NERA ECONOMIC CONSULTING

Qa RESEARCH

PR24 Willingness to Pay Customer Engagement

A Proposal for Wessex Water

9 December 2021

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1. Introduction

NERA Economic Consulting is delighted to submit this proposal to Wessex Water, to support you on the valuation research needed to inform your PR24 business plan. As set out in the remainder of this proposal document, our partnership and approach will allow us to address the problems and challenges identified by Ofwat and CCW regarding valuation modelling performed at PR19, and complement the sector-wide customer engagement exercise Ofwat plans for PR24.[1] We are ideally placed to deliver this assignment:

- NERA utilities practice includes leading experts in economic regulation, and the research methods required to value "non-market" goods like changes in water service attributes. NERA has been involved in performing customer valuation research in the water sector at every price review since the mid-1990s, and we continue to apply these techniques widely across the regulated sectors and in other settings.
- NERA's proposed project team has experience of performing valuation research studies for a wide range of clients, including Wessex Water, Bristol Water, Anglian Water, Severn Trent Water, Dublin Airport Authority UK Power Networks, National Grid, Scottish Hydro Electric Transmission, Scottish Power Transmission, and Cadent Gas.
- NERA has deep and broad experience of the range of valuation methods that could be used to inform Wessex Water's PR24 business plan, including stated and revealed preference methods. We also continue to innovate, and have proposed a new tool that aims to significantly simplify WTP survey instruments to improve customers' engagement with them, while still delivering robust valuations.

To deliver this assignment, NERA will team with Qa Research, which also has 15 years of experience conducting research within the water industry including work at PR14 and PR19 that includes WTP and Acceptability Testing. Qa Research brings to our service offering to Wessex Water:

- **Experience of gauging customers on attitude to risk** and how perceptions vary when the wording of attributes and service level metrics and probabilities are presented in different ways, which is a major challenge;
- **Specialist teams dedicated to engaging vulnerable customers** – Qa has won MRS Awards and multiple nominations for qualitative research with marginalised members of society i.e. *those in poverty and water debt, people with physical and mental health problems, elderly people (75+) living alone and immobile.* One of Qa Research's core strengths is engaging members of the general public that are disadvantaged in some way. Qa has supported a range of water companies by engaging customers with affordability issues and/or long-term health problems on different topics: South Staffs Water Social Tariff Scheme Communications (2019), Yorkshire Water PR19 Acceptability Testing (2018) and Severn Trent Green Recovery Scheme (2020);
- **Offering a full range of quant and qual data collection** methodologies tailored to the needs of the target audience, including experience of past collaborations with NERA on WTP studies; and
- **Diligence and attention to detail when analysing customer reactions to WTP** survey language and a thorough annotation of suggested improvements following co-creation techniques within cognitive testing interviews.

The remainder of this proposal sets out our proposed methodology for Part 1 and Part 2 of this assignment (respectively in Chapters 2 and 3). Chapter 4 sets out our proposed approach to project

[1] Specifically, while this common research will inform common performance commitments (PCs) and Outcome Delivery Incentive (ODI) calibration, this research will focus on the challenges and opportunities facing Wessex Water specifically as it develops its business plan.

management, including our workplan. Chapter 5 describes our proposed project team, and how we will ensure seamless interaction between NERA and Qa, with our commercial proposal in Chapter 6.

2. Proposed Methodology for Part 1: Customer Priorities and WTP for Service Outcomes

2.1. Understanding of Part 1 Objectives

We understand from the ITT that Wessex Water has recently completed a customer and stakeholder research programme to inform its overarching purpose and strategic direction for PR24. The programme included a range of qualitative and quantitative studies to identify customers' top priorities. This led to an initial list of proposed outcomes for PR24.

Wessex Water is now seeking to understand customers' priorities among this initial list of proposed outcomes, and customers' willingness to pay (WTP) for improved service across these outcomes. We will perform this research using a two-step process:

- A first stage of qualitative research through which we will engage with customers on their priorities amongst these potential outcomes, and "co-create" with customers a quantitative survey to obtain more detailed information on customers WTP and priorities in the next stage; and
- The second quantitative stage of research then involves completing the development of this quantitative instrument, including testing, that will apply innovative valuation techniques to obtain information on customers' WTP for service improvement. This survey instrument will be significantly simplified compared to traditional methods, while also providing defensible valuation results for use by Wessex Water in CBA modelling at PR24, WRMP24, and DWMP24.

2.2. Initial Qualitative Research to Co-create Survey and Identify Customer Priorities

2.2.1. Qualitative research objectives

At the start of the project, we will hold an inception meeting to confirm project objectives and Wessex Water's proposed outcome framework. As part of the meeting, we will confirm our understanding of the service attributes and metrics to be tested, and identify any specific areas of uncertainty where further qualitative engagement would be a priority.

Following these initial discussions, Qa will undertake an initial programme of qualitative research, which will combine the following two objectives:

- With both HH and NHH customers, co-develop the language that will be used in the quantitative survey to describe each attribute and service level metric. This involves providing customers with alternative descriptions of attributes and service levels, and working with them to ensure clarity of understanding, so we can identify the clearest means of describing the choices faced by customers in the quantitative survey based previous experience. Based on previous experience, we advise that the following key aspects of the WTP approach would benefit from pre-survey qualitative research:
  - The language used to describe the attributes and associated service levels; and
  - The numerical format used to describe the service level metrics and price options.[2]

[2] For instance, past experience shows that, when gauging WTP preferences for each attribute, customers' support for the same service level (e.g. a 1-in-10 chance of a supply interruption happening) can vary significantly when presented

- Undertake a prioritisation exercise of the attributes so WW can understand what matters most to HH and NHH customers and the reasons behind any preferred hierarchy.

We will combine this language testing exercise with the prioritization questions as part of the same focus groups to obtain qualitative insights on customer priorities from respondents who have first spent some time thinking about the meaning of the service attributes and the associated metrics.

We will conduct this qualitative research with three distinct groups: general household customers (GHH), vulnerable household customers (VHH), and non-household customers (NHH). In total, **up to 47 customers across all three segments** will be engaged at this stage, as explained below.

2.2.2. Approach for general household and non-household customers

We propose to conduct a total of **5 x online co-development workshops** for the HH and NHH samples split as: 3 x general household customers; and 2 x non-household customers. Up to **7 customers per session** will be invited to take part. The GHH customer sample would be split as follows, with locations to be agreed at the setup stage:

- 1 x pre-family including future bill payers, ABC1, city based;
- 1 x family – mix of those with younger and older children, C2DE, town based; and
- 1 x post-family - empty nesters where all children have left home, C2DE, rural based.

The NHH customer sample would be split as:

- 1 x city / town based SMEs inc up to 2 x larger firm (250+ employees); and
- 1 x rural / rural town SMEs.

As noted above, the core focus of the co-development workshops is to ensure the final attribute descriptions are revised in a way that all customers taking part in the WTP survey understand what they are being asked to assess. Customers will review each attribute and work together to suggest different words and phrases that either simply and/or better explain what the attribute is and means to a customer reading it for the first time i.e. in a survey setting.

To implement these workshops, we will develop research materials and a discussion guide that centre on presenting alternative "A" and "B" versions of each attribute description, with customers then co-creating a final C version, following the discussions in the workshop. Options A and B would be developed in collaboration between Qa, NERA and Wessex Water, while Version C would be the new co-developed version as recommended by customers.

In addition to the attribute language development, we would also showcase the service level metrics initially proposed by NERA and Wessex Water for each attribute. Again, we would show an A and B version and ask customers which one makes more sense to allow them to decide on their WTP preferences.

Once customers have been through all 10 attributes and service level metrics, they will then undertake a prioritisation exercise by debating which of them they perceive to be more important than others. We propose to design this prioritization exercise in the form of a qualitative 'cluster and rank' exercise, where respondents are asked to organise the attributes into a top, middle and bottom cluster.

using two different formats i.e. as either a % or fraction. Attitudes to risk would change depending on how these same numbers were presented.

The aim here will be to provide a sense of which attributes and service levels are preferred over others and, most importantly, why.

Qa has applied this approach very successfully when working with NERA in past WTP survey exercises. A key lesson learnt from this experience is the time that should be allocated to the CDW sessions to ensure participants can deliberate and refine each attribute and service level diligently. We therefore propose to **run sessions over a three-hour period,** with a 15 minute break part-way through.

We propose that co-development workshops for the GHH and NHH customers are conducted digitally using Zoom. We feel this approach is appropriate and will add value to you because: (i) the new Omicron Covid variant is at large and therefore face to face events are high risk; (ii) Zoom is a widely used and easy to access platform for customers and has been a 'go to' for the general public to connect with each other during lockdowns; and (iii) the cost and carbon impact of printing materials, travel and venue hire is removed.

Participant recruitment will be conducted by Qa's specialist recruiters based in the WW region. The process will be co-ordinated by Qa's in-house fieldwork management team. Recruiters will target potential participants using in-street interviewing approaches. Should Covid 19 restrictions tighten they may need to revert accessing their own pre-determined databases of residents and businesses across the region that have already agreed to take part in market research.

The following **incentives** to participate would be offered to individuals in each segment: (i) GHH: £80 per person; (ii) NHH: £125 per person; and (iii) VHH: £60 per person.

2.2.3. Approach for vulnerable household customers

Water companies are increasingly required to ensure that service failure (e.g. supply interruption) and aspects of service delivery (e.g. communications) do not put certain customers at a disadvantage due to their personal circumstances. Often described as 'customers in vulnerable circumstances', these individuals, in some cases, require more nuanced research approaches to ensure they feel comfortable about potentially opening up about personal and private sensitive issues.

For this qualitative stage of the WTP study, we propose to engage VHH customers using in-depth interviews (IDIs) as we know from experience that those in highly vulnerable situations can, in some cases, feel intimidated or lack confidence when being part of a group session.

Another important element of engaging VHH customers is offering them a choice as to how to engage, some would prefer and be happy to be interviewed on Zoom; others, who are less digitally confident or have no access or experience in using such tools, may prefer to offer their views via the phone. When recruiting VHH customers Qa will offer them the option of either format. They will also be offered the opportunity to be joined in the interview by a friend or family member. This can be helpful if the individual is, for example, visually impaired or hard of hearing.

For those who select the telephone option we propose to print and post the attribute and service level metric description showcards (A and B) to them. They can then view them as Qa researchers run through the interview script, which we will have adapted from the CDW discussion guide. This will also help to assist customers when undertaking the prioritisation exercise.

For the VHH sample, we would look to define the key profile characteristics with you at the set-up meeting, but at this stage would consider those who align with one or more of the following: (i) long term health condition such as disability; (ii) very low income, dependent on benefits, are in or have experienced water debt; (iii) elderly aged 75+ living alone / isolated; and digitally excluded – have very limited access to the internet for whatever reason.

For VHH customers we propose to conduct **12 x in-depth interviews** split as: 4 x long term health condition, 4 x very low income, and 4 x elderly aged 75+ living alone. Amongst the 9 IDIs, would ensure up to 5 would be digitally excluded i.e. they have very limited or no access to the internet for whatever reason.

2.2.4. Qualitative research outputs

Once all of the initial qual stage methods are complete Qa will review all of the data amongst the researchers that conducted the CWDs and VHH IDIs.

From this review, Qa will provide the following to NERA and Wessex Water:

- Revised wording for each of the 10 attributes design to be slotted into the survey;
- Recommended numerical descriptions (e.g. percentages/fractions/ratios) for each service level metric per attribute; and
- An indication of the hierarchy of the attributes according to customer preference and the reasons for their selection.

2.3. Methodological Options for WTP Estimation

2.3.1. Some form of stated preference will be needed to meet Wessex Water's valuation objectives

The second objective of Part 1 of the assignment is to understand customers' WTP for improved service across Wessex Water's proposed outcomes. For the purposes of Part 1 of this assignment, we recommend using stated preference methods, whereby customers' WTP is elicited from hypothetical choice experiments in a survey format.

By contrast with stated preference methods, revealed preference methods encompass a range of techniques that use evidence from markets related to specific service attributes, as a proxy to estimate WTP for those attributes. These methods can be useful as a sense-check on other methods, as we recommend as part of our menu of options for Part 2 of this assignment. However, these methods are not available for all attributes of service, and they tend to underestimate customers' WTP for service improvements, so they mainly serve as a lower bound for cost-benefit analysis, rather than a 'preferred' estimate.

Traditional stated preference methods, as well as other modified versions used by some water companies at PR19, have been widely criticized by industry experts and regulators, including Ofwat and CCW. To address these criticisms, we have developed a new stated preference approach that makes use of our 'big data' capabilities to enable simplified respondent choices (where attributes are assessed one at a time) while also maintaining, if not enhancing, the robustness of the underlying econometric model.

We describe our proposed approach in the sections below.

2.3.2. Our recommended approach aims to improve customer engagement in stated preference exercises

Stated preference methods elicit customer priorities by asking them to trade off changes in service quality versus changes in their bills. In traditional stated preference surveys, such trade-offs are presented in the form of 'choice experiments', where respondents choose between two alternative packages of changes in levels of service and associated bill levels. However, in practice this traditional approach placed a significant cognitive burden on respondents, thereby undermining the robustness of the results. In particular:

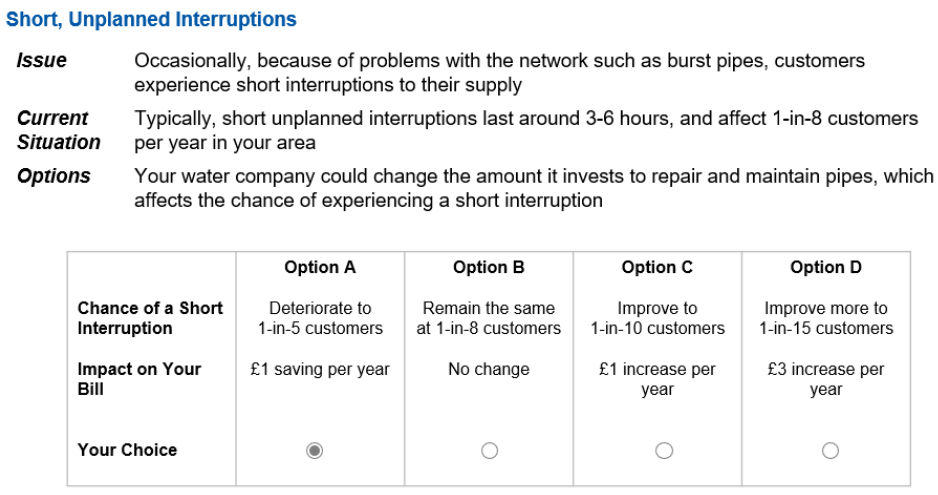
- Traditional choice experiments group several attributes of service together, requiring respondent to consider multiple attributes at the same time;
- Service levels may be moving in different directions or be described in different units, which could create confusion;
- Complex attribute definitions (even when simplified extensively) require extensive pre-reading, with no way to test customers' memory recall; and
- Choice experiments could be presenting equally unacceptable packages (e.g. big bill increase vs. small bill increase), which may make it harder for customers to choose.

This was raised by a number of industry publications during the PR19 consultation process, including a UKWIR report noting that a key problem with stated preference was the use of scenarios which were "too complex, not real-world and too abstract".[3]

In response to these criticisms, at PR19 some companies simplified the choice experiments using a 'max-diff' design. However, this was only a marginal improvement, as respondents still had to make complex trade-offs between attributes, and acceptability of the overall package still had to be tested using traditional methods. Indeed, a report commissioned by CCW indicated that the concerns around the robustness of stated preference methods were still not resolved at PR19. The report flagged yet again the complexity of the survey instruments used at PR19, which it deemed *"incompatible with a survey format"*, and the associated doubts around the robustness of the results as truly reflective of customer preferences.[4]

To address these concerns, we have developed a new approach in-house enabled by our 'big data' computing capabilities. Our approach allows respondents to choose service levels one attribute at a time, while still enabling robust econometric modelling for WTP estimation. As illustrated in Figure 2.1, respondents are only presented with simple trade-offs between one attribute service level and a resulting bill impact in each choice card, at the same time that the attribute is described.

Figure 2.1: Under our innovative approach, respondents would only need to assess one attribute of service at a time

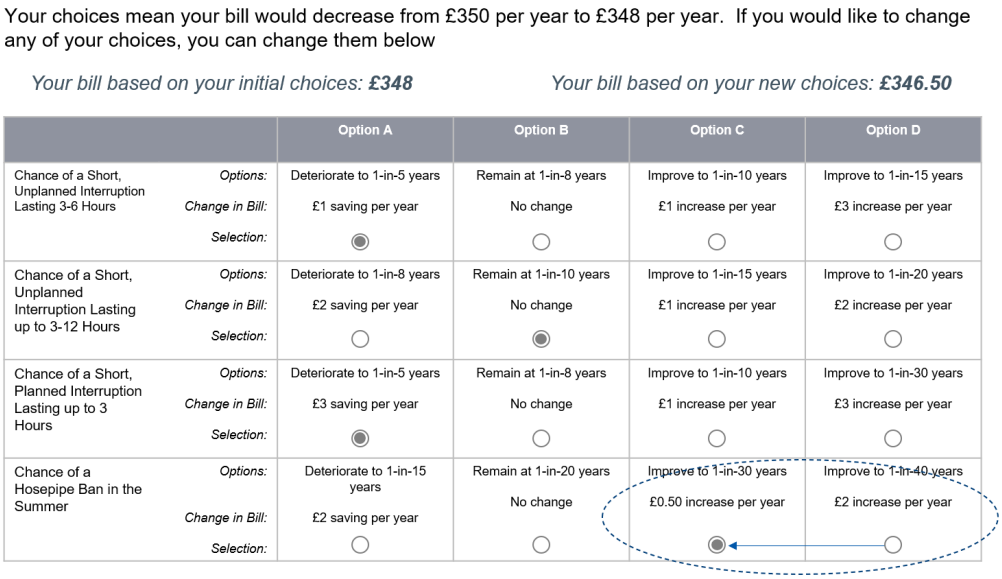


[3] UKWIR (2014) "Post-PR14 Customer Engagement, Communications and Education"

[4] Consumer Council for Water and Blue Marble Research (April 2020), Engaging water customers for better consumer and business outcomes.

At the end of the survey, to sense-check the results and test the acceptability of the whole package, we show respondents the impact of all the choices they made on their bill, and we give them the option to adjust their choices, as illustrated in Figure 2.2. In a sense, this final exercise is similar to some 'menu' and slider tools being developed by some companies, but our approach enables a more robust WTP estimation.

Figure 2.2: At the end of the survey, respondents would be able to adjust their choices with respect to the full package if necessary



Our proposed approach therefore addresses the concerns arising from other existing stated preference methods by:

- **Presenting attributes to customers one at a time**, making the choice experiment easier for them;
- **Showing attribute descriptions together with the choice exercises** so that customers need not hold attribute descriptions in their memory;
- **Giving customers the opportunity to build their own package** so they feel engaged in the business planning process, and are not forced to choose between unacceptable options;
- **Maintaining the underlying approach of randomising bill impacts to enable robust WTP estimation**, but the complex analysis takes place behind the scenes to make respondents' job easier; and
- **Using graphics and simplified descriptions** wherever possible to help with attribute descriptions and units.

While the above sample choice cards provide an illustration of our proposed approach in concept, the final design we will use for this assignment will be tailored to Wessex Water's outcomes and metrics framework as required (including developing graphics).

Our suggested approach materially increases the scale of the dataset generated. A standard conventional stated preference survey would ask (e.g.) 2,000 customers to choose between 2 packages and repeats the exercise 4 times generates 4×2×2,000 = 16,000 rows of data. Running econometric models with 16,000 observations is trivial for any modern laptop running Stata, R, or other statistical software. Our recommended approach on the other hand entails many more discrete choices, as evidenced by the example in Figure 2.2. Conducting a survey based on our recommended approach

for 2,000 customers, covering 10 attributes and 4 service levels would generate $2{,}000 \times 4^{10}$ (circa 2.1 billion) rows of data. This would require the use of "big data" techniques, which refer to the statistical analysis of large datasets, requiring bespoke statistical techniques and powerful computing resources to analyse. We can implement big data techniques with the help of our company server farms.

2.4. Engaging with Wessex Water to Calibrate the Survey

Drawing on findings from the initial qualitative research, we will engage with Wessex Water to agree on the final design of the survey instruments. If deemed appropriate by Wessex Water, we will consider involving your CCGs and any other relevant stakeholders in these early discussions, to ensure early buy-in and engagement from the beginning. For instance, our experience of valuation research at PR19 suggests that CCGs made helpful contributions to the wording that appears in questionnaires.

2.5. Testing the Survey Instrument with Customers

Once the WTP survey is in draft form and scripted onto Qa's survey platform by their specialist programmers, we propose to conduct a cognitive testing exercise, which will be undertaken by Qa's qualitative research team.

This exercise is essential in ensuring the final survey is accessible to all potential survey participants. It will not only address comprehension levels of all of the questions posed but also identify any issues with the structure of the survey.

Cognitive testing would be conducted as one-to-one in-depth interviews on Zoom whereby customers would run through the draft online survey and feedback the areas they did not fully understand or found difficult and suggest improvements.

For digitally excluded customers we propose to invite a friend or family member of theirs that is able to set up a zoom session on their behalf. This worked well for a study we did for NHS Leeds.

We propose to conduct **14 x in-depth cognitive tests** in total split as:

- **6 x GHH**, of which: 2 x pre family, 2 x family, 2 x post family, 3 x ABC1 & 3 x C2DE, 2 x water supply only, and 4 x water and waste;
- **3 x VHH**, of which: 2 x long term health issues, 2 x very low income/water debt, and 2 x elderly aged 75+ living alone; and
- **5 x NHH**, of which: 2 x micro firms, 2 x SME, and 1 x large org.

We further propose the following methodological choices for this exercise:

- GHH and VHH customers to each receive £60 incentive for participation;
- NHH customer to each receive £100 incentive for participation;
- Interviews to last up to an hour; and
- Recruitment approach as per initial qual stage.

Once all the interviews are complete Qa will provide a summary report advising on any amendments that could be made to the language and structure aiming to ensure all types of customers could participate in the live survey with ease.

We will then run a pilot survey. The signed-off questionnaire will be scripted into CAWI and CAP versions by Qa Research using Askia, a professional surveying package (Askia) which allows for full

flexibility in set-up, design and look and feel. All versions will essentially be the same survey, adapted to the specific methodologies and will be fully tested before piloting is undertaken. The pilot will be undertaken with 100 household and 50 non-household respondents and will be used to assess understanding of the questions (especially the stated preference elements) and to assess the data produced. If required, amends will be made before full surveying commences.

2.6. Sample for Main Stage Fieldwork

As set out in Chapter 6, we offer three sample size options, of increasing scale and cost. While a larger sample size may increase the representativeness of the sample, we expect all options to provide a sufficient basis for robust econometric analysis.

Indeed, we have conducted stated preference modelling with smaller sample sizes in the past which have performed well statistically. Furthermore, we expect our innovative approach to perform even better, as it simplifies the trade-offs presented to customers and ensures an efficient design of each randomized choice card.

For all options, we will employ a mixed-method approach to the main quantitative data collection to ensure we survey representative and robust samples of both household and non-household customers, as summarised in Table 2.1. We set out the details for each methodology in the sections below.

Table 2.1: Proposed sample size options and sampling methods

Method	Option 1	Option 2	Option 3
HH –online (CAWI) surveys with general customers	c.800	c. 1,200	c. 1,600
HH - top-up face-to-face (CAPI) surveys with general customers	100	200	300
HH - face-to-face (CAPI) surveys with the digitally disengaged	100	100	100
NHH - online (CAWI) surveys with SMEs	100	100	100
NHH – 'push to web' online (CAWI) interviews	c. 200	c. 300	c. 400
Total sample size	**1,000 HH + 300 NHH**	**1,500 HH + 400 NHH**	**2,000 HH + 500 NHH**

2.6.1. Household - Online (CAWI) survey of general customers

We understand that Wessex Water is able to provide a database of HH customers' contact details including email addresses (subject to agreement regarding data transfer protocols) so we have based our costs for surveying the HH sample on issuing email invitations to take part in the survey online.

This is a cost-effective approach that can yield more survey completions than using a commercial access panel provider. It also allows us to stratify the sample of customers issued with an email invitation, so we can ensure we invite both water supply customers and waste water only customers in agreed proportions. Additionally, we are also able to control for other key criteria such as metered vs. non-metered households, customers registered on the Wessex Water PSR and those in receipt of support will bills (i.e. Assist, Watersure). We anticipate that accurate demographic information may be limited, but we will use whatever you have available to help shape a representative sample.

Detail on response rates is not available, but our intention would be to issue invitations to secure the target sample size for each option via direct email invitations to customers. To encourage participation, our costs include a Prize Draw as an incentive for taking part. Specifically, we have included a prize fund of £1,500 and Qa Research would administer the draw in line with MRS guidelines. The survey would be hosted by Qa Research on their in-house servers (so all data is

collected and held directly by them) and they would also be responsible for issuing email invitations and reminders.

2.6.2. Household - Face-to-face (CAPI) top-up survey of general customers

To provide a robust and truly representative sample of general customers, we believe it will be necessary to supplement the online completions with a targeted sample of face-to-face survey completions. We would use this stage to specifically target demographics and regions that are under-represented in the online survey, so the exact quotas to be set would be agreed once the online survey has been partially completed and we know the likely profile of that sample and can, therefore, identify where the shortfalls are. Once we know this, we'd set quota targets accordingly. All interviewing would be completed on-street or on doorsteps (subject to the MRS guidance available at the time) by Qa Research's in-house Fieldwork team using CAPI, thereby ensuring that the survey instrument can be delivered in a comparable way to the online.

2.6.3. Household - Face-to-face (CAPI) survey of vulnerable/digitally disengaged customers

Although we would expect to interview some of these customers in the main online and face-to-face samples outlined above, we may not interview a sufficient number for analysis purposes and we may miss some key group, so we propose to target a sub-sample as follows:

- ***Financially vulnerable*** – those facing currently facing financial hardship
- ***Other vulnerabilities*** – including those with self-defined long-term health conditions (both physical and mental)
- ***Digitally disengaged*** – those without internet access.

We have costed for these interviews to be completed face-to-face, with recruitment undertaken via door-knocking or on-street, but there are other more targeted approaches we could adopt (within our costs) if details of these customers can be provided by Wessex Water and this can be agreed on commissioning. We would combine data with the general customers' sample.

2.6.4. Non-household - Online (CAWI) survey with SMEs

In the past, when carrying out willingness to pay surveys, we've successfully surveyed SMEs using online panels and we once again believe there is a role for this approach as a cost-effective way or accessing a base sample of NHH customers. Therefore, our costs are based on completing surveys with key decision makers in SMEs, accessed via an online panel provider that has confirmed that this is the maximum, viable sample size that could be achieved with this audience. Due to the low availability of contacts, it wouldn't be possible to set hard quotas on this sample, but we would work with the panel provider to maximise coverage by SIC and geography. The survey would be hosted on Qa Research's in-house server and all data would be collected and stored by them.

2.6.5. Non-household – 'Push to web' online (CAWI) survey with NHH customers

Capturing the views of a representative sample of NHH customers is a challenge, as contacts for this cannot be provided by Wessex Water or Retailers and commercial access panel providers are unable to provide sufficient volumes to cover a full sample. Nor is the survey suitable for delivery over the phone (via CATI). Therefore, to supplement the small sample we can collect via a panel, we propose to implement a 'push to web' approach for the remainder of the sample as this is a methodology that offers a degree of certainty about the profile of the sample, as we can set quotas to guide the recruitment of potential respondents (e.g. based on geography, SIC, company size). The process for this method is as follows;

- Qa Research will purchase a sample of businesses in the Wessex Water operating area
- They will then contact businesses via phone from their in-house contact centre and secure agreement from the correct key decision maker to complete an online survey
- An email invitation will then be issued to each recruit so they can complete online
- Chaser/follow-up calls will be carried out with those who have not completed the survey after a certain amount of time and the email invite issued again if required.

The initial phone recruitment stage of this approach ensures that the email invitation is sent to the correct decision maker in each business who can then complete it in their own time. The chaser call then helps to secure buy-in and confirm receipt of the invitation. To encourage participation our costs include an individual incentive of £25 for each completed survey (or charity donation if the respondent prefers) which reflects the likely seniority of respondents as well as the survey length and complexity. Our proposed costs for all options include the purchase of contacts from a commercial sample provider (Dun & Bradstreet).

2.7. Analysis and Reporting

Once the survey design has been finalised and survey results collected we will begin a phase of statistical analysis of the data to estimate the willingness to pay from stated preferences data.

While our innovative approach allows us to present much simpler choice cards to respondents, the underlying economic model will be the same as for traditional stated preference, whereby we estimate a utility function using logit techniques to derive WTP for improvements (WTA reductions) in service, yet adapted to the new "big data" structure.

Having conducted our market research and quantitative analysis, the next stage of work will be to present our findings to interested parties, including the Economic Regulation and Customer Policy & Engagement teams and the CCG. We will also prepare a thorough draft report documenting our approach and findings, account for any feedback on this draft, and subsequently prepare a final version.

As required by the ITT, we also expect to provide a full dataset of the responded level and analysed data in an Excel file. If required, we can also provide in our output files probability distributions around key valuations from our statistical analysis of the survey data to help your asset planning activities.

All output will be designed such that they are appropriate for publication on the Wessex Water website and for inclusion with your PR24 Business Plan submission, as well as other communication channels.

2.8. Peer Review

As well as our in-house peer review from leading experts in the fields of survey design and econometric analysis of discrete choice data, Wessex Water may wish to consider external peer review, such as by independent academics. NERA has a global network of leading academics in the fields of economics and econometrics, and as such we will be ideally placed to work with you to identify suitable peer reviewers.

3. Proposed Methodology for Part 2: Customers' Preferences on the Optimal Way to Deliver Wessex Water's Outcomes

3.1. Understanding of Part 2 Objectives

Based on the ITT and further correspondence with Wessex Water, we understand that the key objectives of Part 2 of this assignment are:

- Understanding customers' preferences around how the proposed outcomes can be best delivered;
- Exploring those areas where customers are likely to have an informed view, or where informing customers as part of the engagement activity may have an impact on research results;
- Accounting for interactions with Wessex Water's CBA for business planning, as well as its strategic planning frameworks (WRMP and DWMP) and, possibly, Ofwat's upcoming expectations around an integrated 25-year long-term delivery strategy; [5]
- Testing acceptability of the overall final package implied by the results from the WTP research in Part 1 (and, possibly, the triangulation with other WTP valuation sources derived from further studies at Part 2); and
- Considering the need for the recalibration of the results in light of upcoming guidance from Ofwat on common performance commitments (PCs) and outcome delivery incentives (ODIs).

As part of our proposed ongoing engagement with Wessex Water throughout the valuation process, we expect to discuss the available options with you at the end of Part 1 and identify the methods that best suit your requirements for Part 2. Hence, for this proposal, we set out below a range of options for research that could meet the objectives set out above, with indicative sampling options and costings for each, to form a starting point for our discussions.

3.2. Further Qualitative Research and Stated Preference Research on Specific Inputs/ Outputs

We understand that Wessex Water is interested in exploring customer preferences around specific ways to deliver each of its outcomes, and how this may affect WTP to deliver those outcomes (for instance, if they are willing to pay a higher amount for a specific way to deliver the outcome, even if that may not be the most cost-effective solution).

Based on the ITT, Wessex Water has nine proposed outcomes for PR24. We propose three alternative options to assess customer preferences regarding the ways of delivering them:

- **Qualitative research:** For outcomes where different input solutions are unlikely to materially affect differences in costs, we propose to simply conduct deliberative events using qualitative methods, using a similar approach to that described in Section 2.2;
- **Targeted stated preference survey:** For outcomes where differences in WTP for different solutions is likely to affect Wessex Water's CBA of such solutions, we propose to undertake a targeted stated preference study, using the same approach as described in Part 1. For instance, for the outcome 'sustainable abstraction', we would develop choicecards for respondents to choose between different water resource solutions (e.g. leakage reduction, metering, new reservoirs, etc.) and associated changes in bill level;

[5] Ofwat (November 2021), PR24 and beyond: Long-term delivery strategies and common reference scenarios.

- **Targeted stated preference exercise as part of deliberative events:** For some complex choices, informing respondents around the detailed trade-offs between each input solution may affect their preferences and WTP. For such attributes, we could conduct deliberative sessions with a smaller sample of customers, and incorporate stated preference questions into the event. We would ask customers to perform the same stated preference exercise before and after the detailed discussion of the trade-offs, which allows us to quantify the effect of customers becoming more informed on their WTP. We conducted this type of research for some water companies at PR19 focused on resilience attributes (leakage, vs. increased abstraction, etc), and our econometric results indicated that the effect of informing customers was indeed statistically significant.

At the beginning of Part 2, drawing on our findings from Part 1, we will discuss with Wessex Water the most appropriate approach for each outcome. We provide illustrative costings for each option in Chapter 6.

Our illustrative costings assume that the qualitative research and targeted stated preference would be based on the same approach as in Part 1, but we would also be flexible to discuss variations. For instance, if the number of attributes is smaller, we could consider a smaller sample size, and in some cases it might be logical to focus solely on household customers. We have therefore provided illustrative costings for a household sample size of 500 respondents.

For the deliberative events, we have assumed they would be conducted online via Zoom and last three hours each. We have provided costings for a total of 21 household customers attending each of the 6 events proposed. We have also provided costings for the option of conduction 12 additional in-depth interviews with a sample of vulnerable customers and those considered digitally excluded, following a similar approach as described in Section 2.2.3.

3.3. Revealed Preference Methods

As set out in section 2.3, revealed preference methods can be a useful sense-check on the core stated preference results from Part 1, as an input to the subsequent triangulation of customer valuation sources for use in cost-benefit analysis and sensitivity testing.

Revealed preference methods encompass a range of techniques based on the use of market evidence from related markets to value customers' WTP for specific outcomes. For instance:

- **Avertive behaviour methods** estimate customers' WTP for a service attribute based on the market price of goods and services customers would be willing to purchase if the attribute was not available. NERA used this approach at PR19 to estimate WTP to avoid water supply interruptions for Wessex Water, drawing on a quantitative survey to customers who had been affected by interruptions in the past. Similar methods could be used, for instance, to value WTP to avoid drinking water quality disruption events or sewer flooding incidents.

- **Hedonic pricing methods** use econometric methods to separate customers' WTP for a service attribute from the market price of a good that is assumed to include the value of that attribute. This is most commonly use to separate externality costs from house prices. Within Wessex Water's outcomes framework, this could be used, for instance, to value customers' WTP to live near a water site with high environmental quality scores relative to living near a water site with low environmental quality, controlling for all other relevant factors.

- **Travel cost methods** use data gathered from surveys of visitors of a given ecosystem on the distance travelled and time spent to reach the site, and estimate WTP by calculating the market value of the corresponding travelling costs and value of time. This could be used as a proxy to estimate WTP for improved biodiversity of ecosystems affected by Wessex Water's activities, which we understand is part of the proposed outcome framework for PR24.

At the beginning of Part 2, we will discuss with Wessex Water (and, where appropriate, its CCGs) the extent to which further customer valuations may be required and/or appropriate for triangulation with the WTP results for each outcome resulting from Part 1.

At a minimum, to leverage previous work from PR19, it would be relatively straightforward to update NERA's avertive behaviour study to value customers' WTP to avoid water supply interruptions. We have therefore included this as part of our menu of options in our commercial proposal in Chapter 6, based on a sample of 1,000 respondents (as per PR19).

Should Wessex Water be interested in any of the other revealed preference methods described above, we will provide further cost estimates and fieldwork details as required.

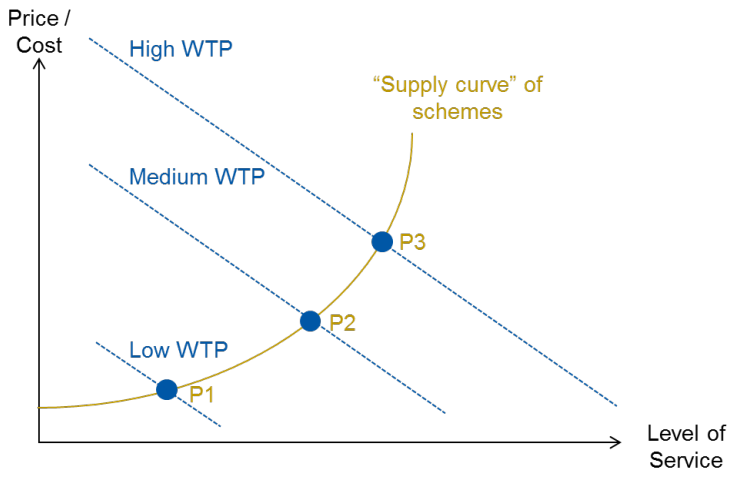
3.4. Further Valuation Research to Test Business Plan Options

As part of the Part 2 objectives, Wessex Water is also seeking to test whether the final proposed package included in its business plans is acceptable to customers.

As explained in Section 2.3.2, our proposed innovative stated preference method will include a final question in which we will ask respondent to sense-check the overall package they have selected (based on their individual choices for each attribute). However, the choices they make will be based on hypothetical choices that allow us to estimate their WTP for improvement (including ranges of uncertainty around the central WTP estimates). After Wessex Water has performed CBA modelling, it would be possible to conduct further valuation research to test customers' preferences regarding alternative business plan packages, constructed using CBA modelling that was calibrated using our Phase 1 WTP results.

Doing so will enable Wessex Water to test customers' preferences regarding the levels of service recommended by the initial CBA models that consider the effect of using different WTP results (eg "high", "medium", "low"). As illustrated in Figure 3.1 below, different levels of WTP might lead to different levels of service that result in higher or lower customer bills. We can perform further stated preference research to test which of these packages customers prefer, which serves as a sense-check on the WTP research and CBA outcomes. It therefore improves the coherence of the "golden thread" between customer engagement research, CBA modelling and business plan proposals.

Figure 3.1: ▪ Business Plan Scenarios Derived from "Triangulated" Willingness to Pay Scenarios



We would develop a survey with two types of choice exercises:

- **A single plan choice exercise**: First, we ask respondents whether or not they would accept a particular business plan, selected randomly from the three candidate business plans. We also add a further level of randomization around the baseline bill level across the three business plans, to control for other factors affecting customers' bills beyond changes in service level (e.g. baseline, +£10/year and +20/year). By analysing customers' propensity to accept each plan, we can assess which plan customers tend to prefer and how this varies with the starting level of the bill; and
- **A multiple plan choice exercise**: The downside of the first exercise is that, in common with many acceptability testing studies, it is extremely leading to ask customers whether they accept or reject a single plan. To address this, the second exercise asks customers to choose between the three alternative business plans, again with the same randomly generated starting level of the bill as in the first exercise. This exercise provides an improved basis for testing customers' propensity to accept each plan.

Based on our previous experience at PR19, we propose to arrange the quantitative fieldwork as follows: 12 cognitive interviews, initial pilot testing with 50 respondents (to be repeated if necessary), and a final survey with 600 respondents (500 online and 100 face-to-face). We propose to run this survey only for household customers.

Using the results of the survey, we will conduct econometric analysis to isolate the impact of a range of factors affecting customer choices, such as the price-quality level offered, the baseline bill level displayed, and the socio-demographic characteristics of the respondent, holding everything else equal.

The outputs from this exercise can help you calibrate your business plan in a number of ways. First, it provides a measure of acceptability for your "core" business plan proposals. It also provides a cross-check on the WTP ranges and CBA analysis, in essence showing where in the range of WTP estimates implied by Phase 1 research is the fairest reflection of customers' preferences, when shown information regarding the actual costs of the potential levels of service you could offer.

4. Proposed Approach to Project Management

4.1. Proposed Project Timelines

4.1.1. Workplan for Part 1

Based on our proposed approach set out in Chapter 2, the Gantt chart below summarises our proposed workplan for Part 1 of this assignment.

Specifically, as set out in the chart:

- We will arrange an inception meeting on **4th of January**, to confirm the specific details of the research programme and agree preferred ways of working;
- We propose to set-up **weekly progress calls** involving Wessex Water, NERA and Qa representatives;
- Qa will deliver the results from the initial **qualitative research** by the **end of January;**
- Quantitative fieldwork will not be fully finalized until mid-April. However, Qa will be able to provide interim data in batches as they become available, so that NERA will proceed with the analysis, in time to present **interim results** to Wessex Water (and the CCG, where applicable), by the **end of March**;

- We will provide a **draft report** by the **25th of April**, to provide time for Wessex Water (and the CCG, where applicable) to review and provide any feedback;
- We will provide a **final report** by the **end of April**; and
- We will hold a **workshop** to discuss final results and next steps for Part 2 with Wessex Water (and the CCG, where applicable) on **w/c 2nd of May**.

		Week commencing																
		03-1	10-1	17-1	24-1	31-1	07-2	14-2	21-2	28-2	07-3	14-3	21-3	28-3	04-4	11-4	18-4	25-4	02-5
Tasks and deliverables	**Lead**																	
Qualitative recruitment	Q																	
Qualitative research materials	Q																	
Delivery of qualitative workshops	Q																	
Qualitative analysis and reporting	Q																	
SP survey design and calibration	N																	
Survey scripting and testing	Q																	
Cognitive testing	Q																	
Pilot testing	Q																	
Analysis of pilots and survey sign-off	N																	
Online surveys (HH)	Q																	
Face-to-face VHH surveys	Q																	
Face-to-face top-up surveys	Q																	
Online surveys (NHH)	Q																	
Push to web' online surveys (NHH)	Q																	
Data analysis	N																	
Interim presentation to WSX/ CCG	N													♦				
Draft report	N																♦	
WSX/CCG feedback on draft report	-																	
Final report	N																♦	
Interim presentation to WSX/ CCG	N																	♦
Meetings																		
Inception meeting	All	☎																
Weekly catch-up	All		☎	☎	☎	☎	☎	☎	☎	☎	☎	☎	☎	☎	☎	☎	☎	☎
Presentations/workshops	All													♦				♦

4.1.2. Workplan for Part 2

We understand from the ITT that the timing for Part 2 is not fixed yet. Further, the specific timelines and deliverables for this project will depend on a number of factors, such as: the number of studies that we will run in parallel, any recalibration of sample size requirements and other specificities, and any procedural time constraints Wessex Water will face.

Once we agree the details of the specific research programme for Part 2, we will work with you to design the appropriate workplan that meets your requirements.

4.2. Our Approach to Quality and Risk Management

We confirm that NERA and Qa have robust internal quality and risk management procedures, including with regards to compliance the Market Research Society Code of Conduct, quality assurance, reputational risk management, and data protection. We provide full details of our internal procedures and policies in the attached Appendix.

5. Project Team

NERA and Qa Research will work closely to deliver this assignment. From a contractual perspective, NERA will be lead contractors, and as such will take main responsibility for delivery of final output and for managing the sub-contractor arrangement with Qa Research.

Qa Research will lead our work on qualitative research, survey design and implementing the fieldwork. In particular, Qa will ensure that we present information to customers in an understandable and meaningful way. NERA will lead our engagement with Wessex Water, undertaking the quantitative aspects of the work, and will work with you to ensure that the results of the valuation research meet your requirements. We envisage representatives from NERA and Qa will be present at all key meetings.

We consider the risks associated with the interaction between NERA and Qa Research are extremely limited. We have an established working relationship, we have set out a clear delineation of tasks between our teams, and we both have a wider pool of experts than the core project teams described below on which to draw (if required) in order to meet your expectations.

5.1. NERA Project Team

The project would be led by **Richard Druce**, a Director in NERA's London office. Richard regularly supports water companies and other regulated utilities on a range of topics, including customer valuation strategy and willingness-to-pay estimation.

Alongside Richard, **Adriana Linares** (Consultant) or **Magnus Martinsen** (Consultant) will be the project manager for this engagement, depending on the timing for the beginning of each workstream. Both Adriana and Magnus have worked with Richard on customer valuation studies previously.

Further, the statistical analysis will be led by either **Dr. Zoe Fannon** (Analyst), **Dr. Federico Sciacca** (Consultant) or **Kardin Somme** (Analyst). Zoe has extensive experience in econometric modelling for regulated companies. Federico has experience working for UK water companies in preparation of Business Plan submissions. Kardin has worked extensively for regulated companies in the UK and internationally, including international water companies.

5.2. Qa Project Team

Qa's team will be led by **Richard Bryan**, Managing director and study coordinator. Richard is a qualitative research specialist with over 20 years of experience in market and social research, with over 15 years' experience conducting research in the water industry including PR14 and PR19. He will be supported by **Michael Fountain** (director and quantitative lead), **Nick How** (research director and qualitative lead) and Dipesh Patel (IT director and lead programmer):

- **Michael Fountain** is a quantitative research specialist with over 25 years of experience in market and social research. He regularly works in partnership with economic or specialist consultancies to provide quant data collection services to inform investment calculations and econometrics, including stated preference methods for water companies.
- **Nick How** is a qualitative research specialist with over 25 years of experience in market and social research. He has extensive experience in applying innovative qual tools such as co-development, co-creation and prioritisation techniques to inform quant survey development. He regularly conducts insight with water customers in vulnerable circumstances on topics such as willingness to pay, social tariffs and acceptability testing.
- **Dipesh Patel** is a survey scripting and programming specialist with over 15 years in market and social research. He regularly works with complex questionnaires provided by internal teams as

well as external partners, such as academics and consultancies, for a range of clients including water companies.

Full CVs for the above team members are provided in the accompanying appendix.

6. Commercial Proposal

6.1. Commercial Proposal for Part 1

The table below summarises our estimated costs for the qualitative and quantitative WTP research for Part 1, based on the proposed approach as described in Chapter 2.

Reflecting our interest in working with Wessex Water on this assignment, we are willing to offer a **15% discount** on NERA's total costs, as also shown in the table. After the application of this discount, our proposed final price is as follows, for each of the sample size options described in the methodology chapter:

- **Option 1 - 1,000 HHs and 300 NHHs**: £156,664, excl VAT;
- **Option 2 - 1,500 HHs and 400 NHHs**: £171,094, excl VAT; or
- **Option 3 - 2,000 HHs and 500 NHHs**: £185,794, excl VAT.

We would also be flexible to discussing alternative sampling options and associated costs, if required.

Task	Lead	Option 1	Option 2	Option 3
Initial qualitative research				
3 x HH customer workshops	Qa	£9,708	£9,708	£9,708
2 x NHH customers workshops	Qa	£7,974	£7,974	£7,974
12 x vulnerable HH customers depths	Qa	£5,272	£5,272	£5,272
Stated preference survey - preparation				
Survey design, calibration of choice experiments and set-up	NERA	£32,186	£32,186	£32,186
Initial questionnaire development, set-up & testing	Qa	£4,800	£4,800	£4,800
9 x cognitive interviews with HH customers	Qa	£4,879	£4,879	£4,879
5 x cognitive interviews with NHH customers	Qa	£2,775	£2,775	£2,775
Stated preference survey - quantitative fieldwork				
c.800/ 1,200/ 1,600 online with HH customers	Qa	£3,198	£3,198	£3,198
100/ 200/ 300 x face-to-face HH customer top-ups	Qa	£4,673	£7,288	£10,173
100 x face-to-face with vulnerable HH customers	Qa	£5,715	£5,715	£5,715
100 x online (panel) with NHH customers	Qa	£3,050	£3,050	£3,050
c.200/ 300/ 400 x 'push to web' with NHH customers	Qa	£28,975	£40,600	£52,225
Analysis and reporting				
Survey data analysis & preparation, fieldwork technical annex	Qa	£2,560	£2,750	£2,940
Econometric analysis and WTP estimation	NERA	£26,578	£26,578	£26,578
Draft report	NERA	£14,265	£14,265	£14,265
Final report - edits to draft report	NERA	£5,693	£5,693	£5,693
Presentations to Wessex Water and CCG	NERA	£7,262	£7,262	£7,262
Total Qa costs	Qa	83,578	98,008	112,708
Total NERA costs	NERA	£85,984	£85,984	£85,984
NERA discount (15%)	NERA	15%	15%	15%
Final NERA price		73,086	73,086	73,086
Total (exc. VAT)		**£156,664**	**£171,094**	**£185,794**

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