Willingness to Pay Research

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CUSTOMER WTP VALUES FOR SERVICE IMPROVEMENTS

SEVERN TRENT

SYSTRA

WILLINGNESS TO PAY RESEARCH

CUSTOMER WTP VALUES FOR SERVICE IMPROVEMENTS

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1. INTRODUCTION

1.1 Research context

1.1.1 As part of the water industry's formal 2019 Periodic Review (PR19) process, Hafren Dyfrdwy is developing its 5-year plan for future levels of service, customer bills and company investment for submission to the industry regulator, Ofwat. A key element to the process is obtaining the views and preferences of its customers – domestic and non-domestic – so that their needs and aspirations help steer decision-making.

1.1.2 The derivation of customer-based benefit values for defined service improvements for input to Hafren Dyfrdwy's cost-benefit and investment planning provides the basis for doing this. By comparing such benefit values from quantitative research (such as that documented in this report) with the estimated cost of providing each service improvement, Hafren Dyfrdwy will be able to consider, and assess, a variety of different service offerings to identify those that provide the greatest nett gain (in terms of consumer economic surplus, customer satisfaction, operational efficiency, environmental considerations, resilience and longer term sustainability).

1.1.3 This research report provides the findings of two surveys that combine to provide the basis for deriving the benefit, in monetary terms, of defined service improvements as perceived by customers resident in Wales. It is this benefit value that is commonly referred to as customers' willingness to pay (WTP) for defined service improvements.

1.1.4 These WTP surveys sit within a wider plethora of research elements that make up Hafren Dyfrdwy's overall customer engagement and insights programme which includes a focus on understanding what matters to the diversity of the customer base, valuation research and developing an understanding of how to make customers' lives easier.

1.2 Research objectives

1.2.1 Hafren Dyfrdwy is developing their business plan for 2020-25. At the heart of the process is understanding what services and service levels Hafren Dyfrdwy should deliver to their customers resident over this period.

1.2.2 The critical challenge in their business planning is that the price-service relationship is not straightforward because, as a natural monopoly, their customers do not have choice (and so no observable value); nor can Hafren Dyfrdwy readily differentiate their services.

1.2.3 The overall aim of the research was to quantify the value Hafren Dyfrdwy customers attach to potential changes in the levels of service offered. The research needed to build on previous experience, but also address challenges with the stated preference (SP) – based WTP survey methods adopted during the previous periodic review (PR14).

1.2.4 The form of WTP valuation required by Hafren Dyfrdwy was:

> *A monetary value to reflect the benefit, to customers, of a defined improvement in each of a range of different service improvements understood to be important to customers as a key input to Hafren Dyfrdwy's development of their business cases and investment proposals. This must ultimately be in the form of a monetary value that represents the benefit that will be delivered to customers by a (one unit) change in performance, and will inform decisions on whether schemes are likely to be cost beneficial (through Cost Benefit Analysis (CBA)).*

1.2.5 Additionally, we aimed to obtain an overall maximum bill increase within which customers might be prepared to pay for an entire plan. This value can be used: as a guide for how much customers are willing to pay for the plan as a whole; and to place a cap on the total value of delivery incentive rewards available for a company.

1.2.6 Given the importance of the monetary WTP values derived for their plan, and the potential cost at stake for their customers, Hafren Dyfrdwy must be able to demonstrate that the values have been derived using a robust approach that will withstand challenge.

1.2.7 While WTP research provides a useful method to elicit customers' valuations of different service levels and it is widely used in other sectors, a range of issues have been highlighted in the water sector that give rise to criticism:

- many of the service quality aspects that are surveyed in the water sectors have not been experienced by the customers surveyed. For example, not all customers have experienced supply interruptions or discoloured drinking water;
- the results of the survey may be context-specific and depend on how the information is provided, and how the question is framed;
- these types of surveys can ask customers to answer questions that involve lots of probabilities – it is difficult to see how customers can perform complicated calculations while answering the survey and more likely that customers substitute the question with a simpler question;
- results varied considerably between water companies for the 'same' service aspects (though it is likely that the defined improvements differed by water company);
- using a single number disregards the distribution of WTP values across the population; and
- a need to deliver WTP values by customer segment to understand the needs and priorities of different customer groups.

1.2.8 Our approach comprised an SP survey to derive statistically robust monetary values that benefited from best-practice techniques and thorough assessment of influencing and confounding factors (such as question-framing and comparative information).

1.3 Service improvements for which WTP values were required

1.3.1 The service areas for which Hafren Dyfrdwy needed benefit values for defined improvements were as follows:

- appearance of tap water;
- taste and smell of tap water;
- financial support for removing lead pipes;
- leakage;
- interruption to water supply of 3-6 hours; and
- properties affected by low water pressure.

For Powys respondents only, there were a further four improvements to consider:

- sewer flooding inside people's homes;
- sewer flooding on people's land and gardens;
- pollution incidents; and
- river water quality.

1.3.2 The precise descriptions of these service attributes, and the terminology used to define improvements, needed to be carefully developed and tested – and this is discussed in the next chapter.

1.4 Engagement with the Customer Challenge Group

1.4.1 Hafren Dyfrdwy's Customer Challenge Group (CCG) acts as a 'critical friend' by providing constructive feedback to the company regarding its customer engagement and how it is reflected in their business plan. An important aspect of this research was to keep the CCG informed of Hafren Dyfrdwy's customer engagement process to reassure the group, and ultimately Ofwat, that the consultation with customers has been open, transparent, effective and two-way.

1.4.2 The group consists of representatives from CCWater, Natural Resources Wales, councils as well as independent members.

1.4.3 The group were provided with early versions of the questionnaire, which allowed them to comment on the design and methodology. As a result, some of the initially suggested attributes were modified to be more meaningful to respondents.



2. RESEARCH METHODOLOGY

2.1 Overview

2.1.1 There were two surveys that comprised the WTP research programme for customers in Wales:

- a survey of a representative sample of domestic customers, according to key profile characteristics, that obtained WTP values for all service improvements of interest to Hafren Dyfrdwy and based on SP and other trade-off techniques.
- a survey of a representative sample of non-domestic customers, according to key profile characteristics, that similarly obtained WTP values for all service improvements of interest to Hafren Dyfrdwy and based on SP and other trade-off techniques.

2.1.2 The fieldwork was conducted between October 2017 and January 2018. Since the fieldwork period took place prior to the licence separation and rebranding, customers in Wrexham had a survey which referred to Dee Valley and customers in Powys had one referring to Severn Trent.

2.2 How the surveys were administered

2.2.1 Different administrative approaches were adopted for domestic and non-domestic customers due to the different circumstances in which we could reach a representative sample of customers, and the environment in which we expected each to complete the survey. The most significant considerations for each customer group are given below.

2.2.2 We wanted the interview with domestic customers to be interviewer-administered as not all respondents could be expected to consider all the different service improvements and respond to all the different trade-off exercises without being able to call on the assistance of a trained interviewer, if needed. Moreover, we wanted the interview to be conducted in the comfort of the customer's own home (the interview took around 20 minutes) and base our sampling strategy around customers' addresses, as this enables us to use Census data to robustly control for representativeness. Hence, we conducted an interviewer-administered in-home CAPI (Computer Assisted Personal Interview) survey with domestic customers in Wales.

2.2.3 We wanted the interview with non-domestic customers to be undertaken at a time and place convenient to the business representative but, ideally when they were at their place of work. We could also expect non-domestic customers to have access to the internet. Given the high cost and infeasibility of having interviewers on-site, the survey was administered by telephone with show materials sent to the respondent during the interview via email.

2.2.4 We used a commercially-available database of businesses in the two supply areas and deployed a team of trained CATI (Computer Assisted Telephone Interview) staff to contact businesses randomly from the database[1].

[1] Selection of businesses to be called is done by the CATI system, which is programmed to ensure all numbers in the database are called an even number of times and so contact is not down to the idiosyncrasies of individual interviewers.



2.3 Sampling

2.3.1 Hafren Dyfrdwy wished to obtain a sample of both domestic and non-domestic customers from the Wrexham/Powys areas. They required a sample of survey respondents that was sufficiently large to facilitate statistical analysis at a segmented level, while keeping the scale of the research proportionate.

Domestic customers

2.3.2 A target sample of 500 domestic customers was sought, 250 respondents in each of Powys and Wrexham.

2.3.3 The selected sample points are depicted in Figure 1 below, with those where there is a high degree of Welsh-speaking indicated.

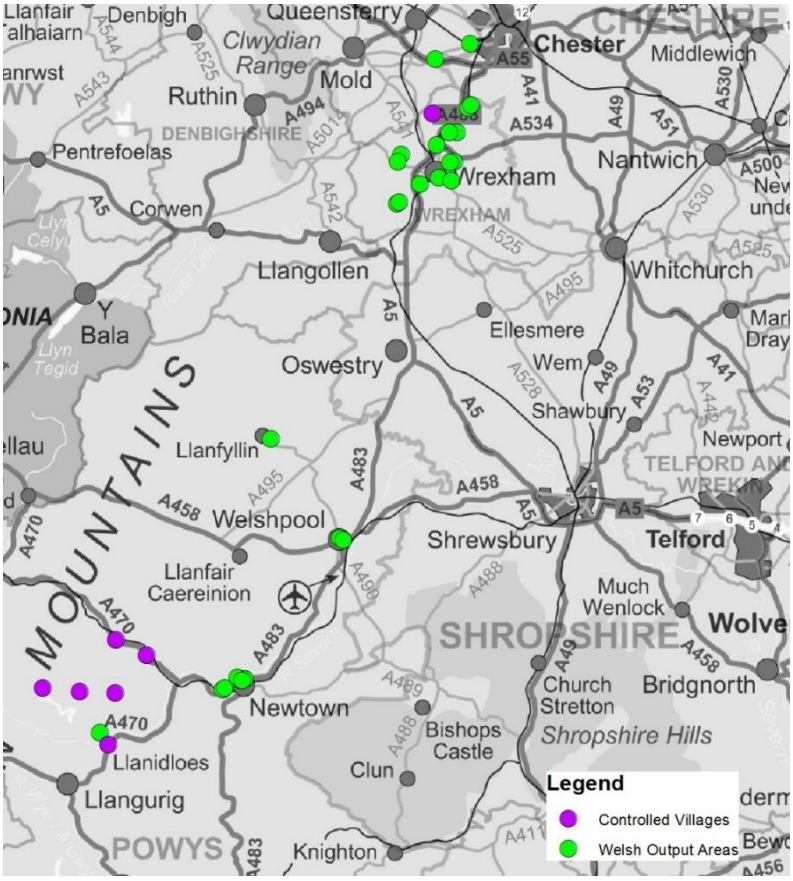


Figure 1. Sample points for WTP research

2.3.4 Our approach to sampling comprised three key steps:

- From a list of all the Welsh census output areas in which Hafren Dyfrdwy customers reside [segmented by sub-area – Powys (11 OAs) and Wrexham (16 OAs), we randomly selected 27 of them]. The unequal number of OAs was due to the desire to target areas in which there is a high proportion of Welsh speakers (see next bullet);
- Following challenge from the CCG, a booster sample of customers residing in villages in Powys where there is a high percentage of Welsh language speakers, to maximise

contact with respondents living in more remote areas and/or have a high level of usage of the Welsh language;

- In each designated interview area we achieved 15 interviews on average. We used Census data to identify the profile of its population – in terms of gender, age and socio-economic group (SEG[2]). We then set individual sample point quotas on gender, age and SEG accordingly.

2.3.5 Quota-based sampling within randomly selected sample points is a commonly adopted approach in market research, and enables us to be confident that we have a 'representative' sample of domestic customers – in terms of the three key characteristics that we have controlled for: gender, age and SEG.

2.3.6 A total of 505 domestic customer interviews, stratified by supply area, was obtained.

- 255 in the Powys district; and
- 250 in the Wrexham district.

2.3.7 This area-based stratification was introduced to ensure we had sufficient representation for valid statistical comparisons and robust valuations by district.

2.3.8 Despite providing fully bilingual interviewers and a version of the survey in the Welsh language to all respondents, only two respondents opted to complete the survey in Welsh. This was monitored throughout fieldwork, and in the controlled villages the request for interviews was initiated in Welsh. However almost all respondents requested to participate in English, even those who said they spoke Welsh as their first language, as a result of the preference for completing a formal survey containing technical terminology in English.

Non-domestic customers

2.3.9 We obtained a sample of n=150 non-domestic customers, with 75 interviews being achieved in Powys and 75 interviews in Wrexham. We set no quotas to control for representativeness, as we had no profile data on the population of business customers in the area.

2.4 Our valuation framework and types of trade-off questions

2.4.1 We grouped the improvements into 'packages' – so as to make it easier for customers to consider a modest number of improvements at any one time, rather than all of them. Within each package (of three or four service improvements), we sought to obtain a relative value for the importance of each service improvement, i.e. that reflects the importance of improving each service aspect relative to improving the other service improvements, within the package.

2.4.2 For respondents' ease, we grouped the service aspects into related areas of service delivery and/or consequences, and colour-coded and referenced each package. All the service aspects, and the key components of how the current and improved levels were defined to respondents, are reported in Tables 1 and 2.

[2] an established categorisation that proxies for people's education and wealth, and ranges from category A – High Level Manager, responsible for large number of workers, etc to category E – unskilled manual worker/unemployed



	Aspect of Service	Current Service	Improved Service Level
Tap Water	Appearance of water	180 annual complaints about the appearance of tap water	90 annual complaints about the appearance of tap water
	Taste and smell of water	60 annual complaints about the taste and smell of tap water	50 annual complaints about the taste and smell of tap water
	Lead Pipe Replacement	Replacement for water company part of supply pipe only	Grant set up to help customers replace pipe
Water Supply	Leakage	190 litres of water lost per day per household	160 litres of water lost per day per household
	Interruptions to supply (3-6 hours)	2,600 properties affected per year	2,000 properties affected per year
	Low water pressure	16 properties affected by reduced pressure to taps, showers and boilers	12 properties affected by reduced pressure to taps, showers and boilers
Wastewater	Internal sewer flooding	6 incidents of sewer flooding inside people's homes a year	4 incidents of sewer flooding inside people's homes a year
	External sewer flooding	40 incidents a year of sewer flooding on people's land and in gardens	35 incidents a year of sewer flooding on people's land and in gardens
	Pollution	10 pollution incidents a year	7 pollution incidents a year
	River water quality	3 rivers are not at a good standard	Improvement to the 3 rivers

Table 1. Water and wastewater attributes and service levels (Powys)

	Aspect of Service	Current Service	Improved Service Level
Tap Water	Appearance of water	550 annual complaints about the appearance of tap water	190 annual complaints about the appearance of tap water
	Taste and smell of water	140 annual complaints about the taste and smell of tap water	80 annual complaints about the taste and smell of tap water
	Lead Pipe Replacement	Replacement for water company part of supply pipe only	Grant set up to help customers replace pipe
Water Supply	Leakage	90 litres of water lost per day per household	80 litres of water lost per day per household
	Interruptions to supply (between 3 and 6 hours)	5,000 properties affected per year	2,500 properties affected per year
	Low water pressure	75 properties affected by reduced pressure to taps, showers and boilers	60 properties affected by reduced pressure to taps, showers and boilers

Table 2. Water-only attributes and service levels (Wrexham)

2.4.3 The value of each package of service improvements [i.e. the improvement of each of the 3 or 4 service aspects within each package] was obtained via an SP exercise that comprised the packages and bill levels. An example of an SP choice-set that respondents were asked to consider is given below (Wrexham respondents saw only two packages). Respondents were asked to rank the four options in order of preference, from best to worst.

Option A	Option B	Option C	Option D
Tap Water: **Current**	Tap Water: **Improved**	Tap Water: **Current**	Tap Water: **Current**
Water Supply: **Improved**	Water Supply: **Current**	Water Supply: **Current**	Water Supply: **Current**
Wastewater: **Current**	Wastewater: **Current**	Wastewater: **Improved**	Wastewater: **Current**
Annual Bill: **+ £10** *[£351 on average]*	Annual Bill: **+ £22** *[£363 on average]*	Annual Bill: **+ £22** *[£363 on average]*	Annual Bill: **£0** *[£341 on average]*

Q6b PLEASE TICK PREFERRED OPTIONS

Which option do you prefer the most?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is second best?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is third best?	A ☐1	B ☐2	C ☐3	D ☐4

Figure 2. Illustrative choice set

2.4.4 Prior to being presented with this kind of choice-set, each respondent was provided with important context and question-framing[3] as follows[4].

> *"In a moment you will see four options (A, B, C and D). Each will describe a level of service for each package – either all aspects in a package are at the 'current' level or they are all at the 'improved' level.*
>
> *We would like to explain what each option describes. When you see Option B – it shows an 'improved' level for tap water – which means that the three (blue) aspects on Showcard E – appearance of water, taste & smell of water and the programme for lead pipes would all be at the improved level. Option C, on the other-hand, would continue to offer the current service for these blue aspects.*

[3] The question-framing we used followed extensive cognitive testing of different contexts (including comparison with the performance of other water companies and complexities around inflation in future years, etc).

[4] This introduction was different for Wrexham customers to reflect that Hafren Dyfrdwy provides water services only, so they only traded-off the tap water (blue) package, water supply (grey) package and bill levels; and in the context of the average water bill [approximately half the combined water and waste-water bill paid by Hafren Dyfrdwy customers].



So, the four options have different combinations of current and improved services. They have different changes to the bill level that you would pay, and these changes would be effective annually from 2020 to 2025.

At present the average bill level is currently £341 a year for both water and sewerage services, remembering that your own household bill may be more or less than this.

For the prices that you see, please imagine that these would be added to your current bill that we just asked for. Other factors like inflation could also affect the bill you pay in future."

2.4.5 By ranking the four options above, respondents provide an indication of annual bill increases that they would be willing to pay for certain packages of improvements (and indications of annual bill increases that they would NOT be willing to pay). For example, Option D offers the existing service (i.e. current service levels for all three packages) at the current price; whilst Option A offers one package of improvements (the grey ones – reduced disruptions, leakage and reduced water pressure) but at an additional cost of £10 per annum. In the analysis, we can isolate specific binary choices, such as Option A versus Option D, to understand the proportion of respondents who are willing to pay £10 for the grey package of improvements, and the proportion who are not. In this way, we can explore the preferences inherent in customers' responses as a check that the outcome from the modelling of SP data is consistent with these indicators.

2.4.6 Each respondent was asked to consider two choice-sets of four options, with each option comprising a different combination of package offerings and bill level. By analysing the responses to the different SP choice-sets, we can derive the mean amount customers are willing to pay for each package of service improvements.

2.4.7 The values presented within each SP choice-set was in accordance with a carefully tested statistical design which enabled the research team to be confident that the design would capture the true values of customers rather than be as a result of the design[5]. Full details of our SP design is provided in Appendix A.

2.4.8 A fundamentally important aspect about our research design is that money is only introduced at a high level and NOT alongside individual improvements; to reduce the risk of over-valuing each service improvement.

2.4.9 To understand the value of each individual service improvement we designed separate 'within-package' exercises, using MaxDiff techniques. MaxDiff is also a trade-off exercise but is less onerous for respondents and it also offered variation for the respondent within the interview, which would help maintain high quality data.

[5] We simulated SP responses according to an assumed set of relative and monetary values for each package of improvements, and checked whether analysis of the simulated response gave the assumed input values. By simulating different input values we can check whether the SP design enables us to recover a wide range of different customers' values reliably. With the design we ran with for the main fieldwork, we found that we could recover values for the full range of expected values (which, in turn, were based on our pilot surveys).

2.4.10 The MaxDiff questions asked respondents to identify their most, and least, preferred improvements from a list of, typically, four individual service improvements that made up each package. For example:

Q2c Which of the following potential improvements is your most preferred option?

550 ➔ 190 complaints per year about the appearance of tap water	☐ 1
140 ➔ 80 complaints per year about the taste and smell of tap water	☐ 2
Dee Valley to fund grants to help customers replace lead supply pipes	☐ 3

Q2d And which is your least preferred option?

2.4.11 Rank-ordered logistic regression is applied to produce a robust analysis of MaxDiff data. The model is defined as follows:

$$\pi_i = \Pr\{\text{value}_1 > \max(\text{value}_2, \ldots, \text{value}_m)\} = \frac{\exp(\text{value}_i)}{\sum_{j=1}^{k} \exp(\text{value}_i)}$$

Where π is the relative share for each attribute i, and *value* is a linear function of the set of explanatory variables (i.e. the 4 individual service aspects).

2.4.12 In the analysis, the overall value of each package (derived from the SP exercise) is broken down into its constituent service aspects in proportion to the relative values derived from the MaxDiff exercises - to provide monetary values for each individual service improvement.

2.5 Survey interview content

2.5.1 The structure of the 20-minute interview was:

- screening questions, including, gender, age, SEG;
- questions on experience, or not, of different types of service failure;
- introduce three service improvements[6] in turn and undertake a MaxDiff exercise to identify relative values amongst the four service improvements;
- introduce a second set of service improvements and undertake a second MaxDiff exercise to identify relative values amongst them;
- (For Powys respondents) introduce a third set of service improvements and undertake a third MaxDiff exercise to identify relative values amongst them;
- a final (SP) exercise that traded-off the three 'packages' of service improvements and money;

[6] For one package – wastewater – there were four improvements: internal and external sewer flooding, river water quality and pollution

- a question asking for the respondent's top three improvements (from the full list of 6 or 10 improvements that they were presented with) as a means of providing additional insight into customers' priorities for improvement (independent of the SP exercises);
- a question on the maximum they would be willing to pay, added to the annual bill, for the attributes to be at the improved level; and
- additional profile questions, including metering, income and whether on a social tariff.

2.5.2 Each service improvement was introduced to respondents via a short animated slideshow that described the current and possible improved service levels in an engaging and participatory way. A still from the video describing the situation for the appearance of tap water is provided below.

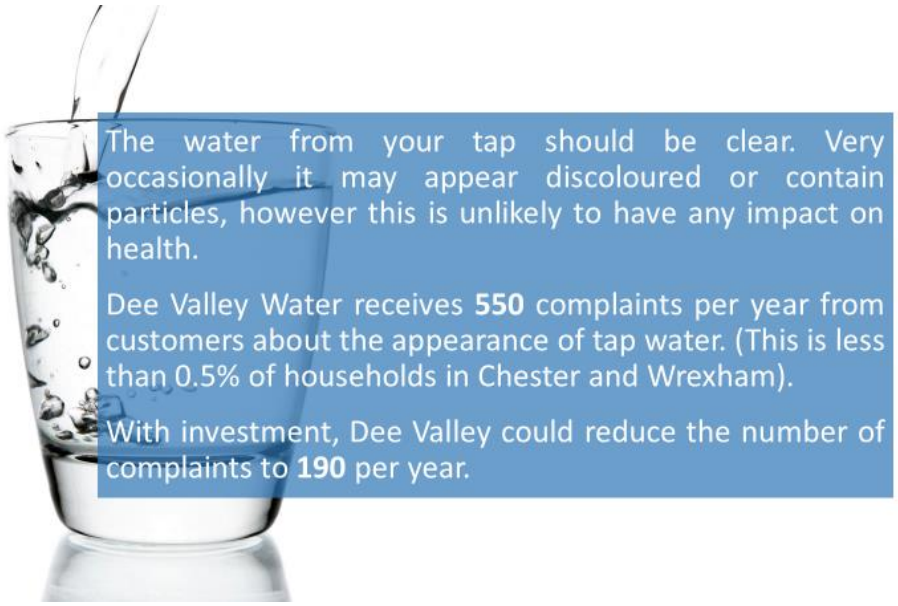


Figure 3. Video still – appearance of tap water

2.5.3 Upon completing the survey, the interviewer recorded the understanding and engagement of the respondent. In the domestic survey, fewer than 4% of respondents were recorded as not understanding at all, or not being engaged at all.

Piloting and cognitive interviewing

2.5.4 We conducted a phase of testing of respondent understanding of our draft questions in Welshpool, to ensure that the attributes were understandable and meaningful, and that the SP exercises could be completed by respondents.

2.5.5 All of our final survey materials are provided in Appendices B and C.

Analysis

2.5.6 The SP method requires individuals to respond to a set of hypothetical options, which are analysed by breaking the response data down into a series of discrete choices.

2.5.7 Random utility models (RUM) are used to model discrete choice responses. In economics, such models are used to describe and predict choices between two or more discrete alternatives. In this study, each SP alternative comprised different quality levels of three packages of potential service improvements and bill impact, as described earlier.

2.5.8 Following conventional SP modelling practice, where choice sets contain three or more options, as in our case, the data analysis will be undertaken using a Multinomial Logit (MNL) model. This model is expressed mathematically as:

$$P_i = \frac{e^{U_i}}{\sum_j e^{U_i}}$$

where P_i = probability of choosing alternative i

U_i= utility of alternative i

2.5.9 The utility function for the simplest model is specified as follows:

$$U_i = \beta_c Cost_i + \beta_T TapWater_i + \beta_W WaterSupply_i + \beta_P Wastewater_i$$

Where: U_i is the utility for the alternative i

$Cost_i$ is the change in bill for alternative i (relative to the current bill)

β_c is the estimated coefficient for cost, per pound saved

TapWater, WaterSupply and Wastewater relate to the three packages of attributes going from current to improved levels.

2.5.10 Each respondent contributed to only three package quality coefficients and a cost coefficient.

2.5.11 Full details of our SP design are included in Appendix A.

2.5.12 Prior to formal modelling, we considered excluding certain individuals or choices based on the following criteria:

- We tested the effects of removing those who did not understand some of the survey, or who were not engaged at all;
- We tested the effects of excluding responses from individuals who make suspicious choice patterns, such as A, B, C, D in both scenarios where such choices would not make logical sense; and
- We excluded individuals where they make irrational choices, such as choosing an option that is tangibly worse as well as being more expensive than another.

2.5.13 This led to 7% of all observations being removed.

2.5.14 We used Biogeme, a bespoke SP analysis software package, to analyse each choice. Biogeme is an industry recognised software tool for the analysis of discrete choice models.

2.5.15 We pooled all variants of the survey into a single SP model. The output of the multinomial logit model is a coefficient (and associated levels of statistical significance) for each package, plus a coefficient for cost. Dividing each package's coefficient by the cost coefficient gave us an implied WTP value to each package of improvements.

2.5.16 We used a Rank Order Logit Model (ROLM) to derive the weight of preference for each attribute within a package. This can be applied to the associated package value to derive a monetary value for each attribute.

Weighting the data

2.5.17 Since of our controlled quotas were met within 2% of the target, we did not need to weight the data to ensure its representativeness.

2.6 Summary

2.6.1 The needs of the research mean that there were a number of technical and logistical challenges that we foresaw and which the above approach overcomes. In summary, these are:

- *The sample from which we obtain insights is both representative, and fit-for-purpose:* Our approach ensured suitable representation by the key segments. Our achieved sample sizes of 505 and 150 are sufficient for statistical analysis overall and at a segmented level for domestic customers.
- *The quality of the data:* The best interview environment is one where the respondent is relaxed, and able to focus on the questions without distractions; and this was achieved by interviews being conducted at domestic customers' homes and at times when non-domestic customers want to complete the interview. Moreover, our approach ensured that interviewers were on-hand to assist respondents, especially with the trade-off exercise, where required, thereby ensuring high quality data collection.
- *Cognitive validity:* We conducted cognitive interviews to ensure that all service attribute descriptions were clearly understood, and that the trade-off exercises could be easily undertaken. These interviews, undertaken by project team members, explored the underlying rationale for each respondent's preferences – thereby giving us direct insight into what the respondent has understood the exercise to be, and how they went about responding to it. The cognitive testing and piloting led to a number of important design changes.
- *Ensuring that the overall requirement placed on respondents was not too onerous:* We adopted a tried-and-tested SP framework that involved respondents looking at a modest subset of attributes at any one time. This prevented a respondent from being over-loaded with variables (e.g. 6 or more). The variety of MaxDiff and SP trade-off exercises, within a 20 minute interview, also minimised the risk of monotony for the respondent.
- *Minimising the need for scaling the final valuations:* Each respondent was presented with, and valued, all of the services included in the research (that were applicable to them). Moreover, every respondent got to consider the financial impacts of groups, or packages, of service improvements – rather than just money versus individual service changes. This means that the WTP values are derived in the context of groups of improvements, and thus reduces the need for any scaling of the derived values. *[In*

contrast, when money is traded-off directly with individual service improvements, there can be a problem of subsequent over-estimation of people's willingness to pay for a series of improvements if the respondent did NOT actually get the chance to consider larger bill increases and lots of improvements].

- *Appropriate context and question-framing:* Different contexts, language and question-framing can have a distorting effect on people's WTP valuations. We tested different contexts [e.g. comparative company performance information] and question-framing within our cognitive and pilot testing. Moreover, we carefully simulated and tested our SP design to ensure that it can recover the full range of potential values.
- *External validity:* Though we hope to have minimised any misleading valuations by carefully designing the SP survey, it is prudent to validate the findings, ideally using an alternative source. These checks should be in respect of the priority ordering implied by the SP valuations, as well as the absolute monetary values.



3. WTP VALUES FOR DOMESTIC CUSTOMERS IN WALES

3.1 Domestic customer sample profile

3.1.1 The demographic characteristics of the sample, by Powys and Wrexham regions, are provided in Table 3.

Table 3. Demographic characteristic of domestic customer profile (n=505)

CHARACTERISTIC	POWYS % (N=250)	POWYS PROFILE (%)	WREXHAM % (N=255)	WREXHAM PROFILE (%)
Age				
16-34	15%	15%	15%	15%
35-49	25%	26%	26%	26%
50-64	28%	27%	28%	27%
65 and over	33%	32%	32%	32%
Gender				
Male	50%	50%	49%	49%
Female	50%	50%	51%	51%
Socio-Economic Group				
A/B	19%	18%	18%	18%
C1/C2	56%	58%	55%	54%
D/E	26%	25%	26%	28%
Income	(n=154)*		(n=105)*	
Less than £10,000	10%		22%	
£10,000 - £19,999	27%		26%	
£20,000 - £29,999	33%		14%	
£30,000 - £39,999	24%		17%	
£40,000 - £59,999	4%		17%	
£60,000 - £79,999	1%		3%	
£80,000 or more	0%		1%	
Metred				
Yes	29%		53%	
No	71%		47%	

**Reported income values. Around half of respondents did not report a household income*

3.1.2 The profile of respondents is considered to be representative of the population profile, as it matches within 2% the profile of the population.



3.2 Current service experience

3.2.1 Table 4 reports the level of service failure, by type, in the past year as perceived by our sample of respondents.

Table 4. Service failures experienced by domestic customers

CHARACTERISTIC	POWYS % (N=250)	WREXHAM % (N=255)
Tap water that tastes or smells unpleasant	20%	4%
Reduction in water pressure	18%	11%
Discoloured tap water	11%	16%
Leakage	8%	4%
A flood of sewage in your garden or on your land	7%	N/A
Seeing rivers with poor water quality	7%	N/A
Seeing pollution in rivers	4%	N/A
Interruption to water supply, not notified in advance	3%	3%
A flood of sewage in your home	0%	N/A
Other (Please specify)	2%	5%
None of above	**50%**	**71%**

3.2.2 It should be noted that only service aspects under the control of Hafren Dyfrdwy[7] were investigated so Wrexham customers were not asked about wastewater service failures as this is the responsibility of a combination of Dwr Cymru and United Utilities.

3.2.3 For customers in the Powys area, the most commonly experienced service failures were at the tap – with one in five (20%) experiencing an unpleasant smell/taste; circa one in six (18%) experiencing reduced pressure; and one in nine (11%) experiencing discoloured water. More than one in twenty Powys respondents (7%) experienced external sewer flooding.

3.2.4 The water service failures most commonly experienced by Wrexham customers were reported to be (in descending order): one in six experienced discoloured water (16%); and one in nine (11%) experienced reduced pressure.

[7] Including operations by Dee Valley Water



3.3 Domestic customers' value of packages of service improvements

3.3.1 WTP values were derived from the SP trade-off exercise, where respondents consider packages of improvements and increases to their bill.

3.3.2 Prior to the exercise, respondents were reminded of the average bill level in their water area – Powys customers were asked to consider improvements to their water and waste-water services and their combined bill; whilst Wrexham customers were asked to consider improvements and their bill relating to their water services only.

*In Powys: At present the average bill level is currently **£341** a year for both water and sewerage services, remembering that your own household bill may be more or less than this.*

*In Wrexham: At present the average bill level is currently **£155** a year for water services, remembering that your own household bill may be more or less than this.*

3.3.3 Table 5 presents the WTP valuations for each package[8].

Table 5. WTP values for packages of improvements (n=505)

NAME OF PACKAGE	MEAN WtP (£s)
[Powys] Tap Water: current ➔ improved Comprising: Taste & smell; Appearance; Lead Pipes	**+£1.50**
[Powys] Water Supply: current ➔ improved Comprising: Leakage; Supply interruption; Water pressure	***£0***
[Powys] Waste Water: current ➔ improved Comprising: Internal sewer flooding; External sewer flooding; Pollution incidents; River water quality	**+£1.80**
[Wrexham] Tap Water: current ➔ improved Comprising: Taste & smell; Appearance; Lead Pipes	**+£5.69**
[Wrexham] Water Supply current ➔ improved Comprising: Leakage; Supply interruption; Water pressure	**+£1.11**

[8] For completeness, we have also included the Powys sample from a previous survey (that looked at slightly different service improvements as part of a wider piece of customers research) to explore the extent to which values change, if at all, with the increased sample of customers contributing towards the final reported values. This model is provided in Appendix D



3.3.4 The most valued packages of service improvements amongst Powys respondents were those comprising defined improvements in internal sewer flooding, external sewer flooding, pollution and river water quality [i.e. the yellow package]; followed by the package consisting of defined improvements in taste and smell, appearance and lead pipes [i.e. blue]. The value assigned by Powys respondents to the defined improvements in water supply [grey] package was insignificant from zero, at the 95% level of statistical testing.

3.3.5 Amongst Wrexham respondents, the most valued package (+£5.69) was that comprising taste and smell, appearance and lead pipes [i.e. the blue package]. We obtain a lower value (+£1.11) for the water supply package, though it is only just statistically significant from zero. Wrexham respondents report higher WTP values in general.

3.4 Segmentation analysis

3.4.1 Table 6 reports the mean WTP package values (rounded to the nearest ten pence) segmented by demographic characteristics, where significant results could be obtained.

Table 6. Segmented domestic WTP for packages of improvements

<table>
<tr><th rowspan="2">SEGMENT</th><th>TAP WATER</th><th>WATER SUPPLY</th><th>WASTE WATER</th><th>TAP WATER</th><th>WATER SUPPLY</th></tr>
<tr><th colspan="2">POWYS</th><th colspan="2">WREXHAM</th></tr>
<tr><td>All Respondents</td><td>£1.50</td><td>£0</td><td>£1.80</td><td>£5.70</td><td>£1.10</td></tr>
<tr><td>Young (under 35 years old)</td><td>£2.60</td><td rowspan="3"></td><td rowspan="2">£2.10</td><td rowspan="3">£5.70</td><td>£2.50</td></tr>
<tr><td>Med (46-59)</td><td>£1.70</td><td>£1.30</td></tr>
<tr><td>Old (60+)</td><td>£0.80</td><td>£1.30</td><td>£0.30</td></tr>
<tr><td>SEG A/B</td><td colspan="3" rowspan="3">Unable to obtain significant results, due to small sample size</td><td>£7.10</td><td>£2.60</td></tr>
<tr><td>SEG C1/C2</td><td>£5.30</td><td>£1.20</td></tr>
<tr><td>SEG D/E</td><td>£5.50</td><td>£0.40</td></tr>
</table>

3.4.2 While smaller sample size has prohibited detailed segmentation, there is evidence to suggest that younger and higher SEG groups have a higher WTP.

3.4.3 We also ran tests for significant differences by gender, income, metered and those reporting a household disability, but found no significant differences within these segments. This may be, in part, due to relatively small sub-sample sizes.



3.5 The value of individual service improvements - Powys

3.5.1 We obtained relative priorities for service improvements within each package by analysing the responses to each MaxDiff exercises. Combining the package values (in Table 5) and relative priorities, we can derive monetary values for each individual service improvement, as presented in Table 7.

Table 7. Domestic customer WTP for service improvements (Powys)

SERVICE IMPROVEMENT	WTP (£s)
Tap Water	**£1.50**
• 180 ➔ 90 complaints p.a. - appearance	*£0.44*
• 60 ➔ 50 complaints p.a. - taste and smell	*£0.46*
• Financial support for removing lead pipes	*£0.60*
Water Supply	**£0**
• 190 ➔ 160 litres of water a day lost through leakage	
• 2,600 ➔ 2,000 customers affected pa by an interruption [3-6 hrs]	
• 16 ➔ 12 properties affected by low water pressure	
Waste Water	**£1.80**
• 6 ➔ 4 incidents p.a. of sewer flooding inside people's homes	*£0.51*
• 40 ➔ 35 incidents p.a. of sewer flooding outside people's homes	*£0.43*
• 10 ➔ 7 pollution incidents p.a.	*£0.43*
• 3 rivers improved (water quality)	*£0.43*

3.5.2 The most valued improvements by the domestic Powys sample were: Financial support for lead pipe replacement (+£0.60 to the annual bill) and 6 ➔ 4 incidents of sewer flooding inside people's homes p.a. (+£0.51 to the annual bill). Summing the monetary valuations of the ten defined improvements gives us an approximate WTP total of £3.30 per Powys household per annum.

3.5.3 After the trade-off exercise we asked customers to state the maximum they would be willing to pay to have all the service improvements presented to them. In response to this direct and transparent question, Powys respondents reported a mean maximum WTP of circa +£6.90 for the 10 improvements. The summation of SP-derived values is thus well within the upper bound defined by responses to the simpler, more direct (but arguably less robust) maximum WTP question.



3.6 The value of individual service improvements - Wrexham

3.6.1 Combining the package values and relative priorities of our Wrexham sample, we can derive the monetary values they assign to each individual service improvement, as presented in Table 8.

Table 8. Domestic customer WTP for service improvements (Wrexham)

SERVICE IMPROVEMENT	WTP (£s)
Tap Water	**£5.69**
• 550 ➔ 190 complaints p.a. - appearance	*£1.35*
• 140 ➔ 80 complaints p.a. - taste and smell	*£2.56*
• Financial support for removing lead pipes	*£1.78*
Water Supply	**£1.11**
• 90 ➔ 80 litres of water a day lost through leakage	*£0.50*
• 5,000 ➔ 2,500 customers affected pa by an interruption [3-6 hrs]	*£0.30*
• 75 ➔ 60 properties affected by low water pressure	*£0.31*

3.6.2 The most valued improvements by the Wrexham sample is: 140 ➔ 80 complaints p.a. regarding taste and smell of tap water (+£2.56) followed by the improvements to the appearance of tap water and financial support for lead pipe replacement.

3.6.3 If Hafren Dyfrdwy consider a business plan with all these improvements, summing the WTP values obtained above results in a value of circa +£6.80 p. per household. However, when transparently asked to state the maximum they would be willing to pay to have all the service improvements presented to them, Wrexham respondents reported a mean maximum WTP of circa +£4.30 for the six improvements. This higher value could provide evidence of an upper limit on what most Wrexham customers would be willing to pay for improved services.

3.6.4 It should also be noted that the WTP values assigned by Powys and Wrexham respondents were for different levels of defined improvement. In general, the improvements presented to Wrexham respondents were greater than those presented to Powys respondents (largely because the population and area served is greater). For example Wrexham respondents were asked to consider an improvement in interruptions from 5,000 to 2,500 (a 50% improvement), whilst Powys customers were asked to consider an improvement in interruptions from 2,600 to 2,000 (a 30% improvement).

3.6.5 There are two service aspects that are comparable to the PR14 WTP research in the Dee Valley Water area[9]. The WTP values obtained in PR14 were:

- 1,200 ➔600 annual complaints on discoloured water: £0.41
- 90 ➔60 litres lost per day per household to leakage: £0.39

[9] Also conducted by SYSTRA using a broadly similar SP-based framework to that adopted in the 2017 research

3.6.6 Given that the WTP value for an improvement also depends upon other service improvements on offer, this comparison cannot be considered a direct validation. However, it is of interest to see whether the values are significantly different, and whether there is a trend underpinning any differences.

3.6.7 The current values for improved appearance are higher than in PR14 for Powys respondents (but only in line with inflation over the past five years) and Wrexham respondents (for, arguably, a significantly better outcome in effectively minimising the problem).

3.6.8 The PR14 value for improved leakage lies within the two estimated values in the current research.

3.6.9 Overall, we conclude that the PR19 WTP values are not too dissimilar to those obtained in PR14.

3.7 Per-unit WTP values for domestic customers

3.7.1 We divided the WTP value for each defined improvement by the units of measurement improved to obtain an implied WTP per unit improvement. This allows us to compare values over supply areas, in Table 9 below.

Table 9. Implied WTP per-unit of improvement (Domestic)

UNIT OF IMPROVEMENT	UNIT WTP (£, POWYS)	UNIT WTP (£, WREXHAM)
Tap Water		
• Complaints p.a. - appearance	*£0.005*	*£0.004*
• Complaints p.a. - taste and smell	*£0.05*	*£0.04*
• Financial support for removing lead pipes	*N/A*	*N/A*
Water Supply		
• Litres of water a day lost through leakage	*£0*	*£0.02*
• Customers affected pa by an interruption [3-6 hrs]		*£0.05*
• Properties affected by low water pressure		*£0.0001*
Waste Water		
• Incidents p.a. of sewer flooding inside people's homes	*£0.14*	*N/A*
• Incidents p.a. of sewer flooding outside people's homes	*£0.26*	
• Incidents of pollution p.a.	*£0.03*	
• Rivers improved (water quality)	*£0.14*	

3.7.2 The unit WTP results compare very similarly for those attributes where comparisons can be made (i.e. unit improvements in tap water).



3.8 WTP distributions for domestic customers – Powys

3.8.1 To assist further in the final derivation of WTP values for input to cost benefit analysis processes, and to facilitate sensitivity testing of benefit values, we have estimated WTP distributions around the mean WTP value for each package of service improvements.

3.8.2 Figure 4 shows the distribution of WTP values for the (yellow) pollution and sewer flooding package of improvements. The vertical axis indicates the percentage of customers who are estimated to be willing to pay a specified amount, and the horizontal axis measures the different WTP thresholds (in £s). As would be expected, 100% of customers are WTP at least £0 for the defined improvements, and the percentage who are willing to pay decreases as the monetary value increases (from left to right).

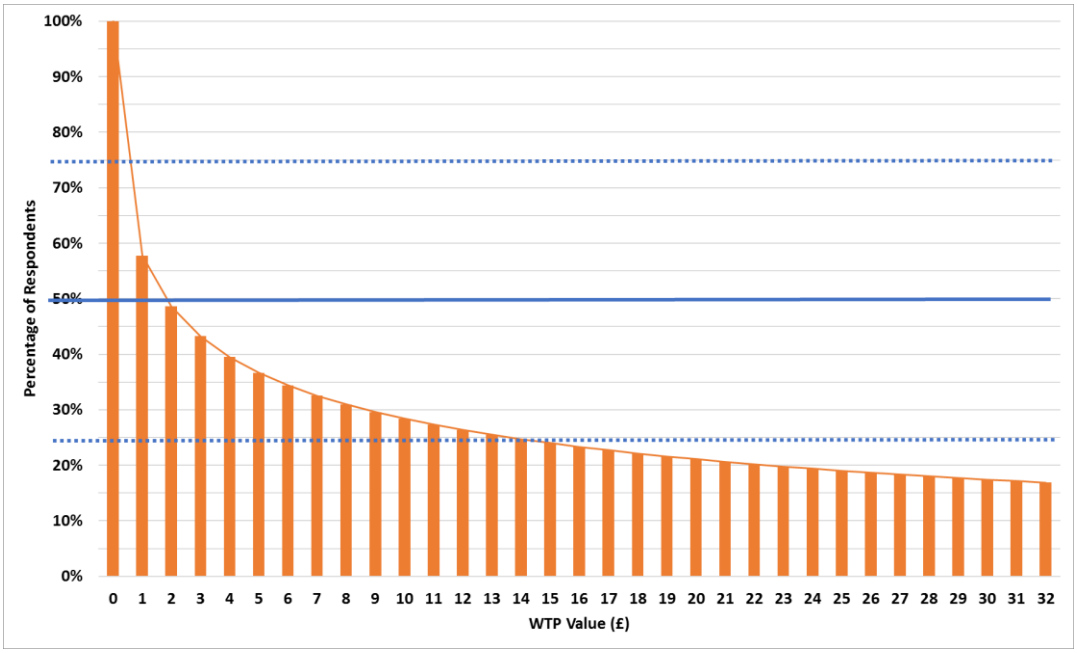


Figure 4. Distribution of WTP for defined improvements to the pollution / flooding package (Powys)

3.8.3 In the above chart, the 75 percentile cuts the curve at around £0.75, which means that 75% of customers would be willing to pay at least £0.75 for the yellow package of improvements. We can also note that the 50 percentile cuts the curve at just below £1.80 (in line with our mean WTP value); and the 25 percentile cuts the curve at circa £14.

3.8.4 The distribution of the WTP value for the tap water (blue) package is presented in Figure 5.

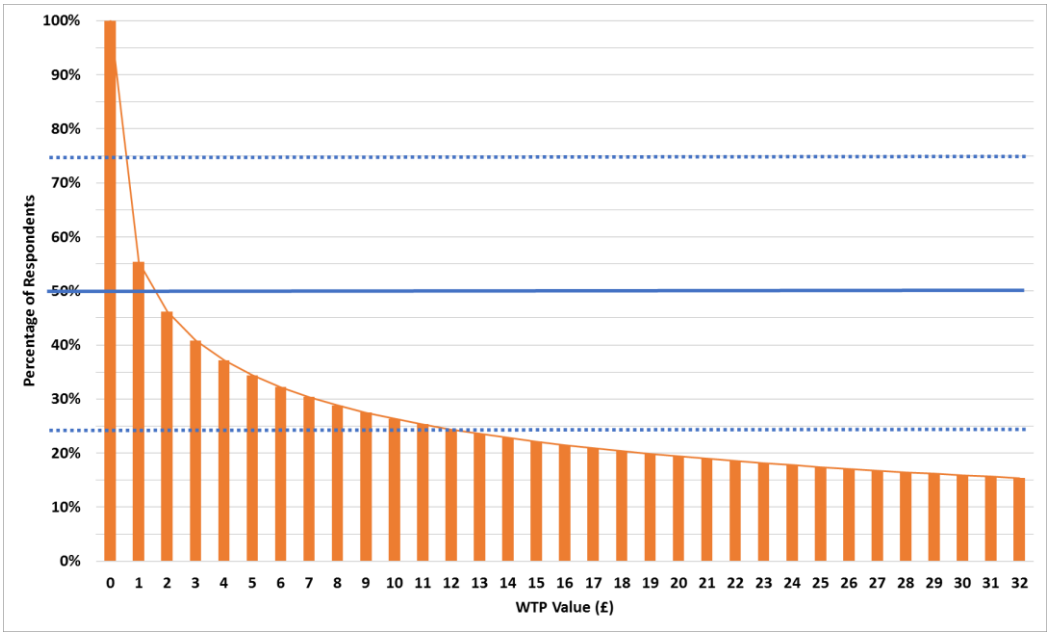


Figure 5. Distribution of WTP for defined improvements to the tap water package (Powys)

3.8.5 The above chart indicates that 75% of customers have a WTP of at least circa £0.60; 50% of customers have a WTP of over £1.50 (in line with our mean WTP value); and 25% of customers have a WTP of at least circa £12.

3.9 WTP distributions for domestic customers – Wrexham

3.9.1 The distributions of the WTP value for the blue and grey packages for Wrexham customers are presented in Figures 6 and 7 respectively.



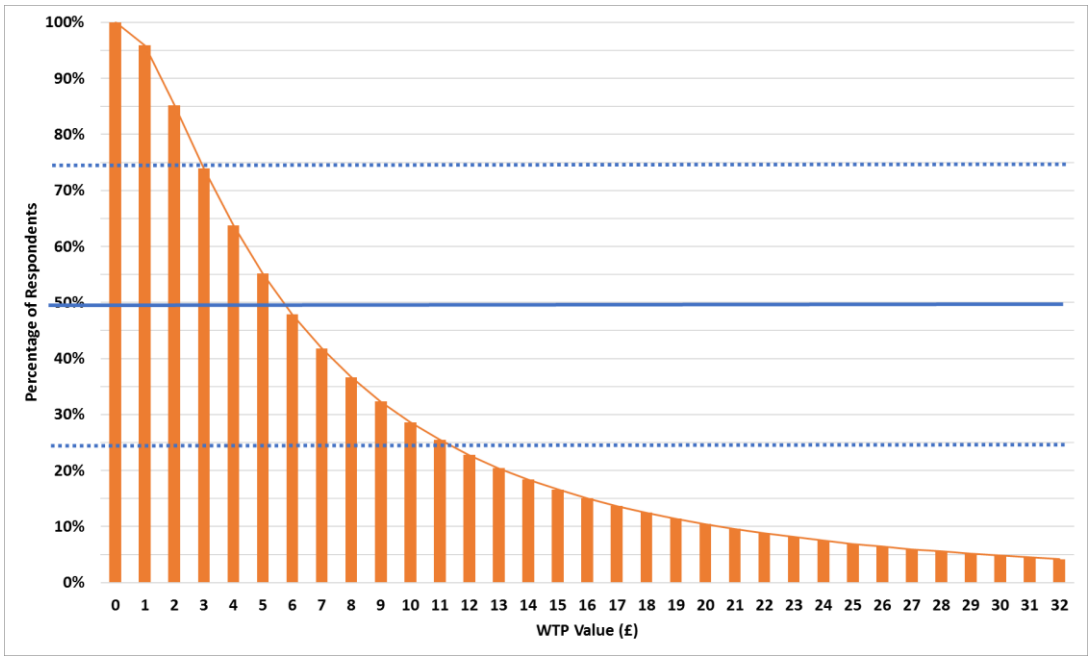


Figure 6. Distribution of WTP for defined improvements to the tap water package (Wrexham)

3.9.2 The above chart indicates that 75% of customers have a WTP of circa £3.00; 50% of customers have a WTP of over £5.75 (in line with our mean WTP value); and 25% of customers have a WTP of at least circa £11.

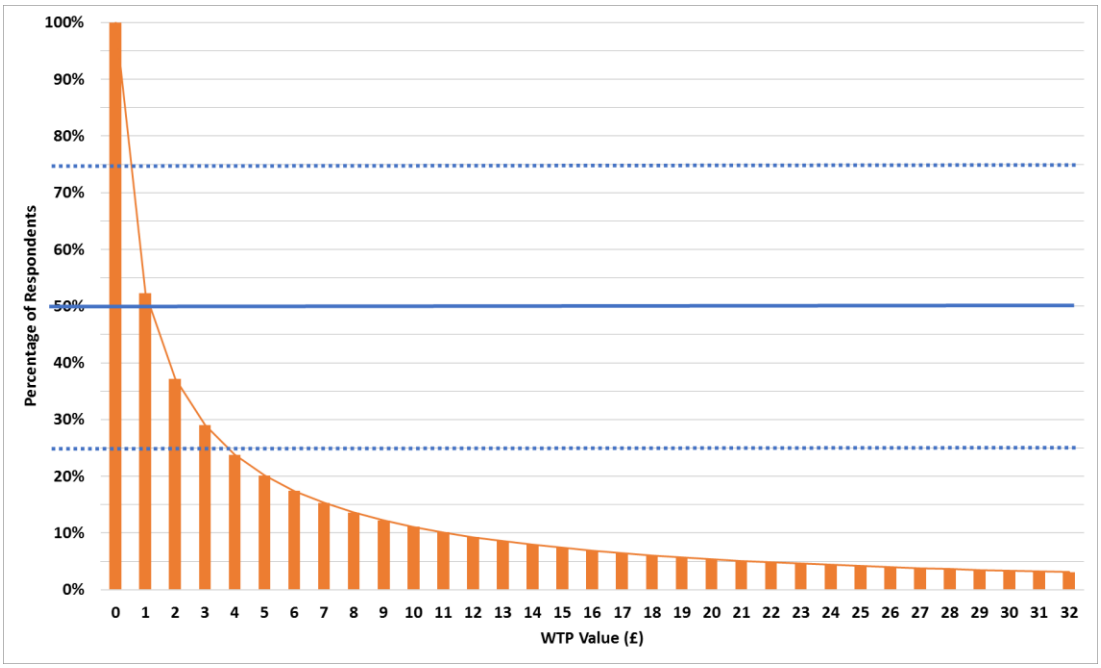


Figure 7. Distribution of WTP for defined improvements to water supply package (Wrexham)

3.9.3 The above chart indicates that 75% of customers have a WTP of circa £0.50; 50% of customers have a WTP of over £1.00 (in line with our mean WTP value); and 25% of customers have a WTP of at least circa £4.



4. WTP VALUES FOR NON-DOMESTIC CUSTOMERS IN WALES

4.1 Non-domestic customer sample profile

4.1.1 A total of 150 interviews with representatives of businesses was obtained.

4.1.2 The demographic characteristics of the sample are provided in Table 10.

Table 10. Demographic characteristic of non-domestic profile

CHARACTERISTIC	POWYS % (N=75)	WREXHAM % (N=75)
Water Crucial to business		
Yes	56%	41%
No	44%	59%
Size of consumer		
Small	91%	95%
Medium	0%	0%
Large	9%	5%
Average reported annual bill (low consumers of water)	**£1,797** *(n=28)*	**£966** *(n=31)*

4.1.3 We have removed the customers consuming large amounts of water from the average reported bill, as their bills (ranging from £20,000 to £80,000) disproportionately affect the average. Nevertheless the reported bills in Powys are higher than those in Wrexham. We note the low sample size who were able to report a bill and would advise further analysis of the bill levels paid by all of Hafren Dyfrdwy's customers, where this data can be sourced.

4.2 Current service experience

4.2.1 We asked non-domestic respondents whether they had experienced service failures in their business in the past year.

Table 11. Service failures experienced by non-domestic customers

CHARACTERISTIC	POWYS % (N=75)	WREXHAM % (N=75)
Discoloured tap water	11%	16%
Tap water that tastes or smells unpleasant	13%	9%
Reduction in water pressure	7%	5%
Interruption to water supply, not notified in advance	5%	3%
Leakage	12%	8%
A flood of sewage in your property	4%	N/A
A flood of sewage in your property's land	3%	N/A
Seeing rivers with poor water quality	12%	N/A

CHARACTERISTIC	POWYS % (N=75)	WREXHAM % (N=75)
Seeing pollution in rivers	5%	N/A
Other (Please specify)	1%	1%
None of above	65%	75%

4.3 Non-domestic customers' value of packages of service improvements

4.3.1 Table 12 presents the non-domestic customers' WTP valuations for each package of improvements.

Table 12. WTP values for packages of improvements (n=150)

NAME OF PACKAGE	MEAN WtP (%)
Tap Water [current ➔ improved] Comprising: Taste & smell; Appearance; Lead Pipes	**+2.04%**
Water Supply [current ➔ improved] Comprising: Leakage; Supply interruption; Water pressure	**+0.97%**
Waste Water [current ➔ improved; Powys respondents only] Comprising: Internal sewer flooding; External sewer flooding; Pollution incidents; River water quality	**+1.69%**

4.3.2 While we attempted to derive separate values for Wrexham, we could not obtain values that were significantly different to the Powys values. This is likely due to the small sub-sample size (n=75 in each area).

4.3.3 The most valued package of service improvements amongst non-domestic respondents was that comprising taste and smell, appearance and lead pipes [i.e. the blue package]. The wastewater package was valued highly (applicable to Powys respondents only), and respondents assigned a lower value to water supply service aspects.

4.3.4 We were unable to determine significantly different WTP values by whether water was crucial to the operation of the business. This may be due to the small sub-sample sizes.



4.4 The value of individual service improvements – Powys non-domestic

4.4.1 Combining the package values and relative priorities, we can derive monetary values for each individual service improvement, as presented in Table 13.

Table 13. Non-domestic customer WTP for service improvements (Powys)

SERVICE IMPROVEMENT	IMPROVEMENT WTP (%)
Tap Water	**2.04%**
• 180 ➔ 90 complaints p.a. - appearance	*0.59%*
• 60 ➔ 50 complaints p.a. - taste and smell	*0.60%*
• Financial support for removing lead pipes	*0.85%*
Water Supply	**0.97%**
• 190 ➔ 160 litres of water a day lost through leakage	*0.57%*
• 2,600 ➔ 2,000 customers affected pa by an interruption [3-6 hrs]	*0.23%*
• 16 ➔ 12 properties affected by low water pressure	*0.17%*
Waste Water	**1.69%**
• 6 ➔ 4 incidents p.a. of sewer flooding inside people's homes	*0.48%*
• 40 ➔ 35 incidents p.a. of sewer flooding outside people's homes	*0.37%*
• 10 ➔ 7 pollution incidents p.a.	*0.37%*
• 3 rivers improved (water quality)	*0.46%*

4.4.2 The most valued improvements by the Powys non-domestic sample are: Financial support for lead pipe replacement (+0.85% to their annual bill) and 60 ➔ 50 complaints p.a. - taste and smell of tap water (+0.60% of their annual bill).

4.4.3 We asked customers their maximum WTP, in terms of percentage bill increases, for all the service aspects to be improved. Powys respondents reported an average WTP of 2.8%, indicating a potential maximum ceiling to the values.



4.5 The value of individual service improvements – Wrexham non-domestic

4.5.1 Combining the package values and relative priorities, we can derive monetary values for each individual service improvement, as presented in Table 14.

Table 14. Non-domestic customer WTP for service improvements (Wrexham)

SERVICE IMPROVEMENT	WTP (%)
Tap Water	**2.04%**
• 550 ➔ 190 complaints p.a. - appearance	*0.62%*
• 140 ➔ 80 complaints p.a. - taste and smell	*0.64%*
• Financial support for removing lead pipes	*0.78%*
Water Supply	**0.97%**
• 90 ➔ 80 litres of water a day lost through leakage	*0.38%*
• 5,000 ➔ 2,500 customers affected pa by an interruption [3-6 hrs]	*0.33%*
• 75 ➔ 60 properties affected by low water pressure	*0.25%*

4.5.2 The most valued improvements by the Wrexham non-domestic sample are: Financial support for lead pipe replacement (+0.78% to their annual bill) and 60 ➔ 50 complaints p.a. - taste and smell of tap water (+0.640% of their annual bill) which is broadly aligned with the Powys values.

4.5.3 Wrexham respondents reported an average maximum WTP of 3.2%, indicating a potential maximum ceiling to the values.

4.5.4 There are two service aspects that are comparable to the PR14 WTP research in the Dee Valley Water area. The WTP values obtained in PR14 were:

- 1,200 ➔600 annual complaints on discoloured water: 1.01% of annual bill
- 90 ➔60 litres lost per day per household to leakage: 1.10% of annual bill

4.5.5 There evidence to suggest that respondents are prepared to pay broadly the same amount to address these issues, when considering the amount of units improved.



4.6 Per-unit WTP values for non-domestic customers

4.6.1 We divided the WTP values for defined improvements by the units of measurement improved, to obtain an implied WTP per unit of improvement. Table 15 presents the results.

Table 15. Implied WTP per unit (non-domestic)

UNIT OF IMPROVEMENT	UNIT WTP (%, POWYS)	UNIT WTP (%, WREXHAM)
Tap Water		
• Complaints p.a. - appearance	*0.01%*	*0.002%*
• Complaints p.a. - taste and smell	*0.06%*	*0.01%*
• Financial support for removing lead pipes	*N/A*	*N/A*
Water Supply		
• Litres of water a day lost through leakage	*0.01%*	*0.04%*
• Customers affected pa by an interruption [3-6 hrs]	*0.0004%*	*0.0001%*
• Properties affected by low water pressure	*0.04%*	*0.02%*
Waste Water		
• Incidents p.a. of sewer flooding inside people's homes	*0.24%*	*N/A*
• Incidents p.a. of sewer flooding outside people's homes	*0.07%*	
• Incidents of pollution p.a.	*0.12%*	
• Rivers improved (water quality)	*0.15%*	

4.6.2 In the most part we see similar magnitudes of unit WTP values, though these are generally slightly higher in Powys.



5. ADDITIONAL RESPONDENT INSIGHT

5.1 Customers Overall, and Non-Financially Vulnerable Customers

5.1.1 In all the surveys, we asked demographic and attitudinal questions before and after the main WTP sections. This has enabled us to gain a better understanding and profiling of domestic and non-domestic customers; their water/wastewater service experiences; and their satisfaction/dissatisfaction with the current service.

5.1.2 This chapter provides further insights into attitudes and preferences in relation to service improvements and bill profiles, for customers overall; and for an important niche group – the non-financially vulnerable, to assess whether this group has a unique set of needs. 'Non-financially vulnerable' refers to customers who identified themselves as having one or more disability, or health and wellbeing issues, at QD10, such as a mobility impairment.

5.1.3 For each key area of interest, we report the results for the sample overall, and for the non-financially vulnerable, with data tables for this sub-group provided in Appendix G. The sub-sample of the non-financially vulnerable was sufficient to enable statistical analysis (N=140, 28% of our sample) and comparable with the proportion of people in Wales (23%) *"who are limited, physically or mentally, at least a little"* according to the 2011 UK Census.

5.2 Support for future initiatives

5.2.1 We asked respondents to indicate their top three preferences from a list of potential Hafren Dyfrdwy initiatives. Table 16 details the responses.

Table 16. Top three initiatives - domestic customers

SERVICE IMPROVEMENT	POWYS % (N=250)	WREXHAM % (N=255)
Having a variety of flexible payment plan options for paying your water bill	67%	48%
Your water company working with local schools, for example to deliver education on the water cycle and how to save water	66%	75%
Your water company working to improve biodiversity on its land, for example by nurturing wildflowers that support pollinators and bird life	44%	42%
Your water company working to reduce its carbon emissions	42%	29%
Your water company making surplus land available for local communities to create small parks and green spaces in urban areas	40%	52%
Having access to and recreation opportunities on land your water company owns (such as reservoirs)	25%	29%
Your water company having a local Welsh feel	8%	19%



SERVICE IMPROVEMENT	POWYS % (N=250)	WREXHAM % (N=255)
Having a variety of digital channels available to get in touch with your water company (such as Facebook, Webchat and Twitter)	6%	5%

5.2.2 Flexibility in payment plans was the top response among both Powys customers, and the third highest among Wrexham respondents. Working with local schools was a major priority among both sets of respondents.

5.2.3 The findings for the non-financially vulnerable mirrored that of the whole sample, reported in Table 5.1, with '*Having a variety of flexible payment plan options for paying your water bill*' and '*Your water company working with local schools, for example to deliver education on the water cycle and how to save water*' being the most important initiatives for non-financially vulnerable customers, going forward.

5.2.4 We also asked half the sample how they would like bills and services to change going forward. The results are presented in Table 17.

Table 17. Preferred bill and service change - domestic customers

BILL AND SERVICE CHANGE	POWYS % (N=131)	WREXHAM % (N=141)
Bills increase slightly and services improve	36%	11%
Bills and services stay the same	63%	87%
Bills reduce slightly but services deteriorate	2%	2%

5.2.5 There was an overall preference for bills and services to stay the same. This finding also reflects the views of non-financially vulnerable customers.

5.3 Willingness to pay for social benefits

5.3.1 We asked the other half of respondents to what extent they agreed, or disagreed, to paying £2 more on their annual bill to support financially vulnerable customers, and separately, to paying £2 more on their annual bill to reduce traffic disruption during maintenance operations. The results are shown in Table 18.

Table 18. Willingness to pay for social tariffs and reduced disruption - domestic customers

PAYING £2 TO SUPPORT FINANCIALLY VULNERABLE CUSTOMERS	POWYS % (N=119)	WREXHAM % (N=114)
Strongly agree	10%	4%
Agree	25%	31%
Neither agree nor disagree	23%	16%
Disagree	16%	20%
Strongly disagree	26%	30%
PAYING £2 TO REDUCE TRAFFIC DISRUPTIONS	**POWYS % (N=119)**	**WREXHAM % (N=114)**
Strongly agree	3%	6%
Agree	24%	29%
Neither agree nor disagree	30%	24%
Disagree	22%	19%
Strongly disagree	20%	22%

5.3.2 Just over one-third of our sample **agreed/strongly agreed** to the proposal of paying an extra £2 to support financially vulnerable customers; and a similar proportion were also supportive of paying £2 to reduce traffic disruption caused by supply pipe maintenance. A slightly higher proportion, amongst our Powys and Wrexham samples, **disagreed/strongly disagreed** with these proposals. These attitudes also reflect those of our sub-sample of non-financially vulnerable customers.



5.4 Affordability of the current offering

5.4.1 We asked all respondents to rate how affordable they perceived their water bills at present. The results are shown in Table 19.

Table 19. Affordability perception from domestic customers

AFFORDABILITY OF CURRENT BILL	POWYS % (N=250)	WREXHAM % (N=255)
Very affordable	2%	9%
Affordable	71%	58%
Neither affordable nor unaffordable	20%	24%
Unaffordable	6%	7%
Very unaffordable	1%	2%

5.4.2 In both areas, fewer than 10% of respondents considered their bills to be unaffordable. This is slightly lower than when non-financially vulnerable respondents are analysed in isolation, where the rate of respondents considering their bills to be unaffordable is just below 15%.

5.5 Satisfaction with the water company

5.5.1 We also asked respondents to rate how satisfied they were with their water company. The results are presented in Table 20.

Table 20. Satisfaction with water company from domestic customers

SATISFACTION WITH WATER COMPANY	POWYS % (N=250)	WREXHAM % (N=255)
Very satisfied	18%	33%
Satisfied	71%	59%
Neither satisfied nor dissatisfied	7%	5%
Dissatisfied	3%	2%
Very dissatisfied	1%	1%

5.5.2 For both Powys and Wrexham customers, fewer than 5% of respondents reported dissatisfaction with their water company. This is slightly lower than when non-financially vulnerable customers are analysed in isolation, whereby dissatisfaction is closer to 10%.

5.5.3 Table 21 details the satisfaction levels reported by non-domestic respondents.

Table 21. Satisfaction with water company from non-domestic customers

SATISFACTION WITH WATER COMPANY	POWYS % (N=75)	WREXHAM % (N=75)
Very satisfied	27%	33%
Satisfied	57%	51%
Neither satisfied nor dissatisfied	13%	16%
Dissatisfied	1%	0%
Very dissatisfied	1%	0%

5.5.4 Non-domestic customers reported overwhelming satisfaction at the water company, with no more than 2% of respondents reporting any dissatisfaction.

5.6 Digital Disenfranchisement

5.6.1 We asked respondents how often they accessed the internet, which enables Hafren Dyfrdwy to better understand how to engage with its customer base. The responses are provided in Table 22.

Table 22. How often domestic respondents use the internet

HOW OFTEN YOU TYPICALLY ACCESS THE INTERNET	POWYS % (N=250)	WREXHAM % (N=255)
Many times throughout the day	37%	47%
Once or twice per day	26%	16%
A few times per week	7%	6%
About once a week	1%	2%
Rarely	10%	14%
I have no access to the internet	19%	15%

5.6.2 Almost one third of customers, in both regions, rarely or never use the internet. The proportion of customers who rarely use, or do not have access to, the internet is higher amongst non-financially vulnerable customers; with more than two in every five such customers seldom or never using the internet.



5.6.3 The findings reported in this chapter, and Appendix G, suggest that the views of customers overall, and the views of non-financially-vulnerable customers, are strongly aligned. Thus, by focusing on the needs and aspirations of customers generally, Hafren Dyfrdwy will also be addressing the needs of non-financially vulnerable customers.



6. CONCLUSIONS

6.1 Benefit values for service improvements

6.1.1 Our survey has observed customers' satisfaction with their water company, as well as evidence that the current service offering is affordable to the vast majority of customers.

6.1.2 The WTP study has delivered what it set out to achieve:

- WTP values for defined improvements in 10 service areas of interest to Hafren Dyfrdwy customers; split by domestic/non-domestic customers and by Powys/Wrexham regions.
- Distributions around the mean WTP values for domestic and non-domestic customers in Wales, to assist in sensitivity testing in CBA.
- Indications of customers' overall maximum bill increase within which customers might be prepared to pay for an entire plan.

6.1.3 This research has provided robust willingness to pay values for a range of service improvements among customers in Wales. Domestic customers most preferred improvements were:

In Powys:

- Financial support for removing lead pipes (£0.60 additional on their annual bill)
- 6 ➔ 4 incidents p.a. of sewer flooding inside people's homes (£0.51)
- 60 ➔ 50 complaints p.a. - taste and smell of tap water (£0.46)

In Wrexham:

- 140 ➔ 80 complaints p.a. - taste and smell of tap water (£2.56)
- Financial support for removing lead pipes (£1.78)
- 550 ➔ 190 complaints p.a. - appearance of tap water (£1.35)

6.1.4 Our WTP survey derived statistically robust monetary values for packages of defined service improvements. We noted that WTP values were higher among higher SEG respondents, as well as those of a younger age.

6.1.5 Our reported package values indicated a mean WTP. Our distributions enable readers to find other inferences, for example the tap water package in Wrexham: while the mean WTP was £5.69, we show that 75% of customers were willing to pay at least £3 for this package of improvements.

6.1.6 We observe that typically around a third of domestic respondents were willing to pay an additional £2 to their annual bill to support social initiatives of assisting vulnerable customers or reducing traffic disruptions in their local area.

6.1.7 When presented with eight initiatives being considered for the future, respondents in both Powys and Wrexham favoured flexible payment plans, as well as the water company engaging with local schools to deliver education on the water cycle and how to save water.

6.1.8 Non-domestic customers most preferred improvements were:

In Powys:

- Financial support for removing lead pipes (0.85% of their annual bill, *or £15.27 based on the average reported bill*)
- 60 ➔ 50 complaints p.a. - taste and smell of tap water (0.60%, *or £10.78*)
- 180 ➔ 90 complaints p.a. - appearance of tap water (0.59%, *or £10.60*)

In Wrexham:

- Financial support for removing lead pipes (0.78%, *or £7.53 based on the average reported bill*)
- 140 ➔ 80 complaints p.a. - taste and smell of tap water (0.64%, *or £6.18*)
- 550 ➔ 190 complaints p.a. - appearance of tap water (0.62%, *or £5.99*)

APPENDICES

CONTENTS

Report Appendix A – SP Design

APPENDIX A – STATED PREFERENCE DESIGN

1.1 Stated Preference Design Presented to Each Respondent (Powys)

1.1.1 The following tables detail the design levels and associated values for each choice set. In Figure 1 we show how the design is blocked, such that half of the variant saw choice-sets 1 and 2, whereas the other half saw choice-sets 3 and 4.

	Option A				Option B				Option C				Option D				
Choice-Set	Tap Water	Water Supply	Waste Water	Bill Level	Tap Water	Water Supply	Waste Water	Bill Level	Tap Water	Water Supply	Waste Water	Bill Level	Tap Water	Water Supply	Waste Water	Bill Level	BLOCK
1	2	1	2	1	2	2	2	2	1	2	1	1	2	2	1	3	1
2	1	2	1	3	2	1	1	4	1	1	2	4	1	1	1	1	1
3	1	2	1	3	2	1	2	4	1	1	2	3	2	2	1	2	2
4	1	1	1	1	1	1	2	2	1	2	1	4	2	1	2	2	2

Figure 1. Variant 1 Design

1.1.2 In the below figure we can see the levels of each attribute, where 1 and 2 relate to "current" and "improved" levels, that is, each attribute within the package is improved. The cost is detailed as a change, in pounds, to the current average annual bill.

Levels	Tap Water	Water Supply	Wastewater	Bill Level
1	Current Level	Current Level	Current Level	0
2	Improved Level	Improved Level	Improved Level	1
3				10
4				22

Figure 2. Variant 1 Attribute Levels

1.1.3 Since each of the three variants has the same structure (and is indeed simply a variation of the same exercise), we can apply the same design and levels to the other variants, and substitute in the package that is different in each variation. So for example, variant two would be identical to the above except with Tap Water being replaced with Pollution and Flooding Incidents.

1.2 Wrexham

1.2.1 Dee Valley Water customers, to whom STW provides waste water services, only provided responses to two relevant packages (Wastewater and Water Supply).

1.2.2 We were therefore able to present the full factorial design of 16 choice sets (2 packages at 2 levels and cost at 4 levels) in their SP exercises. The 16 choice sets were divided into two blocks. Each respondent therefore completed two scenarios of four choice sets, as with the Powys customers.

Report Appendix B – Domestic Survey Materials

DOMESTIC CUSTOMER QUESTIONNAIRE

S0. Input area

Powys	☐1
Wrexham	☐2

Introduction

Good morning/afternoon/evening. My name is .... from SYSTRA, an independent market research company. I am carrying out a survey on behalf of Severn Trent Water, the company responsible for water supply in your area.

Your water company wants us to gather the views of customers, to help shape the decisions they make. Would you mind answering some questions; it should take about 20 minutes? The research is conducted in line with the Data Protection Act 1998, and Market Research Society Code of Conduct. All answers you give will remain completely anonymous.

Screener Questions

S1. Are you or is anyone in your family an employee of a water company, such as Severn Trent Water or Dee Valley Water?

Yes	☐1	**CLOSE**
No	☐2	

S2. Are you an employee of a market research agency?

Yes	☐1	**CLOSE**
No	☐2	

S3. Is your home on a mains water supply?

Yes	☐1	
No	☐2	**CLOSE**
Don't know/ Not sure	☐3	

S4. Is your home on mains sewerage?

Yes	☐1	
No	☐2	**CLOSE**
Don't know/ Not sure	☐3	

S6. Code respondent's gender

Male	☐1
Female	☐2

S7. Which age group are you in…?

15 and under	☐1	**CLOSE**
16-24	☐2	
25-34	☐3	
35-49	☐4	
50-64	☐5	
65-74	☐6	
75 and over	☐7	
Prefer not to say	☐8	

S8. What is the occupation of the main income earner in your household?

[INTERVIEWER TO ASK SUFFICIENT QUESTIONS AS TO CODE SOCIAL GRADE]

Occupation title:

Position/rank/grade and number of staff responsible for:

Industry/type of company:

Qualification/degrees/apprenticeships:

[CODE SOCIAL GRADE]:

A/B	☐1
C1/C2	☐2
D/E	☐3

[CHECK GENDER, AGE, SEG QUOTAS. IF OUT OF SCOPE, THANK AND CLOSE]

S9. Are you responsible for paying your household's water bill?

Yes, the bill payer/contributes to bill	☐1	
Spouse or partner (jointly involved in finances)	☐2	
No	☐3	**CLOSE**

Services provided by your water company

Q1b **In the last 12 months, have you experienced any of the following?**
[TICK ALL THAT APPLY]

Discoloured tap water (water that is brown/orange/cloudy)	☐ 1
Tap water that tastes or smells unpleasant	☐ 2
Reduction in water pressure	☐ 3
An interruption to your water supply that you were **not** notified about in advance	☐ 5
Leakage (e.g. a burst pipe in your neighbourhood)	☐ 6
A flood of sewage in your home	☐ 7
A flood of sewage in your garden or on your land	☐ 8
Seeing rivers with poor water quality	☐ 9
Seeing pollution in rivers	☐ 10
Other (Please specify)	☐ 11
None of the above	☐ 12

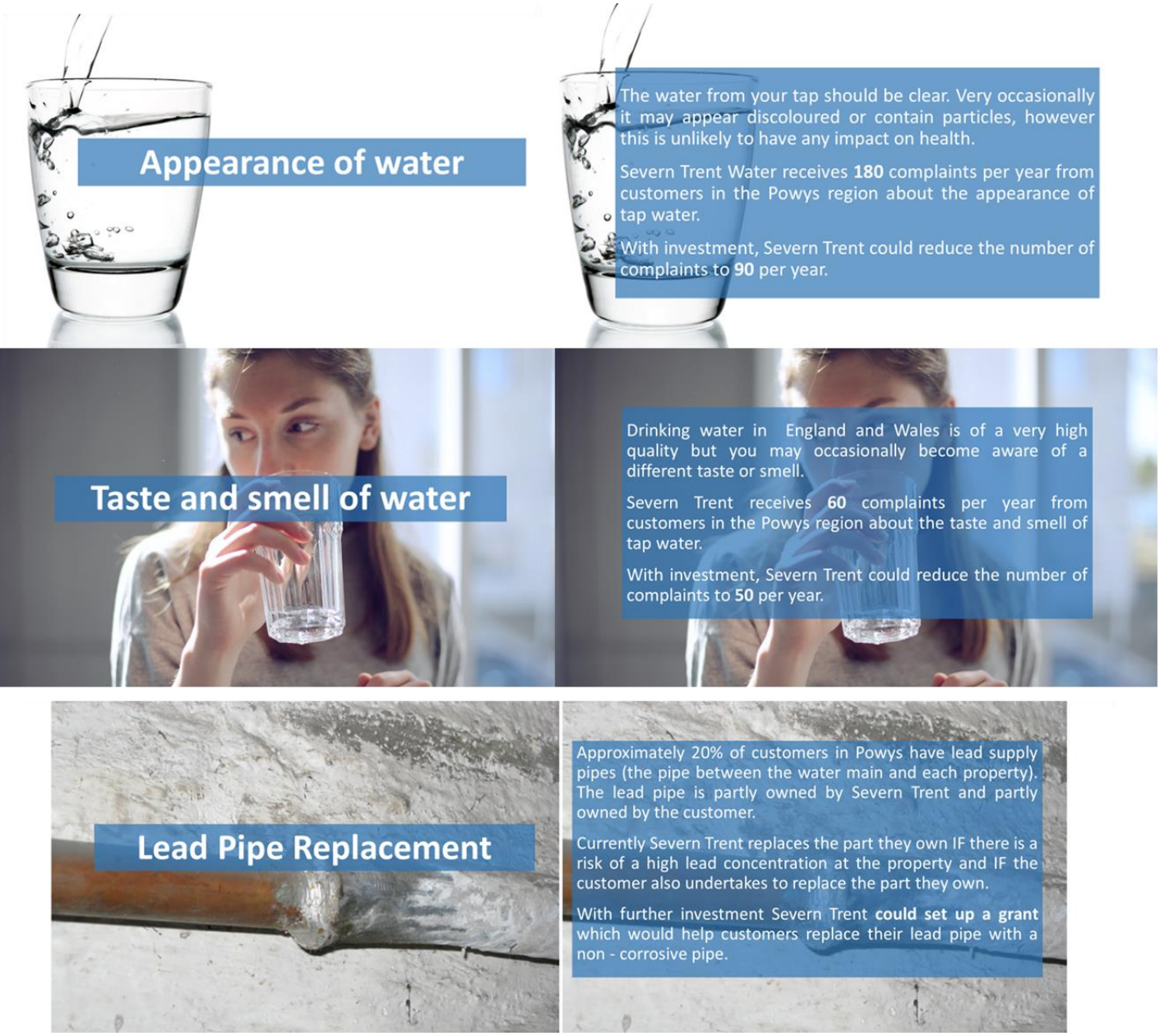
Q1bi **If Other chosen above, please detail:**

Your water company is about to begin the process of shaping its business plan for 2020 to 2025. The investments your water company choose to make in the region you live in could affect your water bill, so your water company is therefore consulting with its customers on how best to prioritise and plan for its future investments.

For reference, Severn Trent Water serves around 40,000 households and businesses in the Powys region.

Priorities for Tap Water

*We are about to show you four aspects of **tap water**, with the following information on current and potentially 'improved' levels.*



Q2a Which of the following potential improvements is your most preferred option?

180 ➔ 90 complaints per year about the appearance of tap water	☐1
60 ➔ 50 complaints per year about the taste and smell of tap water	☐2
Severn Trent to fund grants to help customers replace lead supply pipes	☐3

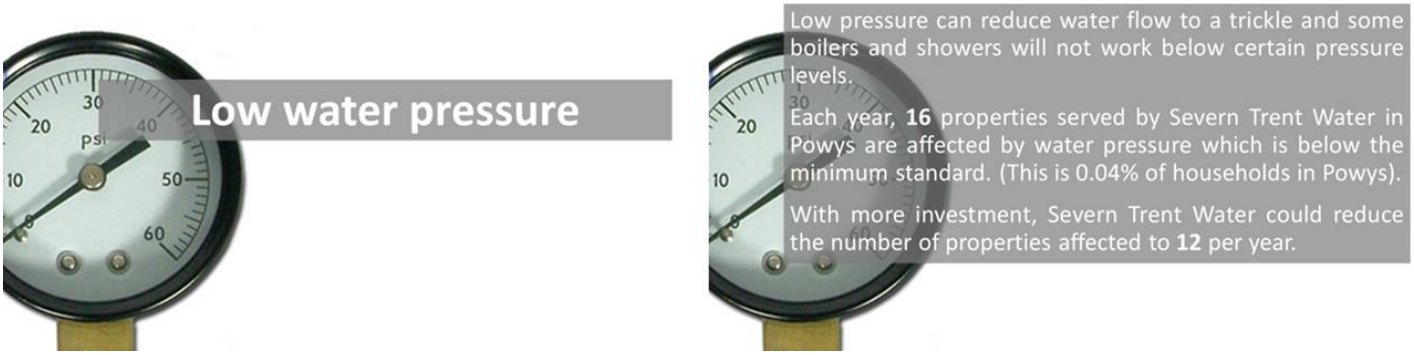
Q2b And which is your least preferred option?

180 ➔ 90 complaints per year about the appearance of tap water	☐1

60 ➔ 50 complaints per year about the taste and smell of tap water	☐ 2
Severn Trent to fund grants to help customers replace lead supply pipes	☐ 3

Priorities for Water Supply

We would now like you to consider four different aspects relating to the supply of your water. These are …



Q3a Which of the following potential improvements is your most preferred option?

190 ➔ 160 litres per property per day of leakage	☐ 1
2,600 ➔ 2,000 properties per year affected by an interruption lasting between 3 and 6 hours	☐ 2
16 ➔ 12 properties affected by pressure below the minimum standard	☐ 4

Q3b And which is your least preferred option?

190 ➔ 160 litres per property per day of leakage	☐ 1

2,600 ➔ 2,000 properties per year affected by an interruption lasting between 3 and 6 hours	☐ 2
16 ➔ 12 properties affected by pressure below the minimum standard	☐ 4

Priorities for Wastewater treatment and disposal

We would now like you to consider three aspects of sewerage services. These are …

Q5a Which of the following potential improvements is your most preferred option?

6 ➔ 4 incidents per year of sewer flooding inside people's homes	☐ 1
40 ➔ 35 incidents per year of sewer flooding on people's land and in gardens	☐ 2
10 ➔ 7 pollution incidents per year	☐ 3
3 rivers improved (all of those where Severn Trent is responsible for poor standard)	☐ 4

Q5b And which is your least preferred option?

6 ➔ 4 incidents per year of sewer flooding inside people's homes	☐ 1
40 ➔ 35 incidents per year of sewer flooding on people's land and in gardens	☐ 2
10 ➔ 7 pollution incidents per year	☐ 3
3 rivers improved (all of those where Severn Trent is responsible for poor standard)	☐ 4

Priorities for Billing

Q6a Please look at the table below and indicate roughly what amount your household pays for water and sewerage services each year.

Amount per month (£)	Amount per year (£)	
Less than £13 per month	Less than £150 per year	☐ 1
£13 - £16 per month	£151 - £200 per year	☐ 2
£17 - £20 per month	£201 - £250 per year	☐ 3
£21 - £24 per month	£251 - £300 per year	☐ 4
£25 - £28 per month	£301 - £350 per year	☐ 5
£29 - £32 per month	£351 - £400 per year	☐ 6
£33 - £37 per month	£401 - £450 per year	☐ 7
£38 - £41 per month	£451 - £500 per year	☐ 8
£42 - £45 per month	£501 - £550 per year	☐ 9
£46 - £50 per month	£551 - £600 per year	☐ 10
Over £50 per month	Over £600 per year	☐ 11
Don't know	Don't know	☐ 12

Here is a list of all the service improvements that we have asked you to consider.

We have grouped them into the packages of improvements – the blue ones, the grey ones and the yellow ones.

SHOW SUMMARY CARD A

	Aspect of Service	Current Service	Improved Service Level
Tap Water	Appearance of water	180 annual complaints about the appearance of tap water	90 annual complaints about the appearance of tap water
	Taste and smell of water	60 annual complaints about the taste and smell of tap water	50 annual complaints about the taste and smell of tap water
	Lead Pipe Replacement	Replacement for water company part of supply pipe only	Grant set up to help customers replace pipe
Water Supply	Leakage	190 litres of water lost per day per household	160 litres of water lost per day per household
	Interruptions to supply (between 3 and 6 hours)	2,600 properties affected per year	2,000 properties affected per year
	Low water pressure	16 properties affected by reduced pressure to taps, showers and boilers	12 properties affected by reduced pressure to taps, showers and boilers
Wastewater	Internal sewer flooding	6 incidents of sewer flooding inside people's homes a year	4 incidents of sewer flooding inside people's homes a year
	External sewer flooding	40 incidents a year of sewer flooding on people's land and in gardens	35 incidents a year of sewer flooding on people's land and in gardens
	Pollution	10 pollution incidents a year	7 pollution incidents a year
	River water quality	3 rivers are not at a good standard	Improvement to the 3 rivers

In a moment you will see four options (A, B, C and D). Each will describe a level of service for each package – either all aspects in a package are at the 'current' level or they are all at the 'improved' level.

I would like to explain what each option describes.

When you see Option B – it shows an 'improved' level for tap water – which means that the three (blue) aspects on Summary Card A – ***appearance of water, taste & smell of water and lead pipe replacement*** *would all be at the improved level. Option C, on the other-hand, would continue to offer the current service for these blue aspects.*

So, the four options have different combinations of current and improved services. They have different changes to the bill level that you would pay, and these changes would be effective annually from 2020 to 2025.

At present the average bill level is currently ***£341*** *a year for both water and sewerage services, remembering that your own household bill may be more or less than this.*

For the prices that you see, please imagine that these would be added to your current bill that we just asked for. Other factors like inflation could also affect the bill you pay in future.

Please consider the following four options A, B, C and D and indicate which you prefer most?

CREATE BLOCK = Rand (1,2)

Option A	Option B	Option C	Option D
Tap Water: **Improved**	Tap Water: **Improved**	Tap Water: **Current**	Tap Water: **Improved**
Water Supply: **Current**	Water Supply: **Improved**	Water Supply: **Improved**	Water Supply: **Improved**
Wastewater: **Improved**	Wastewater: **Improved**	Wastewater: **Current**	Wastewater: **Current**
Annual Bill: **£0** *[£341 on average]*	Annual Bill: **+ £1** *[£346 on average]*	Annual Bill: **£0** *[£341 on average]*	Annual Bill: **+ £10** *[£351 on average]*

Q6a PLEASE TICK PREFERRED OPTIONS

Which option do you prefer the most?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is second best?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is third best?	A ☐1	B ☐2	C ☐3	D ☐4

Option A	Option B	Option C	Option D
Tap Water: **Current**	Tap Water: **Improved**	Tap Water: **Current**	Tap Water: **Current**
Water Supply: **Improved**	Water Supply: **Current**	Water Supply: **Current**	Water Supply: **Current**
Wastewater: **Current**	Wastewater: **Current**	Wastewater: **Improved**	Wastewater: **Current**
Annual Bill: **+ £10** *[£351 on average]*	Annual Bill: **+ £22** *[£363 on average]*	Annual Bill: **+ £22** *[£363 on average]*	Annual Bill: **£0** *[£341 on average]*

Q6b PLEASE TICK PREFERRED OPTIONS

Which option do you prefer the most?	A ☐ 1	B ☐ 2	C ☐ 3	D ☐ 4
Which option is second best?	A ☐ 1	B ☐ 2	C ☐ 3	D ☐ 4
Which option is third best?	A ☐ 1	B ☐ 2	C ☐ 3	D ☐ 4

Q7 How much, in pounds added to your current water bill per year, would you be willing to pay for ALL of the aspects on Summary Card A to be improved to the higher level described?

£_____

Q8a Which three of these, shown on Summary Card A, are most important to you? [PLEASE TICK THREE]

Appearance of tap water	☐ 1
Taste and smell of tap water	☐ 2
Lead pipe replacement	☐ 3
Leakage	☐ 4
Interruptions to supply (lasting 3-6 hours)	☐ 5
Low water pressure	☐ 6
Internal sewer flooding incidents	☐ 7
External sewer flooding incidents	☐ 8
Pollution incidents	☐ 9
River water quality	☐ 10

Q9 In addition to continuing to deliver its core service, such as ensuring water is there when you turn the tap on, your water company is also considering a number of additional services which might benefit its customers and local communities. Which three of these are most important to you:

Having access to and recreation opportunities on land your water company owns (such as reservoirs)	☐ 1
Your water company working with local schools, for example to deliver education on the water cycle and how to save water	☐ 2
Your water company working to reduce its carbon emissions	☐ 3
Your water company working to improve biodiversity on its land, for example by nurturing wildflowers that support pollinators and bird life	☐ 4
Your water company making surplus land available for local communities to create small parks and green spaces in urban areas	☐ 5
Having a variety of flexible payment plan options for paying your water bill	☐ 6
Having a variety of digital channels available to get in touch with your water company (such as Facebook, Webchat and Twitter)	☐ 7
Your water company having a local Welsh feel	☐ 8

About you

Finally, we'd like to ask some questions which will help us analyse the results of this survey. All your answers will be kept strictly confidential and not linked to your name and personal details.

D1 Thinking about your current water bill in the context of your household expenditure, how affordable or unaffordable to your household would you say it is?

Very affordable	☐ 1
Affordable	☐ 2
Neither affordable nor unaffordable	☐ 3
Unaffordable	☐ 4
Very unaffordable	☐ 5

D2 IF BLOCK=1 We are interested in what your preferences are in terms of bills and the level of services you receive from your water company. Your water and sewerage bills will normally rise annually with inflation. In addition to this inflationary increase which of the following options would you prefer thinking about your bill from 2020 - 2025?

Bills increase slightly and services improve	☐ 1
Bills and services stay the same	☐ 2
Bills reduce slightly but services deteriorate	☐ 3

D3 IF BLOCK=2 To what extent would you agree or disagree to paying a slightly higher bill of, say, £2 per year more, in order to assist other customers in financial difficulty in a subsidy to their bill?

Strongly agree	☐ 1
Agree	☐ 2
Neither agree nor disagree	☐ 3
Disagree	☐ 4
Strongly disagree	☐ 5

D4 **IF BLOCK=2 To what extent do you agree or disagree to paying a slightly higher bill of say, £2 per year more, in order to reduce the disruption caused by maintenance activities on roads in your area (when your water company carry out activities such as leak detection and mains renewal)?**

Strongly agree	☐ 1
Agree	☐ 2
Neither agree nor disagree	☐ 3
Disagree	☐ 4
Strongly disagree	☐ 5

D5 **Overall, how satisfied or dissatisfied with your water company are you?**

Very satisfied	☐ 1
Satisfied	☐ 2
Neither satisfied nor dissatisfied	☐ 3
Dissatisfied	☐ 4
Very dissatisfied	☐ 5

D6 **Which one of the following statements best reflects your views on the water supplied at your home?**

Water is a scarce resource and society should conserve its use	☐ 1
Water is a free good, from the sky, and we people should not have to pay for it	☐ 2
Water is actually quite cheap – we use it without ever thinking how much it costs	☐ 3
Other – (Please specify _____)	☐ 4

D7 **Does your home have a water meter?**

No	☐ 1
Yes, I chose to have a meter	☐ 2
Yes, I did not choose to have a meter	☐ 3
Don't know	☐ 4

IF D7 = 1

D7a Would you like your water company to contact you to provide further information on how to have a water meter installed? (This can be done at no charge)

Yes	☐ 1
No	☐ 2

D8 Are you a member of a scheme to assist with paying your water bill (such as WaterSure or Big Difference Scheme)?

Tick All that Apply

No	☐ 1
Yes, WaterSure	☐ 2
Yes, Big Difference Scheme	☐ 3
Yes, Here2Help scheme	
Yes, Other	☐ 4
Don't know	☐ 5

D9 Which of these broad income categories reflects the total annual income of your household (before tax)?

Less than £10,000	☐ 1
£10,000 - £19,999	☐ 2
£20,000 - £29,999	☐ 3
£30,000 - £39,999	☐ 4
£40,000 - £59,999	☐ 5
£60,000 - £79,999	☐ 6
£80,000 or more	☐ 7
Don't Know/Can't say/Prefer not to say	☐ 8

IF D8 = 1 and D9 = 1

D9a You may qualify for receiving financial assistance with paying your water bill. Would you like your water company to contact you to provide further information on this?

Yes	☐ 1
No	☐ 2

D10 Do you or anyone in your household have a long-term illness, health problem or disability which limits your daily activities or the work you can do?

Yes	☐ 1
No	☐ 2
Don't Know/Can't say/ Prefer not to say	☐ 3

D11 How often do you typically access the internet?

Many times throughout the day	☐ 1
Once or twice per day	☐ 2
A few times per week	☐ 3
About once a week	☐ 4
Rarely	☐ 5
I have no access to the internet	☐ 6

IF D11 = 6

D11a Why is this? [Select all that apply]

It's too expensive to have a device and/or an internet connection	☐ 1
I don't wish to access the internet	☐ 2
There is no network available in my area	☐ 3
Other – (Please specify _____)	☐ 4

Close

Thank you very much for your time.

HOLIADUR I GWSMERIAID DOMESTIG

S0. Ardal

Powys	□1
Wrecsam	□2

Cyflwyniad

IF S0=1:

Bore da/Prynhawn da/Noswaith dda. Fy enw i yw .... o SYSTRA, cwmni annibynnol sy'n ymchwilio i'r farchnad. Rydw i'n cynnal arolwg ar ran Severn Trent Water, sef y cwmni sy'n gyfrifol am gyflenwi dŵr yn eich ardal.

IF S0=2:

Bore da/Prynhawn da/Noswaith dda. Fy enw i yw .... o SYSTRA, cwmni annibynnol sy'n ymchwilio i'r farchnad. Rydw i'n cynnal arolwg ar ran Dŵr Dyffryn Dyfrdwy, (sydd bellach yn rhan o Severn Trent), sef y cwmni sy'n gyfrifol am gyflenwi dŵr yn eich ardal.

Mae eich cwmni dŵr am i ni gasglu barn cwsmeriaid er mwyn helpu i lywio'r penderfyniadau maen nhw'n eu gwneud. A fyddech chi'n fodlon ateb ambell gwestiwn? Fe ddylai gymryd tua 20 munud. Caiff yr ymchwil ei gynnal yn unol â Deddf Diogelu Data 1998 a Chod Ymddygiad y Gymdeithas Ymchwil i'r Farchnad. Bydd yr holl atebion rydych chi'n eu rhoi yn gwbl gyfrinachol.

Cwestiynau Sgrinio

S1. A oes unrhyw un yn eich teulu, gan eich cynnwys chi eich hun, yn gweithio i gwmni dŵr fel Severn Trent Water neu Ddŵr Dyffryn Dyfrdwy?

Oes	□1	**GORFFEN**
Nac oes	□2	

S2. A ydych chi'n gweithio i asiantaeth ymchwilio i'r farchnad?

Ydw	□1	**GORFFEN**
Nac ydw	□2	

S3. A yw eich cartref yn cael dŵr o'r prif gyflenwad?

Ydy	□1	
Nac ydy	□2	**GORFFEN**
Ddim yn gwybod/ Ddim yn siŵr	□3	

S4. **IF S0 = 1 A yw eich cartref wedi gysylltu â'r brif system garthffosiaeth?**

Ydy	□1	
Nac ydy	□2	**GORFFEN**
Ddim yn gwybod/ Ddim yn siŵr	□3	

S5. **Nodi rhyw'r ymatebydd**

Gwryw	□1
Benyw	□2

S6. **Ym mha grŵp oedran ydych chi?**

15 oed ac iau	□1	**GORFFEN**
16-24 oed	□2	
25-34 oed	□3	
35-49 oed	□4	
50-64 oed	□5	
65-74 oed	□6	
75 oed a hŷn	□7	
Mae'n well gen i beidio â dweud	□8	

S7. **Beth yw galwedigaeth y sawl sy'n ennill prif incwm y cartref?**

[DYLAI'R CYFWELYDD OFYN DIGON O GWESTIYNAU ER MWYN GALLU NODI'R DOSBARTH CYMDEITHASOL]

Teitl yr alwedigaeth:

Swydd/safle/graddfa a nifer y staff mae'r unigolyn yn gyfrifol amdanynt:

Diwydiant/math o gwmni:

Cymwysterau/graddau/prentisiaethau:

[COD Y DOSBARTH CYMDEITHASOL]:

A/B	□1
C1/C2	□2
D/E	□3

[EDRYCHWCH AR Y CWOTÂU AR GYFER RHYW, OEDRAN A DOSBARTH CYMDEITHASOL. OS YDYNT Y TU ALLAN I'R CWMPAS, DIOLCHWCH IDDYNT A GORFFEN Y SGWRS]

S8. Ai chi sy'n gyfrifol am dalu bil dŵr eich cartref?

Ie, rwy'n talu'r bil/cyfrannu ato	□1	
Gwr/gwraig neu bartner (delio ag arian ar y cyd)	□2	
Na	□3	**GORFFEN**

Gwasanaethau a ddarperir gan eich cwmni dŵr

IF S0=2 C1a Cyn heddiw, oeddech chi'n ymwybodol bod Severn Trent Water nawr yn berchen ar Ddŵr Dyffryn Dyfrdwy?

Oeddwn	□1
Nac oeddwn	□2

C1b Yn ystod y 12 mis diwethaf, ydych chi wedi profi unrhyw un o'r canlynol?
[TICIWCH BOB UN SY'N BERTHNASOL]

Dŵr tap wedi newid lliw (dŵr brown/oren/cymylog)	□1
Dŵr tap sy'n blasu neu'n arogli'n annymunol	□2
Gwasgedd y dŵr wedi gostwng	□3
Achos o darfu ar eich cyflenwad dŵr **na roddwyd** gwybod i chi amdano ymlaen llaw	□5
Dŵr yn gollwng (e.e. pibell wedi byrstio yn eich cymdogaeth)	□6
IF S0 = 1 Carthion yn gorlifo yn eich cartref	□7
IF S0 = 1 Carthion yn gorlifo yn eich gardd neu ar eich tir	□8
IF S0 = 1 Gweld afonydd ag ansawdd dŵr gwael	□9
IF S0 = 1 Gweld llygredd mewn afonydd	□10
Arall (Rhowch fanylion)	□11
Dim un o'r uchod	□12

C1bi Os dewisoch Arall uchod, rhowch fanylion:

Mae eich cwmni dŵr ar fin dechrau'r broses o lywio ei gynllun busnes ar gyfer 2020-2025. Gallai'r buddsoddiadau fydd eich cwmni dŵr yn penderfynu eu gwneud yn yr ardal rydych chi'n byw ynddi effeithio ar eich bil dŵr, felly mae eich cwmni dŵr yn ymgynghori â'i gwsmeriaid ynglŷn â'r ffordd orau i flaenoriaethu a chynllunio ei fuddsoddiadau ar gyfer y dyfodol.

IF S0=1 *Er gwybodaeth, mae Severn Trent Water yn gwasanaethu tua 40,000 o gartrefi a busnesau yn ardal Powys.*

IF S0=2 *Er gwybodaeth, mae Dŵr Dyffryn Dyfrdwy yn gwasanaethu tua 126,000 o gartrefi a busnesau yn ardal Caer a Wrecsam.*

Blaenoriaethau: Dŵr Tap

*Rydyn ni ar fin dangos pedair agwedd ar **ddŵr tap** i chi, gyda'r wybodaeth ganlynol ynghylch y lefelau presennol a'r lefelau 'wedi gwella' posibl.*

IF S0=1, SHOW VIDEO 1

C2a Pa un o'r gwelliannau posibl canlynol fyddai'ch dewis cyntaf?

Lleihau nifer y cwynion a geir bob blwyddyn ynghylch edrychiad dŵr tap o 180 ➔ 90	□1
Lleihau nifer y cwynion a geir bob blwyddyn ynghylch arogl a blas dŵr tap o 60 ➔ 50	□2
Bod Severn Trent yn ariannu grantiau er mwyn helpu cwsmeriaid i ddisodli pibellau cyflenwi plwm	□3

C2b A pha opsiwn fyddai'ch dewis olaf?

Lleihau nifer y cwynion a geir bob blwyddyn ynghylch edrychiad dŵr tap o 180 ➔ 90	□1
Lleihau nifer y cwynion a geir bob blwyddyn ynghylch arogl a blas dŵr tap o 60 ➔ 50	□2
Bod Severn Trent yn ariannu grantiau er mwyn helpu cwsmeriaid i ddisodli pibellau cyflenwi plwm	□3

IF S0=2, SHOW VIDEO 2

C2c Pa un o'r gwelliannau posibl canlynol fyddai'ch dewis cyntaf?

Lleihau nifer y cwynion a geir bob blwyddyn ynghylch edrychiad dŵr tap o 550 ➔ 190	□1
Lleihau nifer y cwynion a geir bob blwyddyn ynghylch arogl a blas dŵr tap o 140 ➔ 80	□2
Bod Dŵr Dyffryn Dyfrdwy yn ariannu grantiau er mwyn helpu cwsmeriaid i ddisodli pibellau cyflenwi plwm	□3

C2d A pha opsiwn fyddai'ch dewis olaf?

Lleihau nifer y cwynion a geir bob blwyddyn ynghylch edrychiad dŵr tap o 550 ➔ 190	□1
Lleihau nifer y cwynion a geir bob blwyddyn ynghylch arogl a blas dŵr tap o 140 ➔ 80	□2
Bod Dee Valley yn ariannu grantiau er mwyn helpu cwsmeriaid i ddisodli pibellau cyflenwi plwm	□3

Blaenoriaethau: Cyflenwad Dŵr

Nawr fe hoffem i chi ystyried pedair agwedd wahanol mewn perthynas â chyflenwad dŵr. Dyma nhw...

IF S0=1, SHOW VIDEO 3

C3a Pa un o'r gwelliannau posibl canlynol fyddai'ch dewis cyntaf?

Lleihau sawl litr o ddŵr sy'n gollwng ar gyfartaledd ym mhob eiddo bob dydd, o 190 ➔ 160	□1
Lleihau nifer y cartrefi y tarfir arnynt am gyfnod rhwng 3 a 6 awr bob blwyddyn, o 2,600 ➔ 2,000	□2
Lleihau nifer y cartrefi y mae gwasgedd dŵr is na'r safon ofynnol yn effeithio arnynt, o 16 ➔ 12	□4

C3b A pha opsiwn fyddai'ch dewis olaf?

Lleihau sawl litr o ddŵr sy'n gollwng ar gyfartaledd ym mhob eiddo bob dydd, o 190 ➔ 160	□1
Lleihau nifer y cartrefi y tarfir arnynt am gyfnod rhwng 3 a 6 awr bob blwyddyn, o 2,600 ➔ 2,000	□2
Lleihau nifer y cartrefi y mae gwasgedd dŵr is na'r safon ofynnol yn effeithio arnynt, o 16 ➔ 12	□4

IF S0=2, SHOW VIDEO 4

0C2c Pa un o'r gwelliannau posibl canlynol fyddai'ch dewis cyntaf?

Lleihau sawl litr o ddŵr sy'n gollwng ar gyfartaledd ym mhob eiddo bob dydd, o 90 ➔ 80	□1
Lleihau nifer y cartrefi y tarfir arnynt am gyfnod rhwng 3 a 6 awr bob blwyddyn, o 5,000 ➔ 2,500	□2
Lleihau nifer y cartrefi y mae gwasgedd dŵr is na'r safon ofynnol yn effeithio arnynt, o 75 ➔ 60	□3

C3d A pha opsiwn fyddai'ch dewis olaf?

Lleihau sawl litr o ddŵr sy'n gollwng ar gyfartaledd ym mhob eiddo bob dydd, o 90 ➔ 80	□1
Lleihau nifer y cartrefi y tarfir arnynt am gyfnod rhwng 3 a 6 awr bob blwyddyn, o 5,000 ➔ 2,500	□2
Lleihau nifer y cartrefi y mae gwasgedd dŵr is na'r safon ofynnol yn effeithio arnynt, o 75 ➔ 60	□3

IF S0=1

Blaenoriaethau: Trin dŵr gwastraff a'i waredu

Nawr fe hoffem i chi ystyried tair agwedd ar wasanaethau carthffosiaeth. Dyma nhw...

SHOW VIDEO 7

C5a Pa un o'r gwelliannau posibl canlynol fyddai'ch dewis cyntaf?

Lleihau nifer yr achosion o garthffosydd yn gorlifo yng nghartrefi pobl bob blwyddyn o 6 ➔ 4	□1
Lleihau nifer yr achosion o garthffosydd yn gorlifo ar dir pobl ac yn eu gerddi bob blwyddyn, o 40 ➔ 35	□2
Lleihau nifer yr achosion o lygredd bob blwyddyn o 10 ➔ 7	□3
Gwella 3 afonydd (y mae Severn Trent yn gyfrifol am safon wael pob un ohonynt)	□4

C5b A pha opsiwn fyddai'ch dewis olaf?

Lleihau nifer yr achosion o garthffosydd yn gorlifo yng nghartrefi pobl bob blwyddyn o 6 ➔ 4	□1
Lleihau nifer yr achosion o garthffosydd yn gorlifo ar dir pobl ac yn eu gerddi bob blwyddyn, o 40 ➔ 35	□2
Lleihau nifer yr achosion o lygredd bob blwyddyn o 10 ➔ 7	□3
Gwella 3 afonydd (y mae Severn Trent yn gyfrifol am safon wael pob un ohonynt)	□4

Blaenoriaethau: Biliau

IF S0=1 C6a Edrychwch ar y tabl isod a nodwch yn fras faint mae eich cartref yn ei dalu am wasanaethau dŵr a charthffosiaeth bob blwyddyn.

Swm y mis (£)	Swm y flwyddyn (£)	
Llai na £13 y mis	Llai na £150 y flwyddyn	□1
£13 - £16 y mis	£151 - £200 y flwyddyn	□2
£17 - £20 y mis	£201 - £250 y flwyddyn	□3
£21 - £24 y mis	£251 - £300 y flwyddyn	□4
£25 - £28 y mis	£301 - £350 y flwyddyn	□5
£29 - £32 y mis	£351 - £400 y flwyddyn	□6
£33 - £37 y mis	£401 - £450 y flwyddyn	□7
£38 - £41 y mis	£451 - £500 y flwyddyn	□8
£42 - £45 y mis	£501 - £550 y flwyddyn	□9
£46 - £50 y mis	£551 - £600 y flwyddyn	□10
Dros £50 y mis	Dros £600 y flwyddyn	□11
Ddim yn gwybod	Ddim yn gwybod	□12

IF S0=2 C6b Edrychwch ar y tabl isod a nodwch yn fras faint mae eich cartref yn ei dalu am wasanaethau dŵr bob blwyddyn. Efallai bod cwmni arall, er enghraifft Dŵr Cymru, yn darparu eich gwasanaeth trin a gwaredu dŵr gwastraff (ond efallai eich bod yn cael un bil cyfun).

Swm y mis (£)	Swm y flwyddyn (£)	
Llai na £5 y mis	Llai na £60 y flwyddyn	□1
£5 - £7 y mis	£60 - £95 y flwyddyn	□2
£8 - £10 y mis	£96 - £120 y flwyddyn	□3
£11 - £15 y mis	£121 - £180 y flwyddyn	□4
£16 - £20 y mis	£181 - £240 y flwyddyn	□5
£21 - £25 y mis	£241 - £300 y flwyddyn	□6
£26 - £30 y mis	£301 - £360 y flwyddyn	□7
Dros £30 y mis	Dros £360 y flwyddyn	□8
Ddim yn gwybod	Ddim yn gwybod	□9

Dyma restr o'r holl welliannau i wasanaethau rydyn ni wedi gofyn i chi eu hystyried.

IF S0=1 *Rydyn ni wedi'u grwpio nhw i becynnau o welliannau – y rhai glas, y rhai llwyd a'r rhai melyn.*

IF S0=2 *Rydyn ni wedi'u grwpio nhw i becynnau o welliannau – y rhai glas a'r rhai llwyd.*

Yn y man, byddwch yn gweld pedwar opsiwn (A, B, C a D). Bydd pob un yn disgrifio lefel gwasanaeth ar gyfer pob pecyn – mae pob agwedd mewn pecyn naill ai ar y lefel 'bresennol' neu ar y lefel 'wedi gwella'.

Hoffwn egluro beth mae pob opsiwn yn ei ddisgrifio.

IF S0=1 *Pan fyddwch yn gweld Opsiwn B, bydd yn dangos lefel 'wedi gwella' ar gyfer dŵr tap, sy'n golygu bod y tair agwedd (glas) ar Gerdyn Crynodeb A –* ***edrychiad dŵr, arogl a blas dŵr a disodli pibellau plwm*** *– ar y lefel 'wedi gwella'. Bydd Opsiwn C, ar y llaw arall, yn parhau i gynnig y gwasanaeth presennol ar gyfer yr agweddau glas hyn.*

IF S0=2 *Pan fyddwch yn gweld Opsiwn B, bydd yn dangos lefel 'wedi gwella' ar gyfer cyflenwad dŵr, sy'n golygu bod y tair agwedd (llwyd) ar Gerdyn Crynodeb A –* ***dŵr yn gollwng, tarfu ar eich cyflenwad a phwysedd dŵr isel*** *– ar y lefel 'wedi gwella'. Bydd Opsiwn D, ar y llaw arall, yn parhau i gynnig y gwasanaeth presennol ar gyfer yr agweddau llwyd hyn.*

Felly, mae'r pedwar opsiwn yn cynnig gwahanol gyfuniadau o wasanaethau ar lefel bresennol ac wedi gwella. Maent yn cynnwys newidiadau gwahanol i swm y bil y byddech yn ei dalu, a byddai'r newidiadau hyn ar waith bob blwyddyn rhwng 2020 a 2025.

IF S0=1 *Ar hyn o bryd, mae swm y bil cyfartalog yn* ***£341*** *y flwyddyn ar gyfer gwasanaethau dŵr a charthffosiaeth, gan gofio efallai bod bil eich cartref chi yn fwy neu'n llai na hyn.*

IF S0=2 *Ar hyn o bryd, mae swm y bil cyfartalog yn* ***£155*** *y flwyddyn ar gyfer gwasanaethau dŵr, gan gofio efallai bod bil eich cartref chi yn fwy neu'n llai na hyn.*

Ar gyfer y prisiau rydych chi'n eu gweld, dychmygwch y byddai'r rhain yn cael eu hychwanegu at y bil presennol rydyn ni newydd ofyn i chi amdano. Gallai ffactorau eraill fel chwyddiant effeithio ar y bil y byddwch yn ei dalu yn y dyfodol.

Ystyriwch y pedwar opsiwn canlynol – A, B, C a D – a nodwch pa un fyddai'ch dewis cyntaf.

C6a TICIWCH YR OPSIYNAU SYDD ORAU GENNYCH CHI

Pa opsiwn fyddai'ch dewis cyntaf?	A □1	B □2	C □3	D □4
Pa opsiwn fyddai'ch ail ddewis?	A □1	B □2	C □3	D □4
Pa opsiwn fyddai'ch trydydd dewis?	A □1	B □2	C □3	D □4

C6b TICIWCH YR OPSIYNAU SYDD ORAU GENNYCH CHI

Pa opsiwn sydd orau gennych chi?	A □1	B □2	C □3	D □4
Pa opsiwn sydd orau ond un gennych chi?	A □1	B □2	C □3	D □4
Pa opsiwn sydd orau ond dau gennych chi?	A □1	B □2	C □3	D □4

C7 Mewn punnoedd, faint fyddech yn fwy fyddech chi'n fodlon ei dalu yn eich bil dŵr bob blwyddyn i wella POB agwedd ar Gerdyn Crynodeb A i'r lefel uwch a ddisgrifir?

£_____

C8a IF S0=1 Pa dri o'r rhain, a ddangosir ar Gerdyn Crynodeb A, sydd bwysicaf i chi? [TICIWCH DRI]

Edrychiad dŵr tap	□1
Blas ac arogl dŵr tap	□2
Disodli pibellau plwm	□3
Dŵr yn gollwng	□4
Tarfu ar gyflenwad (rhwng 3 a 6 awr)	□5
Gwasgedd dŵr isel	□6
Carthffosydd yn gorlifo y tu mewn	□7
Carthffosydd yn gorlifo y tu allan	□8
Achosion o lygredd	□9
Ansawdd dŵr afonydd	□10

C8b IF S0=2 Pa dri o'r rhain, a ddangosir ar Gerdyn Crynodeb A, sydd bwysicaf i chi? [TICIWCH DRI]

Edrychiad dŵr tap	☐1
Blas ac arogl dŵr tap	☐2
Disodli pibellau plwm	☐3
Dŵr yn gollwng	☐4
Tarfu ar gyflenwad (rhwng 3 a 6 awr)	☐5
Gwasgedd dŵr isel	☐6

C9 Yn ogystal â pharhau i ddarparu ei wasanaeth craidd, fel sicrhau bod dŵr yn llifo pan fyddwch yn agor y tap, mae eich cwmni dŵr hefyd yn ystyried nifer o wasanaethau ychwanegol y gallai ei gwsmeriaid a chymunedau lleol gael budd ohonynt. Pa dri o'r rhain sydd bwysicaf i chi:

Cael mynediad at gyfleoedd hamdden ar dir mae eich cwmni dŵr yn berchen arno (fel cronfeydd dŵr)	☐1
Bod eich cwmni dŵr yn gweithio gydag ysgolion lleol i ddarparu addysg ynghylch y cylch dŵr a sut mae arbed dwr, er enghraifft	☐2
Bod eich cwmni dŵr yn ymdrechu i leihau ei allyriadau carbon	☐3
Bod eich cwmni dŵr yn ymdrechu i wella bioamrywiaeth ar ei dir, er enghraifft, drwy feithrin blodau gwyllt sy'n cefnogi peillyddion a bywyd adar	☐4
Bod eich cwmni dŵr yn sicrhau bod tir dros ben ar gael i gymunedau allu creu parciau bach a mannau gwyrdd mewn ardaloedd trefol	☐5
Cael amrywiaeth o gynlluniau talu hyblyg y gallwch ddewis o'u plith er mwyn talu eich bil dŵr	☐6
Bod amrywiaeth o sianeli digidol ar gael i chi allu cysylltu â'ch cwmni dŵr (fel Facebook, gwe-sgwrsio a Twitter)	☐7
Bod ymdeimlad lleol a Chymreig i'ch cwmni dŵr	☐8

Eich manylion

Yn olaf, fe hoffem ofyn rhai cwestiynau a fydd yn ein helpu ni i ddadansoddi canlyniadau'r arolwg hwn. Bydd eich holl atebion yn gwbl cyfrinachol ac ni fyddant yn cael eu cysylltu â'ch enw a'ch manylion personol.

D1 **Gan ystyried eich bil dŵr presennol yng nghyd-destun gwariant eich cartref, pa mor fforddiadwy neu anfforddiadwy yw'r bil yn eich barn chi?**

Fforddiadwy iawn	☐1
Fforddiadwy	☐2
Ddim yn fforddiadwy nac yn anfforddiadwy	☐3
Anfforddiadwy	☐4
Anfforddiadwy iawn	☐5

D2 **IF BLOCK=1 Mae gennym ni ddiddordeb yn yr hyn fyddai orau gennych chi o ran biliau a lefel y gwasanaeth rydych chi'n ei gael gan eich cwmni dŵr. Bydd eich biliau dŵr a charthffosiaeth fel arfer yn codi bob blwyddyn gyda chwyddiant. Yn ogystal â'r cynnydd hwn oherwydd chwyddiant, pa un o'r opsiynau canlynol fyddai orau gennych chi ei weld yng nghyswllt eich bil rhwng 2020 a 2025?**

Biliau yn cynyddu rhywfaint a gwasanaethau yn gwella	☐1
Biliau a gwasanaethau yn aros yr un fath	☐2
Biliau yn lleihau rhywfaint ond gwasanaethau yn dirywio	☐3

D3 **IF BLOCK=2 I ba raddau fyddech chi'n cytuno neu'n anghytuno â thalu bil ychydig yn uwch, dyweder £2 yn fwy y flwyddyn, er mwyn rhoi cymhorthdal i gwsmeriaid eraill sydd â thrafferthion ariannol?**

Cytuno'n gryf	☐1
Cytuno	☐2
Ddim yn cytuno nac yn anghytuno	☐3
Anghytuno	☐4
Anghytuno'n gryf	☐5

D4 **IF BLOCK=2 I ba raddau fyddech chi'n cytuno neu'n anghytuno â thalu bil ychydig yn uwch, dyweder £2 yn fwy bob blwyddyn, i leihau effaith y gweithgareddau cynnal a chadw sy'n tarfu ar ffyrdd yn eich ardal (pan fydd eich cwmni dŵr yn cynnal gweithgareddau fel canfod dŵr sy'n gollwng ac adnewyddu'r prif bibellau cyflenwi)?**

Cytuno'n gryf	☐1
Cytuno	☐2
Ddim yn cytuno nac yn anghytuno	☐3
Anghytuno	☐4
Anghytuno'n gryf	☐5

D5 Yn gyffredinol, pa mor fodlon neu anfodlon ydych chi â'ch cwmni dŵr?

Bodlon iawn	☐1
Bodlon	☐2
Ddim yn fodlon nac yn anfodlon	☐3
Anfodlon	☐4
Anfodlon iawn	☐5

D6 Pa un o'r datganiadau canlynol sy'n cyfleu orau eich safbwyntiau ar y dŵr sy'n cael ei gyflenwi i'ch cartref?

Mae dŵr yn adnodd prin a dylai cymdeithas fod yn wyliadwrus o faint ohono mae'n ei ddefnyddio	☐1
Mae dŵr yn gynnyrch rhad ac am ddim o'r awyr, ac ni ddylai pobl orfod talu amdano	☐2
Mae dŵr yn eithaf rhad a dweud y gwir – rydyn ni'n ei ddefnyddio heb feddwl faint mae'n ei gostio	☐3
Arall – (Rhowch fanylion _____)	☐4

D7 A oes mesurydd dŵr yn eich cartref?

Nac oes	☐1
Oes, fe wnes i ddewis cael mesurydd	☐2
Oes, wnes i ddim dewis cael mesurydd	☐3
Ddim yn gwybod	☐4

IF D7 = 1

D7a A fyddech chi'n hoffi i'ch cwmni dŵr gysylltu â chi i ddarparu rhagor o wybodaeth ynglŷn â sut mae mynd ati i gael mesurydd dŵr wedi'i osod? (Gellir gwneud hyn yn rhad ac am ddim)

Hoffwn	☐1
Na hoffwn	☐2

D8 **A ydych chi'n rhan o gynllun i'ch helpu chi i dalu'ch bil dŵr (fel WaterSure neu Big Difference Scheme)?**

Ticiwch Bob Un sy'n Berthnasol

Nac ydw	☐1
Ydw, WaterSure	☐2
Ydw, Big Difference Scheme	☐3
Ydw, cynllun Here2Help	
Ydw, cynllun Arall	☐4
Ddim yn gwybod	☐5

D9 **Pa un o'r categorïau incwm cyffredinol hyn sy'n adlewyrchu cyfanswm incwm blynyddol eich cartref (cyn didynnu treth)?**

Llai na £10,000	☐1
£10,000 - £19,999	☐2
£20,000 - £29,999	☐3
£30,000 - £39,999	☐4
£40,000 - £59,999	☐5
£60,000 - £79,999	☐6
£80,000 neu fwy	☐7
Ddim yn gwybod/Methu dweud/Gwell gen i beidio â dweud	☐8

IF D8 = 1 and D9 = 1

D9a **Efallai eich bod yn gymwys i gael cymorth ariannol er mwyn talu eich bil dŵr. A fyddech chi'n hoffi i'ch cwmni dŵr gysylltu â chi i ddarparu rhagor o wybodaeth i chi ynglŷn â hyn?**

Hoffwn	☐1
Na hoffwn	☐2

D10 **A oes gennych chi, neu unrhyw un yn eich cartref, salwch tymor hir, problem iechyd neu anabledd sy'n cyfyngu ar eich gweithgareddau o ddydd i ddydd neu'r gwaith y gallwch ei wneud?**

Oes	☐1
Nac oes	☐2
Ddim yn gwybod/Methu dweud/Gwell gen i beidio â dweud	☐3

D11 Pa mor aml ydych chi'n defnyddio'r rhyngrwyd fel arfer?

Sawl gwaith yn ystod y dydd	□1
Unwaith neu ddwywaith y dydd	□2
Ambell waith yr wythnos	□3
Tua unwaith yr wythnos	□4
Anaml	□5
Does gen i ddim mynediad i'r rhyngrwyd	□6

IF D11 = 6

D11a Beth yw'r rheswm sros hynny? [Ticiwch bob un sy'n berthnasol]

Mae'n rhy ddrud cael dyfais a/neu gysylltiad â'r rhyngrwyd	□1
Dydw i ddim yn dymuno cael mynediad i'r rhyngrwyd	□2
Does dim rhwydwaith ar gael yn fy ardal	□3
Arall – (Rhowch fanylion _____)	□4

Close

Diolch yn fawr am eich amser

Opsiwn A	Opsiwn B	Opsiwn C	Opsiwn D
Dŵr Tap: **Wedi Gwella**	Dŵr Tap: **Wedi Gwella**	Dŵr Tap: **Presennol**	Dŵr Tap: **Wedi Gwella**
Cyflenwad Dŵr: **Presennol**	Cyflenwad Dŵr: **Wedi Gwella**	Cyflenwad Dŵr: **Wedi Gwella**	Cyflenwad Dŵr: **Wedi Gwella**
Dŵr gwastraff: **Wedi Gwella**	Dŵr gwastraff: **Wedi Gwella**	Dŵr gwastraff: **Presennol**	Dŵr gwastraff: **Presennol**
Bil Blynyddol: **£0** *[£341 ar gyfartaledd]*	Bil Blynyddol: **+ £4** *[£345 ar gyfartaledd]*	Bil Blynyddol: **£0** *[£341 ar gyfartaledd]*	Bil Blynyddol: **+ £10** *[£351 ar gyfartaledd]*

[EXAMPLE SP SHOWCARD]

CERDYN CRYNODEB A

	Aspect of Service	Current Service	Improved Service Level
Dŵr Tap	Edrychiad y dŵr	180 o gwynion y flwyddyn am edrychiad dŵr tap	90 o gwynion y flwyddyn am edrychiad dŵr tap
	Blas ac arogl y dŵr	60 o gwynion y flwyddyn arogl a blas dŵr tap	50 o gwynion y flwyddyn arogl a blas dŵr tap
	DisodliPibellau Plwm	Disodlirhan y cwmni dŵr o'r bibell gyflenwi yn unig	Sefydlu grant i helpu cwsmeriaid ddisodli'r bibell
Cyflenwad Dŵr	Dŵr yn gollwng	190 litr o ddŵr yn cael ei golli ym mhob cartref bob dydd ar gyfartaledd	160 litr o ddŵr yn cael ei golli ym mhob cartref bob dydd ar gyfartaledd
	Tarfu ar gyflenwad (rhwng 3 a 6 awr)	Effeithio ar 30 eiddo y flwyddyn	Effeithio ar 20 eiddo y flwyddyn
	Gwasgedd dŵr isel	Gwasgedd is mewn tapiau, cawodydd a boeleri yn effeithio ar 16 o gartrefi	Gwasgedd is mewn tapiau, cawodydd a boeleri yn effeithio ar 12 o gartrefi
Dŵr gwastraff	Carthffosydd yn gorlifo y tu mewn	6 achos o garthffosydd yn gorlifo yng nghartrefi pobl bob blwyddyn	4 achos o garthffosydd yn gorlifo yng nghartrefi pobl bob blwyddyn
	Carthffosydd yn gorlifo y tu allan	40 achos o garthffosydd yn gorlifo ar dir pobl a cyn eu gerddi bob blwyddyn	35 achos o garthffosydd yn gorlifo ar dir pobl a cyn eu gerddi bob blwyddyn
	Llygredd	10 achos o lygredd bob blwyddyn	7 achos o lygredd bob blwyddyn
	Ansawdd dŵr afonydd	3 chorff o ddŵr ddim yn cyrraedd safon dda	Gwella'r 3 chorff o ddŵr

Powys

Dŵr Tap	**Edrychiad dŵr tap (dŵr wedi newid lliw)**	Dylai'r dŵr sy'n dod o'ch tap fod yn glir. Yn achlysurol iawn, efallai y bydd yn edrych fel ei fod wedi newid lliw neu'n cynnwys gronynnau, fodd bynnag, mae hyn yn annhebygol o effeithio ar iechyd. Mae Severn Trent Water yn cael 180 o gwynion am edrychiad dŵr tap gan gwsmeriaid yn ardal Powys bob blwyddyn.	Gyda buddsoddiad, gallai Severn Trent Water leihau nifer y cwynion i 90 y flwyddyn.
	Blas ac arogl dŵr tap	Mae dŵr yfed yng Nghymru a Lloegr o ansawdd uchel iawn, ond weithiau efallai y byddwch yn sylwi bod blas neu arogl gwahanol arno. Mae Severn Trent Water yn cael 60 o gwynion am flas ac arogl dŵr tap gan gwsmeriaid yn ardal Powys bob blwyddyn.	Gyda buddsoddiad, gallai Severn Trent Water leihau nifer y cwynion i 50 y flwyddyn.
	Disodli pibellau plwm	Mae gan oddeutu 20% o'r cwsmeriaid ym Mhowys bibellau cyflenwi plwm (y bibell sydd rhwng y prif gyflenwad a phob eiddo). Mae'r bibell blwm yn eiddo'n rhannol i Severn Trent ac yn rhannol i'r cwsmer. Ar hyn o bryd, mae Severn Trent yn disodli'r rhan mae'n berchen arno OS oes risg bod crynodiad uchel o blwm yn yr eiddo ac OS yw'r cwsmer yn mynd ati i ddisodli'r rhan mae ef yn berchen arno hefyd.	Gyda rhagor o fuddsoddiad, gallai Severn Trent sefydlu grant a fyddai'n helpu pobl i ddisodli eu pibell blwm â phibell nad yw'n gyrydol.
Cyflenwad dŵr	**Dŵr yn gollwng**	Pibellau tanddaearol sy'n cyflenwi dŵr tap i'ch eiddo. Weithiau gall pibellau ollwng a chaiff rhywfaint o ddŵr ei golli rhwng y gweithfeydd trin a'ch eiddo. Mae faint o ddŵr sy'n gollwng ar hyn o bryd	Gyda rhagor o fuddsoddiad, gallai Severn Trent Water leihau faint o ddŵr sy'n gollwng i 160 litr ym mhob cartref bob dydd ar gyfartaledd.

		gyfwerth ag oddeutu 190 litr o ddŵr ym mhob cartref bob dydd ar gyfartaledd yn ardal Powys.	
	Tarfu ar gyflenwad (rhwng 3 a 6 awr)	O bryd i'w gilydd, gall prif bibellau dŵr wedi byrstio darfu ar eich cyflenwad dŵr yn annisgwyl. Er bod y rhan fwyaf o achosion o darfu yn cael eu datrys yn gyflym, mae rhai sy'n anoddach i'w datrys. Gall hyn olygu bod rhaid i gwsmeriaid aros yn hirach i'w cyflenwad dŵr ddychwelyd. Bob blwyddyn ceir achosion o darfu ar gyflenwad tua 30 eiddo yn ardal Powys am gyfnod rhwng 3 a 6 awr.	Gyda buddsoddiad, gallai Severn Trent leihau hyn i 20 eiddo y flwyddyn.
	Gwasgedd dŵr isel	Gall gwasgedd dŵr isel leihau llif dŵr i ddiferion ac ni fydd rhai boeleri a chawodydd yn gweithio os bydd y gwasgedd y dŵr yn is na lefelau penodol. Bob blwyddyn, mae gwasgedd dŵr sy'n is na'r safon ofynnol yn effeithio ar 16 eiddo mae Severn Trent Water yn eu gwasanaethu ym Mhowys.	Gyda rhagor o fuddsoddiad, gallai Severn Trent Water leihau nifer y cartrefi mae hyn yn effeithio arnynt i 12 y flwyddyn.
Trin a gwaredu dŵr gwastraff	**Carthffosydd yn gorlifo y tu mewn**	Yn achlysurol, gall pibell dŵr gwastraff gael ei blocio neu gall orlifo oherwydd lefel uchel o ddŵr glaw, a all arwain at garthffosydd yn gorlifo heb eu trin. Yn achlysurol, gall hyn ddigwydd yng nghartrefi pobl. Ar hyn o bryd, mae 6 achos o garthffosydd yn gorlifo y tu mewn yn yr ardal o Bowys y mae Severn Trent Water yn ei gwasanaethu.	Gyda rhagor o fuddsoddiad, byddai modd lleihau hyn i 4 achos y flwyddyn.

	Carthffosydd yn gorlifo y tu allan	Yn achlysurol, gall pibell dŵr gwastraff gael ei blocio neu gall orlifo oherwydd lefel uchel o ddŵr glaw, a all arwain at garthffosydd yn gorlifo heb eu trin mewn ardaloedd y tu allan i eiddo – yn yr ardd neu ar y stryd o flaen y tŷ. Ar hyn o bryd, mae 40 achos o garthffosydd yn gorlifo y tu allan yn yr ardal o Bowys y mae Severn Trent Water yn ei gwasanaethu.	Gyda rhagor o fuddsoddiad, byddai modd lleihau hyn i 35 achos y flwyddyn.
	Achosion o lygredd	Mae sawl ffordd y gall dyfrffyrdd gael eu llygru gan garthion heb eu trin, er enghraifft, os bydd problem yn codi yng ngweithfeydd neu garthffosydd Severn Trent Water. Mae Severn Trent yn ymdrechu i atal achosion o lygredd difrifol iawn, ond ceir 10 mân-achos o lygredd ym Mhowys bob blwyddyn. Gallai effaith y mân-achosion hyn gynnwys rhywfaint o ffwng carthion yn tyfu o amgylch pibell ollwng, neu golli nifer fach o bysgod.	Gyda buddsoddiad, gallai Severn Trent leihau hyn i 7 achos y flwyddyn.
	Ansawdd dŵr afonydd	Gall Severn Trent Water effeithio ar ansawdd dŵr yn yr afonydd mae ei weithfeydd trin carthion yn gollwng gwastraff iddynt. Lle bo ansawdd dŵr afonydd yn isel, gallai hyn olygu na ellir cynnal bywyd gwyllt a phlanhigion yn yr afon nac ar ei glannau. Mae 75 corff o ddŵr (afonydd a chronfeydd dŵr) ym Mhowys, gan gynnwys 730 km o afonydd, ac nid yw safon 3 o'r rhain yn dda o ganlyniad i weithgarwch Severn Trent.	Drwy fuddsoddi yn ei weithfeydd trin carthion, gallai Severn Trent wella'r 3 chorff o ddŵr yma. Byddai hyn yn golygu y byddai'r afonydd hyn yn cael eu hadfer i gyflwr bron yn naturiol.

Dŵr Tap	**Edrychiad dŵr tap (dŵr wedi newid lliw)**	Dylai'r dŵr sy'n dod o'ch tap fod yn glir. Yn achlysurol iawn, efallai y bydd yn edrych fel ei fod wedi newid lliw neu'n cynnwys gronynnau, fodd bynnag, mae hyn yn annhebygol o effeithio ar iechyd. Mae Dŵr Dyffryn Dyfrdwy yn cael 550 o gwynion gan gwsmeriaid am edrychiad dŵr tap bob blwyddyn.	Gyda buddsoddiad, gallai Dŵr Dyffryn Dyfrdwy leihau nifer y cwynion i 190 y flwyddyn.
	Blas ac arogl dŵr tap	Mae dŵr yfed yng Nghymru a Lloegr o ansawdd uchel iawn, ond weithiau efallai y byddwch yn sylwi bod blas neu arogl gwahanol arno. Mae Dŵr Dyffryn Dyfrdwy yn cael 140 o gwynion am flas ac arogl dŵr gan gwsmeriaid bob blwyddyn.	Gyda buddsoddiad, gallai Dŵr Dyffryn Dyfrdwy leihau nifer y cwynion i 80 y flwyddyn.
	Disodli pibellau plwm	Mae gan oddeutu 20% o gwsmeriaid Dŵr Dyffryn Dyfrdwy bibellau cyflenwi plwm (y bibell sydd rhwng y prif gyflenwad a phob eiddo). Mae'r bibell blwm yn eiddo'n rhannol i Ddŵr Dyffryn Dyfrdwy ac yn rhannol i'r cwsmer. Ar hyn o bryd, mae Dŵr Dyffryn Dyfrdwy yn disodli'r rhan mae'n berchen arno OS oes risg bod crynodiad uchel o blwm yn yr eiddo ac OS yw'r cwsmer yn mynd ati i ddisodli'r rhan mae ef yn berchen arno hefyd.	Gyda rhagor o fuddsoddiad, gallai Dŵr Dyffryn Dyfrdwy sefydlu grant a fyddai'n helpu pobl i ddisodli eu pibell blwm â phibell nad yw'n gyrydol.
Cyflenwad dŵr	**Dŵr yn gollwng**	Pibellau tanddaearol sy'n cyflenwi dŵr i'ch eiddo. Gall pibellau ollwng a chaiff rhywfaint o ddŵr ei golli rhwng y gweithfeydd trin a'ch eiddo. Mae'r dŵr sy'n gollwng ar hyn o bryd gyfwerth ag oddeutu 90 litr o ddŵr ym mhob cartref bob dydd ar gyfartaledd.	Gyda buddsoddiad, gallai Dŵr Dyffryn Dyfrdwy leihau faint o ddŵr sy'n gollwng i 80 litr ym mhob cartref bob dydd ar gyfartaledd.

	Tarfu ar gyflenwad (rhwng 3 a 6 awr)	O bryd i'w gilydd, gall prif bibellau dŵr wedi byrstio darfu ar eich cyflenwad dŵr yn annisgwyl. Er bod y rhan fwyaf o achosion o darfu yn cael eu datrys yn gyflym, mae rhai sy'n anoddach i'w datrys. Gall hyn olygu bod rhaid i gwsmeriaid aros yn hirach i'w cyflenwad dŵr ddychwelyd. Bob blwyddyn, ceir achosion o darfu ar gyflenwad tua 7,000 eiddo yn ardal Dŵr Dyffryn Dyfrdwy am gyfnod rhwng 3 a 6 awr.	Gyda buddsoddiad, gallai Dŵr Dyffryn Dyfrdwy leihau hyn i 2,000 eiddo y flwyddyn.
	Gwasgedd dŵr isel	Gall gwasgedd dŵr isel leihau llif dŵr i ddiferion ac ni fydd rhai boeleri a chawodydd yn gweithio os bydd y gwasgedd y dŵr yn is na lefelau penodol. Bob blwyddyn, mae gwasgedd dŵr sy'n is na'r safon ofynnol yn effeithio ar oddeutu 75 eiddo y mae Dŵr Dyffryn Dyfrdwy yn eu gwasanaethu.	Gyda buddsoddiad, gallai Dŵr Dyffryn Dyfrdwy leihau nifer y cartrefi mae hyn yn effeithio arnynt i 60 y flwyddyn.

Report Appendix C – Non-Domestic Survey Materials

NON-DOMESTIC CUSTOMER TELEPHONE SURVEY

S0. Input area

Powys (Severn Trent customer)	☐1
Wrexham (Dee Valley Water customer)	☐2

Introduction

Good morning/afternoon/evening. My name is .... from SYSTRA, an independent market research company. I am carrying out a survey on behalf of Severn Trent Water, the company responsible for the wholesale water supply and sewerage service in your area.

Your water company wants us to gather the views of business customers and other non-household customers, to help shape the decisions they make. Would you mind answering some questions; it should take about 20 minutes? The research is conducted in line with the Data Protection Act 1998, and Market Research Society Code of Conduct. All answers you give will remain completely anonymous.

Screener Questions

S1. Are you or is anyone in your family an employee of Severn Trent Water, Dee Valley Water, or any other water company?

Yes	☐1	**CLOSE**
No	☐2	

S2. Is your company on a mains water supply?

Yes	☐1	
No	☐2	**CLOSE**
Don't know/ Not sure	☐3	

S3. Which company supplies your water service?

Severn Trent Water	☐1	
Dee Valley Water	☐2	
Don't know/ Not sure	☐3	
Other	☐4	**CLOSE**

S3a. Which company supplies your waste water service?

Severn Trent Water	☐1	
Don't know/ Not sure	☐2	
Other (please specify_____)	☐3	

S4. In what capacity are you answering this survey?

Company representative primarily involved in company finances	☐1
Company representative primarily involved in operational activities	☐2
Managing agent	☐3
Other (please specify _____)	☐4

S5. What is the general nature of your business?

[ALLOW RESPONDENT TO ANSWER AND THEN CODE]

Agriculture, Forestry and Fishing	☐1
Mining	☐2
Construction	☐3
Manufacturing	☐4
Transportation, Communications, Electric, Gas and Other public utilities	☐5
Wholesale Trade	☐6
Retail Trade	☐7
Finance, Insurance and Property, e.g. accountants, estate agents	☐8
Tourism	☐9
Services, e.g. hotels, marketing, consulting, recruitment, IT	☐10
Public Administration/Public sector	☐11
Other (Please specify)	☐12

[IF S5=12, PLEASE WRITE IN COMMENTS]

S5i Other:

S6. Thinking about water consumption which of the following best describes your business?

Low water consumption – For example similar to a household, hairdresser, office with less than 50 employees	☐1
Medium water consumption – For example, office of more than 50 employees, a car wash, a large business where water is not a key component, small farmer	☐2
High water consumption – For example, large manufacturing business, a large chemical company, large (arable) farmer	☐3

S7. Is the use of water part of your critical business functions?

Yes	☐1
No	☐2

Services provided by your water company

Q1ai Overall, how satisfied or dissatisfied are you with your water company?

Very satisfied	☐ 1
Satisfied	☐ 2
Neither satisfied nor dissatisfied	☐ 3
Dissatisfied	☐ 4
Very dissatisfied	☐ 5

IF S0=2 POWYS ONLY: Overall, how satisfied or dissatisfied are you with your retailer? (your retailer provides your billing, account management and other customer services)

Very satisfied	☐ 1
Satisfied	☐ 2
Neither satisfied nor dissatisfied	☐ 3
Dissatisfied	☐ 4
Very dissatisfied	☐ 5

IF S0=2 Q1aii Before today were you aware that Severn Trent Water now owns Dee Valley Water?

Yes	☐ 1
No	☐ 2

Q1b In the last 12 months, has your business experienced any of the following?
[INTERVIEWER TO READ OUT EACH OPTION IN TURN AND TICK ALL THAT APPLY]

Discoloured tap water (water that is brown/orange/cloudy) at your company's premises	☐ 1
Tap water at your company's premises that tastes or smells unpleasant	☐ 2
Reduction in water pressure at your company's premises	☐ 3
An interruption to your company's water supply that you were **not** notified about in advance	☐ 5
Leakage (e.g. a burst pipe in your company's neighbourhood)	☐ 6
A flood of sewage in your company buildings	☐ 7
A flood of sewage in your on your company's land	☐ 8
Seeing rivers with poor water quality	☐ 9
Seeing pollution in rivers	☐ 10
Other (Please specify)	☐ 11
None of the above	☐ 12

Q1bi If Other chosen above, please detail:

Your water company is about to begin the process of shaping its business plan for 2020 to 2025. The investments your water company choose to make in the region you live in could affect your water bill, so your water company is therefore consulting with its customers on how best to prioritise and plan for its future investments.

For reference, Severn Trent Water serves around 40,000 households and businesses in the Powys region.

Priorities for Tap Water

*We are about to show you four aspects of **tap water**, with the following information on current and potentially 'improved' levels.*

Q2a Which of the following potential improvements is your most preferred option?

180 ➔ 90 complaints per year about the appearance of tap water	☐ 1
60 ➔ 50 complaints per year about the taste and smell of tap water	☐ 2
Severn Trent to fund grants to help customers replace lead supply pipes	☐ 3

Q2b And which is your least preferred option?

180 ➔ 90 complaints per year about the appearance of tap water	☐ 1
60 ➔ 50 complaints per year about the taste and smell of tap water	☐ 2
Severn Trent to fund grants to help customers replace lead supply pipes	☐ 3

Priorities for Water Supply

We would now like you to consider four different aspects relating to the supply of your water. These are …

Q3a Which of the following potential improvements is your most preferred option?

190 ➔ 160 litres per property per day of leakage	☐ 1
2,600 ➔ 2,000 properties per year affected by an interruption lasting between 3 and 6 hours	☐ 2
16 ➔ 12 properties affected by pressure below the minimum standard	☐ 4

Q3b And which is your least preferred option?

190 ➔ 160 litres per property per day of leakage	☐ 1
2,600 ➔ 2,000 properties per year affected by an interruption lasting between 3 and 6 hours	☐ 2
16 ➔ 12 properties affected by pressure below the minimum standard	☐ 4

Priorities for Wastewater treatment and disposal

We would now like you to consider three aspects of sewerage services. These are …

Q5a Which of the following potential improvements is your most preferred option?

6 ➔ 4 incidents per year of sewer flooding inside people's homes	☐ 1
40 ➔ 35 incidents per year of sewer flooding on people's land and in gardens	☐ 2
10 ➔ 7 pollution incidents per year	☐ 3
3 rivers improved (all of those where Severn Trent is responsible for poor standard)	☐ 4

Q5b And which is your least preferred option?

6 ➔ 4 incidents per year of sewer flooding inside people's homes	☐ 1
40 ➔ 35 incidents per year of sewer flooding on people's land and in gardens	☐ 2
10 ➔ 7 pollution incidents per year	☐ 3
3 rivers improved (all of those where Severn Trent is responsible for poor standard)	☐ 4

Priorities for Billing

IF S3 < 3 Q6ii How much was your company's last bill for water and waste water services??

£_____

IF DO NOT KNOW, SKIP NEXT QUESTION

['DO NOT KNOW' SHOULD NOT BE OFFERED TO THE RESPONDENT AND ONLY SELECTED BY THE INTERVIEWER IF, AFTER PROBING FOR AN ANSWER, THE RESPONDENT STILL CANNOT GIVE AN ACCURATE ANSWER. APPROXIMATED BILL IS PREFERABLE TO NONE]

Q6ii What period does this bill cover (e.g. monthly)?

Weekly	☐1
Monthly	☐2
Quarterly	☐3
Six monthly	☐4
Annually	☐5

IF S6 = 1, BILL = £1,300

IF S6 = 2, BILL = £29,000

IF S6 = 3, BILL = £348,000

Here is a list of all the service improvements that we have asked you to consider.

We have grouped them into the packages of improvements – the blue ones, the grey ones and the yellow ones.

In a moment you will see four options (A, B, C and D). Each will describe a level of service for each package – either all aspects in a package are at the 'current' level or they are all at the 'improved' level.

I would like to explain what each option describes.

When you see Option B – it shows an 'improved' level for tap water – which means that the three (blue) aspects on Summary Card A – ***appearance of water, taste & smell of water and lead pipe replacement*** *would all be at the improved level. Option C, on the other-hand, would continue to offer the current service for these blue aspects.*

So, the four options have different combinations of current and improved services. They have different changes to the bill level that you would pay, and these changes would be effective annually from 2020 to 2025. For the prices that you see, please imagine that these would be added to your company's current bill that we just asked for.

The average bill for a company with your level of water consumption is **IF S6 = 1, £1,300; IF S6 = 2, £29,000; IF S6 = 3, £348,000,** *so please consider the following options, accepting your own company's bill may be higher or lower than this average amount.*

Other factors like inflation could also affect the bill your company pays in future.

[INTERVIEWER: ENSURE RESPONDENT UNDERSTANDS BEFORE PROCEEDING]

Please consider the following four options A, B, C and D. Which do you prefer most?

[PRESENT SP CHOICE SET 1]

Q6a PLEASE TICK PREFERRED OPTIONS

Which option do you prefer the most?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is second best?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is third best?	A ☐1	B ☐2	C ☐3	D ☐4

[PRESENT SP CHOICE SET 2]

Q6b PLEASE TICK PREFERRED OPTIONS

Which option do you prefer the most?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is second best?	A ☐1	B ☐2	C ☐3	D ☐4
Which option is third best?	A ☐1	B ☐2	C ☐3	D ☐4

Q7 What percentage bill increase per year, would your company be willing to pay for ALL of the aspects on Summary Card A to be improved to the higher level described?

£_____

Q8a Which three of these, shown on Summary Card A, are most important to you? [PLEASE TICK THREE]

Appearance of tap water	☐ 1
Taste and smell of tap water	☐ 2
Lead pipe replacement	☐ 3
Leakage	☐ 4
Interruptions to supply (lasting 3-6 hours)	☐ 5
Low water pressure	☐ 6
Internal sewer flooding incidents	☐ 7
External sewer flooding incidents	☐ 8
Pollution incidents	☐ 9
River water quality	☐ 10

Close

Thank you very much for your time.

D8 Code understanding

Not at all understood	☐ 1
Not really understood	☐ 2
Neither well nor poorly understood	☐ 3
Mostly understood	☐ 4
Completely understood	☐ 5

D9 Code engagement

Not at all engaged	☐ 1
Not really engaged	☐ 2
Neither well nor poorly engaged	☐ 3
Mostly engaged	☐ 4
Completely engaged	☐ 5

Report Appendix D – Data Tables

APPENDIX D – DATA TABLES

1.1 Domestic WTP statistical models

1.1.1 Table 1 details the final model for the domestic WTP values for packages.

1.1.2 The results reported in this appendix reflect the views expressed by our sample of 655 Welsh respondents (n=505 who participated in the WTP Research for Welsh customers, of which n=255 were in Powys and 250 were in Wrexham).

1.1.3 In each of the three sub-samples, respondents saw fundamentally different attributes, in that different improvements were presented or the attributes changed altogether. We therefore separated the core respondents' package values (and do not report these in the report).

Table 1. Domestic WTP values for packages of improvements (n=505)

NAME OF PACKAGE	RELATIVE COEFFICIENT	T-stat	MEAN WtP (£s)
Tap Water (n=255 Powys respondents)	0.318	3.76	+£1.50
Water Supply (n=255 Powys respondents)	-0.001	*0*	*£0*
Waste Water (n=255 Powys respondents)	0.386	3.46	+£1.80
Tap Water (n=250 Wrexham respondents)	0.930	8.66	+£5.70
Water Supply (n=250 Wrexham respondents)	0.246	1.99	+£1.10
Annual Bill level (+£1)	-0.219	-29.72	-
Null Model Log Likelihood	-2971		
Final Model Log Likelihood	-1729		
Observations*	2805		

* Typically, each respondent provides 6 observations, though 7% of observations were excluded where the respondent provided an illogical answer

1.2 Non-domestic WTP statistical models

1.2.1 Table 2 presents the non-domestic WTP valuations for each package.

Table 2. WTP values for packages of improvements

NAME OF PACKAGE	RELATIVE COEFFICIENT	T-stat	MEAN WtP (%)
Tap Water, all respondents	0.411	4.77	+2.04%
Water Supply, all respondents	0.194	1.98	+0.97%
Waste Water, all respondents	0.340	2.62	+1.69%
Annual Bill level (+£1)	-0.201	-11.76	-
Null Model Log Likelihood	-880		
Final Model Log Likelihood	-797		
Observations*	831		

* Typically, each respondent provides 6 observations, though 7% of observations were excluded where the respondent provided an illogical answer

1.3 Relative service aspect priorities

1.3.1 After each package of service improvements was introduced, respondents were asked to indicate their best and worst. The analysis, performed using a rank order logit model, allowed us to determine relative priorities for each service aspect.

1.3.2 The relative priorities for domestic customers in Powys are provided in Table 3, for each of the three packages.

Table 3. Relative contribution of each service improvement to overall package Value [Domestic, Powys]

SERVICE IMPROVEMENT	MODEL CO-EFFICIENT	T-STAT	CONTRIBUTION (%)
Tap Water			**100%**
• 180 ➔ 90 complaints p.a. - appearance	(Base)	(Base)	*29%*
• 60 ➔ 50 complaints p.a. - taste and smell	0.290	2.5	*31%*
• Financial support for removing lead pipes	0.732	6.0	*40%*
Null Log-Likelihood: -446.93; Final Log-Likelihood: -429.32 LR Test: 35 (Critical Value at 95%: 6.0)			
Water Supply			**100%**
• 16 ➔ 12 properties affected by low water pressure	(Base)	(Base)	*21%*
• 190 ➔ 160 litres of water a day lost through leakage	1.691	11.6	*56%*
• 2,600 ➔ 2,000 customers affected pa by interruption [3-6 hrs]	0.809	6.2	*24%*
Null Log-Likelihood: -446.93; Final Log-Likelihood: -367.91 LR Test: 158 (Critical Value at 95%: 6.0)			
Waste Water			**100%**
• 3 rivers improved (water quality)	(Base)	(Base)	*24%*
• 6 ➔ 4 incidents p.a. of sewer flooding inside homes	0.606	5.0	*29%*
• 40 ➔ 35 incidents p.a. of sewer flooding outside homes	0.321	2.7	*24%*
• 10 ➔ 7 pollution incidents p.a.	0.192	1.7	*24%*
Null Log-Likelihood: -620.92; Final Log-Likelihood: -607.94 LR Test: 26 (Critical Value at 95%: 7.8)			

1.3.3 The top-most valued improvement within each package is: Financial support for lead pipes [Tap Water], 190 ➔ 160 litres of water a day lost through leakage [Water Supply] and 6 ➔ 4 incidents p.a. of sewer flooding inside peoples' homes [Waste Water].

1.3.4 The relative priorities for the Wrexham domestic sample are provided in Table 4, for each of the packages.

Table 4. Relative contribution of each service improvement to overall package value [Domestic, Wrexham]

SERVICE IMPROVEMENT	MODEL CO-EFFICIENT	T-STAT	CONTRIBUTION (%)
Tap Water			**100%**
• 140 ➔ 80 complaints p.a. - taste and smell	(Base)	(Base)	*24%*
• Financial support for removing lead pipes	1.691	14.7	*45%*
• 550 ➔ 190 complaints p.a. - appearance	1.041	6.8	*31%*
Null Log-Likelihood: -456.33; Final Log-Likelihood: -446.14 LR Test: 20 (Critical Value at 95%: 6.0)			
Water Supply			**100%**
• 75 ➔ 60 properties affected by low water pressure	(Base)	(Base)	*27%*
• 90 ➔ 80 litres of water a day lost through leakage	1.057	8.3	*45%*
• 5,000 ➔ 2,500 customers affected pa by interruption [3-6 hrs]	0.404	3.3	*28%*
Null Log-Likelihood: -456.33; Final Log-Likelihood: -419.68 LR Test: 73 (Critical Value at 95%: 6.0)			

1.3.5 The top-most valued improvement within each package is: 140 ➔ 80 complaints p.a. - taste and smell of tap water [Tap Water] and 90 ➔ 80 litres of water a day lost through leakage [Water Supply].

1.3.6 We asked respondents to state their top 3 improvements that they had seen. Table 5 reports the domestic responses.

Table 5. Top three improvements reported by domestic customers

IMPROVEMENT	POWYS % (N=250)	WREXHAM % (N=255)
Taste and smell of tap water	61%	87%
Leakage	58%	60%
Lead pipe replacement	47%	35%
Internal sewer flooding incidents	27%	
Appearance of tap water	24%	47%
River water quality	20%	
Pollution incidents	20%	
External sewer flooding incidents	18%	
Low water pressure	13%	33%
Interruptions to supply (lasting 3-6 hours)	12%	37%

1.3.7 When considering the top three improvements, we see improvements to the taste and smell of tap water as the most important. We also see leakage as the most important of the water supply packages, which corresponds to the Maxdiff findings above, as well as supporting the top valuing of the tap water package.

1.3.8 The relative priorities for the Powys non-domestic sample are provided in Table 6, for each of the packages.

Table 6. Relative contribution of each service improvement to overall package value [Non-Domestic, Powys]

SERVICE IMPROVEMENT	MODEL CO-EFFICIENT	T-STAT	CONTRIBUTION (%)
Tap Water			**100%**
• Financial support for removing lead pipes	(Base)	(Base)	*29%*
• 60 ➔ 50 complaints p.a. - taste and smell	0.229	1.1	*30%*
• 180 ➔ 90 complaints p.a. - appearance	0.773	3.4	*41%*
Null Log-Likelihood: -134.08; Final Log-Likelihood: -128.29 LR Test: 12 (Critical Value at 95%: 6.0)			
Water Supply			**100%**
• 16 ➔ 12 properties affected by low water pressure	(Base)	(Base)	*18%*
• 190 ➔ 160 litres of water a day lost through leakage	1.827	6.7	*59%*
• 2,600 ➔2,000 customers affected pa by interruption [3-6 hrs]	0.899	3.7	*23%*
Null Log-Likelihood: -134.01; Final Log-Likelihood: -106.51 LR Test: 55 (Critical Value at 95%: 6.0)			
Waste Water			**100%**
• 40 ➔ 35 incidents p.a. of sewer flooding outside homes	(Base)	(Base)	*22%*
• 6 ➔ 4 incidents p.a. of sewer flooding inside homes	0.692	3.2	*29%*
• 10 ➔ 7 pollution incidents p.a.	0.446	2.1	*22%*
• 3 rivers improved (water quality)	0.608	2.8	*27%*
Null Log-Likelihood: -186.08; Final Log-Likelihood: -179.88 LR Test: 12 (Critical Value at 95%: 7.8)			

1.3.9 The top-most valued improvement within each package is: Financial support for lead pipes [Tap Water], 190 ➔ 160 litres of water a day lost through leakage [Water Supply] and 6 ➔ 4 incidents p.a. of sewer flooding inside peoples' homes [Waste Water].

1.3.10 The relative priorities for the Wrexham non-domestic sample are provided in Table 7, for each of the packages.

Table 7. Relative contribution of each service improvement to overall package value [Non-Domestic, Wrexham]

SERVICE IMPROVEMENT	MODEL CO-EFFICIENT	T-STAT	CONTRIBUTION (%)
Tap Water			**100%**
• 550 ➔ 190 complaints p.a. - appearance	(Base)	(Base)	*30%*
• 140 ➔ 80 complaints p.a. - taste and smell	0.301	1.5	*31%*
• Financial support for removing lead pipes	0.587	2.6	*38%*
Null Log-Likelihood: -134.15; Final Log-Likelihood: -130.88 LR Test: 7 (Critical Value at 95%: 6.0)			
Water Supply			**100%**
• 75 ➔ 60 properties affected by low water pressure	(Base)	(Base)	*26%*
• 90 ➔ 80 litres of water a day lost through leakage	0.989	4.2	*40%*
• 5,000 ➔ 2,500 customers affected pa by interruption [3-6 hrs]	0.872	3.8	*34%*
Null Log-Likelihood: -134.01; Final Log-Likelihood: -122.87 LR Test: 22 (Critical Value at 95%: 6.0)			

1.3.11 The top-most valued improvement within each package is: Financial support for lead pipes [Tap Water], 90 ➔ 80 litres of water a day lost through leakage [Water Supply], which mirrors the priorities of Powys non-domestic customers.

1.3.12 We asked respondents to state their top 3 improvements that they had seen. Table 8 reports the domestic responses.

Table 8. Top three improvements reported by non-domestic customers

IMPROVEMENT	POWYS % (N=75)	WREXHAM % (N=75)
Taste and smell of tap water	60%	72%
Lead pipe replacement	39%	52%
Leakage	32%	45%
Internal sewer flooding incidents	31%	
Appearance of tap water	29%	49%
River water quality	29%	
Pollution incidents	27%	
Low water pressure	21%	32%
Interruptions to supply (lasting 3-6 hours)	19%	49%
External sewer flooding incidents	13%	

1.3.13 When considering the top three improvements, we see improvements to the taste and smell of tap water as the most important, followed by the programme for lead pipe replacement. This generally corresponds to the MaxDiff results, which only capture the most preferred attribute, and supports the top valuation of the tap water package. We

also see leakage as the most important of the water supply packages, which corresponds to the results above.

1.4 Maximum WTP values

1.4.1 We asked the respondent to state the maximum they would be willing to pay, for all the improvements they had been presented with.

1.4.2 The Mean maximum WTP value was calculated by averaging responses across the sample. There were four responses of £100 or over in domestic responses in Powys, which we did not deem to be credible given that they were in the lower socio economic groups and so excluded from the calculation.

1.4.3 The average maximum WTP in Powys for domestic customers was thus £6.88. In comparison, the average maximum WTP in Wrexham was £4.26, though this was for water services only.

1.4.4 We calculated the distributions of the maximum WTP in Figure 1.

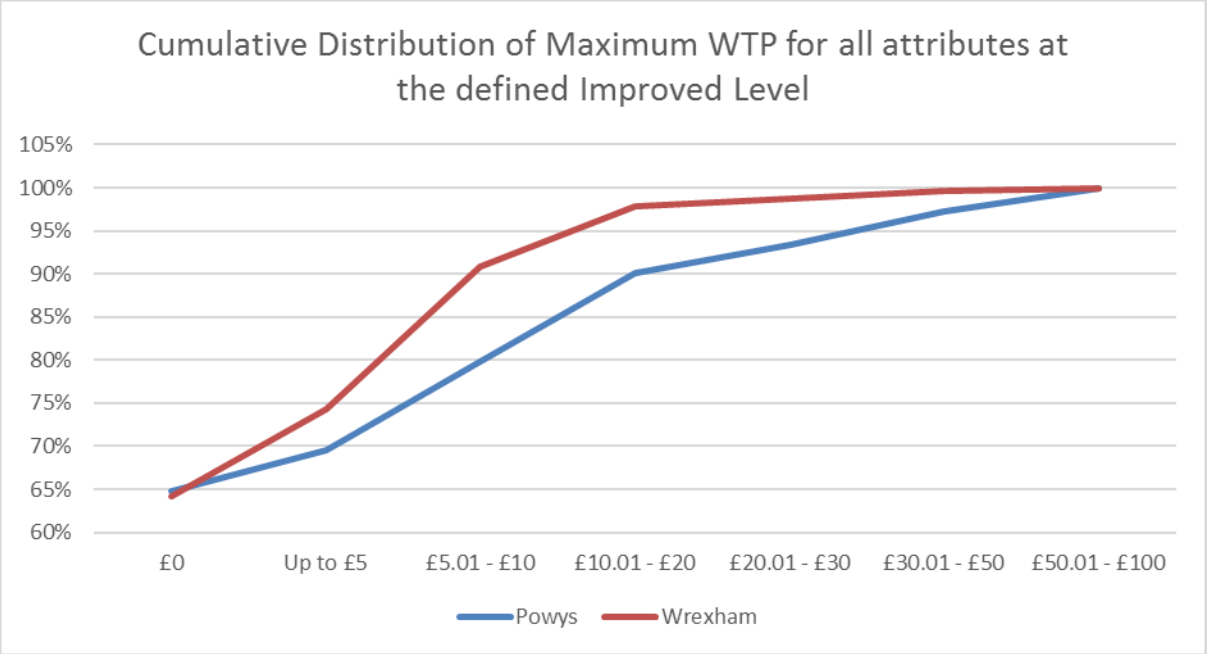


Figure 1. Cumulative distribution of maximum WTP for domestic respondents

1.4.5 Though similar proportions have a zero WTP, we can see that Powys respondents are more likely to be willing to pay higher amounts for their defined improvements.

1.4.6 The mean maximum WTP in Powys for non-domestic customers was +2.84%, compared to +3.23% in Wrexham.

1.4.7 There were no such instances of non-credible responses in the Wrexham or Non-domestic responses to this question.

1.5 Alternative WTP research in Powys

1.5.1 We obtained alternative WTP values as part of a separate piece of research conducted on behalf of Severn Trent across its whole supply area.

1.5.2 The attributes researched were for the supply area e.g. the number of complaints received from the whole Severn Trent supply area for the taste and smell of tap water.

1.5.3 The WTP values for the defined service improvements assigned by 150 domestic customers in the Powys region is provided in Table 9, for higher and lower income groups, with lower income defined as annual household income under £20,000. We have split the results by income because, as can be seen in Table 9, low income customers (which formed quite a high proportion within our sample of the respondents) were not willing to pay for improvements in sewer flooding/pollution improvements or environmental impact improvements. This meant that WTP values for improvements in sewer flooding/pollution and environmental impact were negligible for Powys customers overall, so it is more informative to show values by income category to highlight that some respondents do value these improvements.

Table 9. **Powys customers WTP values for defined improvement (n=150)**

SERVICE IMPROVEMENT	WTP (£, MED/HIGH INC)	WTP (£, LOW INC)
Tap Water	**£1.28**	
10,700 ➔ 5,560 complaints p.a. - appearance	*£0.30*	
3,200 ➔ 2,800 complaints p.a. - taste and smell	*£0.48*	
250 ➔ 210 properties affected by reduced pressure	*£0.30*	
Standpipes once every 100 years ➔ once every 200 years	*£0.21*	
61,000 ➔ 47,000 customers affected p.a. by an interruption [3-6 hrs]	*£0.44*	
34,000 ➔ 6,800 customers affected p.a. by an interruption [6-12 hrs]	*£0.45*	
22% ➔ 16% properties without an alternative water supply	*£0.44*	
434 ➔ 400 million litres of water a day lost through leakage	*£1.04*	
160 ➔ 240 miles of river water flow being improved.	*£0.93*	*£0.00*
960 ➔ 1,840 miles of river water quality improved	*£1.20*	*£0.00*
600 ➔ 1,400 hectares land being protected for wildlife/biodiversity	*£0.96*	*£0.00*
19,000 ➔ 25,000 volunteering hrs on conservation & recreation sites	*£0.83*	*£0.00*
1, 000 ➔ 785 incidents p.a. of sewer flooding inside people's homes	*£1.72*	*£0.00*
7,600 ➔ 6,800 incidents p.a. of sewer flooding outside people's homes	*£1.48*	*£0.00*
430 ➔ 300 pollution incidents p.a.	*£1.64*	*£0.00*

1.5.4 The most valued service improvements for higher income Powys domestic customers were as follows:

- reduced incidents of internal sewer flooding from 1,000 to 785 each year;
- reduced pollution from 430 to 300 incidents each year; and
- reduced incidents of external sewer flooding from 7,600 to 6,800 each year.

1.5.5 We advise caution in applying these findings in any further analysis, as some of the attributes were deemed not relevant to respondents in Wales, and such respondents were remote from the issues affecting Severn Trent customers across its whole supply area.

Report Appendix E – Distribution of Mean WTP Values

APPENDIX E –DISTRIBUTION OF MEAN WTP VALUES

1.1 Distribution of Memn WTP Values

1.1.1 Without the benefit of insight into the data, we would usually assume a Normal Distribution for our WTP values, as stated in the Central Limit Theorem.

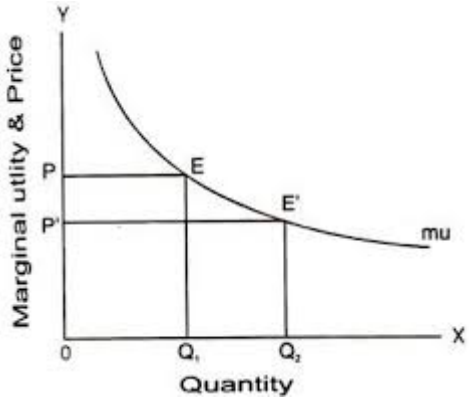
1.1.2 However, our research has shown that different types of customer will have greatly differing WTP values.

1.1.3 We have therefore performed analysis on some of our Stated Preference scenarios: We found certain cases where, for a sub-sample of the data, an option contained one package improved (for an increase in annual bill) which was considered against an option with no package improved (for the same annual bill).

1.1.4 Analysis of these isolated trade-offs has shown that a large proportion of respondents value packages very lowly, whereas another large proportion place high values (over £30) in the packages of improvements.

1.1.5 This indicates that the distribution will need to have a longer tail, that is, a wide set of valuations. We also assume that all packages are valued at least at £0, i.e. that the packages are recognised as being at least as good as the current level.

1.1.6 We therefore assume a Lognormal distribution, which starts at zero and covers positive valuations, allowing for a wide breadth of valuations (i.e. has a long tail).



1.1.7 Two constraints where used to estimate the log-normal curves (values presented in table 1):

- Percentile 50% (median) lies on the observed mean
- Difference in paying more than £30 between observed data and the theoretical log-normal distribution is 0%

Table 10. Lognormal inputs

Attribute	median WtP	% paying >£30
Pollution and flooding	£7.81	29%
Environment impacts	£7.36	25%
Tap water	£7.15	27%
Water supply	£6.59	24%

1.1.8 The mean of log-normal distribution was calculated as the log of the observed mean and the standard deviation was derived from the two constrains stated above. The lognormal cumulative density function was determined by those two lognormal parameters (mean and standard deviation). Finally, the probability of a WtP value was calculated as 1 minus its cumulative percentage.

Report Appendix F – Responses by Question

Q1a	*Before today were you aware that Severn Trent Water now owns Dee Valley Water?*	Wrexham (N=255)
	Yes	29%
	No	71%

Q1b	*In the last 12 months, have you experienced any of the following?*	Powys (N=250)	Wrexham (N=255)
	Discoloured tap water (water that is brown/orange/cloudy)	11%	16%
	Tap water that tastes or smells unpleasant	20%	4%
	Reduction in water pressure	18%	11%
	An interruption to your water supply that you were not notified about in advance	3%	3%
	Leakage (e.g. a burst pipe in your neighbourhood)	8%	4%
	A flood of sewage in your home	0%	
	A flood of sewage in your garden or on your land	7%	
	Seeing rivers with poor water quality	7%	
	Seeing pollution in rivers	4%	
	Other (Please specify)	2%	5%
	None of above	50%	71%

Q6a	*Please look at the table below and indicate roughly what amount your household pays for water and sewerage services each year.*	Powys (N=250)
	Less than £150 per year	6%
	£151 - £200 per year	7%
	£201 - £250 per year	12%
	£251 - £300 per year	8%
	£301 - £350 per year	9%
	£351 - £400 per year	6%
	£401 - £450 per year	4%
	£451 - £500 per year	2%
	£501 - £550 per year	1%
	£551 - £600 per year	2%
	Over £600 per year	1%
	Don't know	41%

Q6b	*Please look at the table below and indicate roughly what amount your household pays for water and sewerage services each year.*	Wrexham (N=255)
	Less than £60 per year	0%
	£60 - £95 per year	0%
	£96 - £120 per year	2%
	£121 - £180 per year	4%
	£181 - £240 per year	8%
	£241 - £300 per year	12%
	£301 - £360 per year	11%
	Over £360 per year	43%
	Don't know	21%

Q8a	*Which three of these, shown on Summary Card A, are most important to you?*	Powys (N=250)	Wrexham (N=255)
	Taste and smell of tap water	61%	87%
	Leakage	58%	60%
	Lead pipe replacement	47%	35%
	Internal sewer flooding incidents	27%	
	Appearance of tap water	24%	47%
	River water quality	20%	
	Pollution incidents	20%	
	External sewer flooding incidents	18%	
	Low water pressure	13%	33%
	Interruptions to supply (lasting 3-6 hours)	12%	37%

Q9	*In addition to continuing to deliver its core service, such as ensuring water is there when you turn the tap on, your water company is also considering a number of additional services which might benefit its customers and local communities. Which three of these are most important to you*	Powys (N=250)	Wrexham (N=255)
	Having access to and recreation opportunities on land your water company owns (such as reservoirs)	25%	29%
	Your water company working with local schools, for example to deliver education on the water cycle and how to save water	66%	75%
	Your water company working to reduce its carbon emissions	42%	29%
	Your water company working to improve biodiversity on its land, for example by nurturing wildflowers that support pollinators and bird life	44%	42%
	Your water company making surplus land available for local communities to create small parks and green spaces in urban areas	40%	52%
	Having a variety of flexible payment plan options for paying your water bill	67%	48%
	Having a variety of digital channels available to get in touch with your water company (such as Facebook, Webchat and Twitter)	6%	5%
	Your water company having a local Welsh feel	8%	19%

D1	*Thinking about your current water bill in the context of your household expenditure, how affordable or unaffordable to your household would you say it is?*	Powys (N=250)	Wrexham (N=255)
	Very affordable	2%	9%
	Affordable	71%	58%
	Neither affordable nor unaffordable	20%	24%
	Unaffordable	6%	7%
	Very unaffordable	1%	2%

D2	*We are interested in what your preferences are in terms of bills and the level of services you receive from your water company. Your water and sewerage bills will normally rise annually with inflation. In addition to this inflationary increase which of the following options would you prefer thinking about your bill from 2020 - 2025?*	Powys (N=131)	Wrexham (N=141)
	Bills increase slightly and services improve	36%	11%
	Bills and services stay the same	63%	87%
	Bills reduce slightly but services deteriorate	2%	2%

D3	*To what extent would you agree or disagree to paying a slightly higher bill of, say, £2 per year more, in order to assist other customers in financial difficulty in a subsidy to their bill?*	Powys (N=119)	Wrexham (N=114)
	Strongly agree	10%	4%
	Agree	25%	31%
	Neither agree nor disagree	23%	16%
	Disagree	16%	20%
	Strongly disagree	26%	30%

D4	*To what extent do you agree or disagree to paying a slightly higher bill of say, £2 per year more, in order to reduce the disruption caused by maintenance activities on roads in your area (when your water company carry out activities such as leak detection and mains renewal)?*	Powys (N=119)	Wrexham (N=114)
	Strongly agree	3%	6%
	Agree	24%	29%
	Neither agree nor disagree	30%	24%
	Disagree	22%	19%
	Strongly disagree	20%	22%

D5	*Overall, how satisfied or dissatisfied with your water company are you?*	Powys (N=250)	Wrexham (N=255)
	Very satisfied	18%	33%
	Satisfied	71%	59%
	Neither satisfied nor dissatisfied	7%	5%
	Dissatisfied	3%	2%
	Very dissatisfied	1%	1%

D6	*Which one of the following statements best reflects your views on the water supplied at your home?*	Powys (N=250)	Wrexham (N=255)
	Water is a scarce resource and society should conserve its use	39%	49%
	Water is a free good, from the sky, and we people should not have to pay for it	11%	8%
	Water is actually quite cheap – we use it without ever thinking how much it costs	50%	38%
	Other – (Please specify _____)	0%	5%

		Powys	Wrexham
D7	*Does your home have a water meter?*	(N=250)	(N=255)
	No	71%	47%
	Yes, I chose to have a meter	12%	21%
	Yes, I did not choose to have a meter	16%	32%
	Don't know	6%	2%

		Powys	Wrexham
D7a	*Would you like your water company to contact you to provide further information on how to have a water meter installed? (This can be done at no charge)*	(N=197)	(N=169)
	Yes	85%	69%
	No	15%	31%

		Powys	Wrexham
D8	*Are you a member of a scheme to assist with paying your water bill (such as WaterSure or Big Difference Scheme)?*	(N=250)	(N=255)
	No	96%	97%
	Yes, WaterSure	0.4%	1%
	Yes, Big Difference Scheme	0.4%	0%
	Yes, Here2Help scheme	0%	0%
	Yes, Other	0.4%	0%
	Don't know	2%	2%

		Powys	Wrexham
D9	*Which of these broad income categories reflects the total annual income of your household (before tax)?*	(N=250)	(N=255)
	Less than £10,000	10%	22%
	£10,000 - £19,999	27%	26%
	£20,000 - £29,999	33%	14%
	£30,000 - £39,999	24%	17%
	£40,000 - £59,999	4%	17%
	£60,000 - £79,999	1%	3%
	£80,000 or more	0%	1%
	Don't Know/Can't say/Prefer not to say		

		Powys (N=9)	Wrexham (N=32)
D9a	*You may qualify for receiving financial assistance with paying your water bill. Would you like your water company to contact you to provide further information on this?*		
	Yes	89%	44%
	No	11%	56%

D10	*Do you or anyone in your household have a long-term illness, health problem or disability which limits your daily activities or the work you can do?*	Powys (N=250)	Wrexham (N=255)
	Yes	27%	29%
	No	72%	70%
	Don't Know/Can't say/ Prefer not to say	2%	2%

D11	*How often do you typically access the internet?*	Powys (N=250)	Wrexham (N=255)
	Many times throughout the day	37%	47%
	Once or twice per day	26%	16%
	A few times per week	7%	6%
	About once a week	1%	2%
	Rarely	10%	14%
	I have no access to the internet	19%	15%

D11a	*Why is this? [Select all that apply]*	Powys (N=51)	Wrexham (N=38)
	It's too expensive to have a device and/or an internet connection	12%	0%
	I don't wish to access the internet	84%	97%
	There is no network available in my area	0%	3%
	Other – (Please specify _____)	4%	0%

Report Appendix G – Non-Financially Vulnerable Customers

1.2 Service Improvements of Greatest Importance

Table 1 compares the improvement priorities of our sample of Powys customers with those of the sub-sample who are non-financially vulnerable. [This question, which covers improvements in water and waste-water services, was only asked to those (Powys) customers who receive water and waste-water services from Hafren Dyfrdwy].

'Non-financially vulnerable' refers to customers who identified themselves as having one or more disability, or health and wellbeing issue, at QD10, such as a mobility impairment.

Table 11. Water & Wastewater Service Improvements of Greatest Importance (Q8a) by Vulnerability

CORE SERVICE	POWYS WHOLE SAMPLE (N=250)	POWYS NON-FINANCIALLY VULNERABLE ONLY (N=67)
Taste and smell of tap water	61%	58%
Leakage	58%	61%
Lead pipe replacement	47%	52%
Internal sewer flooding incidents	27%	27%
Appearance of tap water	24%	19%
River water quality	20%	22%
Pollution incidents	20%	19%
External sewer flooding incidents	18%	19%
Low water pressure	13%	13%
Interruptions to supply (lasting 3-6 hours)	12%	8%

Table 2 compares the water service improvement priorities of our sample of customers who receive water services from Hafren Dyfrdwy (i.e. those in the Wrexham area) with those of the sub-sample who are non-financially vulnerable.

Table 12. Wastewater Service Improvements of Greatest Importance (Q8b) by Vulnerability

CORE SERVICE	WREXHAM WHOLE SAMPLE (N=255)	WREXHAM NON-FINANCIALLY VULNERABLE ONLY (N=73)
Taste and smell of tap water	87%	86%
Leakage	60%	70%
Appearance of tap water	48%	49%
Interruptions to supply (3-6 hours)	37%	38%
Lead pipe replacement	35%	34%
Low water pressure	33%	22%

The results suggest that non-financially vulnerable have similar service improvement priorities as do all customers.

1.3 Support for Future Initiatives

We asked respondents to indicate their top three preferences from a list of potential Hafren Dyfrdwy initiatives. When comparing with the results for the whole sample (Table 16 of the Main Report), the results suggest that non-financially vulnerable have similar priorities to all customers.

Table 13. Top three future initiatives – non-financially vulnerable customers

SERVICE IMPROVEMENT	POWYS (N=67)	WREXHAM (N=73)	TOTAL SAMPLE (N=505)
Having a variety of flexible payment plan options for paying your water bill	67%	52%	59%
Your water company working with local schools, for example to deliver education on the water cycle and how to save water	66%	73%	69%
Your water company making surplus land available for local communities to create small parks and green spaces in urban areas	48%	55%	51%
Your water company working to improve biodiversity on its land, for example by nurturing wildflowers that support pollinators and bird life	46%	43%	44%
Your water company working to reduce its carbon emissions	34%	30%	32%
Having access to and recreation opportunities on land your water company owns (such as reservoirs)	27%	26%	26%
Your water company having a local Welsh feel	10%	16%	14%

SERVICE IMPROVEMENT	POWYS (N=67)	WREXHAM (N=73)	TOTAL SAMPLE (N=505)
Having a variety of digital channels available to get in touch with your water company (such as Facebook, webchat and twitter)	2%	6%	4%

We also asked half the respondents how they would like bills and services to change going forward; and the results for the non-financially vulnerable are reported in Table 4. Again, when comparing with the results for the whole sample (Table 17, Main Report), the results suggest that non-financially vulnerable have similar priorities to all customers.

Table 14. Preferred bill and service change – non-financially vulnerable customers

BILL AND SERVICE CHANGE	NON-FINANCIALLY VULNERABLE (N=74)	TOTAL SAMPLE (N=272)
Bills increase slightly and services improve	19%	23%
Bills and services stay the same	80%	75%
Bills reduce slightly but services deteriorate	1%	2%

There was an overall preference for bills and services to stay the same.

1.4 Willingness to pay for social benefits

We asked half of our sample to what extent they agreed, or disagreed, to paying £2 more on their annual bill to support financially vulnerable customers, and separately, to paying £2 more on their annual bill to reduce traffic disruption during maintenance operations. The results are reported, for non-financially vulnerable customers, in Table 5; and can be compared with the results for the whole sample, as reported in Table 18 of the Main Report. The findings show that non-financially vulnerable customers have a similar attitude to social benefits as customers overall.

Table 15. Willingness to pay for social tariffs and reduced disruption - non-financially vulnerable customers

PAYING £2 TO SUPPORT FINANCIALLY VULNERABLE CUSTOMERS	NON-FINANCIALLY VULNERABLE (N=66)	TOTAL SAMPLE (N=233)
Strongly agree	8%	7%
Agree	24%	28%
Neither agree nor disagree	26%	19%
Disagree	18%	18%
Strongly disagree	24%	28%
PAYING £2 TO REDUCE TRAFFIC DISRUPTIONS	**NON-FINANCIALLY VULNERABLE (N=66)**	**TOTAL SAMPLE (N=233)**
Strongly agree	5%	5%
Agree	24%	27%
Neither agree nor disagree	27%	27%
Disagree	26%	21%
Strongly disagree	18%	21%

1.5 Affordability of current bills

1.5.1 We asked all respondents to rate how affordable they perceived their water bills at present. The results are shown in Table 19.

Table 16. Affordability perception from domestic customers - non-financially vulnerable customers

AFFORDABILITY OF CURRENT BILL	POWYS (N=67)	WREXHAM (N=73)	TOTAL SAMPLE (N=505)
Very affordable	2%	8%	5%
Affordable	67%	47%	65%
Neither affordable nor unaffordable	16%	33%	22%
Unaffordable	12%	8%	7%

AFFORDABILITY OF CURRENT BILL	POWYS (N=67)	WREXHAM (N=73)	TOTAL SAMPLE (N=505)
Very unaffordable	3%	4%	1%

1.5.2 In both areas, fewer than 15% of respondents considered their bills to be unaffordable. This is slightly higher than the overall sample, where 10% of respondents considered their bills to be unaffordable.

1.6 Satisfaction with the water company

Table 17. Satisfaction with water company from domestic customers - non-financially vulnerable customers

SATISFACTION WITH WATER COMPANY	POWYS (N=67)	WREXHAM (N=73)	TOTAL SAMPLE (N=505)
Very satisfied	12%	37%	26%
Satisfied	72%	49%	65%
Neither satisfied nor dissatisfied	9%	8%	6%
Dissatisfied	3%	3%	2%
Very dissatisfied	5%	3%	1%

1.6.1 For both Powys and Wrexham non-financially vulnerable customers, fewer than 10% of respondents reported dissatisfaction with their water company. This was very marginally higher than the overall sample, at which the rate of dissatisfaction was approximately 5%.

1.7 Digital Disenfranchisement

1.7.1 We asked respondents how often they accessed the internet, which enables Hafren Dyfrdwy to better understand how to engage with its customer base. The responses are provided in Table 22.

Table 18. How often domestic respondents use the internet - non-financially vulnerable customers

HOW OFTEN YOU TYPICALLY ACCESS THE INTERNET	POWYS (N=67)	WREXHAM (N=73)
Many times throughout the day	24%	30%
Once or twice per day	24%	18%
A few times per week	10%	4%
About once a week	0%	1%

HOW OFTEN YOU TYPICALLY ACCESS THE INTERNET	POWYS (N=67)	WREXHAM (N=73)
Rarely	9%	19%
I have no access to the internet	33%	27%

1.7.2 One-third of non-financially vulnerable customers in Powys, and just over one-quarter of non-financially vulnerable customers in Wrexham, do not have access to the internet. This share of customers who do not have internet access is far greater than the overall sample of all customers in Powys and Wrexham.

1.7.3 The above results show that non-financially vulnerable customers have similar attitudes relating to service improvements and changing bill levels as all customers. It would seem, therefore, that business planning in relation to service improvements and bill-profiles that is informed by the views, and preferences, of customers overall will also be appropriate for non-financially vulnerable customers. However, if any developments are to be communicated to customers, then the media used must be carefully considered, as a significant minority of non-financially vulnerable customers do not have access to the internet.

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