** (5 yes; 7 push back; 2 not at all)
Young (NW) People Panel (Base 7)	**Yes** (4 yes; 3 push back; 0 not at all)
ESW group (Base 44)	**To protect water treatment works from flooding (44p)**
Essex People Panel (Base 14)	**Yes** (14 yes; 0 push back; 0 not at all)
Essex Additional (Base 7)	**Yes** (6 yes; 0 push back; 1 not at all)
Suffolk People Panel (Base 12)	**Yes** (12 yes; 0 push back; 0 not at all)
Suffolk Additional (Base 9)	**Yes** (6 yes; 3 push back; 0 not at all)
Young (ESW) People Panel (Base 2)	**Yes** (2 yes; 0 push back; 0 not at all)

The overall preference was to **invest now**, rather than risk higher costs and issues which would be harder to fix in future.

Respondents in the **NW region, specifically the Northumbrian People Panel, preferred to push back**. The increased costs and being unconvinced by the impact of climate change were reasons underpinning this choice.

Other points raised in discussions related to the need to educate customers around the **individual responsibility to reduce water use.**

Acceptability

The importance of having clean, safe, drinking water was highlighted as the **main function of the company**. Respondents perceived the risk of service failure unacceptable and viewed it **important to prioritise** investments to make the network resilient.

- *"It's really, really important and it's… the main function of the company so, yes, it's the top one, one of the top ones really" – Online workshop (Suffolk People Panel)*
- *"[It's] about concentrating on what your actual job is and that is supplying water. It's making sure that the water it supplies is clean and drinkable and it's making sure that the delivery system for that water is, well, the word resilient" – Online workshop (Suffolk People Panel)*
- *"I think it's important to focus on the power, the overall more expensive option, if it will increase it by £1.08, you might as well increase it by £1.73… With the interruptions or pollution incidents, they're more important… it's about safety. It's the top priority" - Online workshop (Young People Panel, Northumbrian Water)*

Across all regions, it was felt that **prevention is better than cure**, with respondents stating it would be best to invest in the network's resilience against climate change **now, before it worsens**.

- *"Whether you believe in climate change or not, we are all to, on occasion, [experience] extreme periods of weather. And if there's a situation that we all end up in Storm Arwen again… then we need to be prepared for that" – Face-to-face workshop (Northumbrian)*
- *"In the next few years, it could even be worse, and you might even see storms that are worse than we've seen already so I think this would be a priority" – Online workshop (Essex additional)*
- *"Climate change is with us; I think it's only going to get worse. I think as much as we are trying to do as a country, and as the world, I think we are miles away from being able to solve that problem" – Online workshop (Suffolk additional)*

Similarly, respondents in the Northumbrian and Suffolk regions considered the potential economic impact of the risks of pushing back this investment. They concluded that it would be **harder to fix and result in a higher cost in future**, so preferred to invest now.

- *"If they keep delaying it, the climate is going to keep getting worse, more storms, more floods, it will just get harder and harder to fix" - Online workshop (Young People Panel, Northumbrian Water)*
- *"The sooner we get it sorted, the cheaper it'll be" – Online workshop (Suffolk People Panel)*

- *"It's important… if you do something more quickly, then it'll be cheaper and more spread out than if you put it off and suddenly it comes in later years" – Online workshop (Suffolk People Panel)*

Two respondents in Essex referred to the **low cost of 44p to invest** in this area, and how this was felt to be a **manageable** amount for an important investment.

- *"I think it's so important. The weather is all getting extreme now. It's a manageable amount [of money] and I think that's very important as well" – Online workshop (Essex People Panel)*
- *"It's a good idea. It's not a great deal of money. As climate change changes everything, it will be needed" – Online workshop (Essex People Panel)*

However, a few respondents within the **Northumbrian Water** region were **uncertain of the direction of climate change** and its impacts, compared to those in the Essex & Suffolk Water regions. Several Northumbrian Water respondents preferred to **push back investment** in this area as they viewed it as less of a priority and not affordable, particularly as they were **not certain that the potential benefits outlined were needed**. Notably, the cost of investing for Northumbrian Water respondents would be more expensive (£1.75 power interruptions; £1.08 flooding) than it would be for Essex & Suffolk Water respondents (47p power interruptions; 44p flooding).

- *"I would rather push it back because who knows what's going to happen in five years' time with global warming" – Online workshop (Northumbrian People Panel)*
- *"If the problem of global warming is going to be as cataclysmic as they say, then almost anything done too late is too late… spending a fortune on some magical infrastructural thing for the one in ten-year event. I'm not convinced" – Online workshop (Northumbrian People Panel)*

Similarly, Northumbrian Water respondents felt that this area was **less of a priority compared to other areas** they had been presented. When prioritising and knowing not all areas could be invested in at once, the idea of saving money to **improve affordability** was drawn out as a theme.

- *"I'd think save the money here to be honest. You're just going to invest in so many other things… Is it a priority?" – Online workshop (Northumbrian People Panel)*
- *"It's got to be affordable. You can't do everything at once either, can you?" – Online workshop (Northumbrian People Panel)*

“The goal is to transform data into information, and information into insight”

Asset Health

In-depth findings of the acceptability of investing in asset health

Asset Health

This section concerns the findings of 'asset health' and is organised according to the following:

Context of asset health investment

The **problem** presented to respondents was that NWG has lots of assets and that many of these were built in roughly the same time period, the 1950s to 1970s. therefore NWG was facing a situation where there was a large amount of asset related investment to make in the coming years.

The **solution** presented to customers described the work required to replace damaged concrete tanks at (1) water treatment works, (2) wastewater treatment works, and (3) service reservoirs.

The **choice** presented to respondents concerned the timing of the plan, as NWG could either undertake this programme of work from 2025 or delay and undertake from 2030, plus any other work that is required at that point.

The **risk** presented was that the more assets fail (and many were built in the same time period) the less resilient the system is and the more likely it is that customers will experience water supply interruptions and/or pollution incidents.

Summary of findings

As there were three solutions, and different costs for investing in each of these areas, respondents were able to vote on each aspect individually. Northumbrian Water respondents were presented with three investments and Essex & Suffolk Water respondents were presented with two investments (to exclude the wastewater investment).

(1) For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs)

The results from the final poll are outlined in the table below. Overall, the majority of respondents across both regions preferred to **invest now** in the asset health of service reservoirs. There was a **greater sense of agreement** amongst respondents in the Essex & Suffolk Water regions **(ESW respondents 91%)** compared to the Northumbrian Water region (NW respondents 70%).

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	23 of 33 (70%)	6 of 33 (18%)	4 of 33 (12%)
ESW	40 of 44 (91%)	2 of 44 (5%)	1 of 44 (2%)

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk regions are indicated below.

NW group (Base 33)	**For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs – 56p)**
Face-to-face (Northumbrian) (Base 12)	**Yes** (7 yes; 2 push back; 3 not at all)
Northumbrian People Panel (Base 14)	**Yes** (11 yes; 2 push back; 1 not at all)
Young (NW) People Panel (Base 7)	**Yes** (5 yes; 2 push back; 0 not at all)
ESW group (Base 44)	For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (**service reservoirs – 88p**)
Essex People Panel (Base 14)	**Yes** (12 yes; 2 push back; 0 not at all)
Essex Additional (Base 7)	**Yes** (7 yes; 0 push back; 0 not at all)

Suffolk People Panel (Base 12)	**Yes** (12 yes; 0 push back; 0 not at all)
Suffolk Additional (Base 9)	**Yes** (7 yes; 0 push back; 1 not at all; 1 no answer)
Young (ESW) People Panel (Base 2)	**Yes** (2 yes; 0 push back; 0 not at all)

(2) For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (water treatment works)

The results from the final poll are outlined in the table below. Overall, the majority of respondents **across both regions preferred to invest now** in the asset health of water treatment works. There was a **greater sense of agreement** amongst respondents in the Essex & Suffolk Water regions **(ESW respondents 93%)** compared to the Northumbrian Water region (NW respondents 67%).

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	22 of 33 (67%)	5 of 33 (15%)	6 of 33 (18%)
ESW	41 of 44 (93%)	3 of 44 (7%)	0 of 44 (0%)

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk regions are indicated below.

NW group (Base 33)	For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures **(water treatment works – 27p)**
Face-to-face (Northumbrian) (Base 12)	**Yes** (7 yes; 2 push back; 3 not at all)
Northumbrian People Panel (Base 14)	**Yes** (11 yes; 0 push back; 3 not at all)
Young (NW) People Panel (Base 7)	**Yes** (4 yes; 3 push back; 0 not at all)
ESW group (Base 44)	For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (**water treatment works – 44p**)
Essex People Panel (Base 14)	**Yes** (13 yes; 1 push back; 0 not at all)
Essex Additional (Base 7)	**Yes** (5 yes; 2 push back; 0 not at all)

Suffolk People Panel (Base 12)	**Yes** (12 yes; 0 push back; 0 not at all)
Suffolk Additional (Base 9)	**Yes** (9 yes; 0 push back; 0 not at all)
Young (ESW) People Panel (Base 2)	**Yes** (2 yes; 0 push back; 0 not at all)

(3) For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (wastewater treatment works)

The results from the final poll are outlined in the table below. There was a slight majority of respondents in the Northumbrian Water region who preferred to **invest now (NW respondents 52%)**.

Yes – invest now	Push back to 2030 onwards	No – don't invest at all
17 of 33 (52%)	10 of 33 (30%)	5 of 33 (15%)

The results split by each of the groups in the Northumbrian Water region are indicated below.

NW group (Base 33)	For maintaining and replacing equipment to make sure it is in good working order and to avoid service failures **(wastewater treatment works - £2.66)**
Face-to-face (Northumbrian) (Base 12)	**Yes** (7 yes; 2 push back; 3 not at all)
Northumbrian People Panel (Base 14)	**Yes** (7 yes; 4 push back; 2 not at all; 1 no answer)
Young (NW) People Panel (Base 7)	**Push back to 2030 onwards** (3 yes; 4 push back; 0 not at all)

Overall, most respondents preferred to **invest now**, and showed an increased **willingness to invest in areas related to core services**

Respondents highlighted the **need for transparency** from the company in order to improve acceptability

Some respondents preferred to **push back due to the cost-of-living crisis**, and weighing up its importance against other investments

Acceptability

These investments were viewed as a **high priority for respondents across all regions** as they relate to the main function of the company to provide a safe water supply. The risks of having **interruptions to service were thought to cost individuals more**, than if they were to pay to invest now; not in terms of financial costs, but rather the cost of inconvenience of having interruptions.

- *"There's a risk regardless of whether we do this now or later, it has to be done, and it's got a health risk as well, so I think… and because the price is more steep, it would probably be better to start this sooner, but I'm not even thinking of this from a cost perspective, more from the risk side of things" – Online workshop (Essex Additional)*
- *"The implications of loss of service, be it for 12 hours, 24 hours, 36 hours, are going to cost individuals are a lot more to fill the gap in providing fresh drinking water, bathing, whatever, making a brew for their family, than that £1.32" – Online workshop (Suffolk Additional)*
- *"You get more value doing these things as soon as possible. And we know it costs more if there are possible service failures, yeah, not having to deal with that risk is probably worth the price" – (Young People Panel, Northumbrian)*

Those who felt it was important to invest now also discussed the **risks** of pushing investment back, including that the assets could **worsen if not prioritised**.

- *"There is only so long that you can go through and, sort of, patch things up before you have to realise that something needs replacing so, to my mind… we need to start going ahead with things probably 2025 onwards before things get to crisis point" – Online workshop (Suffolk Additional)*
- *"If they keep it until the equipment does get damaged, then they're going to have to spend a lot of money, because they're going to have to get that fixed as quickly as possible because they can't be having water interruptions constantly… then that's obviously going to impact our bills a lot more than £2.60… It's better to start now than leave it to later, where it could really have a big impact on us" – (Young People Panel, Northumbrian)*
- *"If you've got old equipment, and you don't keep it up-to-date, and it starts wearing out and getting behind, you basically can't do your job… If you just keep leaving them… in the hopes that these new, futuristic, fantastic things come in… this concrete storage, which will be archaic… they'll just keep wearing down, until eventually, all of them, who knows, all at once all on the same time period, just burst completely. And they'll have a big problem on their hands. So, I think it's pretty important to get this done first" – (Young People Panel, Northumbrian)*

In the Essex and Suffolk regions, drawing **comparisons between the other investments**, such as investing in electric vehicles to achieve Net Zero, resulted in respondents being in overall agreement that it was **important to invest** in asset health now. However, one respondent began to recognise the **costs adding up if they were to invest in all areas**, therefore suggested investing in increments.

- *"If they don't do this work, we might not have a reliable and safe supply of water so personally, I would say that this should be much higher priority than changing the vans that they use" – Online workshop (Suffolk People Panel)*
- *"I think that's one of the top priorities just looking back on the business plan again and comparing other considerations and other options, even though net zero is everyone's concern but I think the most important part is to keep the existing equipment and services running, so that should be done" – Online workshop (Essex Additional)*
- *"I was going to say we should go for it but… this would cost £1.30… how [many] more of these have we got? I think it is very important but…are there other things that are more important than that? Can we wait a bit longer… [or] do them in increments?" – Online workshop (Essex People Panel)*

Although the investment was supported overall, within the Northumbrian Water region, roughly half of respondents had **concerns about the increase in costs**. It was also viewed that shareholders, and NWG itself, should minimise the bill impact on customers as much as possible, with suggestions including to **use their profits** rather than transfer costs to customers.

- *"The customer is under a crunch, so we would think that the shareholders, the company on itself, on its own should think of how to spread the cost. Yeah, over time, you can start it now, but what do you transfer to the customer?" – Online workshop (Northumbrian People Panel)*
- *"These are things they should have been putting some of the profit away for when the time comes that they've got to replace these things" – Face-to-face workshop (Northumbrian)*
- *"No increase, that's what I support. Any increase and I'm going to be against it" – Face-to-face workshop (Northumbrian)*

In the Essex & Suffolk Water region, both of the **younger panellists** voiced that **greater transparency** from the company, and explanations to justify the increase in bills, would **allow for increased acceptability** of investing now.

- *"People won't be happy about putting the money up, but I think especially if we do explain to people why we've got to do it, then I think it would be okay" – (Young People Panel, Essex & Suffolk Water)*
- *"We need to explain we're doing this to prevent that from happening and that that's why we need to put this money into it pretty soon to get all this sorted for when things do deteriorate" – (Young People Panel, Essex & Suffolk Water)*

Roughly half of the younger panellists in the Northumbrian region considered that **technology may improve** over the next few years, therefore they would **prefer to push this investment back** in case new technologies become available which could increase efficiencies. Similarly, younger panellists felt that it **would not be beneficial to replace assets which currently worked**.

- *"I don't think it's a problem right now. Especially because we haven't changed the method of how we get water and how we clean water. And if the equipment is working fine, what do we need to check for? … I think new technologies will come out, so what's the point of replacing something when new technology might come around the corner?" – (Young People Panel, Northumbrian)*
- *"The technology now is so advanced, that I feel like it would be wasting money and resources, like trying to replace certain things, if you know what I mean? I feel like it would be a waste of resources, when those resources could be channelled into something better" – (Young People Panel, Northumbrian)*
- *"If everything's working, you don't kind of want to be faffing around with it. Because we might not need it further down the line. And it just feels a little bit unnecessary to kind of be fixing things that are working already" – (Young People Panel, Northumbrian)*

explain

“The goal is to transform data into information, and information into insight”

Environmental improvements

In-depth findings of the acceptability of investing in environmental improvements

Environmental improvements

This section concerns the findings of 'environmental improvements' and is organised according to the following:

Context of environmental improvements investments

The **problem** presented to respondents was that NWG would like to do more than what is required by government in terms of their environmental investment in order to bring extra benefit to the public.

The **solution** presented included investing in three areas: (1) improvements to bluespaces, (2) respondents in the Northumbrian Integrated Drainage Partnership (NIDP) (NW only), and (3) bathing water quality monitoring.

The **choice** presented to respondents concerned whether they would support NWG making these kind of investments.

The **risk** presented was that is that there would be an increase of £2.78 (NW) or 16p (ESW) on the average yearly bill. Without them, bills will be lower but the benefits to public and to the environment will not be secured.

Summary of findings

The results from the final poll are outlined in the table below. Overall, views were **mixed**, with a slight majority of respondents across both regions preferring to not invest at all (NW respondents 42%; ESW respondents 39%). The preference to **not invest at all was stronger amongst respondents in Northumbrian Water** regions. Overall, this was the investment area that respondents were least likely to include in their plan.

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	8 of 33 (24%)	11 of 33 (33%)	**14 of 33 (42%)**
ESW	16 of 44 (36%)	10 of 44 (23%)	**17 of 44 (39%)**

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk Water regions are indicated below.

NW group (Base 33)	Improvements to water environments 'bluespaces' the public can access (£2.78)
Face-to-face (Northumbrian) (Base 12)	**Not at all** (1 yes; 5 push back; 6 not at all)
Northumbrian People Panel (Base 14)	**Inconclusive** (5 yes; 4 push back; 5 not at all)
Young (NW) People Panel (Base 7)	**Not at all** (2 yes; 2 push back; 3 not at all)
ESW group (Base 44)	**Improvements to water environments 'bluespaces' the public can access (16p)**
Essex People Panel (Base 14)	**Yes** (7 yes; 3 push back; 3 not at all; 1 no answer)
Essex Additional (Base 7)	**Not at all** (1 yes; 1 push back; 5 not at all)
Suffolk People Panel (Base 12)	**Not at all** (4 yes; 3 push back; 5 not at all)
Suffolk Additional (Base 9)	**Not at all** (3 yes; 2 push back; 4 not at all)
Young (ESW) People Panel (Base 2)	**Inconclusive** (1 yes; 1 push back; 0 not at all)

Although views were mixed the most frequently selected response across most regions and groups was that this should **not be invested in at all**

The **Essex People Panel** group was the only group to have most respondents consider this important to **invest in now**

Whilst recognising the benefits, most respondents felt that the **cost-of-living** crisis outweighed those currently

Acceptability

Overall, respondents across the Essex & Suffolk regions recognised there were numerous benefits of investing in environmental improvements. Reasons underpinning this included **mental health benefits, helping biodiversity, and providing spaces** for families and children to enjoy. Most respondents in the **Essex region felt that the benefits of investing in this area outweighed the negative** aspects of investing.

- *"I very strongly feel that… With the way things are at the moment, I think the more people can access things like that, for mental health… to be able to have the freedom to be able to have more places to go, I think it would be really beneficial" – Online workshop (Suffolk Additional)*
- *"It would be nice to know it's there, for future generations to use, as well as helping the biodiversity along the way" – Online workshop (Essex People Panel)*
- *"To me that is quite important, personally. I've had kids who just absolutely love any bit of water… it has a massive improvement on their mood and… they really enjoy it and it's something that we enjoy as a family. If it was for 16p a year to have those… that would be massively worthwhile to me" – Online workshop (Suffolk People Panel)*

In addition, in one of the Northumbrian People Panel breakout groups, the consensus was that this was an **important area to invest in**, mainly due **to personal use of water environments,** with particular reference to the areas of natural beauty in the Northumbrian Water area.

- *"No, it is really important. It is really important to have a clean landscape. I think the northeast in particular has got a very good one, so it's important to keep it and maybe even better it if possible. Yeah, yeah, yeah, it is really important" – Online workshop (Northumbrian People Panel)*
- *"I also like wild swimming and doing these things and I've seen the impact that that has. Like you were saying about a lot of the people who are doing it and they're becoming more popular and the positive impact that it has for people involved and things like that" – Online workshop (Northumbrian People Panel)*
- *"Obviously where we need, the northeast, it's a unique place, very different. You're never more than a quick car drive to an area of natural beauty, and I think it's important that we maintain that. I know I have a lot of people who visit or come to the northeast, and they comment on how wonderful it is and things like that, and I think it is important that we respect that and maintain that" – Online workshop (Northumbrian People Panel)*

However, the overall view was that the benefits would be nice to have, but the current **cost-of-living crisis and ability to pay their bills** led them towards viewing environmental investment to be an area that **should be pushed back**.

- *"Whilst it's important, for me, it's not the number one given that the other pressing issues and I think this is something that maybe should be delayed" – Online workshop (Suffolk Additional)*
- *"Talking about blue spaces, yes, I do think they are important, but also being able to eat and cover all your bills is important too" – Online workshop (Northumbrian People Panel)*
- *"We shouldn't be spending more than we absolutely need to when we're going to have other charges potentially that are necessary" – Online workshop (Essex Additional)*

In addition, respondents across the Northumbrian Water region **questioned why NWG, as a company, were asking for additional investment** for these issues, particularly given the current cost-of-living crisis.

- *"They should be doing that themselves as a business" – Face-to-face workshop (Northumbrian)*
- *"Surely, the people that want to use all these things can pay at the point of access. It's not a general cost that can be passed on" – Face-to-face workshop (Northumbrian)*
- *"I wouldn't mind paying for it. But then obviously, there are some people who can't afford £3 a month" - (Young People Panel, Northumbrian)*

Most respondents in the Essex & Suffolk regions also stated that the most important aspect of the business should be to **concentrate on its main function of providing a safe, water supply**.

- *"Making things look pretty around reservoirs and things isn't going to help any of the basic things at all … so no, let's concentrate on the important things here: the business and make sure people have good, clean water" – Online workshop (Suffolk People Panel)*
- *"To have an extra 16p for something that's not technically the responsibility of the water company might not necessarily be at the top of my list" – (Young People Panel, Essex & Suffolk Water)*
- *"I don't think they should be investing in anything else other than making sure that we have a safe water supply first" – Online workshop (Suffolk People Panel)*

A few respondents in the **Suffolk** region additionally highlighted that they were sceptical about any increases due to them now being aware that they're paying **one of the highest bills, compared to other regions**.

- *"The issue of protecting the environment is important… increases on bills have been so small that everything that has been suggested is reasonable until you start to think about the fact that we're already paying more" – Online workshop (Suffolk People Panel)*
- *"The problem you have is the credibility. Because your bills are the highest, we all think that you're spending too much money" – Online workshop (Suffolk People Panel)*

“The goal is to transform data into information, and information into insight”

Net Zero

In-depth findings of the acceptability of investing in Net Zero

Net Zero

This section concerns the findings of 'net zero' and is organised according to the following:

Context of Net Zero investments

The **problem** presented to respondents was NWG have set a target to meet Net Zero for operational emissions by 2027.

The **solution** presented to respondents was that NWG has already made a lot of progress in this area and the next priority was identified as replacing their fleet of approximately 900 diesel vans with electric vans and installation of the charging infrastructure to support this.

The **choice** presented to respondents concerned the timing of the replacement programme and whether NWG should include this in their PR24 business plan or push back until 2030.

The **risk** presented was that in 2030, the purchasing of diesel vehicles will be banned. This means that if the work is delayed until 2030, it will also coincide with a period of high market demand. Delaying until 2030 would also mean that NWG would still be operating some diesel vans until 2039.

Summary of findings

The results from the final poll are outlined in the table below. This area of investment gathered **contrasting** results per region. Overall, the most selected preference by Northumbrian Water respondents was **to not invest in this area at all (45%),** although preferences were fairly mixed. Within the Essex & Suffolk Water regions, however, there was a **slight majority of respondents who preferred to invest now (52%)**.

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	9 of 33 (27%)	9 of 33 (27%)	**15 of 33 (45%)**
ESW	**23 of 44 (52%)**	16 of 44 (36%)	5 of 44 (16%)

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk Water regions are indicated below.

NW group (Base 33)	To replace 900 diesel vans with electric vans (40p)
Face-to-face (Northumbrian) (Base 12)	**Not at all** (1 yes; 5 push back; 6 not at all)
Northumbrian People Panel (Base 14)	**Inconclusive** (6 yes; 2 push back; 6 not at all)
Young (NW) People Panel (Base 7)	**Not at all** (2 yes; 2 push back; 3 not at all)
ESW group (Base 44)	**To replace 900 diesel vans with electric vans (27p)**
Essex People Panel (Base 14)	**Yes** (13 yes; 1 push back; 0 not at all)
Essex Additional (Base 7)	**Push back to 2030 onwards** (2 yes; 4 push back; 1 not at all)
Suffolk People Panel (Base 12)	**Push back to 2030 onwards** (2 yes; 6 push back; 4 not at all)
Suffolk Additional (Base 9)	**Yes** (6 yes; 3 push back; 0 not at all)
Young (ESW) People Panel (Base 2)	**Push back to 2030 onwards** (0 yes; 2 push back; 0 not at all)

The possibility of **technological advancements** in the future, and **scepticism regarding how sustainable** electric vechicles (EV)s are, were reasons for some respondents in the Northumbrian and Suffolk regions preferring to push back investment

Concerns regarding the cost-of-living crisis were aired, though it was recognised that the increase was **not substantial** (NW 40p; ESW 27p) and the **cost of EV's may increase in future** alongside demand

Some respondents highlighted the environmental benefits, but the need to balance this investment with **replacing vehicles as and when, over time**, to reduce waste

Acceptability

There were a number of reasons highlighted as to why respondents supported pushing this investment back. The majority of respondents in the **Northumbrian Water** region were **sceptical regarding how sustainable Electric Vehicles (EV) were**, therefore did not support this investment.

- *"I'm totally against the vehicles. I'm not going for the vehicle thing at all. I'd never support that" – Face-to-face workshop (Northumbrian)*
- *"I don't agree with electric cars. I've looked into it. I've seen that it's actually less sustainable than the cars we currently have so… even the 40p, I would say an absolute no to" – Online workshop (Northumbrian People Panel)*
- *"To be even contemplating getting rid of perfectly serviceable vehicles and replacing them with electric ones… I think it's more damage to the environment just scrapping cars that are entirely serviceable" – Online workshop (Northumbrian People Panel)*

In the Suffolk and Northumbrian Water regions, respondents also discussed the likelihood of **technological improvements** in the future. Relating to this, it was felt there was a **possibility of hybrid or hydrogen** vehicles coming into play in the future. Ultimately, it was felt **best to hold off on investing** in this area until more is known about the future impacts on electricity prices and technology.

- *"Not yet. I think there's a better way to go than hybrid or hydrogen vehicles. I think we're jumping the gun a little bit with the technology that we have and so many people are having problems finding working chargers out there" – Online workshop (Suffolk People Panel)*
- *"The battery situation might actually have improved in seven years' time and the batteries, and the ranges might have increased, so they could buy vehicles in 2029 that would give them greater range that may even be the same price as now" – Online workshop (Suffolk People Panel)*
- *"I feel I need more information on what options Northumbrian Water have looked at because hydrogen cars, you go on Google and Toyota have got one, for example, and that's an emerging technology. Yes, there are only about a hundred fuel stations at the moment, but you're filling your tank in about three to five minutes. It's something we're more familiar with doing, so in seven years' time it might be hydrogen" – Online workshop (Northumbrian People Panel)*

Respondents in the **Northumbrian and Essex regions** also shared that they viewed it **wise to delay investing** in this area, though highlighted the **cost-of-living crisis as a particular concern** as to why now would not be their preferred time to invest.

- *"I feel like there's such bigger issues and with the cost of living… I just don't think that's relevant at this present time" – (Young People Panel, Northumbrian)*
- *"We should potentially hold off on this. I do definitely think climate change and protecting the environment is definitely important, it is a big factor to me, but I would potentially prioritise the immediate cost to the customer for now" – Online workshop (Essex Additional)*

However, in support of investing in this area, a few respondents across regions referred to the **environmental benefit of replacing the fleet sooner** rather than later, however, and felt that it was an important step to take in order to reach the target of becoming carbon neutral.

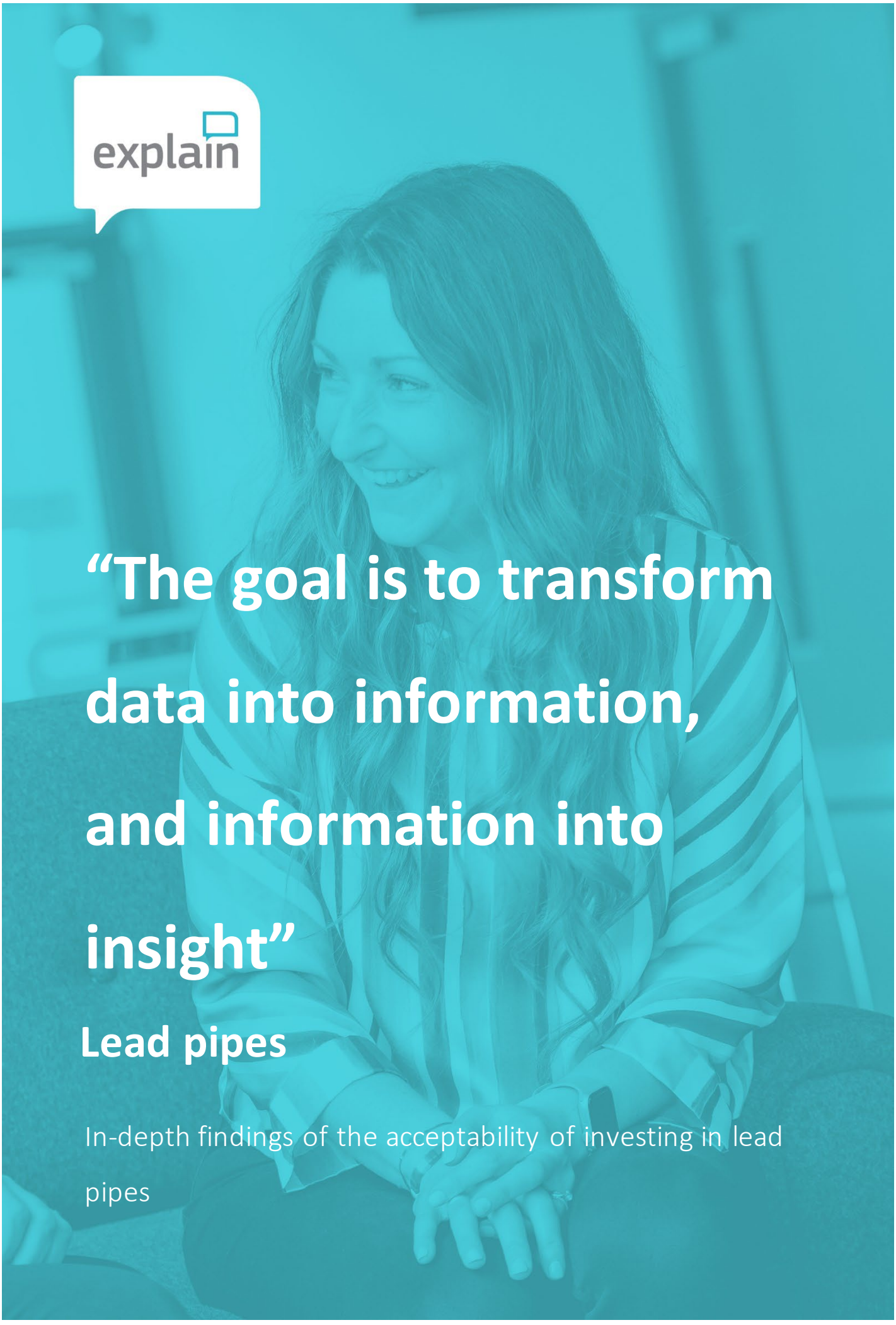
- *"My philosophy is do it the sooner because every time you are removing a diesel vehicle from the road, you are doing better environmentally" – Online workshop (Essex People Panel)*
- *"They're more at the top of my list. I know that sometimes it can be more costly eventually for customers, but I think eventually that would be a price worth paying if it's going to help towards getting towards carbon zero"– (Young People Panel, Essex & Suffolk Water)*

Additionally, respondents across the **Essex & Suffolk Water** regions highlighted that the **27p increase was not a substantial increase** for them. Whilst recognising this as an increase in the short term, respondents were concerned that waiting to invest in this area would result in **higher bills, if electric vehicle prices increase in the future due to demand**.

- *"It's not actually a significant amount and I think that if they were to leave it… the demand would be really high and then the value of these vehicles would go up as well, so it would be a greater cost in the future, so I think it's wise to get ahead of the game"– (Young People Panel, Essex & Suffolk Water)*
- *"The deadline of 2030, everyone's going to be trying to get electric vehicles, this and that and it's probably going to cost more money to get them in 2030. I think, if you can do it now, 27p, I think in the long run, it will probably be better. I think probably 2025 is the best time to do it" – Online workshop (Essex People Panel)*
- *"It's going to be a high priority for me as a customer. And similarly, if we wait until 2030 it's, you know, vans are going to be sky rocketing" – Online workshop (Suffolk People Panel)*

In one breakout group from the Northumbrian People Panel, the consensus was that NWG should be investing in 2025 for the **environmental benefits**, and also to reduce costs which were perceived to be higher in the future. It was also recognised that **customers could benefit from the use of NWG's EV charge points.**

- *"Obviously I think it's a good idea to get ahead of the curve because I think if it was for the goal of 2030 absolutely would be shooting yourself in the foot and you're going to cost more money for yourself, like with all the options that you've said of 2030 and the demand for vehicles…. It's good to know that that would add hopefully to the public charging infrastructure" – Online workshop (Northumbrian People Panel)*
- *"I was thinking generally yes, get them replaced now because it's only going to cost more in the future to get the electric vehicles because everybody's going to have to eventually. So definitely a good one for now" – Online workshop (Northumbrian People Panel)*



“The goal is to transform data into information, and information into insight”

Lead pipes

In-depth findings of the acceptability of investing in lead pipes

Lead pipes

This section concerns the findings of 'lead pipes' and is organised according to the following:

Context of reducing the levels of lead in drinking water

The **problem** presented to respondents was that before 1970, lead pipework was commonly used to connect properties to the mains water network. Since then, it has been banned – but there are many older properties which still have lead pipework underground and/or inside the building. The World Health Organisation recognises that lead is harmful to health; this has been linked to lower IQ for children. Pregnant women, babies, and children under 6 are the most at risk. Phosphates are currently used to reduce the risk posed by lead, but this carries a cost and has potential for environmental harm.

The **solution** presented was to make investment to eradicate lead pipes focussing on three areas: (1) undertaking hot spot replacement, (2) prioritising rural supplies, and (3) prioritising vulnerable groups.

The **choice** presented to respondents concerned the timing of the replacement programme. This doesn't have to be started in 2025 and not doing so would mean the cost wouldn't be added to bills for this time period.

The **risk** presented was that, without investment, the levels of lead in drinking water will not decrease at as fast a rate as it could.

Summary of findings

The results from the final poll are outlined in the table below. Across both regions, **most respondents stated a preference to invest now** in this area (64% NW respondents; 77% ESW respondents).

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	21 of 33 (64%)	6 of 33 (18%)	6 of 33 (18%)
ESW	34 of 44 (77%)	7 of 44 (16%)	3 of 44 (7%)

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk Water regions are indicated below.

NW group (Base 33)	To replace lead pipes (78p)
Face-to-face (Northumbrian) (Base 12)	**Yes** (6 yes; 3 push back; 3 not at all)
Northumbrian People Panel (Base 14)	**Yes** (8 yes; 3 push back; 3 not at all)
Young (NW) People Panel (Base 7)	**Yes** (7 yes; 0 push back; 0 not at all)
ESW group (Base 44)	**To replace lead pipes (£1.22)**
Essex People Panel (Base 14)	**Yes** (13 yes; 1 push back; 0 not at all)
Essex Additional (Base 7)	**Yes** (6 yes; 1 push back; 0 not at all)
Suffolk People Panel (Base 12)	**Yes** (6 yes; 3 push back; 3 not at all)
Suffolk Additional (Base 9)	**Yes** (9 yes; 0 push back; 0 not at all)
Young (ESW) People Panel (Base 2)	**Push back to 2030 onwards** (0 yes; 2 push back; 0 not at all)

Overall there was agreement to invest now, as it is an important issue due to the health impacts related to lead

Respondents felt costs could level without needing to use phosphates, and that the cost was manageable given the positive impact it would have

A need to educate customers about the health impacts of lead and the level to which it exists in the network was highlighted

Acceptability

It was widely agreed amongst respondents living in both the Northumbrian Water and Essex & Suffolk Water regions that levels of lead in drinking water was an **important** issue. Despite understanding that risks were low and mitigated by phosphates, there was a sense that any risk was too much risk. There were **concerns about the health impacts** for those who had lead pipes, with particular reference to the impact on children.

- *"I think it is a priority that needs to be done…. I don't really see how it's something that could possibly be avoided. It's a direct impact to people's health and there's not really any more argument with it, is there?" – Online Workshop (Essex Additional)*
- *"Any risks to an unborn child in my opinion, is too much risk… you can't put cost on an unborn child, I'm sorry" – Online workshop (Suffolk Additional)*
- *"I feel it's quite important. I live at home, but we've got a Victorian house and I think, if we've got a house that's that old, what are the chances? We probably do have lead. I'm not saying we do but I'm saying there's a higher chance we might have lead pipes. The fact that we could be drinking stuff" – Online workshop (Essex People Panel)*

Additionally, the **cost impact of 78p in the Northumbrian Water region was thought to be low,** given the great impact the investment could have in reducing lead in the water supply and the concerns held over the risks posed by lead.

- *"For the effect it has on people's health and the risk it has, the price of 78p on an average yearly bill isn't really that much to help protect people's health" – Online workshop (Northumbrian, Young People Panel)*
- *I mean, at the end of the day, health is a priority. For the cost involved, you're talking seventy-six pence or whatever it is, it's a small price to pay to give people peace of mind and be health*

conscious. We've got to think of other people in the world. Things like pregnant women and people like that who are vulnerable, we've got to help them" – Face-to-face workshop (Northumbrian)

- *"This is more important than the rest of them that we've been through, to me. Because, you know, we are talking about health and vulnerability, and I think you can't really put a price on health and life? So, for me, like, a very small cost of 67p, on the average bill, is nothing in comparison to what your life is worth" – Online workshop (Northumbrian, Young People Panel)*

A minority of respondents from the Essex & Suffolk region also raised **concerns about the use of phosphates** and felt replacement of lead pipes was important to negate the need for phosphates in the future.

- *"I'm very concerned about the impact of them using phosphates and the harm that it will cause the environment and I wonder if the risk is disproportionate to the benefits gained. If the risks of lead pipes are low and we know that phosphates are very harmful to the environment, how are we going to deal with that issue" – Online workshop (Suffolk People Panel)*
- *"Just by knowing that it's as you said, poisonous, and in order to make it not poisonous, phosphate is used. And that brings some risk as well. I think it should be done years ago and it should be supported by the government as well, because it's a huge… It's a massive thing. So, mainly because of the risk" – Online workshop (Essex People Panel)*

Due to the perceived importance of the issue particularly around health impact, there was agreement amongst most respondents that the accelerated work to replace lead pipes **should begin now rather than later**.

- *"If it is scientifically proven that the phosphate and the lead are having a bad impact on children's health, then we should do something about it, definitely. Yes, I fully agree with the investment, as soon as possible" – Online workshop (Essex People Panel)*
- *"I think I would say, we go for it and sooner, rather than later, simply because of the impact of lead on the body and future generations, it would be best for our health, generally, that it's done as soon as possible" – Online workshop (Essex People Panel)*
- *"If anything, they should try to get it done even quicker. Even if it does mean that we do have to pay more than 78p. Because [of] the long-term effects that lead poisoning can have, and… people might not even know that they've got lead poisoning… if you are consistently consuming lead in*

your water, that can cause really bad effects, so I think it's something that should be done, that's the top priority" – Online workshop (Northumbrian, Young People Panel)

However, there was a minority of respondents that felt that the accelerated investment was not needed. For example, a number of respondents in Northumbrian Water felt that lead pipes **should be replaced as and when needed** due to wear and tear or damage.

- *"If something goes wrong, then get it done. I've lived with it. I'm almost fifty. I've lived with it fifty years. I'm still alive. I might get dementia. It could be from something else. It might not be from that. Although, it is important to me. I think it's not urgent like it has to be done now. It could be done when something breaks, then as they were saying, they just gradually replace everything" – Online workshop (Northumbrian People Panel)*

In addition, a small number of respondents from the **Essex & Suffolk** region, particularly the young People Panel group, felt that the pace NWG were currently replacing lead pipes was fine and there was **no need to accelerate** this.

- *"I think just now we seem to be managing it and I don't know if accelerating the replacement is all that necessary just now" – Online workshop (Essex & Suffolk, Young People Panel)*
- *"I know about lead poisoning and the lead pipes, but I haven't really heard of cases myself of where someone's been affected by it. So, it seems pretty safe to me. Obviously, that's anecdotal and I haven't looked at the data. But at the same time, so is it really something we should be concerned about right now, or is it something that's safe enough to put off for a little bit later?" – Online workshop (Essex People Panel)*
- *"We've sort of got it under control at the moment and I don't think that accelerating it is all that necessary, but then again I think I could be swayed if I found out that bills would be cut if we were to replace it and then we'd save all this money in not adding phosphates to the system" - Online workshop (Essex & Suffolk, Young People Panel)*

There was also suggestion from roughly half of the respondents from the Suffolk People Panel that the replacement of lead pipes was the **responsibility of the homeowner, and they should pay for it, rather than the customer base** as whole paying for others to have their pipes replaced.

- *"If I have a burst pipe in my home, I pay for the damage. You're not going to pay for that, that's on me. So, if I got lead piping it's down to me to replace it. I know that people may not know about this, and you could inform people about that, you could warn people. You could tell them that is the case, but you cannot take responsibility for people in what they do in their own housing" – Online workshop (Suffolk People Panel)*
- *"Obviously, you can take a lead on this, but you need to involve the householder and they need to carry the bill. It's simple, it's their responsibility" – Online workshop (Suffolk People Panel)*
- *"I agree with what X said, to the fact that if it's something in your house it's down to you. I'm not saying you knew the pipes were there when you moved in, but it's on your property. Perhaps if there's any pipes still outside that's a different matter" – Online workshop (Suffolk People Panel)*

Finally, it was highlighted by the Essex People Panel that this was an issue **members of the public needed to be educated** on.

- *"I think that this is actually something that is a little bit concerning for me in that it's only through various ways that one hears that there's a difference of water pipes that come up to your boundary, or all pipes that are within your property. And that is why people should have one of these home insurances because if something happens within your property, up to the boundary, it's nobody's responsibility but your own. And so, even though we're talking about public roads to boundaries would be replaced, I really feel that the public should be educated to know that within their own properties, they may well have lead piping, especially the properties of that age" – Online workshop (Essex People Panel)*
- *"… We all need educating on it. And I'm sure if the government can say, 'Diesel engines are going to be banned by 2030,' then they can still talk about this" – Online workshop (Essex People Panel)*

“The goal is to transform data into information, and information into insight”

Water quality

In-depth findings of the acceptability of investing in water quality

Water quality

This section concerns the findings of 'water quality' and is organised according to the following:

Context of addressing risks to water quality

The **problem** presented was that we are experiencing, and will continue to experience, increased temperatures as well as increased demand for water (caused by population growth) and that this is causing future water quality risks in a number of ways.

The **solutions** presented specifically focussed on the use of chlorine and sand filters. It was presented that there is a need to invest in refrigeration for chlorine due to increasing temperatures. In the case of slow sand filters, it was presented that NWG want to invest to reduce the amount of time each slow sand filter needs to be closed for.

The **choice** presented to respondents concerned the timing of the investment. This doesn't have to be started in 2025 and not doing so would mean the cost wouldn't be added to bills for this time period.

The **risk** presented was that, without investment, the water quality will be reduced. These risks will increase over time as temperatures continue to increase and demand continues to rise. It's also likely that new challenges will be identified as time goes on and these will also need to be addressed.

Summary of findings

The results from the final poll are outlined in the table below. Across both regions, **most respondents stated a preference to invest now** in this area (**76% NW** respondents; **70% ESW** respondents).

	Yes – invest now	Push back to 2030 onwards	No – don't invest at all
NW	25 of 33 (76%)	4 of 33 (12%)	3 of 33 (9%)
ESW	31 of 44 (70%)	11 of 44 (25%)	2 of 44 (5%)

The results split by each of the groups in the Northumbrian Water and Essex & Suffolk Water regions are indicated below.

NW group (Base 33)	To address risks to drinking water quality (£1.88)
Face-to-face (Northumbrian) (Base 12)	**Yes** (5 yes; 3 push back; 3 not at all; 1 no answer)
Northumbrian People Panel (Base 14)	**Yes** (13 yes; 1 push back; 0 not at all)
Young (NW) People Panel (Base 7)	**Yes** (7 yes; 0 push back; 0 not at all)
ESW group (Base 44)	**To address risks to drinking water quality (£2.92)**
Essex People Panel (Base 14)	**Yes** (13 yes; 1 push back; 0 not at all)
Essex Additional (Base 7)	**Push back to 2030 onwards** (1 yes; 4 push back; 2 not at all)
Suffolk People Panel (Base 12)	**Yes** (11 yes; 1 push back; 0 not at all)
Suffolk Additional (Base 9)	**Yes** (6 yes; 3 push back; 0 not at all)
Young (ESW) People Panel (Base 2)	**Push back to 2030 onwards** (0 yes; 2 push back; 0 not at all)

Respondents felt this related to NWG's core business, and as a result respondents viewed this positively and felt it was of importance

There was a general preference for the use of solutions like sand filters, rather than using chlorine, due to perceiving there to be a lower impact on the environment

Compared to other investment areas presented to ESW respondents, this cost of £2.92 was felt to be much higher

Acceptability

Across all groups, the two solutions of using refrigerators to regulate the temperature of chlorine, as well as altering the slow sand filters, were discussed.

The majority of the respondents in both Northumbrian and the Essex & Suffolk Water region felt that addressing risks to water quality was **important**, as having **good quality water was thought to be essential**.

- *"You need to have the good quality water. It is on the highest price side but overall, the big picture, definitely worth it. Yeah, I feel like that's one of my priorities" – Online workshop (Essex People Panel)*
- *"Your water quality is something that's quite important to people. That's what they're paying for, good quality water. And obviously, it says that there's new risks that are going to be identified by climate change and population growth, which is inevitable… it will only get worse as years go on" – Online workshop (Northumbrian, Young People Panel)*
- *"I think it's important that we have to protect the quality that we have as well, so I would agree on that one and I do think it's important" – Online workshop (Northumbrian People Panel)*

Respondents across the regions also felt that providing high quality drinking water was the **main role of NWG**, therefore they should be focusing on this area.

- *"Water quality, I'd say, is number one. And I think water quality does also tie into the lead pipes as well. And I think the water quality should be the be all and end all of Northumberland Water's strategy, really, because at the end of the day, the only thing the customer really is bothered about is that, for their drinking water, is it safe? Does it taste good? So, I definitely think water quality is one of the more important factors" – Online workshop (Northumbrian, Young People Panel)*
- *"It's one of those things that's a priority for the company. It's… one of the clear objectives of what you're meant to be delivering is safe water" – Online workshop (Suffolk People Panel)*
- *"I think, the sooner, the better. If they can start from this year onwards. Of course, everything is expensive but the basic, clean water, we are happy to pay a little bit extra money for that and if the company can start it this year, it will be great" – Online workshop (Essex People Panel)*

It was also highlighted that **risks to water quality could affect a lot of customers**, rather than other areas of the investment plan which didn't affect everyone, therefore it was seen as important.

- *"I think for me, it is quite important, again, because it's something that, like, directly affects the customers and like the people living in that area. So, it's something that they should, again, like start trying to implement new ways to, like, tackle the issue" – Online workshop (Northumbrian, Young People Panel)*
- *"Yeah, it's probably quite high up just like, because like water safety and water quality are like, two huge things, like in general, not just for me personally. And that affects everyone rather than like, there's been some aspects that I found really important, but like that's just for my area, whereas this is something that will benefit everyone" – Online workshop (Northumbrian, Young People Panel)*

Most respondents from the Essex & Suffolk region and the Northumbrian Water regions felt the work should be carried out sooner rather than later as it was felt the **costs would only increase if the work was to be carried out later**.

- *"Sooner the better because it becomes more and more expensive the longer we leave it" – Online workshop (Suffolk People Panel)*
- *"It's only going to get more expensive, the longer you leave it to do and something else will crop up, in the meantime, and it won't get done" - Online workshop (Essex People Panel)*
- *"Although I mean, you do have to consider the cost-of-living crisis etc. But again, I'll say it again, like you can't put a price on health. And if it's going to increase the quality of the water, then I'm absolutely for it as soon as possible" – Online workshop (Northumbrian, Young People Panel)*

However, a minority view from respondents in the Essex additional group and young People Panel groups felt this wasn't a pressing issue at the moment as the increased temperatures from climate change were **felt to be more of a problem for the future**.

- *"I would delete this in this plan… even though we have seen really extreme temperatures, it's not a large chunk of the year and if we're only using chlorine sometimes. It potentially might not even have an impact. I'm not denying the risk and the impact of this, but I don't think it's a major cause for concern to include in this plan. Maybe prioritise the other stuff that we mentioned with the health risk and then figure this out in the next one" – Online Workshop (Essex Additional)*

- *"I think this can be introduced more gradually. It's not a huge priority to myself right now. I don't think it's a big priority to everyone else either, but it would be interesting to kind of assess climate change over time and see how urgent it is, but at the moment I don't think it's pressing" – Online Workshop (Essex Additional)*
- *"I do think it is quite important because obviously you don't want to be paying for water that is sub-quality but I don't know if the threats you mentioned, like increase in temperature will affect the chlorine, I don't know how soon those effects will hit us, I don't know if it's something that needs to be worked on urgently just because it's not… like, I don't see that happening any time soon and it is quite an expense to the customer" - Online workshop (Essex & Suffolk, Young People Panel)*

Additionally, many Essex respondents felt the work would be best to undertake at a later date due to the **cost of £2.92 being higher**, when considering the other investment areas proposed in the business plan which were a lower investment of 27p or 44p.

- *"…. when you've presented the slides with cost increases within 20p to 30p or something, like in the pence, I have been more for them because this is quite, in comparison, is a much larger figure, so that's kind of put me off as well" - Online workshop (Essex & Suffolk, Young People Panel).*
- *"This I would say could go to the next five-year plan because I don't want to take another increase at the same time" – Online workshop (Essex Additional)*
- *"Well, I'm one of those people who uses a water filter at home anyway. I'm being a bit naughty, and I would say it could be a ten-year plan rather than a five-year plan and it would reduce that overall cost" – Online workshop (Essex Additional)*

There were also comments about the treatment processes presented specifically. The Northumbrian face-to-face group **didn't think NWG should be investing in refrigeration**, due to the perceived higher maintenance costs. However, they did want to know more about slow-sand filters before they could make a decision.

- *"Refrigeration, it'll be absolutely massive ongoing maintenance and running costs" – Face-to-face workshop (Northumbrian)*
- *"Building more sand filters would work out in the long-term and even the short-term, possibly a lot cheaper than the refrigeration thing with a lot of kit and high maintenance" – Face-to-face workshop (Northumbrian)*

- *"What works out greener? Is it the sand?" – Face-to-face workshop (Northumbrian)*

In both of the Suffolk groups, respondents expressed their **preference for the use of natural solutions like sand filters** to treat the water, rather than chemical solutions like chlorine.

- *"To my mind it sounded like the sand filters would be a much more environmentally friendly thing and I would be more supportive of that option over the use of chlorine which is more harmful to the environment" – Online workshop (Suffolk People Panel)*
- *"I mean, sand filter sounds great, you know, low cost, lower impact on the environment. Obviously, refrigeration, I suspect is prohibitively expensive, and one of those things that is not easy to do and is very energy intense" – Online workshop (Suffolk Additional)*
- *"But I think the issue is that the sand filtration sounds brilliant, and I think, you know, for me, that's got to be far more positive then the refrigeration. But equally I think… if we've got to do it and we can get rid of the chlorine element, then that's got to be a win-win situation" – Online workshop (Suffolk Additional)*

“Research should never be just for knowledge – it should be for progress”

Conclusions

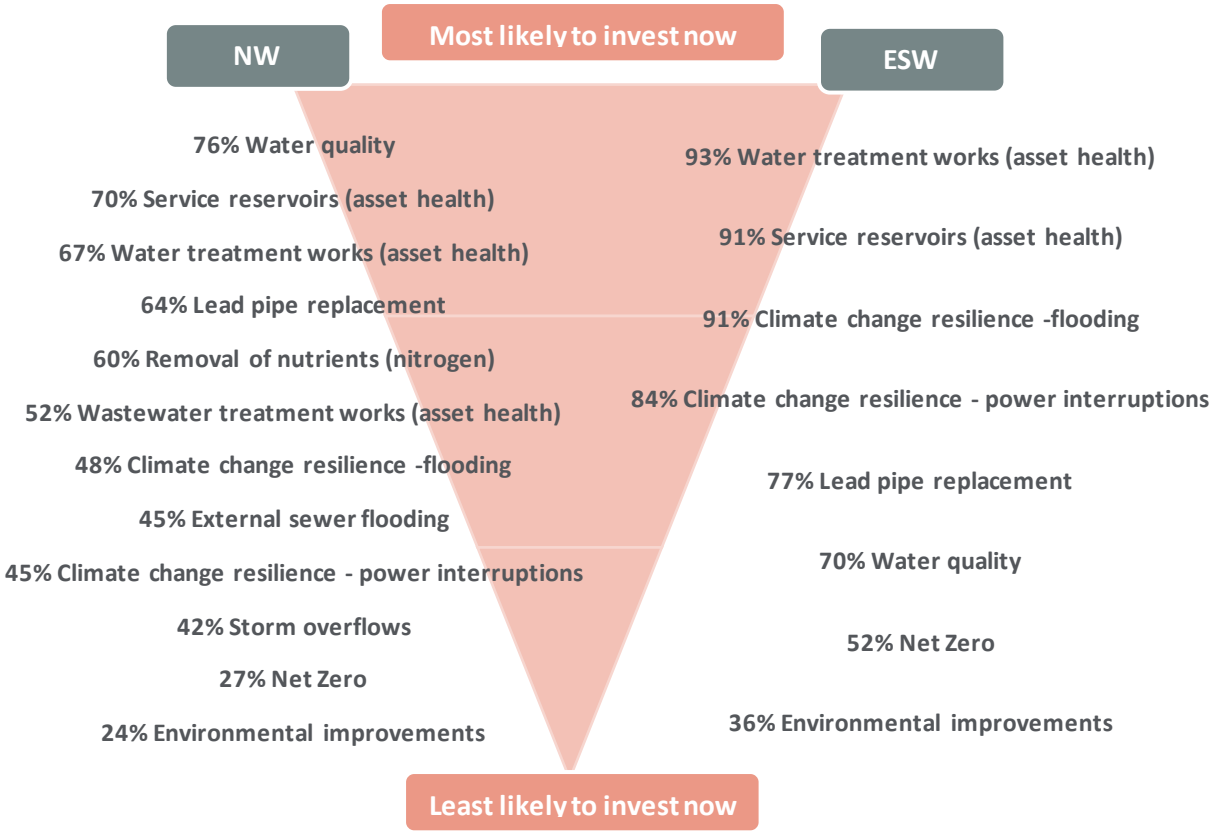
A holistic review of the actionable insights.

Conclusions

This research followed on from pre-acceptability Part A research undertaken in January 2023. The purpose of this research was to expand upon the individual areas of investment in more detail. Following a high level of description, including intended customer benefits, impact on risk and the cost per investment, respondents were asked to discuss and vote on the extent to which they would like to invest in each area. Respondents voted on a final poll as to whether they would prefer to invest now, push back the investment to 2030 onwards, or to not invest at all.

Overall, respondents showed a **willingness to invest in areas related to what they saw as NWG's core business**, which would impact them or the supply of water. Across most areas of investment discussed by respondents, **the total cost impact on the bill** was highlighted in relation to the cost-of-living and the subsequent need to prioritise areas. Therefore, areas which were considered as a bonus or 'nice to have' were felt to be lower priority and best to push back to protect affordability as much as possible.

The graphic below demonstrates the proportion of respondents who chose to include each investment in their ideal business plan package. The investments are ranked from those most likely to be included to least likely to be included.



For each of the areas of investment discussed, respondents highlighted the following, in particular:

Storm overflows was an area with **mixed feedback** in terms of importance, however the majority of paritipants thought NWG should **invest half now and half later**. It was agreed that areas of **higher environmental risk** should be **prioritised. (NW only)**

External sewer flooding was considered to be **somewhat important** for most participants, therefore respondents felt that NWG should **continue at their current rate of work** rather than investing more. This was mostly due to cost implications. This differed for the Young People Panel who thought the work should be accelerated. **(NW only)**

Removal of nutrients from wastewater - there was substantial **support for natural solutions**, rather than using engineering solutions, with the majority of respondents preferring to **invest now**. **(NW only)**

Climate change resilience was most **strongly supported** in ESW where the bill impact was lesser and there was less sceptisism about climate change generally. Overall, respondents emphasised that having high quality drinking water should be a priority for NWG.

Asset health, across both regions, was considered to be an **important** area that should be invested in now. **Transparency** as to how costs would be minimised for customers was emphasised and, due to the cost and cost-of living crisis a minority felt this **could be pushed back** to reduce customer bill impacts.

Non statutory environmental improvements were of a **lower priority, overall**, for respondents across both regions, when considering it alongside other areas of investment. It was felt this was a 'nice to have' for the future, but **not an essential for now**.

Net Zero gathered **mixed views** across respondents; with some ESW People Panel groups viewing it **important to invest in now**, whilst the majority of the Northumbrian respondents were **sceptical, at best**, towards electric vehicle use. Overall, it was felt that investing in this area could be **pushed back**.

Lead pipes were seen as an **important** issue across both regions due to the health impacts, and the majority included it in their ideal plan. There were some minority views that replacement of lead pipes should be the responsibility of the homeowner rather than NWG.

Water quality was seen as an **important** issue across both regions and most included it in their ideal plan. However, a minority felt the effects of **climate change** weren't an immediate threat, with others put off by the **higher costs** associated with this issue. There was **a preference for solutions like sand filters over chlorine.**

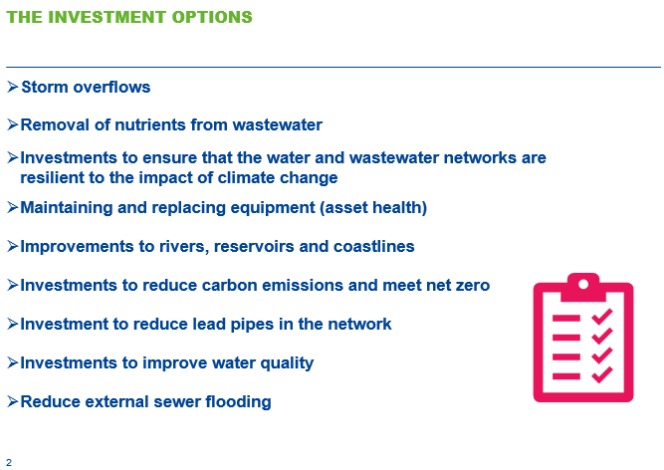
“Quality is not an act; it is a habit”

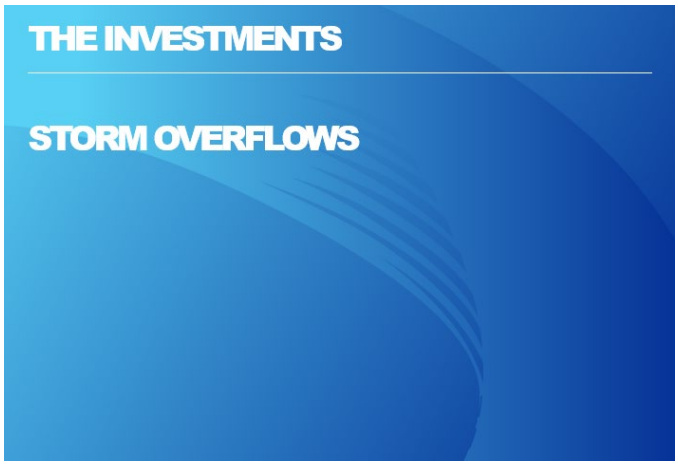
Appendices

Supporting documentation can be found in this section.

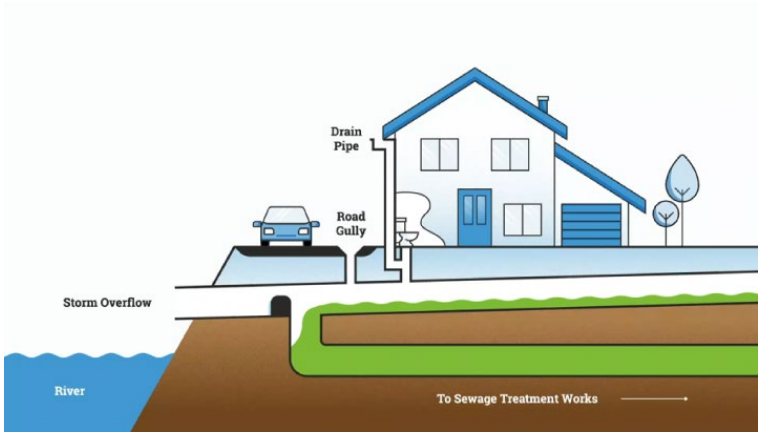
Appendices

Appendix A: PPT for Northumbrian Water customers





STORM OVERFLOWS
WHAT ARE THEY?



STORM OVERFLOWS
THE PROBLEM AND THE SOLUTION

The Problem

Government requirements are that water companies must **reduce the average number of spills** per storm overflow in environmentally sensitive areas.

The Solution

Draft Drainage and Wastewater Management Plan

- Divert excess water to reduce the chance of flooding
- Use natural solutions to reduce the amount of water going into sewers
- Use concrete tanks to store excess water
- Surface water separation

STORM OVERFLOWS
THE CHOICE, THE RISKS AND THE COSTS

- When should this work be undertaken?
- Where should Northumbrian Water prioritise?

- Delaying the work increases the risk that statutory obligations will not be met.
- It also delays cost increases to a later date and Northumbrian Water can't predict what the economic situation will be then.

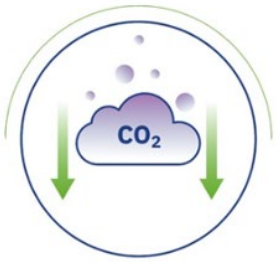
- The investment between 2025 and 2030 would cause a gradual increase in bills to **£31.48** on the average annual bill plus inflation by 2030

THE INVESTMENTS

REDUCE CARBON EMISSIONS AND MEET NET ZERO

NET ZERO
THE PROBLEM AND THE SOLUTION

The Problem



Northumbrian Water have set a goal to be **carbon neutral** on operational emissions by 2027. To do this they need to find new ways to reduce their emissions

The Solution

The replacement of their fleet with **electric vehicles**

NET ZERO
THE CHOICE, THE RISKS AND THE COSTS

- When should Northumbrian Water perform the work?

- The purchasing of diesel vehicles will be banned from 2030
- There will be high market demand for electric vans from 2030

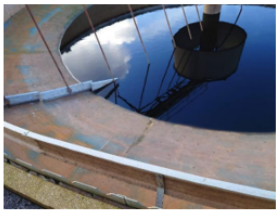
- If started in 2025, the eventual increase would be **40p** on the average yearly bill plus inflation

THE INVESTMENTS

MAINTAINING AND REPLACING EQUIPMENT (ASSET HEALTH)

MAINTAINING AND REPLACING EQUIPMENT
THE PROBLEM AND THE SOLUTION

The Problem



Many of Northumbrian Water's assets were built at the same time and are in **need of replacement.**

The Solution

Phased replacement, focussing on **replacement of damaged concrete tanks** at:

1. Water treatment works
2. Sewage treatment works
3. Service reservoirs

MAINTAINING AND REPLACING EQUIPMENT
THE CHOICE, THE RISKS AND THE COSTS

- When should Northumbrian Water perform the work?

- Delaying the work increases the risk of service failure and pollution incidents

- The overall cost to undertake this extra work:
  - Water treatment works: average bill increase of **27p by 2030 plus inflation**
  - Wastewater treatment works: average bill increase of **£2.66 by 2030 plus inflation**
  - Service reservoirs: average bill increase of **56p by 2030 plus inflation**

THE INVESTMENTS

ENVIRONMENTAL IMPROVEMENTS

ENVIRONMENTAL IMPROVEMENTS
THE PROBLEM AND THE SOLUTION

The Problem

Northumbrian Water would like to do more than what is required to bring **extra benefit** to the public.

The Solutions

- Bluespaces
- Northumbrian Integrated Drainage Partnership
- Bathing water quality monitoring

ENVIRONMENTAL IMPROVEMENTS
THE CHOICE, THE RISKS AND THE COSTS

- Should Northumbrian Water make these investments?

- Without this investment, the extra public benefits will not be received by customers.

- The eventual increase would be **£2.78** on the average yearly bill by 2030 plus inflation

THE INVESTMENTS

THE REMOVAL OF NUTRIENTS FROM WASTEWATER

REMOVAL OF NUTRIENTS FROM WASTEWATER
THE PROBLEM AND THE SOLUTION

The Problem

Too much nitrogen is harmful to biodiversity and wildlife

The Solution

Develop **nature based solutions** to reduce nitrogen

MAINTAINING AND REPLACING EQUIPMENT
THE RISKS, THE COSTS AND THE CHOICE

- In the future, the government may ask Northumbrian Water to introduce the more expensive wastewater treatment processes. This **would increase bills at a later date**.

- The overall cost to undertake this extra work would be a **£1.68** increase on annual bills by 2030 plus inflation

- Do Northumbrian Water seek funding for the cheaper, nature based solutions now and accept they **might** have to then increase bills later?

OR

- Do they seek funding for the more expensive, mechanical options now?

THE INVESTMENTS

INVESTMENTS IN THE NETWORK TO ENSURE THAT IT IS RESILIENT TO THE IMPACT OF CLIMATE CHANGE

RESILIENCE TO CLIMATE CHANGE
THE PROBLEM AND THE SOLUTION

The Problem

Extreme weather events are becoming more common and these may impact water and wastewater services.

The Solution

- A plan to **minimise the impact of flooding**
- A plan to improve **security of power supply**

20

RESILIENCE TO CLIMATE CHANGE
THE CHOICE, THE RISKS AND THE COSTS

- When should Northumbrian Water perform the work?

- Increasing risk of service failure, water supply interruptions and / or pollution incidents
- Delaying the work means that more work will need to be done later, when there are likely to be increased extreme climate events happening.

	Impact on average bill by 2030 plus inflation
Power resilience	£1.73
Flooding resilience	£1.08

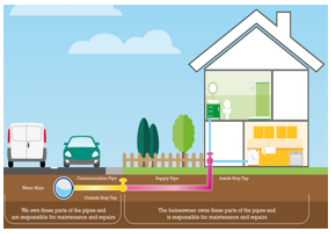
21

THE INVESTMENTS

REDUCING THE LEVELS OF LEAD IN DRINKING WATER

LEVELS OF LEAD IN DRINKING WATER
THE PROBLEM AND THE SOLUTION

The Problem



There risk from lead is mitigated by using phosphate, but phosphate is expensive and bad for the environment.

The Solution

A plan that **balances** the need to reduce lead levels with bill affordability.

- Hot spot replacement
- Rural supplies
- Vulnerable groups

LEVELS OF LEAD IN DRINKING WATER
THE CHOICE, THE RISKS AND THE COSTS

- When should Northumbrian Water perform the work?
- The health risks of lead pipes are low (and reduced by the use of phosphates). However, phosphate is expensive and bad for the environment.
- The eventual increase would be **76p** on the average yearly bill by 2030 plus inflation

THE INVESTMENTS

ADDRESSING RISKS TO WATER QUALITY

ADDRESSING RISKS TO WATER QUALITY
THE PROBLEM AND THE SOLUTION

The Problem

Climate change and **increased demand** are putting some water quality measures at risk.

The Solutions

1. Install **refrigeration to stabilise liquid chlorine** at water treatment works.
2. Improve **slow sand filters** to reduce downtime.

ADDRESSING RISKS TO WATER QUALITY
THE CHOICE, THE RISKS AND THE COSTS

- When should Northumbrian Water perform the work?
- The risks of reduced water quality will increase over time, with new risks identified all the time driven by climate change and population growth.
- The eventual increase would be **£1.88** on the average yearly bill by 2030 plus inflation

THE INVESTMENTS

EXTERNAL SEWER FLOODING

EXTERNAL SEWER FLOODING
THE PROBLEM AND THE SOLUTION

The Problem

Northumbrian Water report **higher than average** incidents of external sewer flooding

The Solution

With extra funding they could **accelerate the rate of progress** they are making.

EXTERNAL SEWER FLOODING
THE CHOICE, THE RISKS AND THE COSTS

- Do Northumbrian Water continue at their current rate of work or do they accelerate it?
- External sewer flooding incidents will decline at a slower rate without additional investment.
- The eventual increase would be **£1.88** on the average yearly bill by 2030 plus inflation

WHAT INVESTMENTS WOULD BE IN YOUR IDEAL PLAN?

THE INVESTMENTS
A SUMMARY

Northumbrian Water has continued to develop their business plan since we last met. Based on everything they need to invest in, for example some of their statutory obligations, they have estimated that the average customer bill could **increase from £365 a year to £392.83** a year by 2030 (excluding inflation).

We want you to think about which of the investment areas we have talked about today that you would also like Northumbrian Water to invest in.

By selecting these investment areas you are choosing to add them onto the average bill of £392.83.

THE INVESTMENTS
A SUMMARY

The Investment	The Question	The Cost
Storm overflows	Start in 2025 or 2030? Where to prioritise?	£31.48
Net Zero	Start in 2025 or 2030?	40p
Maintaining & replacing equipment	Start in 2025 or 2030?	Water treatment: 27p Wastewater: £2.66 Service reservoirs: 56p
Environmental improvements	To do at all?	£2.78
Nitrogen removal	Accept risk of a potential bill increase at a later date?	£1.68
Climate change resilience	Start in 2025 or 2030?	Power: £1.73 Flooding: £1.08
Levels of lead	Start in 2025 or 2030?	76p
Water quality risks	Start in 2025 or 2030?	£1.88
External sewer flooding	Work at present rate or accelerate?	£1.88

Appendix B: PPT for Essex & Suffolk Water customers

ESSEX&SUFFOLK WATER *living water*

Welcome to the Suffolk People Panel

2

THE INVESTMENT OPTIONS

- Investments to ensure that the network is resilient to the impact of climate change
- Maintaining and replacing equipment (asset health)
- Improvements to rivers, reservoirs and coastlines
- Investments to reduce carbon emissions and meet net zero
- Investment to reduce lead pipes in the network
- Investments to improve water quality

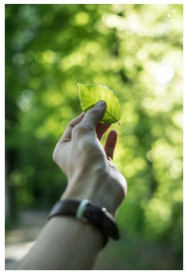
3

THE INVESTMENTS

REDUCE CARBON EMISSIONS AND MEET NET ZERO

NET ZERO
THE PROBLEM AND THE SOLUTION

The Problem



Essex & Suffolk Water have set a goal to be **carbon neutral** on operational emissions by 2027.

The Solution

The replacement of their fleet with **electric vehicles**

5

NET ZERO
THE CHOICE, THE RISKS AND THE COSTS

- When should Essex & Suffolk Water perform the work?

- The purchasing of diesel vehicles will be banned from 2030
- There will be high market demand for electric vans from 2030

- If started in 2025, the eventual increase would be **27p** on the average yearly bill plus inflation

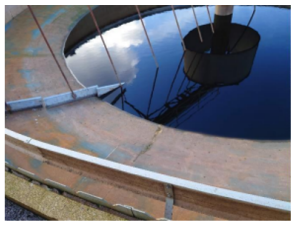
6

THE INVESTMENTS

MAINTAINING AND REPLACING EQUIPMENT (ASSET HEALTH)

MAINTAINING AND REPLACING EQUIPMENT
THE PROBLEM AND THE SOLUTION

The Problem



Many of Essex & Suffolk Water's assets were built at the same time and are in **need of replacement.**

The Solution

Phased replacement, focussing on **replacement of damaged concrete tanks** at:

1. Water treatment works
2. Service reservoirs

8

MAINTAINING AND REPLACING EQUIPMENT
THE CHOICE, THE RISKS AND THE COSTS

- When should Essex & Suffolk Water perform the work?
- Delaying the work increases the risk of service failure and pollution incidents
- The overall cost to undertake this extra work:
  - Water treatment works: average bill increase of **44p by 2030 plus inflation**
  - Service reservoirs: average bill increase of **88p by 2030 plus inflation**

9

THE INVESTMENTS

ENVIRONMENTAL IMPROVEMENTS

ENVIRONMENTAL IMPROVEMENTS
THE PROBLEM AND THE SOLUTION

The Problem

Essex & Suffolk Water would like to do more than what is required to bring **extra benefit** to the public.

The Solutions

- Bluespaces
- Bathing water quality monitoring

ENVIRONMENTAL IMPROVEMENTS
THE CHOICE, THE RISKS AND THE COSTS

- Should Essex & Suffolk Water make these investments?

- Without this investment, the extra public benefits will not be received by customers.

- The eventual increase would be **16p** on the average yearly bill by 2030 plus inflation

THE INVESTMENTS

INVESTMENTS IN THE NETWORK TO ENSURE THAT IT IS RESILIENT TO THE IMPACT OF CLIMATE CHANGE

RESILIENCE TO CLIMATE CHANGE
THE PROBLEM AND THE SOLUTION

The Problem

Extreme weather events are becoming more common and these may impact water and wastewater services.

The Solution

- A plan to **minimise the impact of flooding**
- A plan to improve **security of power supply**

14

RESILIENCE TO CLIMATE CHANGE
THE CHOICE, THE RISKS AND THE COSTS

?

- When should Essex & Suffolk Water perform the work?

- Increasing risk of service failure, water supply interruptions and / or pollution incidents
- Delaying the work means that more work will need to be done later, when there are likely to be increased extreme climate events happening.

	Impact on average bill by 2030 plus inflation
Power resilience	47p
Flooding resilience	44p

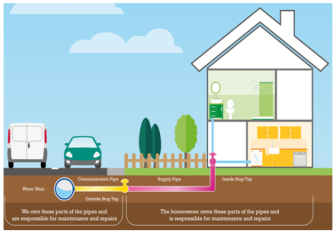
15

THE INVESTMENTS

REDUCING THE LEVELS OF LEAD IN DRINKING WATER

LEVELS OF LEAD IN DRINKING WATER
THE PROBLEM AND THE SOLUTION

The Problem



The risk from lead is already mitigated by using phosphate, but phosphate is expensive and bad for the environment.

The Solution

A plan that **balances** the need to reduce lead levels with bill affordability.

- Hot spot replacement
- Rural supplies
- Vulnerable groups

17

LEVELS OF LEAD IN DRINKING WATER
THE CHOICE, THE RISKS AND THE COSTS

- When should Essex & Suffolk Water perform the work?
- The health risks of lead pipes are low (and reduced by the use of phosphates). However, phosphate is expensive and bad for the environment.
- The eventual increase would be **£1.22** on the average yearly bill by 2030 plus inflation

18

THE INVESTMENTS

ADDRESSING RISKS TO WATER QUALITY

ADDRESSING RISKS TO WATER QUALITY
THE PROBLEM AND THE SOLUTION

The Problem

Climate change and **increased demand** are putting some water quality measures at risk.

The Solutions

1. Install **refrigeration to stabilise liquid chlorine** at water treatment works.
2. Improve **slow sand filters** to reduce downtime.

ADDRESSING RISKS TO WATER QUALITY
THE CHOICE, THE RISKS AND THE COSTS

- When should Essex & Suffolk Water perform the work?
- The risks of reduced water quality will increase over time, with new risks identified all the time driven by climate change and population growth.
- The eventual increase would be **£2.92** on the average yearly bill by 2030 plus inflation

WHAT INVESTMENTS WOULD BE IN YOUR IDEAL PLAN?

THE INVESTMENTS
A SUMMARY

Essex & Suffolk Water has continued to develop their business plan since we last met. Based on everything they need to invest in, for example some of their statutory obligations, they have estimated that the average customer bill **could increase from £246 a year to £263.20 a year by 2030 (excluding inflation).**

We want you to think about which of the investment areas we have talked about today that you would also like Essex & Suffolk Water to invest in.

By selecting these investment areas you are choosing to add them onto the average bill of £263.20.

THE INVESTMENTS
A SUMMARY

The Investment	The Question	The average, annual cost
Net Zero	Start in 2025 or 2030?	27p
Maintaining and replacing equipment	Start in 2025 or 2030?	Water treatment: 44p Service reservoirs: 88p
Environmental improvements	To do at all?	16p
Climate change resilience	Start in 2025 or 2030?	Power: 47p Flooding: 44p
Levels of lead	Start in 2025 or 2030?	£1.22
Water quality risks	Start in 2025 or 2030?	£2.92

Appendix C: Survey completed at the end of the session (Northumbrian Water)

NORTHUMBRIAN WATER living water

Your ideal NW business plan

Now we have discussed each of the investments in more detail, we would like you to think about which you would like Northumbrian Water to deliver between 2025 and 2030.

Northumbrian Water has continued to develop their business plan since we last met. Based on everything they need to invest in, for example their statutory obligations, they have estimated that the average customer bill could increase from £365 a year to £392.83 a year by 2030 (excluding inflation).

We want you to think about which of the investment areas we have talked about today that you would also like Northumbrian Water to invest in. By selecting these investment areas you are choosing to add them onto the average bill of £392.83.

After you have made your choices you will be able to see what impact this would have on the average bill for 2030 and decide whether to go back and make changes.

Are you happy to proceed?

- ◯ Yes
- ◯ No

Which of the following investment areas would you like Northumbrian Water to include in their business plan for 2025 to 2030?

	Yes	No - push back to 2030 onwards	No - don't do at all
£2.78 for improvements to water environments the public can access	◯	◯	◯
40p to replace 900 diesel vans with electric vans	◯	◯	◯
£31.48 to reduce the use of storm overflows	◯	◯	◯
£1.68 to introduce natural solutions to reduce nutrients (like nitrogen) in water environments	◯	◯	◯
£2.66 for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (waste water treatment works)	◯	◯	◯
£1.88 to address risks to drinking water quality	◯	◯	◯
£1.88 to reduce external sewer flooding	◯	◯	◯
56p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs)	◯	◯	◯
27p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (water treatment works)	◯	◯	◯
£1.73 to protect water treatment works from power interruptions	◯	◯	◯
£1.08 to protect water treatment works from flooding	◯	◯	◯
78p to replace lead pipes	◯	◯	◯

Appendix D: Survey completed at the end of the session (Essex & Suffolk Water)

Your ideal ESW business plan - Suffolk PP

Now we have discussed each of the investments in more detail, we would like you to think about which you would like Essex & Suffolk Water to deliver between 2025 and 2030.

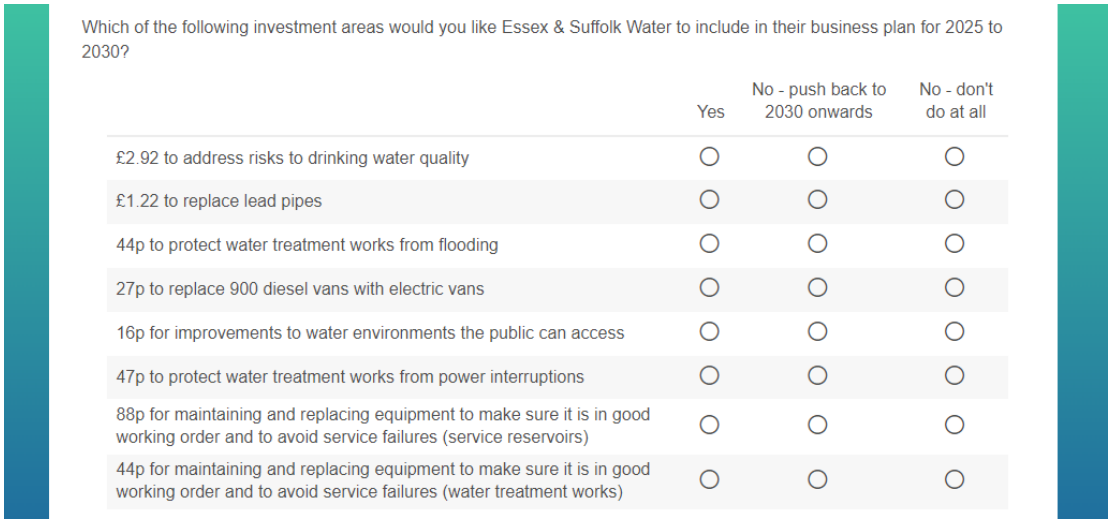
Essex & Suffolk Water has continued to develop their business plan since we last met. Based on everything they need to invest in, for example their statutory obligations, they have estimated that the average customer bill could increase from £246 a year to £263.20 a year by 2030 (excluding inflation).

We want you to think about which of the investment areas we have talked about today that you would also like Essex & Suffolk Water to invest in. By selecting these investment areas you are choosing to add them onto the average bill of £263.20.

After you have made your choices you will be able to see what impact this would have on the average bill for 2030 and decide whether to go back and make changes.

Are you happy to proceed?

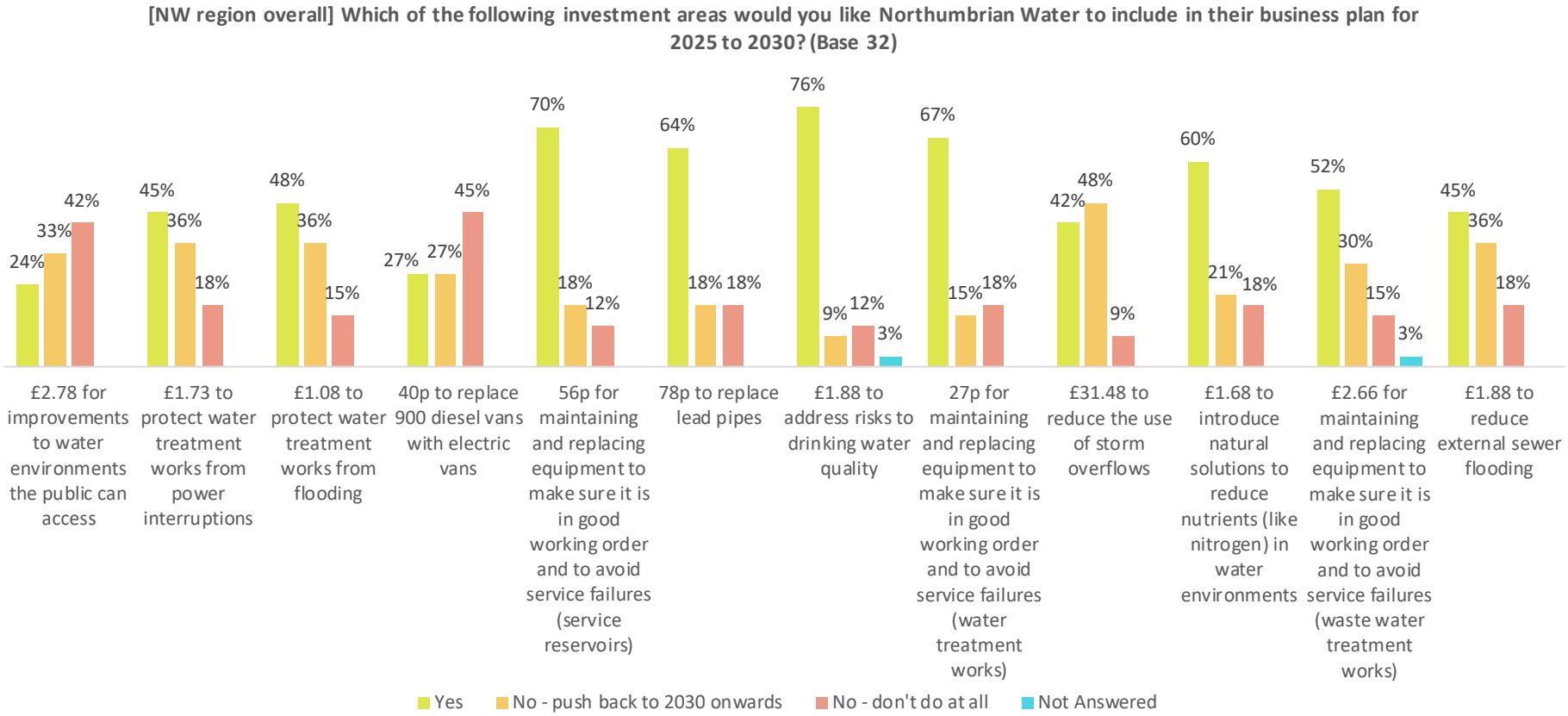
- ◯ Yes
- ◯ No



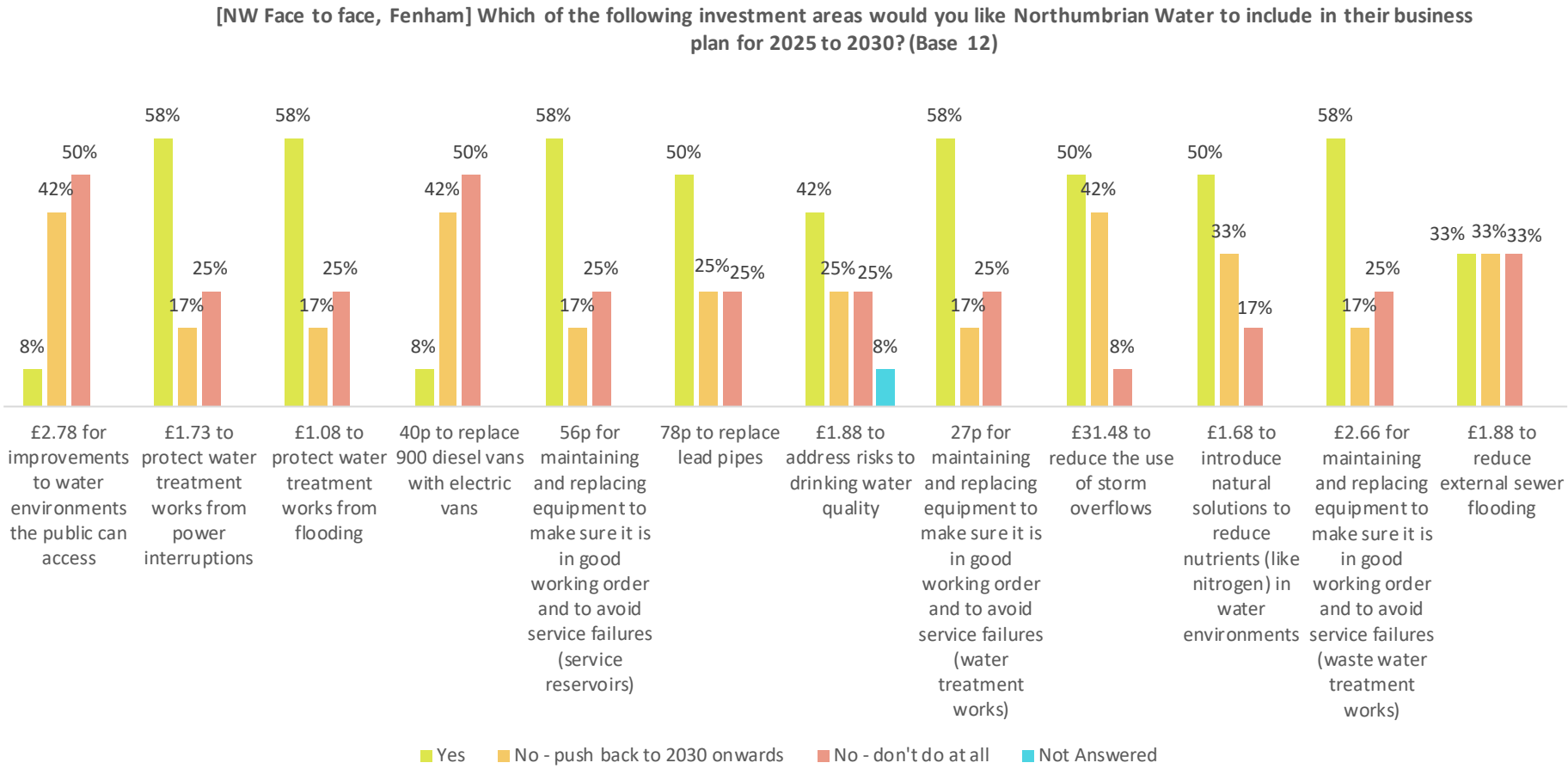
Which of the following investment areas would you like Essex & Suffolk Water to include in their business plan for 2025 to 2030?

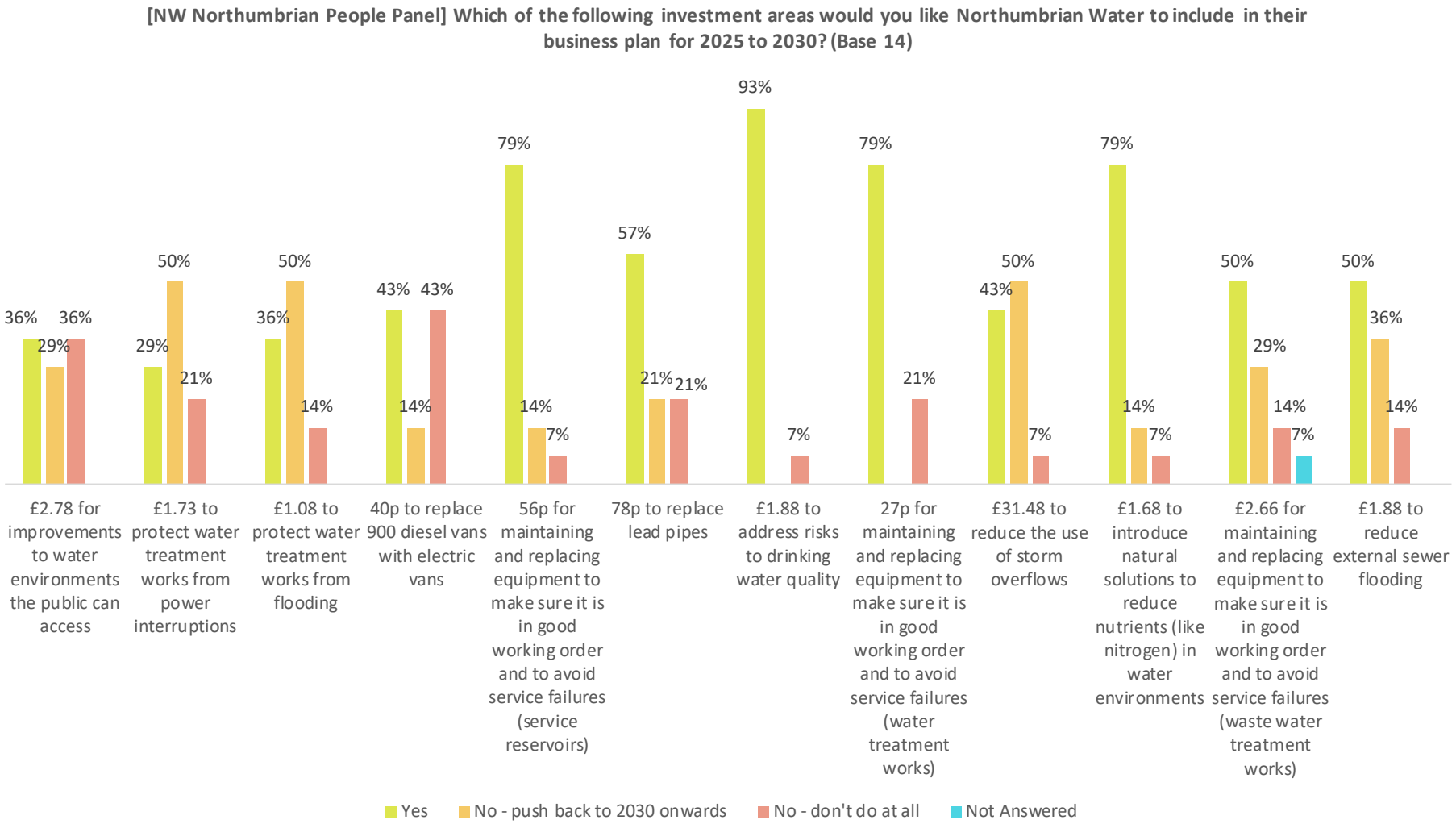
	Yes	No - push back to 2030 onwards	No - don't do at all
£2.92 to address risks to drinking water quality	◯	◯	◯
£1.22 to replace lead pipes	◯	◯	◯
44p to protect water treatment works from flooding	◯	◯	◯
27p to replace 900 diesel vans with electric vans	◯	◯	◯
16p for improvements to water environments the public can access	◯	◯	◯
47p to protect water treatment works from power interruptions	◯	◯	◯
88p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs)	◯	◯	◯
44p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (water treatment works)	◯	◯	◯

Appendix E: Northumbrian Water survey results

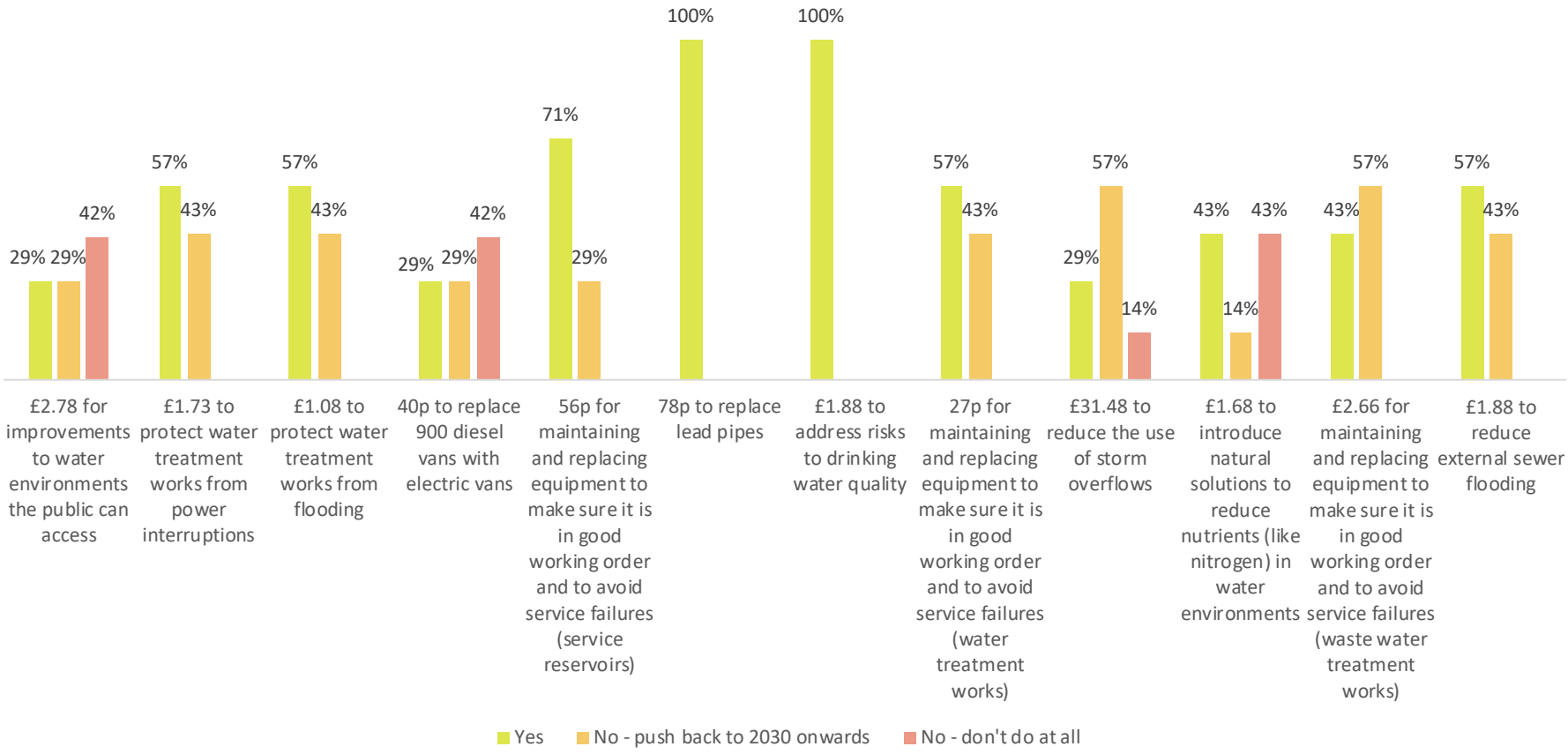


Northumbrian Water region split by group

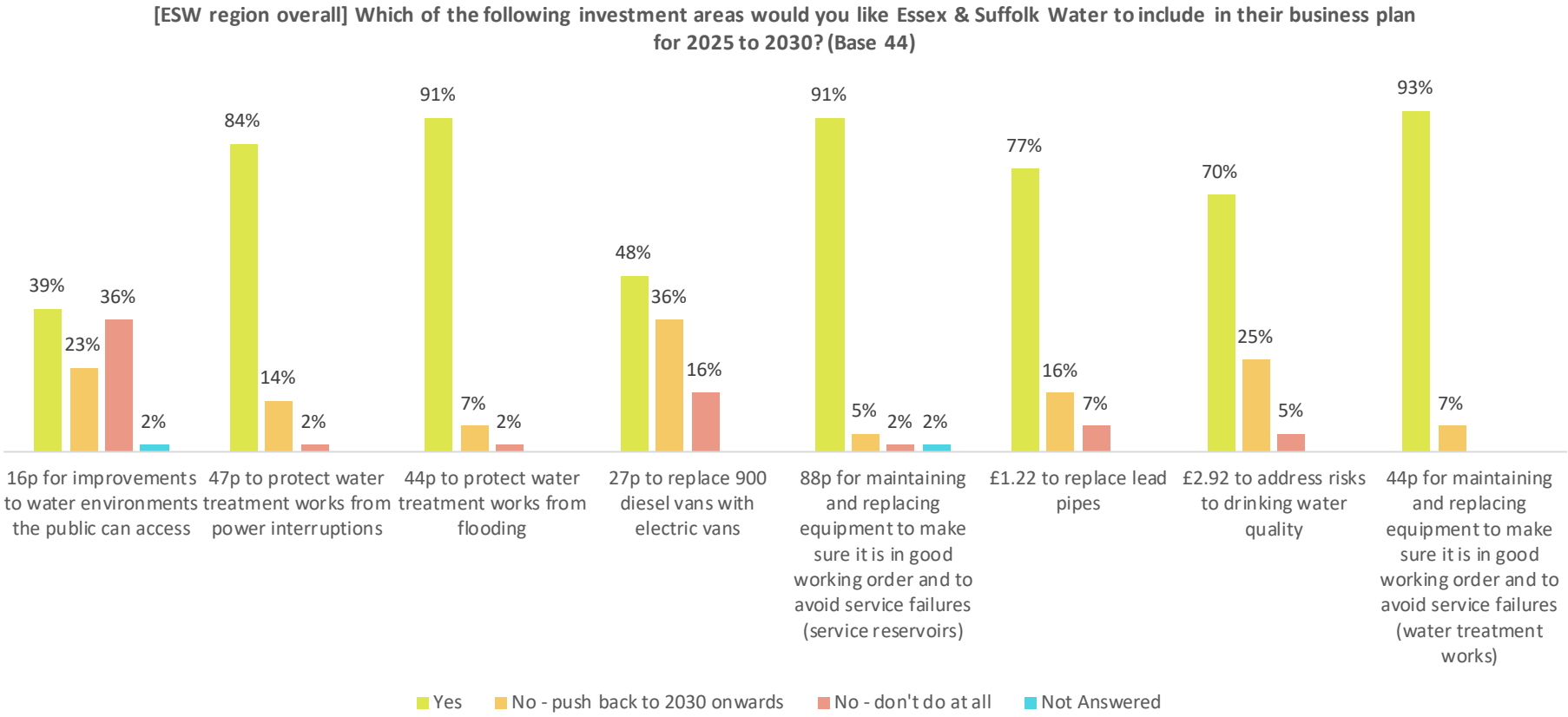



[NW Northumbrian People Panel] Which of the following investment areas would you like Northumbrian Water to include in their business plan for 2025 to 2030? (Base 14)
36%
29%
36%
29%
50%
21%
36%
50%
14%
43%
14%
43%
79%
14%
7%
57%
21%
21%
93%
7%
79%
21%
43%
50%
7%
79%
14%
7%
50%
29%
14%
7%
50%
36%
14%
£2.78 for improvements to water environments the public can access
£1.73 to protect water treatment works from power interruptions
£1.08 to protect water treatment works from flooding
40p to replace 900 diesel vans with electric vans
56p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs)
78p to replace lead pipes
£1.88 to address risks to drinking water quality
27p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (water treatment works)
£31.48 to reduce the use of storm overflows
£1.68 to introduce natural solutions to reduce nutrients (like nitrogen) in water environments
£2.66 for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (waste water treatment works)
£1.88 to reduce external sewer flooding
Yes
No - push back to 2030 onwards
No - don't do at all
Not Answered

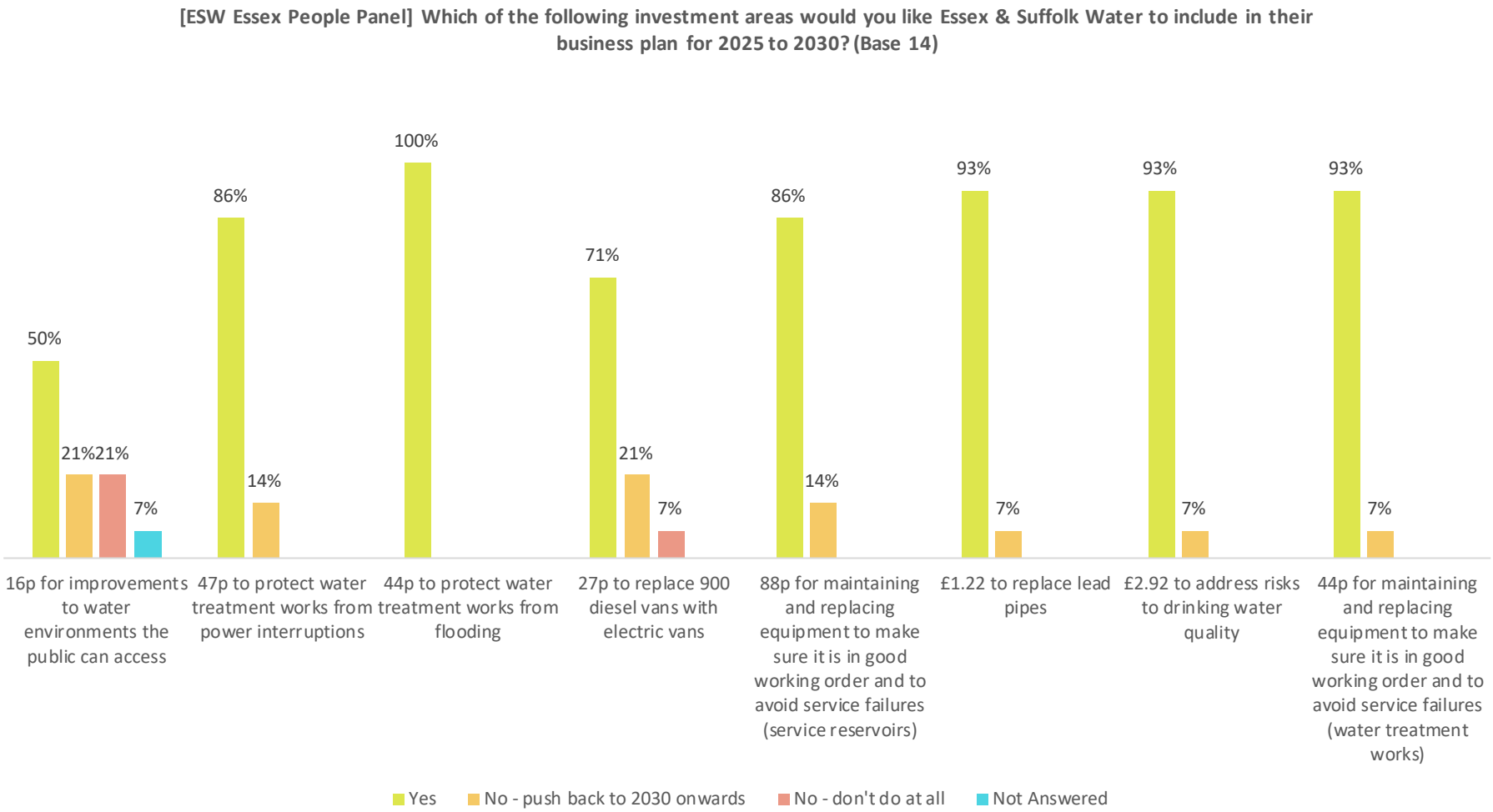
[NW Young People Panel] Which of the following investment areas would you like Northumbrian Water to include in their business plan for 2025 to 2030? (Base 7)



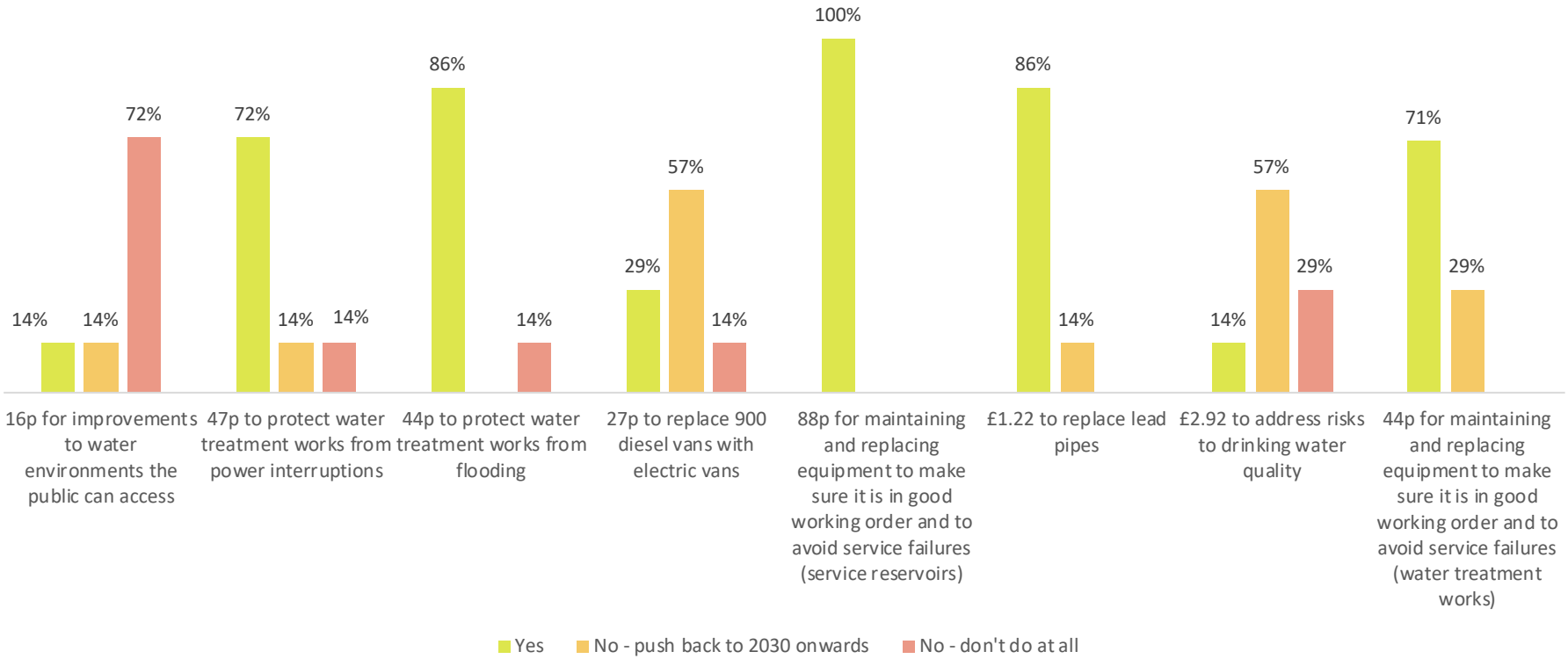
Appendix F: Essex & Suffolk Water survey results

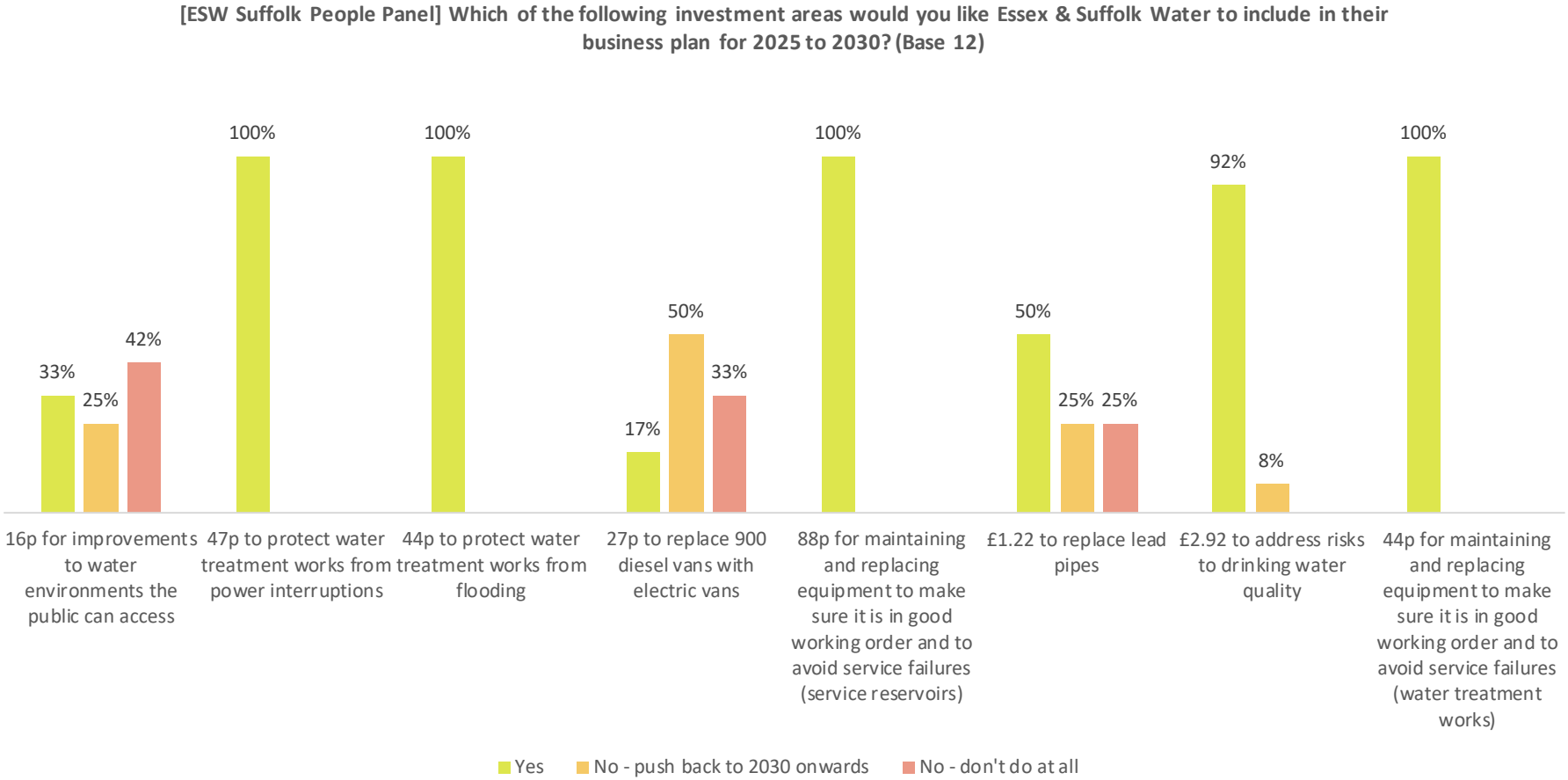


Essex & Suffolk Water regions split by group

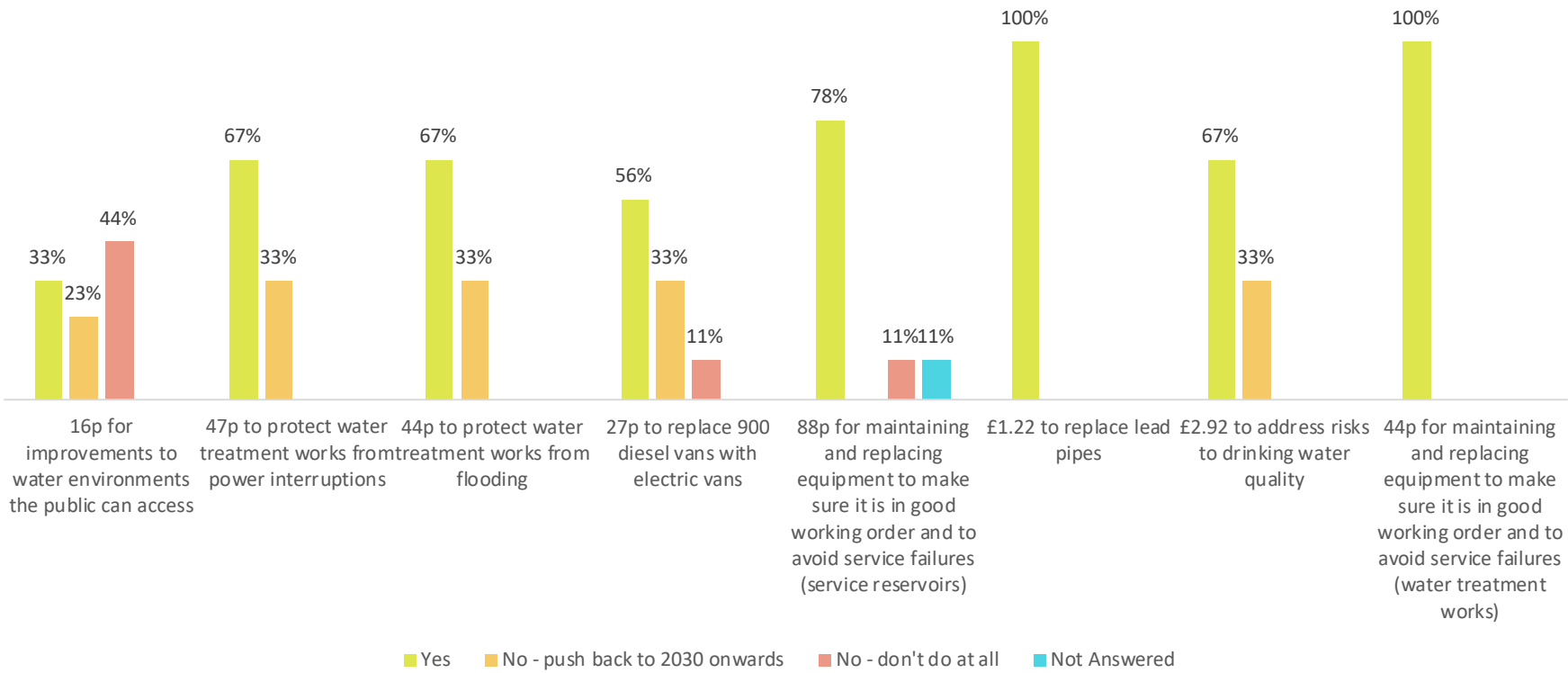


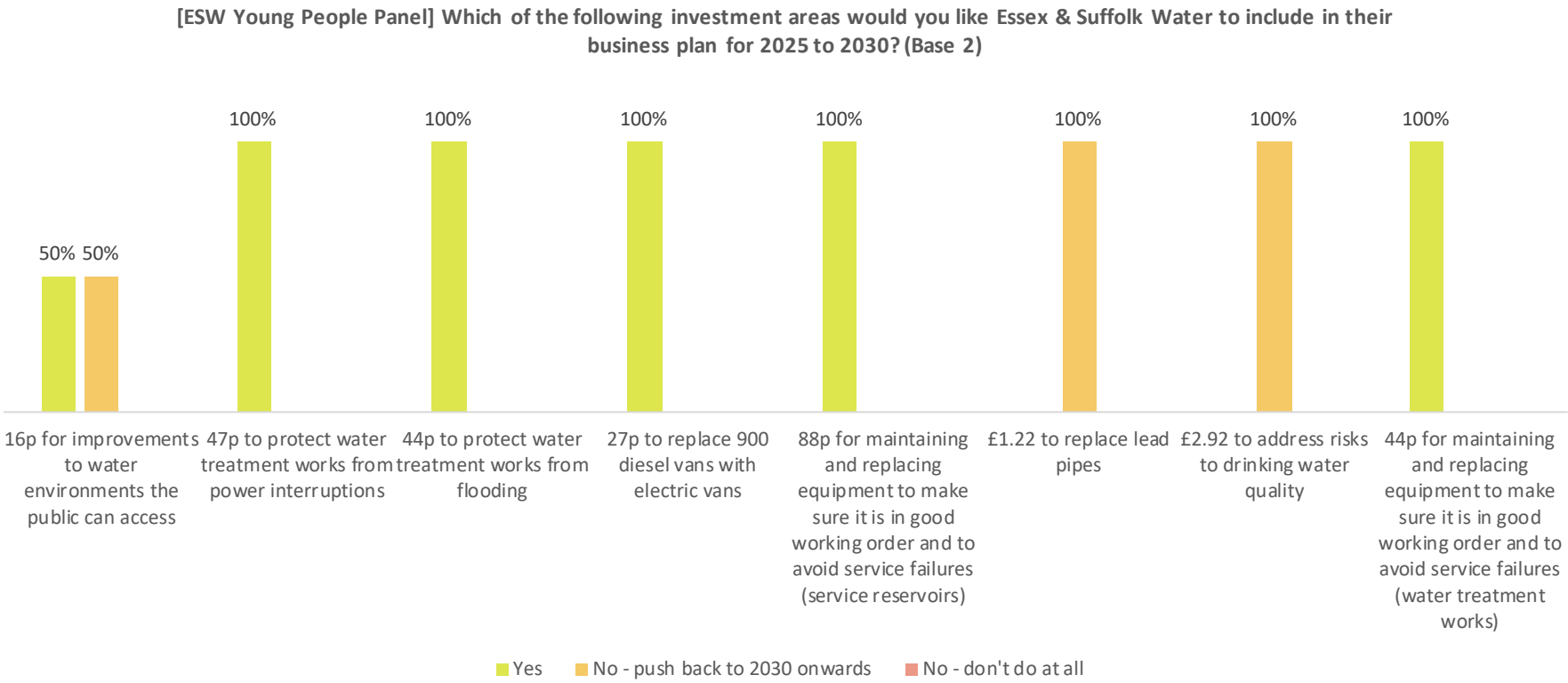
[ESW Essex Additional] Which of the following investment areas would you like Essex & Suffolk Water to include in their business plan for 2025 to 2030? (Base 7)




[ESW Suffolk People Panel] Which of the following investment areas would you like Essex & Suffolk Water to include in their business plan for 2025 to 2030? (Base 12)
33%
25%
42%
100%
100%
17%
50%
33%
100%
50%
25%
25%
92%
8%
100%
16p for improvements to water environments the public can access
47p to protect water treatment works from power interruptions
44p to protect water treatment works from flooding
27p to replace 900 diesel vans with electric vans
88p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (service reservoirs)
£1.22 to replace lead pipes
£2.92 to address risks to drinking water quality
44p for maintaining and replacing equipment to make sure it is in good working order and to avoid service failures (water treatment works)
Yes
No - push back to 2030 onwards
No - don't do at all

[ESW Suffolk Additional] Which of the following investment areas would you like Essex & Suffolk Water to include in their business plan for 2025 to 2030? (Base 9)





**Please note the low base size of 2 respondents. This graph has been provided as a visual indication only.*

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Report check: Kirsty Laing