Customer willingness to pay

Water and wastewater system performance

Contents

1   The research project

Hunter Water Corporation (HWC) is conducting a multi-phase research project to inform decisions about how to measure and improve outcomes for customers over time. The project outputs will inform business decisions and submissions to the Independent Pricing and Regulatory Tribunal (IPART) review of HWC's operating licence for 2022-2027. In 2020, HWC conducted a first phase of research — which identified a prioritised list of service level attributes valued by customers. This report forms part of the second phase of research.

The purpose of the second phase of research is to develop an understanding of the trade-offs between price and service attributes and to conduct cost-benefit analysis (CBA) of a selection of alternative service levels to inform decisions about mandatory system performance standards (SPS) contained in the operating licence in a robust manner. A key input to CBA is consumer willingness to pay (WTP) for improvements or willingness to accept (WTA) bill reductions for degradation in service performance. Hunter Water commissioned The Centre for International Economics (CIE) to conduct stated preference research to estimate these values.

SPS place limits on the number of water supply interruptions, low-water-pressure events and dry-weather wastewater overflows experienced by Hunter Water's customers. Hunter Water can undertake additional activities to reduce the number and/or impact of these events, but these activities come at a cost that is ultimately recovered from customers via water and wastewater bills. Hunter Water could also reduce bills by spending less on managing its networks, but this would result in customers experiencing more of these inconvenient events.

The purpose of the WTP estimates is to quantify the economic benefits of these changes in service performance. In this project, the term WTP has the specific meaning found in the economics literature; that is, each customer's maximum WTP (or minimum willingness to accept (WTA) compensation) for the specified change in service (Randall and Stoll 1980). It is grounded in welfare economics — a field of economics focused on the allocation of resources to maximise welfare (i.e. utility or wellbeing). It is not used in relation to customers' satisfaction or attitude towards the level of their water bill.

A report summarising the method, results and findings from the research is available at www.thecie.com.au/hunter-water-wtp. This appendix provides further details, including the sample characteristics, statistical models and questionnaires used in the research.

2 The research method

Selecting the research topics

In the first phase of research, customer views were sought on approximately 30 service level attributes. It was found that customer satisfaction is driven by a combination of service outcomes across the categories of water supply management, wastewater management, customer service, and sustainability. When asked to prioritise attributes within a category, most aspects of the services provided were rated as relatively important by a sizeable portion of the community.

Narrowing of the scope was necessary for the second phase of research as it enabled focussed consideration of cost-service level trade-offs and more robust contingent valuation or choice modelling surveys.

A preliminary coarse screening exercise was completed by HWC, based on the following criteria:

- Standards should relate to a service interruption (screen if "no"). This reflects the requirement in the Hunter Water Act 1991 s13(1)(c) for the operating licence to specify at least one performance standard in relation to "service interruptions". All sustainability attributes were screened on this basis. Standards should relate to outcomes (benefits) important to customers.
- Each attribute was rated low, medium or high based on the results of the service levels phase 1 survey. (screen if "low")
- Standards should be focused to IPART's regulatory responsibilities and avoid duplication with other regulators and regulatory requirements. (screen if "no")
- Standards should capable of being influenced by Hunter Water's actions. (screen if "no")
- Standards and measures should be capable of efficient and effective data collection and reporting, along with objective assessment. (screen if "no")

Following this screening process, it was recommended that the WTP research focus on four broad service areas:

- Water continuity
- Water pressure
- Wastewater overflows, both dry and wet-weather
- Wastewater odours

On 20 January 2021 and 4 February 2021, workshops were held with HWC asset managers to discuss wastewater and water system performance standards. The key implications of the workshops for this research were as follows.

Water continuity

- Water continuity is a risk faced by all customers over time
- The CBA should evaluate at least one improvement option and one deterioration option for the number of customers experiencing interruptions lasting longer than 5 hours
- The options are likely to be developed by varying the levels of renewing trunk mains, renewing reticulation mains, and valving/technology to reconfigure network
- Although they may not be covered by an SPS, it will be important to value other dimensions that could be affected by the service options. These dimensions could include:
    - repeat interruptions
    - planned interruptions
    - average duration of an interruption
    - interruptions lasting less than 5 hours

Water pressure

- Low water pressure is a risk faced primarily by clusters of customers, which persist over time
- The CBA should evaluate:
    - Maintaining current performance, which involves out-performing the SPS by augmenting network assets at various locations to cater for customer demand increases through growth
    - One improvement option involving targeted spending to address low water pressure for 300 severely-affected customers (in addition to maintaining the current out-performance)

Wastewater overflows

- Wastewater overflows are a risk faced by all customers over time, though there are a small number of customers experiencing persistent overflows over multiple years
- The CBA should consider 1-2 improvement options and one deterioration option, focusing on the number of repeat dry weather overflows
- The options are likely to be developed by varying the levels of renewing wastewater mains (including lining) and preventative clearing of blockages (primarily tree roots)
- Although they may not be covered by an SPS, it will be important to value other dimensions that could be affected by the service options. These dimensions could include:
    - single overflow events
    - time taken to fix an overflow
    - weather (dilution by rain)

Wastewater odours

- Odours will not be included in the WTP survey or CBA due to insufficient performance data and challenges with data collection and objective assessment across the whole wastewater network.

Valuation approach

Robust estimation of WTP using real market data (i.e. revealed preference valuation) is not possible in this project. The natural monopoly nature of water and wastewater network services and the indivisibility of the network service mean that customers are generally unable to choose between alternative service levels that could be provided by Hunter Water. As a result, customer preferences are not revealed through market choices as they would be in a competitive market. Instead we turn to stated preference techniques; in particular, contingent valuation (CV) and discrete choice experiments (DCE).

CV surveys involve presenting respondents with a specific policy or project proposal and asking whether they would vote for the proposal at a specified cost. The cost level is varied over respondents to allow the estimation of a demand curve and the expected value of WTP for the proposal.

DCE surveys involve presenting respondents with several choice questions. Each choice question presents two or more hypothetical scenarios with specified cost and asks the respondent to indicate their preferred option. The scenarios are described by multiple attributes and the levels assigned to attributes vary over scenarios and over questions. This variation is designed to support statistical estimation of the value placed by respondents on changes in each attribute.

Many DCE studies of water system performance levels have been conducted in the United Kingdom. In the Australian water sector, the DCE technique has most commonly been applied to water security and WTP to avoid water restrictions (e.g. Hensher et al. 2006, Tapsuwan et al 2007, McNair and Ward 2012). However, there is a growing body of evidence from DCE studies of system performance (Hensher et al 2005, McNair and Scarpa 2016, CIE 2019).

We applied the DCE technique to the water interruptions and wastewater overflows topics, since they require estimation of the value placed on multiple service dimensions, including the duration of the event and the likelihood of an individual customer experiencing multiple events within a 12-month period. We applied the CV technique to the water pressure topic, since it requires estimation of the value placed on a specific program.

2.1   Stated preference techniques by topic

Topic	Relevance of standard to customers	Valuation requirements	Stated preference technique
Water supply interruptions	Risk faced by all customers over time	Scenarios varying on multiple dimensions, including scenarios yet to be developed	Discrete choice experiment
Wastewater overflows	Risk faced by all customers over time	Scenarios varying on multiple dimensions, including scenarios yet to be developed	Discrete choice experiment
Chronic low water pressure	Persistent hotspots/worst-served customers due to growth areas and elevation relative to reservoirs	Two specific potential improvement programs	Contingent valuation

Source: CIE

For business customers, WTP generally equates to the financial impact of an event on business profits (lost revenue and costs incurred minus any cost savings). In the business versions of the survey instruments, we included additional questions about these financial impacts for the purpose of validating WTP estimates from the choice questions.

Survey instruments

The questionnaires used in the project are provided in later chapters of this appendix.

In addition to the DCE and CV components, the survey instruments also included questions about rebates customers receive for service failures. The eligible events and rebate amounts are set out in a deemed Customer Contract that applies between Hunter Water and property owners, which is an attachment to the operating licence. The purpose of the rebates is twofold:

- provide compensation to the customer for inconvenience, and
- penalise Hunter Water as a signal of "fair play" for poor performance.

The survey instruments were subject to multiple phases of review and revision, including Hunter Water internal review, pre-testing interviews with Hunter Water customers and volunteers from within The CIE, and reviewing pilot/soft launch survey data. Several changes were made to the survey instruments in response to the findings of these reviews, for example:

- adding clarifying statements (e.g. how progress against a water pressure program would be reported to customers)
- changing the default units of measurement for likelihoods of events occurring from 'X properties in 1000' to a percentage chance
- changing the type of questions about relative rebate levels to limit cognitive burden and complexity

- adding 'don't know' options to questions where forced answers were likely to be random.

The reasons for the chosen designs of the DCE and CV questions are outlined below.

Discrete choice experiments

Number of alternatives per question

Respondents to both the water continuity and wastewater overflows DCEs were presented with three alternatives in each choice task, with one of those alternatives being the status quo (labelled 'current package'). This design strikes an appropriate balance between statistical power and task complexity. Previous studies have found that statistical significance for a given sample size has been low where choice tasks presented only a status quo alternative and a single change option (for example, see Rolfe and Bennett 2009). Presenting four or more alternatives in each choice task was judged to be too cognitively demanding, based on feedback from participants in past studies (such as McNair and Scarpa 2016). Feedback from pre-testing interviews confirmed that the tasks should not be more complex than the three-alternative tasks used in testing.

One of the alternatives will be specified as the status quo to account for reference-dependent decision making, for which there is now a large body of evidence from behavioural economics, including in support of prospect theory (Kahnemann and Tversky 1979). Including the status quo alternative allows for the estimation of any asymmetric valuation of gains and losses. Significant asymmetry was found in the WTP studies conducted for Icon Water (McNair and Scarpa 2016) and Sydney Water (CIE 2019).

Water continuity attributes and levels

The attributes included in the water interruptions DCE were:

- Short unplanned interruptions – chance each year of an interruption lasting 1-3 hours (respondents were able to toggle been measures based on per cent and the number of properties in 1000 experiencing the event);
- Long unplanned interruptions – chance each year of an interruption lasting 5-8 hours (per cent or properties in 1000);
- Planned interruptions – chance each year of a planned interruption lasting 1-3 hours (per cent or properties in 1000); and
- Cost – the permanent change in the amount you pay for water each year ($).

These attributes were designed to align with the categories of interruptions being measured for the purpose of a cost-benefit analysis of alternative SPS. The existing water continuity standard in Hunter Water's operating licence is defined in terms of:

- the number of properties experiencing unplanned interruptions lasting longer than five continuous hours; and

- the number of properties experiencing three or more unplanned interruptions each lasting more than one hour.

Changes in Hunter Water network management to meet different standards may necessitate or result in changes in the number of planned or short unplanned interruptions.

Hunter Water conducted analysis of historical interruptions, by duration (for example, see chart 2.2). The analysis showed that:

- the average duration of unplanned customer interruptions lasting 1-5 hours was 124 minutes (approximately two hours)

- the average duration of unplanned customer interruptions lasting longer than five hours was 389 minutes (around 6.5 hours); and

- the average duration of a planned customer interruption was 123 minutes (around two hours).

The attributes relating to short, long and planned interruptions in the DCE were defined as interruptions lasting between around ±1 hour either side of these averages.

2.2 Data dashboard for unplanned water interruptions lasting longer than five hours
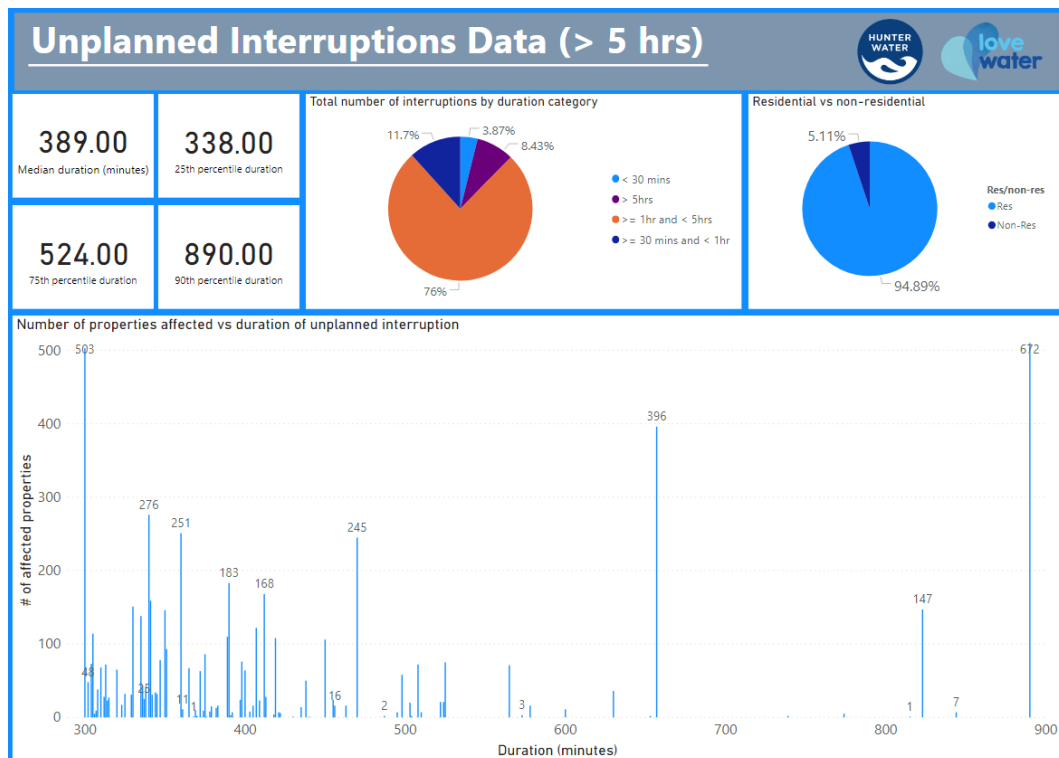
Data source: Hunter Water

The cost attribute was defined as an ongoing payment (or saving) because of the ongoing nature of the changes in costs under alternative SPS. The attribute was defined as a change in the bill amount, rather than a total bill, to limit the cognitive burden of comparing alternatives.

Respondents were able to select the units of measurement for each of the interruptions attributes. The default units of measurement were set at 'per cent', as this was most easily understood by participants in pre-testing interviews. Respondents were able to change the measure to 'properties in 1000' by clicking a button within each choice task. The literature on communicating small probabilities indicates that this 'natural frequency' format is the format that is interpreted most accurately by respondents (e.g. Hoffrage et al 2000). Both of the units of measurement offered to respondents are constant-denominator formats, which are more readily understood than constant-numerator formats, such as '1 in *X*' years (Barratt et al 2005). Furthermore, the 'properties in 1000' view is consistent with anticipated reframing of the SPS within the operating licence to allow for the effect of population growth and development.

We acknowledge it is challenging for respondents to compare small probabilities. Our review of the literature did not find a satisfactory alternative to the approach used in this study. Studies conducted by Accent and PJM Economics for various water companies (including Welsh Water, Wessex Water, Bristol Water and South East Water) in the 2019 round of regulatory reviews in the UK attempted to tackle the issue by using contingent valuation to estimate WTP for a package of attribute changes and then allocating the value to individual attributes using estimates of relative impact derived from a best-worst scaling exercise. This approach does not seem to solve the problem, since the 'package' contingent valuation questions from which WTP is derived still include changes in small probabilities. It is possible the problem could be exacerbated because the small probabilities are embedded within a larger and more-complex choice question (albeit, with all service impacts moving in the same direction – improvement or degradation). It is not clear what simplifying heuristics respondents may have used to complete this complex CV question. One potential explanation for the finding in Accent and PJM Economics (2017) that respondents did not appear to like bill reductions (even for the same level of service) is that they used price as a proxy for quality and did not attend to the service attributes.

2.3   Attributes and levels in discrete choice experiment on water continuity

	Current package	Package A/B
Short unplanned interruptions – Chance each year of an interruption lasting 1-3 hours (per cent)	14	Wave 1: 12, 13, 14, 15, 16 Wave 2/3: 10, 14, 18
Long unplanned interruptions – Chance each year of an interruption lasting 5-8 hours (per cent)	2.5	Wave 1: 1, 2, 3, 4 Wave 2/3: Almost never, 1, 4, 6
Planned interruptions – Chance each year of a planned interruption lasting 1-3 hours (per cent)	4	Wave 1: 2.5, 3.5, 4.5, 5.5 Wave 2/3: 1, 3, 5, 7
Cost – The permanent change in the amount you pay for water each year ($)	0	Households: -20, -10, -5, -2, 0, 2, 5, 10 Businesses:

	Current package	Package A/B
		Household level multiplied by max(1,respondent annual bill estimate / $1200)

Source: CIE

The 'current package' levels were based on average performance over the past five years. For example, based on table 2.4, the risk of one or more 5-hour interruptions is 24 properties in 1000 per year (or 2.4 per cent per year). This figure was rounded to 2.5 per cent for the purpose of the DCE.

2.4   Water continuity performance

	Water continuity standard – 1 or more 5-hour	Water continuity standard – 1 or more 5-hour	Water continuity standard – 3 or more 1-hour	Water continuity standard – 3 or more 1-hour	Average duration of unplanned interruption
	No. properties	Properties per 10 000	No. properties	Properties per 10 000	Minutes
2013/14	2347	100	1653	70	129
2014/15	7020	294	1959	82	364
2015/16	3901	161	1488	61	136
2016/17	10144	412	742	30	231
2017/18	4284	171	3228	129	149
2018/19	6209	244	1529	60	161
2019/20	5114	197	2152	83	150

Source: Hunter Water reporting

Wastewater overflow attributes and levels

The attributes included in the water interruptions DCE were:

- The chance of one wastewater overflow on your property each year (respondents were able to toggle been measures based on per cent and the number of properties in 10 000 experiencing the event)
- The chance of three wastewater overflows on your property each year (per cent and the number of properties in 10 000)
- Time taken to unblock pipes so you can use your toilets, sinks and other drains (hours)
- The permanent change in the amount you pay for wastewater services each year ($).

These attributes were designed to align with the categories of overflows being measured for the purpose of a cost-benefit analysis of alternative SPS. The existing overflows standard in Hunter Water's operating licence is defined in terms of:

- The number of properties experiencing an uncontrolled wastewater overflow in dry weather, and
- The number of properties experiencing three or more uncontrolled wastewater overflows in dry weather.

The overflows were described in the questionnaire as wastewater overflowing "from the maintenance holes (also known as access chambers) that are used to access Hunter Water's wastewater pipes or from a grate in your yard." We intentionally omitted description of indoor overflows. Indoor overflows tend to be influenced by customers covering overflow relief gullies or inappropriately raising them during renovations, rather than by Hunter Water activities, and there would therefore be limited benefit in estimating WTP to change the likelihood of the event. It is also a very high-impact event that was considered likely to dominate the choice process and cause difficulties in estimating values for the other attributes.[1]

The chance of experiencing two overflows would be valued by interpolating between the values for one and three overflows, potentially informed by responses to questions about relative rebate levels for single and repeat overflows.

Time taken for Hunter Water to respond to overflow events was included as an attribute to provide input to potential CBA to be conducted in the future of operational options.

The cost attribute and the units of measurement for event likelihoods are consistent with those chosen for the water survey for the reasons described above.

2.5   Attributes and levels in discrete choice experiment on wastewater overflows

	Current package	Package A/B
Chance of one wastewater overflow on your property each year (per cent)	1.3	0.7, 1.0, 1.6, 1.9
Chance of three wastewater overflows on your property each year (per cent)	0.01	Almost never, 0.01, 0.03, 0.05
Time taken to unblock pipes so you can use your toilets, sinks and other drains (hours)	2	1, 2, 3
Cost – The permanent change in the amount you pay for water each year ($)	0	Households: -75, -25, -10, -5, 0, 2, 5, 10 Businesses: Household level multiplied by max(1,respondent annual bill estimate / $1200)

Source: CIE

The 'current package' levels were based on average performance over the past five years. Based on table 2.6, the risk of one or more overflows is 13 properties in 1000 per year (or 1.3 per cent per year) and the risk of three or more overflows is 6 properties in 100 000 per year (or 0.006 per cent). This figure was rounded to 0.01 per cent for the purpose of the DCE.

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[1] For example, the dominance of the underground/overhead attribute caused difficulties inducing trade-offs between supply reliability attributes in: McNair, B.J., Bennett, J., Hensher, D.A. and Rose, J.M., 2011. Households' willingness to pay for overhead-to-underground conversion of electricity distribution networks. Energy Policy, 39(5), pp.2560-2567.

2.6   Wastewater overflow performance

	Wastewater overflow standard – 1 or more	Wastewater overflow standard – 1 or more	Wastewater overflow standard – 3 or more	Wastewater overflow standard – 3 or more
	No. properties	Properties per 10 000	No. properties	Properties per 100 000
2013/14	3370	150	17	8
2014/15	3469	152	25	11
2015/16	2951	128	14	6
2016/17	3244	138	12	5
2017/18	3347	140	22	9
2018/19	2955	122	16	7
2019/20	2862	116	8	3

Source: HWC reporting

Number of questions per respondent

Each respondent answered six choice tasks. The risk of respondents dropping out of self-administered questionnaires increases with the number of choice tasks presented. The number of respondents required to obtain statistically significant estimates of WTP reduces with the number of choice tasks presented to each respondent. A sequence of six choice tasks per respondent was judged to strike an appropriate balance between these two considerations, noting that the length of the questionnaire is also influenced by the sections addressing water pressure and rebates.

Experimental design

To conduct the DCE, the analyst needs to assign combinations of attribute levels to the various alternatives and questions. These combinations are referred to as the experimental design. The experimental design has a direct impact on the statistical significance of estimates of WTP. If some information about preferences is known, it is possible to generate an experimental design that can elicit statistically significant estimates of WTP from a smaller number of respondents than a randomly generated design.

This study used an adaptive experimental design process, in which three separate designs were used in consecutive 'waves' of fieldwork. The designs were be generated to minimise D-error; that is, the determinant of the variance-covariance matrix for the parameter estimates (Scarpa and Rose 2008). We prefer D-error (based on the variance for separate cost and service parameters) to C-error (based on the variance for WTP; i.e. the ratio of service and cost parameters) due to the uncertainty about how to compute C-error in the presence of effects-coded (non-linear) parameter estimates on the cost attribute in the prior utility function. The prior parameter estimates used to generate the efficiency criteria for the Wave 1 designs were based on estimates from CIE (2019). The prior parameter estimates used to derive the Wave 2 and Wave 3 designs were based on basic multinomial logit models run on the data collected in waves of fieldwork completed

to that point. Constraints were included in the design search to preclude dominated alternatives (to ensure trade-offs between the attributes). The searches were performed using the Ngene software package.

Each water survey design comprised five blocks of six choice questions and each wastewater survey design comprised four blocks of six choice questions, with each respondent assigned to one block of questions. The reason for using multiple blocks is to improve design efficiency and limit the impact of any single choice task on the results.

Examples of choice tasks from the two surveys are provided in figures 2.7 and 2.8.

2.7   Example of a choice task on water continuity

Data source: CIE

2.8   Example of a choice task on wastewater overflows

Data source: CIE

Contingent valuation

In the CV questions on low water pressure, we used the referendum (single dichotomous choice question) format in which the proposed program is offered to the respondent at a specified price and the respondent is asked whether they would vote for the program. Although this approach would appear to elicit very little about preferences and WTP from each individual respondent, it has been shown by more than two decades of academic research to be the most robust and rigorous of the available techniques. We prefer not to use an open-ended format in which respondents are directly asked their WTP nor follow-up questions with different price levels to narrow the respondent-specific information about WTP, since both approaches are known to introduce biases.

Since there are two programs to be valued, we used a split-sample approach, with approximately half of the sample presented with one program and the other half of the sample presented with the second program.

The questions were framed not as a reduction in the risk to the respondent but as a policy to improve (or deteriorate) outcomes for other customers. This framing reflects the uneven distribution of low water pressure events across the water network and the low probability that any specific respondent would directly benefit from the program.

The question format was:

> Hunter Water is considering a program that would fix water pressure for 300 properties who would otherwise experience frequent low water pressure events over the next 10 years (on most days of the year, for around half of each day, except in winter when people are not using much water)

> If this program increased the amount you pay for water and wastewater services every year by $X for a period of 10 years would you vote for the program?

The levels that $X could take were set to cover the range of customer WTP using a small number of levels (1, 3, 10 and 30) to ensure statistical significance of demand estimates at each price level.

Respondents were asked to select from the following options:

- At that cost to me, I definitely would vote for the program
- At that cost to me, I probably would vote for the program
- At that cost to me, I am not sure whether I would vote for the program
- At that cost to me, I probably would <u>not</u> vote for the program
- At that cost to me, I definitely would <u>not</u> vote for the program

Priming information and debriefing questions

The information used to inform respondents, and the debriefing questions used to understand the motivations for their responses, are set out in the full questionnaires included later in this appendix.

This information and questioning included:

- an example of a choice task to limit statistical noise due to learning in the choice questions proper
- comparison of 1000 properties to the size of suburbs and towns within the Lower Hunter region to assist with interpretation of event frequencies
- a 'cheap talk' script reminding respondents of the consequentiality of the survey
- a reminder of budget constraint
- for water pressure programs, a commitment to keeping customers informed of the progress of any implemented program
- questions about
  - the extent of any difficulty experienced when answering choice questions

- perceptions of the accuracy of the status quo option and feasibility of the service alternatives in the choice questions
- the way respondents answered any questions with alternatives they perceived to be inaccurate or infeasible (where applicable)
- reasons for choosing the status quo alternative in all questions (where applicable)
- perceptions of how influential the survey would be on Hunter Water's decisions, and
- the respondent's experience of water supply interruptions/water pressure failures/wastewater overflows.

3   The sample of customers

The survey fieldwork was conducted in May and June 2021. Household respondents were sampled through the Pureprofile online panel and were compensated for their time through Pureprofile's rewards system, which offers cash, e-gift cards and movie tickets. Business respondents were sampled through the same panel and also via email invitation from Hunter Water. Recipients of email invitations were offered entry to a draw to win Coles and Myer Group e-gift cards.

Businesses were identified by asking respondents whether they were a business owner or sole trader with a commercial premises or responsible for managing business operations at a commercial premises.

Respondents were screened out if they indicated that they do not pay Hunter Water bills or any amount for water and wastewater separate from rent. These respondents are not in a position to make the price-service trade-offs examined in this study, since they are unaffected by the payment vehicle. This screening did not result in an undersampling of rental properties, as discussed in the next section.

Respondents were also screened out if they or anyone else in their household works in water supply and wastewater services, market research, for IPART, for NSW Health in a role related to water quality regulation or for the NSW Environment Protection Authority. Similarly, businesses were screened out if they operate in the water and wastewater service or market research industries.

For the purpose of the analysis, we excluded 21 households and three businesses who completed the water questionnaire in less than four minutes and 31 households and three businesses who completed the wastewater questionnaire in less than three minutes.

Due to the limited sample sizes available from online panel providers in the Lower Hunter region, we chose not to apply quotas to the sampling, but instead to maximise the sample size and adjust for under- or over-sampling of specific household types using sampling weights in the data analysis.

Residential customers

The sample of residential customers comprised 674 respondents for the water survey and 617 respondents for the wastewater survey recruited through the Pureprofile online panel and their partner panels. Residential customers were asked to respond on behalf of their household.

Sampling weights for data analysis were generated using four characteristics: location, tenure type, language spoken at home, and household income. For the purpose of generating sampling weights, the postcodes collected in the survey were grouped into

seven local government areas (LGAs). In cases where a postcode straddled multiple LGAs, we assigned the postcode to the LGA with the highest percentage in the ABS postcode-to-LGA correspondence. The weights were calculated using iterative proportional fitting in Stata.

Tables 3.1 and 3.2 show there was:

- undersampling of households in the Port Stephens postcodes and oversampling of households in the Maitland postcodes
- undersampling of owner-occupiers
- undersampling of households speaking a language other than English at home
- undersampling of households in the lowest income category (less than $41,600 per year).

The sampling weights applied in the data analysis addressed these sampling biases directly, as indicated by the equivalence between the weighted sample and population characteristics in the table below. We focused on household, rather than personal characteristics for the purpose of applying sampling weights, since the aim is to aggregate WTP values over households. The personal characteristics of respondents would ideally align with those of people who are responsible or jointly responsible for paying utility bills for their household. This comparison is not possible due to a lack of data on the characteristics of that population.

3.1   Sample characteristics for the household water survey

	Unweighted sample	Unweighted sample	Weighted sample	Population
	n	per cent	per cent	per cent
Location				
Lake Macquarie	266	39	37	37
Newcastle	161	24	26	26
Port Stephens	55	8	13	13
Maitland	118	18	13	13
Cessnock	60	9	8	8
Singleton	10	1	3	3
Dungog	4	1	1	1
Tenure type				
Owned outright or with a mortgage	421	62	70	70
Being rented or occupied rent-free	244	36	29	29
Other (please specify)	9	1	1	1
Language other than English				
Yes	24	4	11	11
No, English only	650	96	89	89

	Unweighted sample	Unweighted sample	Weighted sample	Population
	n	per cent	per cent	per cent
Annual household income				
Less than $41,600	117	19	31	31
Between $41,600 and $78,000	186	30	25	25
Between $78,000 and $104,000	94	15	13	13
Between $104,000 and $156,000	143	23	18	18
More than $156,000	81	13	13	13
Prefer not to say	53			
Total	**674**	**100**	**100**	**100**

Source: CIE analysis; ABS 2016 census data

3.2   Sample characteristics for the household wastewater survey

	Unweighted sample	Unweighted sample	Weighted sample	Population
	n	per cent	per cent	per cent
Location				
Lake Macquarie	232	38	37	37
Newcastle	143	23	26	26
Port Stephens	43	7	13	13
Maitland	124	20	13	13
Cessnock	59	10	8	8
Singleton	12	2	3	3
Dungog	4	1	1	1
Tenure type				
Owned outright or with a mortgage	384	63	70	70
Being rented or occupied rent-free	227	37	29	29
Other (please specify)	3	0	1	1
(Did not answer)	3			
Language other than English				
Yes	33	5	11	11
No, English only	581	95	89	89
(Did not answer)	3			
Annual household income				
Less than $41,600	102	18	31	31
Between $41,600 and $78,000	166	29	25	25
Between $78,000 and $104,000	91	16	13	13
Between $104,000 and $156,000	126	22	18	18

	Unweighted sample	Unweighted sample	Weighted sample	Population
	n	per cent	per cent	per cent
More than $156,000	80	14	13	13
Prefer not to say	49			
(Did not answer)	3			
Total	**617**	**100**	**100**	**100**

Source: CIE analysis; ABS 2016 census data

Roughly one third of the sample indicated they had never experienced a water supply interruption and around four in ten indicated they had never experienced low water pressure. Around one fifth of the sample had experienced three or more interruptions and around one tenth of the sample reported experiencing low water pressure throughout the year during the past two years.

3.3   Household sample experience of water supply interruptions

	No interruptions	One interruption	Two interruptions	Three or more interruptions
	per cent	per cent	per cent	per cent
1 year	9.8	10.4	3.9	1.9
2 years	5.0	4.5	2.2	2.1
3 years	4.2	3.3	2.2	2.5
4 years	1.6	1.8	1.0	0.7
5 years	3.9	4.9	2.5	2.4
6-10 years	4.9	3.7	3.1	4.2
11 or more years	3.0	2.8	2.5	5.0
Total	**32.3**	**31.3**	**17.5**	**18.8**

Note: Unweighted; Respondents indicated the number of interruptions experienced (columns) and the number of years over which they were reporting their experience (rows)
Source: CIE analysis

More than half of the sample of households could not recall experiencing a wastewater overflow. Around 12 per cent of the sample had experienced three or more overflows.

3.4   Household sample experience of wastewater overflows

	No overflows	One overflow	Two overflows	Three or more overflows
1 year	12.5	7.6	1.0	2.3
2 years	5.2	2.1	1.3	2.3
3 years	7.1	1.8	1.0	1.5
4 years	3.6	1.1	0.3	0.3
5 years	7.3	2.4	1.6	1.8
6-10 years	10.9	6.0	1.3	2.8
11 or more years	11.5	2.1	0.2	1.3

	No overflows	One overflow	Two overflows	Three or more overflows
Total	58.0	23.2	6.6	12.2

Note: Weighted; Respondents indicated the number of overflows experienced (columns) and the number of years over which they were reporting their experience (rows)

Source: CIE analysis

Other characteristics of the households in the samples and the respondents answering the surveys on behalf of their households are described in tables 3.5 and 3.6.

3.5   Other sample characteristics for the household water survey

Characteristic	Unweighted sample	Weighted sample
	per cent	per cent
How many times in the last two years have you experienced low water pressure at your property?		
Never	42	43
Once or twice	35	35
Several times	13	12
Often during summer	1	1
Often throughout the year	9	9
Are you of Aboriginal or Torres Strait Islander origin?		
Yes	6	5
No	92	93
Prefer not to say	2	1
Which best describes your household?		
Couple/family without children at home	25	24
Couple/family with children at home	43	40
One parent family	11	10
Group household	7	8
Single person household	11	15
Other	2	2
Prefer not to say	1	1
What is your work status?		
Working full time	35	30
Working part time/casually	27	26
Student	4	3
Not currently employed	5	5
Home duties	14	14
Retired	14	19
Other	2	3

Characteristic	Unweighted sample	Weighted sample
	per cent	per cent
How would you describe your financial situation?		
Live comfortably	1	2
Meet basic expenses with a little left over for extras	4	4
Just meet basic expenses	1	1
Don't have enough to meet basic expenses	0	0
Prefer not to say	2	2
Not applicable	92	91
In what type of dwelling do you live?		
Separate house	84	83
Semi-detached, row or terrace house, townhouse	10	10
Flat or apartment	5	5
Other	1	2
Do you receive a pensioner rebate from us?		
Yes	12	18
No	34	35
Don't know	6	7
Prefer not to say	1	1
Not applicable	47	40
Have you ever used one of our assistance programs?		
Yes	3	3
No	40	45
Don't know	4	5
Prefer not to say	1	1
Not applicable	52	46
Age of respondent		
18-29 years	28	24
30-39 years	30	27
40-49 years	15	15
50-59 years	11	12
60-69 years	11	15
70-79 years	4	6
80 years or more	1	1
Gender of respondent		
Male	18	19
Female	81	81

Characteristic	Unweighted sample	Weighted sample
	per cent	per cent
Non-binary	0	0
Other	0	0
Prefer not to say	0	1

Source: CIE analysis

3.6   Other sample characteristics for the household wastewater survey

	Unweighted	Weighted
	per cent	per cent
Are you of Aboriginal or Torres Strait Islander origin?		
Yes	6	4
No	93	95
Prefer not to say	1	1
Which best describes your household?		
Couple/family without children at home	25	24
Couple/family with children at home	43	40
One parent family	10	10
Group household	7	7
Single person household	10	14
Other	2	3
Prefer not to say	2	2
What is your work status?		
Working full time	35	30
Working part time/casually	27	27
Student	5	5
Not currently employed	4	4
Home duties	15	14
Retired	12	18
Other	2	2
How would you describe your financial situation?		
Live comfortably	1	2
Meet basic expenses with a little left over for extras	4	4
Just meet basic expenses	1	1
Don't have enough to meet basic expenses	0	0
Prefer not to say	1	1
Not applicable	93	91
In what type of dwelling do you live?		

	Unweighted	Weighted
	per cent	per cent
Separate house	85	84
Semi-detached, row or terrace house, townhouse	8	8
Flat or apartment	5	5
Other	2	3
Do you receive a pensioner rebate from us?		
Yes	13	18
No	32	35
Don't know	6	7
Prefer not to say	1	1
Not applicable	49	40
Have you ever used one of our assistance programs?		
Yes	3	4
No	38	44
Don't know	5	5
Prefer not to say	1	1
Not applicable	54	46
Age of respondent		
18-29 years	30	26
30-39 years	32	29
40-49 years	14	14
50-59 years	10	11
60-69 years	10	14
70-79 years	4	6
80 years or more	0	0
Gender of respondent		
Male	19	19
Female	82	81
Prefer not to say	0	0

Source: CIE analysis

The debriefing questions indicated that only 4-5 per cent of respondents felt the choice questions in the two surveys were very difficult. This is lower than the 9 and 7 per cent observed in the similar water and wastewater surveys conducted in Sydney (CIE 2019). Only 2-3 per cent of respondents found options implausible and answered as though the options were different. Around three quarters of respondents indicated they thought it was at least somewhat likely the surveys would affect Hunter Water's decisions. This figure is a bit lower than the 92-94 per cent observed in Canberra (McNair and Scarpa 2016), but similar to the 80 and 77 per cent observed in the similar water and wastewater surveys conducted in Sydney (CIE 2019). The Canberra study used a different format for

the debriefing question, making direct comparison difficult, but consequentiality may have been higher due to a large part of the sample being recruited by direct email from Icon Water including a letter signed by the Managing Director. Sensitivity testing in the present study showed that excluding respondents who thought the survey would not affect decisions did not significantly change estimates of average WTP (see robustness checks in subsequent chapters).

3.7 Household responses to debriefing questions in the water survey

	Sample
	per cent
Did you find the choice questions difficult to answer in the time you had available?	
They were very difficult questions	5
They were somewhat difficult questions	41
They were not difficult questions	54
Was the "current package" shown in each choice question similar to the level of service you currently get?	
Yes	44
No	6
Don't know	50
How did you go about answering the questions given you found the "current package" to be different to your experience?	
I assumed that by selecting "current package" I would be getting the service levels described in the question	4
I assumed that by selecting "current package" I would be getting the service levels I have experienced in the past	2
Did you believe that Hunter Water would be able to deliver any of the packages presented?	
Yes	52
No	10
Don't know	38
When you saw packages that you did not believe Hunter Water could deliver, how did you go about answering the question(s)?	
I answered the question(s) as though I would be getting the service levels and bill impacts described in the packages	7
I answered the question(s) as though I would be getting different service levels or bill impacts to those described in t	3
Why did you select the current package in every choice question? (multiple selection)	
I didn't have enough time to properly consider the options	0
I didn't have enough information to be confident choosing the other options	2
I disagree with the idea of people paying to avoid water supply interruptions	5
I disagree with the idea of offering people money to face more water supply interruptions	3
I'm concerned that Hunter Water might put prices up without making the service improvements	3

	Sample
	per cent
I'm concerned that Hunter Water might let service get worse without reducing prices	2
Other	0
To what degree do you expect the results of this survey will affect decisions made by Hunter Water?	
It is very likely the survey will affect Hunter Water's decisions	12
It is somewhat likely the survey will affect Hunter Water's decisions	63
I don't think the survey will affect any of Hunter Water's decisions	25

Note: Base n=674, unweighted
Source: CIE analysis

3.8   Household responses to debriefing questions in the wastewater survey

	Unweighted	Weighted
	per cent	per cent
Did you find the choice questions difficult to answer in the time you had available?		
They were very difficult questions	4	4
They were somewhat difficult questions	41	42
They were not difficult questions	55	54
Was the "current package" shown in each choice question similar to the level of service you currently get?		
Yes	38	38
No	5	4
Don't know	57	58
How did you go about answering the questions given you found the "current package" to be different to your experience?		
I assumed that by selecting "current package" I would be getting the service levels described in the question	3	3
I assumed that by selecting "current package" I would be getting the service levels I have experienced in the past	2	2
Did you believe that Hunter Water would be able to deliver any of the packages presented?		
Yes	54	52
No	12	11
Don't know	34	37
When you saw packages that you did not believe Hunter Water could deliver, how did you go about answering the question(s)?		
I answered the question(s) as though I would be getting the service levels and bill impacts described in the packages	8	8
I answered the question(s) as though I would be getting different service levels or bill impacts to those described in t	4	3

	Unweighted	Weighted
	per cent	per cent
Why did you select the current package in every choice question?		
I didn't have enough time to properly consider the options	1	1
I didn't have enough information to be confident choosing the other options	2	3
I disagree with the idea of people paying to avoid water supply interruptions	4	5
I disagree with the idea of offering people money to face more water supply interruptions	2	3
I'm concerned that Hunter Water might put prices up without making the service improvements	3	3
I'm concerned that Hunter Water might let service get worse without reducing prices	2	2
Other	1	1
To what degree do you expect the results of this survey will affect decisions made by Hunter Water?		
It is very likely the survey will affect Hunter Water's decisions	13	12
It is somewhat likely the survey will affect Hunter Water's decisions	63	63
I don't think the survey will affect any of Hunter Water's decisions	24	25

Note: n=617, unweighted

Source: CIE analysis

Non-residential customers

Sampling non-residential Hunter Water customers for surveys has proved extremely difficult in the past. Response rates have been extremely low, despite utilisation of multiple recruitment channels, including direct email (with reminders), social media, and advertising on LinkedIn and Hunter Business Review Online. In this project, non-residential customers were recruited by:

- Pureprofile and their partner online panels (businesses qualified only if they have a commercial premises, to avoid double counting with the household survey), and
- sending email invitations.

Email invitations were sent:

- directly to existing contacts for larger businesses (fieldwork conducted with non-residential customers in January 2021 for the Lower-Hunter Water Security Plan was also used to seek consent for follow-up participation in the present project)
- via associations/industry bodies for small-medium enterprises.

Respondents recruited via email invitation were offered entry to the draw to win a Coles and Myer Group e-gift card. Reminder emails were sent one week after the initial email.

For the water survey, we were able to collect 62 complete responses through online panels, but only three complete responses (and one largely complete response) through

email invitations. For the wastewater survey, we collected 73 completed responses through online panels and only one completed response through email invitations.

Around 40 per cent of email recipients opened and read the initial email invitation, with 15 per cent (around 37 per cent of those who read the email) clicking the survey link. These rates are higher than the benchmark contact response for Hunter Water email communication, which is a click-through rate of 2.5 per cent. The fact that very few of these clicks translated to completed questionnaires could be due to Hunter Water's contact in each business having difficulty finding the appropriate person in their organisation to complete the survey or a lack of capacity from those appropriate people to engage.

3.9 Sample characteristics for the business water survey

	Sample n	Sample per cent
Does your business site operate 24 hours a day, 7 days a week?		
Yes	17	26
No	49	74
Is there any back-up water supply on the site?		
Yes	19	29
No	41	62
Don't know	6	9
How many times in the last two years have you experienced low water pressure at your property?		
Never	20	30
Once or twice	26	39
Several times	14	21
Often during summer	2	3
Often throughout the year	4	6
Can you continue to operate your business during a water pressure failure?		
Yes	49	74
No, my business would need to stop operation during a water pressure failure	11	17
My business would need to stop operation if the water pressure failure lasted for a period of more than (please specify)	6	9
How many employees do you have in your business across all sites (full time equivalents other than the proprietor)?		
Non-employing / sole trader	8	12
1-4 employees	10	15
5-19 employees	20	31
20-199 employees	10	15
200 employees or more	17	26

	Sample	Sample
	n	per cent
In which industry does your business mainly operate?		
Accommodation and Food Services	2	3
Administrative and Support Services	1	2
Arts and Recreation Services	1	2
Construction	8	12
Education and Training	4	6
Electricity, Gas, Water and Waste Services	1	2
Financial and Insurance Services	1	2
Health Care and Social Assistance	6	9
Information Media and Telecommunications	4	6
Manufacturing	4	6
Mining	2	3
Other Services	6	9
Professional, Scientific and Technical Services	6	9
Public Administration and Safety	1	2
Rental, Hiring and Real Estate Services	2	3
Retail Trade	13	20
Transport, Postal and Warehousing	2	3
Wholesale Trade	1	2
What is your position or title within your business?		
Owner / proprietor	21	32
Senior management	38	58
Other employee	6	9

Source: CIE analysis

3.10 Sample characteristics for the business wastewater survey

	Sample	Sample
	n	per cent
How many employees do you have in your business across all sites (full time equivalents other than the proprietor)?		
Non-employing / sole trader	11	15
1-4 employees	16	22
5-19 employees	19	26
20-199 employees	15	20
200 employees or more	13	18
In which industry does your business mainly operate?		
Accommodation and Food Services	6	8

	Sample	Sample
	n	per cent
Administrative and Support Services	2	3
Agriculture, Forestry and Fishing	1	1
Arts and Recreation Services	2	3
Construction	13	18
Education and Training	4	5
Financial and Insurance Services	1	1
Health Care and Social Assistance	7	9
Information Media and Telecommunications	7	9
Manufacturing	1	1
Other Services	8	11
Professional, Scientific and Technical Services	5	7
Rental, Hiring and Real Estate Services	2	3
Retail Trade	12	16
Transport, Postal and Warehousing	1	1
Wholesale Trade	2	3
What is your position or title within your business?		
Owner / proprietor	27	36
Senior management	40	54
Other employee	7	9

Source: CIE analysis

Around one quarter of the business sample had not experienced a water supply interruption (table 3.11) and around a third has not experienced low water pressure at their commercial premises (table 3.9). Around one third had not experienced a wastewater overflow (table 3.12).

A quarter of the sample of business properties operate 24 hours a day, seven days a week. A third have back-up water supply. Some 17 per cent would not be able to operate with low water pressure, with a further 9 per cent able to operate for a limited period of time (ranging from one hour to one day, but clustered around four hours) (see table 3.9).

3.11   Business sample experience of water supply interruptions

	No interruptions	One interruption	Two interruptions	Three or more interruptions
	n	n	n	n
1 year	1	3	7	6
2 years	2	1	3	4
3 years	3	0	1	1
4 years	0	1	3	2
5 years	3	2	3	2

	No interruptions	One interruption	Two interruptions	Three or more interruptions
	n	n	n	n
6-10 years	3	2	3	3
11 or more years	4	3	0	0
Total	**16**	**12**	**20**	**18**

Note: Base n=65

Source: CIE analysis

3.12 Business sample experience of wastewater overflows

	No overflows	One overflow	Two overflows	Three or more overflows
	per cent	per cent	per cent	per cent
1 year	2.7	2.7	10.8	5.4
2 years	1.4	2.7	4.1	8.1
3 years	5.4	0.0	4.1	0.0
4 years	1.4	2.7	0.0	0.0
5 years	12.2	5.4	1.4	2.7
6-10 years	5.4	2.7	4.1	4.1
11 or more years	4.1	4.1	0.0	2.7
Total	**32.4**	**20.3**	**24.3**	**23.0**

Note: Base n=74

Source: CIE analysis

4   Values for water interruptions

Models of customer choice

The models of customer choice were estimated on data excluding respondents who chose the 'current service' option in all six of the choice tasks presented to them – some 50 households (and zero businesses). This choice behaviour is called 'serial non-participation' and it indicates that respondents are not trading off the service and price attributes.[2] The decision whether to include these respondents in the estimation primarily affects the magnitude of the 'status quo bias' estimated in the model. When conducting cost-benefit analysis, the analyst needs to decide whether to treat this apparent disutility from any change as a true welfare effect or a source of bias that needs to be excluded from welfare estimates. To assist with this decision, the reasons given by respondents for serial non-participation are provided in chapter 3. Serial non-participation appears to have been motivated primarily by protest at the concept of price-service trade-offs and distrust of Hunter Water.

Our selected models of household (see table 4.1) and business (table 4.2) choice have the following features:

- Panel mixed multinomial logit model, with fixed parameters for cost-related attributes and random (normal distribution) parameters for service attributes, allowing for full correlation between the distributions of the random parameters.[3]

- Inclusion of an interaction between the cost variable with an indicator variable for whether the cost change is positive or negative, since there is strong evidence in support of asymmetry in WTP for service improvement and WTA compensation for service degradation.

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[2]   In surveys offering only service improvement options at an additional cost, this choice pattern could indicate zero WTP. This survey, however, offered both cost increases and cost savings (with service degradation), so the choice behaviour is purely an indicator of status quo bias.

[3]   The state of the art in modelling DCE data is currently the panel mixed multinomial logit model estimated in WTP space. We decided against using this type of model as the primary model, since it cannot easily accommodate asymmetry in WTP for service improvement and WTA compensation for service degradation. This asymmetry was marked and had a considerable impact on estimates of average WTP in this study, consistent with previous findings in McNair and Scarpa (2016) and CIE (2019). In our view capturing this asymmetry is more important than finessing the estimation of unobserved heterogeneity in preferences.

The household model shows that:

- respondents made considered choices on the basis of the attribute levels presented, as evidenced by the relatively large z-values on the parameters estimates
- respondents exhibited a bias towards the status quo on average, however, as one would expect, there is also evidence of significant heterogeneity in this preference, as evidenced by the standard deviation on the status quo constant being larger than the mean
- there is considerable variation in household preferences across all of the service attributes included in the choice tasks, as evidenced by the statistically significant estimates of standard deviation for the random parameters
- respondents' WTP for service improvements is lower than the compensation they would require for the equivalent service degradation, as evidenced by the significant positive coefficient on the interaction variable between change in bill and the dummy variable for a bill decrease.

4.1   Model of household choice of water interruptions scenarios

	Unweighted		Weighted	
	Coef.	Z value	Coef.	Z value
Fixed parameters				
Cost: The permanent change in the amount you pay for water each year	-0.173	-12.84	-0.171	-7.88
Cost x dummy indicator for bill decrease	0.085	5.44	0.091	3.99
Random parameters: means				
Alternative-specific constant: Current package	0.413	5.89	0.397	4.54
Short unplanned interruptions: Chance each year of an interruption lasting 1-3 hours	-0.126	-10.10	-0.126	-8.74
Long unplanned interruptions: Chance each year of an interruption lasting 5-8 hours	-0.251	-12.27	-0.248	-10.81
Planned interruptions: Chance each year of a planned interruption lasting 1-3 hours	-0.066	-4.64	-0.074	-4.38
Random parameters: standard deviations				
Alternative-specific constant: Current package	0.984	14.12	1.012	13.77
Short unplanned interruptions: Chance each year of an interruption lasting 1-3 hours	0.168	10.15	0.156	8.59
Long unplanned interruptions: Chance each year of an interruption lasting 5-8 hours	0.204	6.53	0.208	5.30
Planned interruptions: Chance each year of a planned interruption lasting 1-3 hours	0.050	0.63	0.093	1.54
Random parameters: cross-parameter correlations				
Short unplanned interruptions: ASC	-0.023	-1.22	-0.023	-1.13
Long unplanned interruptions: ASC	-0.045	-1.55	-0.044	-1.27
Planned interruptions: ASC	-0.021	-0.93	-0.027	-0.94

	Unweighted		Weighted	
	Coef.	Z value	Coef.	Z value
Long unplanned interruptions: Short unplanned interruptions	0.219	7.23	0.214	6.21
Planned interruptions: Short unplanned interruptions	0.083	3.23	0.078	2.72
Planned interruptions: Long unplanned interruptions	-0.021	-0.56	-0.013	-0.29
Model fit				
Choice observations	3744		3744	
Individuals	624		624	
Log likelihood	-3596		-3059	

Source: CIE analysis

The model of business choice (table 4.2) is similar to the model of household choice, except that the cost attribute is measured as a proportion of the business's annual water bill where the annual bill is greater than $1200 (and as a proportion of $1200 otherwise). This measure of cost resulted in a much better model fit than models with cost measured in absolute dollar terms. If it is necessary to infer business WTP from household WTP, the evidence from our modelling indicates that an assumption that WTP increases proportionally with bill amounts (or water consumption) would be more accurate than an assumption of a constant dollar WTP per business customer.

Due to the limited size of the sample of businesses, not all of the parameters are statistically different from zero at the 95 per cent confidence level. The most statistically significant parameters are the proportional change in water bill, the 'current package' label, and the chance of long unplanned interruptions.

4.2   Model of business choice of water interruptions scenarios

	Unweighted	
	Coef.	Z value
Fixed parameters		
'Cost: The permanent change in the amount you pay for water each year' as a share of the greater of annual bill and $1200	-99.479	-2.55
Cost x dummy indicator for bill decrease	82.444	1.72
Random parameters: means		
Alternative-specific constant: Current package	-0.654	-3.18
Short unplanned interruptions: Chance each year of an interruption lasting 1-3 hours	-0.039	-1.08
Long unplanned interruptions: Chance each year of an interruption lasting 5-8 hours	-0.185	-3.29
Planned interruptions: Chance each year of a planned interruption lasting 1-3 hours	-0.039	-0.90
Random parameters: standard deviations		
Alternative-specific constant: Current package	0.738	3.06

	Unweighted	
	Coef.	Z value
Short unplanned interruptions: Chance each year of an interruption lasting 1-3 hours	0.178	3.78
Long unplanned interruptions: Chance each year of an interruption lasting 5-8 hours	0.203	2.35
Planned interruptions: Chance each year of a planned interruption lasting 1-3 hours	-0.003	-0.04
Random parameters: cross-parameter correlations		
Short unplanned interruptions: ASC	0.028	0.39
Long unplanned interruptions: ASC	0.174	1.97
Planned interruptions: ASC	0.107	1.51
Long unplanned interruptions: Short unplanned interruptions	0.114	1.27
Planned interruptions: Short unplanned interruptions	0.042	0.59
Planned interruptions: Long unplanned interruptions	0.132	1.93
Model fit		
Choice observations	396	
Individuals	66	
Log likelihood	-395	

Source: CIE analysis

Willingness to pay

The estimates of household WTP for improvements and WTA compensation for degradation in each of the water continuity attributes are set out in table 4.3.

4.3   Household average WTP and WTA compensation for changes in water continuity

	Unweighted	Weighted
	$ per year	$ per year
Change of one percentage point in the chance of an unplanned interruption lasting 1-3 hours each year		
Service improvement (WTP)	0.73	0.74
	(0.56,0.89)	(0.54,0.94)
Service degradation (WTA)	-1.42	-1.58
	(-1.14,-1.71)	(-1.18,-1.97)
Change of one percentage point in the chance of an unplanned interruption lasting 5-8 hours each year		
Service improvement (WTP)	1.45	1.45
	(1.16,1.73)	(1.05,1.85)
Service degradation (WTA)	-2.83	-3.11
	(-2.35,-3.31)	(-2.40,-3.81)

	Unweighted	Weighted
	$ per year	$ per year
Change of one percentage point in the chance of a planned interruption lasting 1-3 hours each year		
Service improvement (WTP)	0.38	0.44
	(0.22,0.55)	(0.22,0.65)
Service degradation (WTA)	-0.75	-0.93
	(-0.43,-1.07)	(-0.49,-1.38)

Note: Figures in parentheses are 95 per cent confidence intervals

Source: CIE analysis

The asymmetry between WTP and WTA is illustrated in figure 4.4, which shows the estimated WTP and WTA over the range of levels used in the survey.

4.4   Household average willingness to pay for changes in long unplanned outages
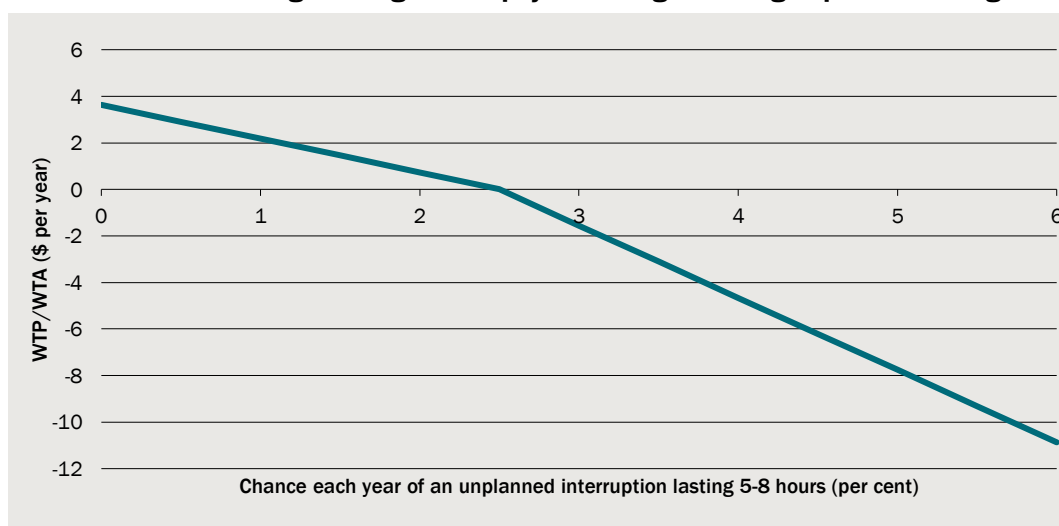
Data source: CIE

Due to the relatively small sample of businesses, only one of the value estimates is statistically different from zero at the 95 per cent confidence level — the estimate of WTP for a reduction in the chance of long unplanned interruptions (see table 4.5). At $2.23 per year per percentage point, this estimate is higher than the equivalent estimate for households of $1.45 per year per percentage point. It implies an undiscounted WTP of $223 for each expected long interruption. The median response to questions about the financial impact of a long interruption was $250 (including respondents who indicated there would be no financial impact) — a remarkably similar number (see table 4.7). The estimates should be used with caution, given the small sample size, but the internal consistency between the two estimates gives some confidence that they accurately reflect the preferences of the sample.

4.5   Business average WTP and WTA compensation for changes in water continuity

	Estimate	Estimate
	$ per year (for bills <$1200)	per cent of bill (for bills >$1200)
Change of one percentage point in the chance of an unplanned interruption lasting 1-3 hours each year		
Service improvement (WTP)	0.47	0.04
	(-0.43,1.37)	(-0.04,0.11)
Service degradation (WTA)	-2.73	-0.23
	(-9.8,4.34)	(-0.82,0.36)
Change of one percentage point in the chance of an unplanned interruption lasting 5-8 hours each year		
Service improvement (WTP)	2.23	0.19
	(0.21,4.26)	(0.02,0.35)
Service degradation (WTA)	-13.03	-1.09
	(-42.91,16.85)	(-3.58,1.40)
Change of one percentage point in the chance of a planned interruption lasting 1-3 hours each year		
Service improvement (WTP)	0.48	0.04
	(-0.58,1.53)	(-0.05,0.13)
Service degradation (WTA)	-2.77	-0.23
	(-11.26,5.71)	(-0.94,0.48)

Note: Unweighted. Figures in parentheses are 95 per cent confidence intervals.
Source: CIE analysis

4.6   Impacts of water interruptions on businesses

	Sample	Sample
	n	per cent
Which of the following impacts would you incur if there were an unexpected water interruption at your business site?		
Dissatisfied customers	27	41
Inability to use equipment	35	53
Lost revenues from fewer sales/lower production	11	17
Damage to processes and equipment	11	17
Additional time and labour to restart systems	18	27
Overtime wages incurred	13	20
Spoilage or loss of goods	9	14

Source: CIE analysis

4.7   Financial impact of water interruptions on businesses

	No impact	Mean	Median
	per cent	$	$
Roughly, how much lost revenue and additional expenses would your business incur due to an unexpected 1-hour water interruption on the site during business hours?...	30	1 590	155
Roughly, how much lost revenue and additional expenses would your business incur if the unexpected water interruption lasted for 5 hours?	26	10 879	250

Note: Mean and median calculations include respondents indicating zero impact

Source: CIE analysis

Robustness checks

Excluding respondents who indicated they didn't think the survey would affect Hunter Water decisions had very little impact on estimates of household WTP (table 4.8).

4.8   Impact of perceived consequentiality on household WTP for water continuity

	Central case sample n=624	Excluding respondents viewing survey as inconsequential n=469
	$ per year	$ per year
Change of one percentage point in the chance of an unplanned interruption lasting 1-3 hours each year		
Service improvement (WTP)	0.73	0.76
	(0.56,0.89)	(0.58,0.95)
Service degradation (WTA)	-1.42	-1.62
	(-1.14,-1.71)	(-1.27,-1.97)
Change of one percentage point in the chance of an unplanned interruption lasting 5-8 hours each year		
Service improvement (WTP)	1.45	1.42
	(1.16,1.73)	(1.11,1.73)
Service degradation (WTA)	-2.83	-3.02
	(-2.35,-3.31)	(-2.44,-3.60)
Change of one percentage point in the chance of a planned interruption lasting 1-3 hours each year		
Service improvement (WTP)	0.38	0.41
	(0.22,0.55)	(0.23,0.59)
Service degradation (WTA)	-0.75	-0.87
	(-0.43,-1.07)	(-0.49,-1.24)

Note: Unweighted. Figures in parentheses are 95 per cent confidence intervals

Source: CIE analysis

5   Values for water pressure

Responses to contingent valuation questions

Respondents clearly considered the cost at which water pressure improvement programs were offered, with acceptance levels decreasing noticeably with cost (table 5.1).

Respondents who were offered the program improving pressure for a small number of customers with frequent low pressure were more likely to vote for the program than respondents who were offered the program improving pressure for a larger number of customers with infrequent low pressure.

There is large variation in WTP across households. Around a quarter to a third of customers are unsure about or unwilling to contribute towards improving service for other customers even at a cost of $1 per year (table 5.3). A similar number of customers indicated they would probably or definitely support a program at a cost of $30 per year. The results suggest a program would likely have majority support at a cost of $3 per year.

5.1   Household responses to contingent valuation questions (count, unweighted)

Cost level (per year for 10 years)	$1	$3	$10	$30
	n	n	n	n
Program that would fix water pressure for 2500 properties who would otherwise experience occasional low water pressure events				
At that cost to me, I definitely would vote for the program	27	17	7	5
At that cost to me, I probably would vote for the program	37	31	23	15
At that cost to me, I am not sure whether I would vote for the program	17	21	21	27
At that cost to me, I probably would not vote for the program	11	9	15	17
At that cost to me, I definitely would not vote for the program	2	11	13	16
Total	94	89	79	80
Program that would fix water pressure for 300 properties who would otherwise experience frequent low water pressure events				
At that cost to me, I definitely would vote for the program	34	21	15	7
At that cost to me, I probably would vote for the program	31	20	28	20
At that cost to me, I am not sure whether I would vote for the program	9	18	25	27
At that cost to me, I probably would not vote for the program	6	9	17	14
At that cost to me, I definitely would not vote for the program	7	3	6	15
Total	87	71	91	83

Source: CIE

5.2   Household demand for water pressure improvement programs
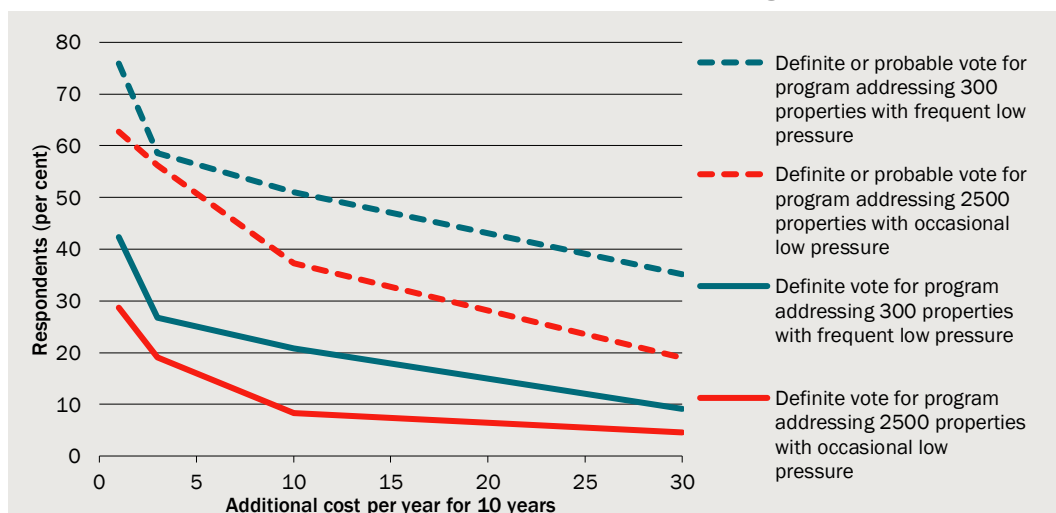
Note: Unweighted

Data source: CIE

5.3   Household responses to contingent valuation questions (per cent, weighted)

Cost level	$1	$3	$10	$30
	per cent	per cent	per cent	per cent
Program that would fix water pressure for 2500 properties who would otherwise experience occasional low water pressure events				
At that cost to me, I definitely would vote for the program	29	19	8	5
At that cost to me, I probably would vote for the program	34	37	29	14
At that cost to me, I am not sure whether I would vote for the program	21	22	24	36
At that cost to me, I probably would not vote for the program	15	11	20	21
At that cost to me, I definitely would not vote for the program	1	11	19	24
Program that would fix water pressure for 300 properties who would otherwise experience frequent low water pressure events				
At that cost to me, I definitely would vote for the program	42	27	21	9
At that cost to me, I probably would vote for the program	34	32	30	26
At that cost to me, I am not sure whether I would vote for the program	9	24	21	29
At that cost to me, I probably would not vote for the program	7	14	23	16
At that cost to me, I definitely would not vote for the program	8	4	5	20

Source: CIE

The business sample size was too small to obtain reliable estimates of demand at each price point. For the purpose of cost-benefit analysis, it would be a reasonable central case assumption that business customers are not willing to pay 'altruistic' contributions towards improving service for worst-served customers.

Willingness to pay

We use two approaches to estimating WTP from the responses described above:

- Approach A – the lower bound of the Turnbull estimator[4] for mean WTP assuming 'At that cost to me, I definitely would vote for the program' is a 'yes' vote and all other responses are a 'no' vote, and

- Approach B – the lower bound of the Turnbull estimator for mean WTP assuming 'At that cost to me, I definitely would vote for the program' is a 'yes' vote, 'At that cost to me, I probably would vote for the program' is a 'yes' vote at the cost level immediately below the level presented to the respondent, and all other responses are a 'no' vote.

Approach A is a conservative approach to WTP estimation that was developed in the environmental valuation literature partly as a means of countering 'yea saying' and hypothetical bias. There are good reasons to expect these biases will be less prevalent in the present survey, since the payment vehicle is highly credible. We would recommend using Approach B estimates for the central case in CBA, with testing of sensitivity of results to the use of the more conservative Approach A estimates.

The WTP estimates derived from these two approaches are set out in table 5.4.

5.4 Estimates of average willingness to pay for water pressure programs

	Unweighted	Weighted
	$ per year for 10 years	$ per year for 10 years
Program that would fix water pressure for 2500 properties who would otherwise experience occasional low water pressure events		
Mean WTP (Approach A)	2.54	2.17
Mean WTP (Approach B)	5.35	4.67
Program that would fix water pressure for 300 properties who would otherwise experience frequent low water pressure events		
Mean WTP (Approach A)	3.82	4.24
Mean WTP (Approach B)	7.13	7.57

Source: CIE analysis

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4   The lower bound of the Turnbull estimator for mean WTP is a conservative estimate of the area under the demand curve derived by summing the area of a series of rectangles defined by the discrete price points. It assumes, for example, that the demand at prices between the $1 and $3 price points used in the survey is equal to the observed demand at $3, the demand at prices between $3 and $10 is equal to the demand observed at $10, and so on.

6   Values for wastewater overflows

Models of customer choice

Consistent with the water interruptions choice modelling discussed above, the models of customer choice of wastewater overflows scenarios were estimated on data excluding respondents who chose the 'current service' option in all six of the choice tasks presented to them – some 61 households and four businesses.

Our selected models of household (see table 6.1) and business (see table 6.2) choice have the following features:

■ Panel mixed multinomial logit model, with fixed parameters for cost-related attributes and random (normal distribution) parameters for service attributes, allowing for full correlation between the distributions of the random parameters.

■ Inclusion of an interaction between the cost variable with an indicator variable for whether the cost change is positive or negative, since there is very strong evidence in support of asymmetry in WTP for service improvement and WTA compensation for service degradation.

The household model shows that:

■ respondents made considered choices on the basis of the attribute levels presented, as evidenced by the relatively large z-values on the parameters estimates

■ respondents exhibited a bias against the status quo on average, however, as one would expect, there is also evidence of significant heterogeneity in this preference, as evidenced by the standard deviation on the status quo constant being larger than the mean

■ respondents' WTP for service improvements is much lower than the compensation they would require for the equivalent service degradation, as evidenced by the positive coefficient on the interaction variable between change in bill and the dummy variable for a bill decrease, which is almost as large in absolute value as the coefficient on change in bill.

6.1   Model of household choice of wastewater overflow scenarios

	Unweighted		Weighted	
	Coef.	Z value	Coef.	Z value
Fixed parameters				
Cost: The permanent change in the amount you pay for wastewater services each year	-0.27	-16.5	-0.28	-12.4
Cost x dummy indicator for bill decrease	0.25	15.0	0.25	11.5

	Unweighted		Weighted	
	Coef.	Z value	Coef.	Z value
Random parameters: means				
Alternative-specific constant: Current package	-0.20	-2.8	-0.20	-2.3
Chance of one wastewater overflow on your property each year	-1.02	-10.9	-1.02	-9.9
Chance of three wastewater overflows on your property each year	-14.26	-7.5	-13.97	-7.0
Time taken to unblock pipes so you can use your toilets, sinks and other drains	-0.45	-11.0	-0.44	-10.1
Random parameters: standard deviations				
Alternative-specific constant: Current package	0.88	10.9	0.94	10.5
Chance of one wastewater overflow on your property each year	1.25	11.6	1.27	9.8
Chance of three wastewater overflows on your property each year	-8.20	-1.6	-13.13	-3.2
Time taken to unblock pipes so you can use your toilets, sinks and other drains	0.11	0.3	0.17	1.2
Random parameters: cross-parameter correlations				
One overflow: ASC	0.36	2.5	0.23	1.4
Three overflows: ASC	-1.07	-0.4	-1.13	-0.3
Time taken: ASC	0.11	1.7	0.10	1.5
Three overflows: One overflow	19.65	7.4	18.39	6.0
Time taken: One overflow	0.31	5.2	0.32	5.1
Time taken: Three overflows	-0.32	-2.3	-0.20	-1.6
Model fit				
Choice observations	3336		3336	
Individuals	556		556	
Log likelihood	-3219		-2968	

Source: CIE analysis

The model of business choice is similar to the model of household choice, except that the cost attribute is measured as a proportion of the business's annual water bill where the annual bill is greater than $1200 (and as a proportion of $1200 otherwise). As with the water interruptions analysis, this measure of cost resulted in a much better model fit than models with cost measured in absolute dollar terms.

Due to the limited size of the sample of businesses, not all of the parameters are statistically different from zero at the 95 per cent confidence level. The most statistically significant parameters are the proportional change in water bill (adjusted for asymmetry), the 'current package' label, and the time taken to unblock pipes.

6.2 Model of business choice of wastewater overflow scenarios

	Coef.	Z value
Fixed parameters		
'Cost: The permanent change in the amount you pay for wastewater services each year' as a share of the greater of annual bill and $1200	-140.06	-2.7
Cost x dummy indicator for bill decrease	123.80	2.4
Random parameters: means		
Alternative-specific constant: Current package	-0.72	-2.7
Chance of one wastewater overflow on your property each year	-0.15	-0.7
Chance of three wastewater overflows on your property each year	-0.20	-0.1
Time taken to unblock pipes so you can use your toilets, sinks and other drains	-0.35	-3.7
Random parameters: standard deviations		
Alternative-specific constant: Current package	1.36	5.2
Chance of one wastewater overflow on your property each year	0.80	3.0
Chance of three wastewater overflows on your property each year	7.31	0.8
Time taken to unblock pipes so you can use your toilets, sinks and other drains	0.03	0.1
Random parameters: cross-parameter correlations		
One overflow: ASC	-0.07	-0.2
Three overflows: ASC	1.04	0.2
Time taken: ASC	0.18	1.4
Three overflows: One overflow	6.46	0.9
Time taken: One overflow	0.09	0.6
Time taken: Three overflows	0.16	0.7
Model fit		
Choice observations	420	
Individuals	70	
Log likelihood	-417	

Source: CIE analysis

Willingness to pay

The estimates of household WTP and WTA compensation for changes in wastewater overflow attributes are set out in table 6.3.

6.3   Household average WTP and WTA compensation for changes in overflows

	Unweighted	Weighted
	$ per year	$ per year
Change of one percentage point in the chance of one wastewater overflow on your property each year		
Service improvement (WTP)	3.70	3.70
	(3.03,4.37)	(2.88,4.53)
Service degradation (WTA)	-38.34	-39.61
	(-31.61,-45.06)	(-31.84,-47.38)
Change of one hundredth of a percentage point in the chance of three wastewater overflows on your property each year		
Service improvement (WTP)	0.52	0.50
	(0.39,0.65)	(0.36,0.65)
Service degradation (WTA)	-5.38	-5.40
	(-4.04,-6.72)	(-3.88,-6.92)
Change of one hour in time taken to unblock pipes so you can use your toilets, sinks and other drains		
Service improvement (WTP)	1.65	1.57
	(1.34,1.96)	(1.19,1.95)
Service degradation (WTA)	-17.08	-16.82
	(-13.9,-20.26)	(-13.18,-20.46)

Note: Figures in parentheses are 95 per cent confidence intervals
Source: CIE

The marked asymmetry between WTP and WTA is illustrated in figure 6.4, which shows the estimated WTP and WTA over the range of levels used in the survey.

6.4   Household average willingness to pay for changes in wastewater overflows
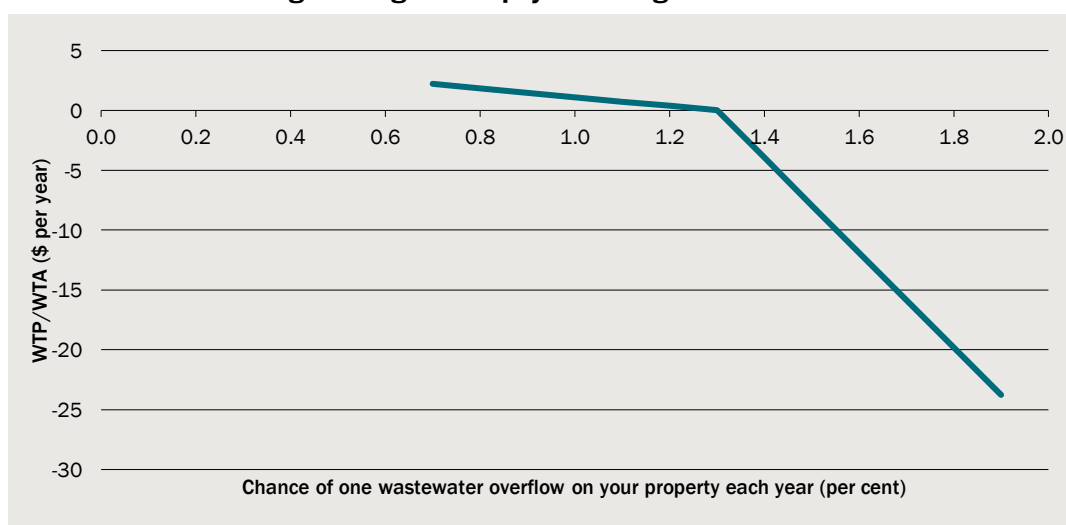
Data source: CIE

Due to the relatively small sample of businesses, only the value estimates for time taken to unblock pipes are statistically different from zero at the 95 per cent confidence level (see table 6.5). At $3.03 per year per one-hour reduction, the WTP estimate for a household-sized business customer is higher than the equivalent estimate for households of $1.65 per year per percentage point. The responses to questions about the financial impact of overflows suggest the median impact of reducing response times would be around $150 per hour when overflows happen (including respondents who indicated there would be no financial impact) (see table 6.7).[5] Given there is a 1.3 per cent chance of experiencing an overflow each year, the annual expected cost of an hour spent with blocked pipes is $1.95. This number is of the same order of magnitude as the WTP estimate derived from the DCE. The estimates should be used with caution, given the small sample size, but the internal consistency between the two estimates gives some confidence that they accurately reflect the preferences of the sample.

6.5   Business average WTP and WTA compensation for changes in overflows

	Estimate	Estimate
	$ per year (for bills <$1200)	per cent of bill (for bills >$1200)
Change of one percentage point in the chance of one wastewater overflow on your property each year		
Service improvement (WTP)	1.30	0.11
	(-1.95,4.56)	(-0.16,0.38)
Service degradation (WTA)	-11.24	-0.94
	(16.95,-39.43)	(1.41,-3.29)
Change of one hundredth of a percentage point in the chance of three wastewater overflows on your property each year		
Service improvement (WTP)	0.02	0.00
	(-0.71,0.74)	(-0.06,0.06)
Service degradation (WTA)	-0.15	-0.01
	(6.13,-6.43)	(0.51,-0.54)
Change of one hour in time taken to unblock pipes so you can use your toilets, sinks and other drains		
Service improvement (WTP)	3.03	0.25
	(0.65,5.4)	(0.05,0.45)
Service degradation (WTA)	-26.08	-2.17
	(-8.47,-43.68)	(-0.71,-3.64)

Note: Unweighted. Figures in parentheses are 95 per cent confidence intervals
Source: CIE analysis

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[5]   The median is a better comparator for a household-sized business than mean, since the median reported annual bill was $1500, whereas the mean was over $25 000.

6.6   Impacts of wastewater overflows on businesses

	Sample	Sample
	n	per cent
Which of the following impacts would you incur if there was a wastewater overflow and you were unable to use toilets, sinks and drains at your business site?		
Dissatisfied customers	32	43
Inability to use equipment	39	53
Lost revenues from fewer sales/lower production	21	28
Overtime wages incurred	21	28
Other	3	4
None of the above (no impact)	16	22

Source: CIE

6.7   Financial impacts of wastewater overflows on businesses

	No impact	Mean	Median
	per cent	$	$
Roughly, how much lost revenue and additional expenses would your business incur due to a wastewater blockage and overflow lasting 1 hour on your site during business hours?	22	6296	250
Roughly, how much lost revenue and additional expenses would your business incur if the wastewater blockage and overflow lasted for 3 hours?	20	13854	545

Note: Mean and median calculations include respondents indicating zero impact
Source: CIE

Robustness check

Excluding respondents who indicated they didn't think the survey would affect Hunter Water decisions had very little impact on estimates of household WTP.

6.8   Impact of perceived consequentiality on household WTP to avoid overflows

	Central case sample n=556	Excluding respondents viewing the survey as inconsequential n=434
	$ per year	$ per year
Change of one percentage point in the chance of one wastewater overflow on your property each year		
Service improvement (WTP)	3.70	3.80
	(3.03,4.37)	(3.05,4.56)
Service degradation (WTA)	-38.34	-40.26

	Central case sample n=556	Excluding respondents viewing the survey as inconsequential n=434
	$ per year	$ per year
	(-31.61,-45.06)	(-32.43,-48.09)
Change of one hundredth of a percentage point in the chance of three wastewater overflows on your property each year		
Service improvement (WTP)	0.52	0.55
	(0.39,0.65)	(0.40,0.70)
Service degradation (WTA)	-5.38	-5.84
	(-4.04,-6.72)	(-4.24,-7.43)
Change of one hour in time taken to unblock pipes so you can use your toilets, sinks and other drains		
Service improvement (WTP)	1.65	1.68
	(1.34,1.96)	(1.32,2.04)
Service degradation (WTA)	-17.08	-17.84
	(-13.9,-20.26)	(-14.06,-21.61)

Note: Unweighted. Figures in parentheses are 95 per cent confidence intervals
Source: CIE

7   Attitudes towards rebates

Relative level of water rebates

The household responses to questions about relative water rebate levels are set out in table 7.1. On average, relative to the rebate for one unexpected water interruption lasting 5-8 hours, household respondents thought rebates should be:

- 44 per cent higher for three unexpected water interruptions within a 12-month period each lasting 5-8 hours

- 27 per cent higher for three water interruptions with advance warning within a 12-month period each lasting 5-8 hours

- 74 per cent higher for a boil water alert issued by NSW Health lasting 2 days, and

- 20 per cent higher for discoloured (dirty) water for two hours.

If 'No rebate at all' responses are assumed to also indicate there should not be a rebate for one unexpected water interruption lasting 5-8 hours, then these figures increase to 60 per cent, 45 per cent, 91 per cent and 43 per cent among respondents who thought there should be a rebate.

The spread of responses across all categories suggests the results contain a considerable degree of 'noise' or random response. Yet, the results were not very sensitive to excluding respondents with the lowest survey completion times. For example, excluding respondents completing the survey in fewer than five minutes, rather than four minutes (an additional 33 respondents), changed the results only slightly to 46 per cent, 28 per cent, 74 per cent and 20 per cent.

On average, relative to the rebate for one unexpected water interruption lasting 5-8 hours, business respondents thought rebates should be (noting the small business sample size of n=66):

- 33 per cent higher for three unexpected water interruptions within a 12-month period each lasting 5-8 hours (or 38 per cent among respondents who thought there should be a rebate)

- 24 per cent higher for three water interruptions with advance warning within a 12-month period each lasting 5-8 hours (or 35 per cent among respondents who thought there should be a rebate)

- 53 per cent higher for a boil water alert issued by NSW Health lasting 2 days (or 59 per cent among respondents who thought there should be a rebate), and

- 18 per cent higher for discoloured (dirty) water for two hours (or 22 per cent among respondents who thought there should be a rebate).

7.1 Household preferences for relative water rebate levels

Compared to a rebate for one unexpected water interruption lasting 5-8 hours, how much should the rebate be for...	three unexpected water interruptions within a 12-month period each lasting 5-8 hours		three water interruptions with advance warning within a 12-month period each lasting 5-8 hours		a boil water alert issued by NSW Health lasting 2 days		discoloured (dirty) water for two hours	
	per cent, unweighted	per cent, weighted	per cent, unweighted	per cent, weighted	per cent, unweighted	per cent, weighted	per cent, unweighted	per cent, weighted
No rebate at all	8	8	10	10	7	7	12	14
90% lower	2	2	3	2	5	5	4	3
50% lower	7	7	5	6	6	6	6	5
20% lower	9	8	10	9	7	6	6	7
Same	12	12	15	15	11	10	20	20
20% higher	12	12	13	12	8	7	15	14
50% higher	8	7	11	11	9	11	7	7
Double	7	7	7	6	11	11	8	7
Three times higher	15	14	9	9	7	7	4	4
Four times higher	1	0	1	0	4	3	1	1
Five times higher	2	2	1	2	10	9	4	3
Other	1	2	0	1	1	2	1	1
Don't know	17	19	16	18	15	16	13	14

Compared to a rebate for one unexpected water interruption lasting 5-8 hours, how much should the rebate be for...	three unexpected water interruptions within a 12-month period each lasting 5-8 hours		three water interruptions with advance warning within a 12-month period each lasting 5-8 hours		a boil water alert issued by NSW Health lasting 2 days		discoloured (dirty) water for two hours	
	per cent of rebate for single long interruption	per cent of rebate for single long interruption	per cent of rebate for single long interruption	per cent of rebate for single long interruption	per cent of rebate for single long interruption	per cent of rebate for single long interruption	per cent of rebate for single long interruption	per cent of rebate for single long interruption
Mean rebate	145	144	128	127	177	174	122	120

Note: Base n=674

Source: CIE

Attitudes towards water rebates

Household attitudes towards receiving a rebate for a long (5-8 hour) unplanned interruption were surprisingly unresponsive to changes in the level of the rebate (see table 7.2). The most responsive attitude was 'I would be happy to receive the rebate', which increased from 40 per cent to 56 per cent as the rebate level shown was increased from $37 to $100. The attitude 'The problem should be fixed and I want to be assured that it won't happen again' decreased from 29 per cent to 15 per cent over those rebate levels. The proportion of respondents indicating they would feel adequately compensated for the inconvenience increased with the rebate level, but remained at a low absolute level of 31 per cent even when shown a $100 rebate.

The sample of business customers was insufficient to measure the impact on attitudes of various levels of rebate. Generally, business customer appear less likely than households to be happy receiving a rebate.

7.2   Attitudes towards water rebates by rebate level

	Household			Business
Rebate level	**$37**	**$50**	**$100**	**Combined**
	per cent, weighted	per cent, weighted	per cent, weighted	per cent, weighted
I would be happy to receive the rebate	40	51	56	27
I would feel adequately compensated for the inconvenience	22	29	31	30
I would be satisfied that Hunter Water has paid a penalty for the inconvenience caused	18	22	18	20
A rebate is a waste of money that could have been spent on maintaining the system	12	13	19	18
The problem should be fixed and I want to be assured that it won't happen again	29	22	15	17
Other	2	3	3	6
Don't know	8	4	4	3

Note: Base Households $37 n=251, $50 n=215, $100 n=207, business n=65
Source: CIE

The most popular alternative to receiving rebates was being offered the choice each time of a rebate or a donation to charity (table 7.3). Assisting customers experiencing financial hardship was the next most popular option. Businesses were more likely than households to prefer the grants program for community projects.

7.3   Household preferences for alternatives to water rebates

Which of the following ways would be acceptable to you?	Households	Business
	per cent, weighted	per cent, unweighted
Expanding the annual Love Water grants program...	20	22
Starting a new grants program for community projects, with customer and community participation...	14	29
Assisting customers experiencing financial hardship	37	34
Donating to WaterAid Australia a registered charity...	24	20
Offering you the choice, each time you are eligible for a rebate...	47	37
Other	1	2
None of the above	4	6
Don't know	12	3

Note: Base Households n=674, business n=65

Source: CIE analysis

Relative level of wastewater rebates

Around 6 per cent (3 per cent) of household (business) respondents who offered a view thought there should be rebates for repeat but not single overflows. Among the remaining household respondents, the mean view was that rebates for repeat overflows should be 83 per cent higher than rebates for single overflows. Among business respondents, the mean view was that rebates for repeat overflows should be 30 per cent higher, though this estimate should be treated with caution due to the small sample of businesses surveyed.

7.4   Preferences for relative wastewater rebate levels

	Households	Businesses
	per cent	per cent
What level of rebate do you feel is reasonable to be paid for a wastewater overflow on your property within 12 months of a previous overflow?		
Use all tokens for a single overflow (no rebate tokens for a repeat overflow)	5	11
90 tokens for a single overflow, 10 tokens for a repeat overflow	4	11
80 tokens for a single overflow, 20 tokens for a repeat overflow	4	7
70 tokens for a single overflow, 30 tokens for a repeat overflow	4	9
60 tokens for a single overflow, 40 tokens for a repeat overflow	4	4
50 tokens for a single overflow, 50 tokens for a repeat overflow	22	15
40 tokens for a single overflow, 60 tokens for a repeat overflow	13	7
30 tokens for a single overflow, 70 tokens for a repeat overflow	11	12
20 tokens for a single overflow, 80 tokens for a repeat overflow	6	5
10 tokens for a single overflow, 90 tokens for a repeat overflow	5	3

	Households	Businesses
	per cent	per cent
Use all tokens for repeat overflow (no rebate tokens for a single overflow)	5	3
Don't know	17	14

Note: Weighted. Base households n=617, businesses=74
Source: CIE analysis

Attitudes towards wastewater rebates

As with water interruptions, attitudes towards rebates for wastewater overflows did not vary much with differing rebate levels. Roughly half of households would be happy receiving the rebate. Each of the other attitudes offered as options were selected by significantly less than half of the sample.

The household preferences for alternatives to rebates were similar to those discussed above in relation to water rebates. There was relatively even support for each of the options among business respondents, with assisting customer in financial hardship the most preferred alternative.

7.5   Preferences for wastewater rebates

	Households			Businesses
Rebate level	**$75**	**$125**	**$200**	**Combined**
	per cent	per cent	per cent	per cent
How would you feel if you experienced a wastewater overflow on your property and were given a rebate of [rebate level]?				
I would be happy to receive the rebate	47	49	54	42
I would feel adequately compensated for the inconvenience	20	25	27	30
I would be satisfied that Hunter Water has paid a penalty for the inconvenience caused	24	22	26	26
A rebate is a waste of money that could have been spent on maintaining the system	11	12	10	11
The problem should be fixed and I want to be assured that it won't happen again	31	31	34	18
Other	1	2	3	3
Don't know	6	3	5	7
Which of the following ways would be acceptable to you?				
Expanding the annual Love Water grants program that provided $180,000 in 2020-21 towards community projects that support water conservation and education in the Hunter	16	25	25	26
Starting a new grants program for community projects, with customer and community participation in project selection	14	15	18	30

Rebate level	Households			Businesses
	$75	**$125**	**$200**	**Combined**
	per cent	per cent	per cent	per cent
Assisting customers experiencing financial hardship	28	36	36	35
Donating to WaterAid Australia a registered charity that enables the world's poorest people to gain access to clean water, decent toilets and good hygiene	19	18	23	24
Offering you the choice, each time you are eligible for a rebate, of receiving the dollar value as a discount on your bill or nominating a charity to receive the money	49	43	50	28
Other	1	1	2	3
None of the above	6	7	2	3
Don't know	13	15	14	9

Note: Households Weighted base $75 n=205, $125 n=212, $200 n=198; Business base n=74

Source: CIE analysis

8   Pre-testing interview questions

Questions for prompting discussion during cognitive testing interviews:

- How long did the questionnaire take to complete?
- Were there any parts of the survey that were confusing or unclear?
- Was the reading material too long or too brief?
- Which questions other than the choice questions did you need to stop and think most about?
- Were the choice questions difficult to answer?
- How did you go about answering the choice questions? e.g. which attributes did you look at first?
- Did any of the options look strange to you? Which ones, and why?
- In the choice questions, did you find you were picking the 'no change' option a lot? If so, why?
- In the choice questions, did you find you were picking the highest-cost or lowest-cost option across all of the questions?
- In the choice questions, did you believe that your water bill would be affected under the different options?
- Were you confident about your answers to questions about your past experiences of water and wastewater service failures? Did you recall these answers when considering the 'no change' option in the choice questions?
- Did the questionnaire seem neutral and factual about the topic?

9   Questionnaire: water

Welcome…

Thank you for participating in this survey, which is being run by Pureprofile and the Centre for International Economics on behalf of Hunter Water.

As part of Hunter Water's commitment to understanding customers and community preferences and reflecting that understanding in our decisions, we are asking you about your views on water supply interruptions and water pressure.

In 2020 our customers told us these were important aspects of the water service that we provide. We are now seeking views on future performance outcomes. Your input is very important and will be used to inform the performance standards in our Operating Licence.

This questionnaire will take around 15-20 minutes to complete.

CLIENT LINK VERSION ONLY

By participating, you could go into the draw to win one of five $200 Coles Group & Myer gift cards.

We wish to reassure you that this is genuine market research and, as always, your individual survey responses will remain confidential and anonymous at all times.

In the unlikely event of any technical difficulties please click on the technical support e-mail link.

For other enquiries, please contact Hunter Water on 1300 657 657.

Please Keep In Mind…

Do not use your Back or Forward browser buttons while you are taking this survey. Once you answer a question, you will not be able to go back and change your answer.

Before we go through to the main questions we would like to ask you some questions to make sure we have responses from a good range of customers.

1. Are you:

    Please select one.

    a. A business owner or sole trader with a commercial premises **GO TO BUSINESS VERSION**

    b. Responsible for managing business operations at a commercial premises **GO TO BUSINESS VERSION**

    c. None of the above **GO TO HOUSEHOLD VERSION**

HOUSEHOLD ONLY

Please fill out this questionnaire on behalf of your household.

BUSINESS ONLY

Please fill out this questionnaire on behalf of your business. If your business has multiple sites in the Hunter region, please choose one site and answer the survey questions in relation to this site only. Please choose the site where you know most about how water is used and how much you pay for water.

HOUSEHOLD ONLY

2. Do you or anyone in your household work for any of the following industries/organisations?

    Water supply or wastewater services

    Market research

    IPART (Independent Pricing and Regulatory Tribunal)

    NSW Health in a role related to water quality regulation

    NSW Environment Protection Authority

    a. Yes **TERMINATE**

    b. No

BUSINESS ONLY

3. Does your business operate in the water and wastewater service or market research industries?

    a. Yes **TERMINATE**

    b. No

TERMINATE PAGE

Thank you for taking part in the survey so far. One of your answers precludes you from continuing through the survey, however we very much value your time today and encourage you to take part in future surveys that are more relevant to you.

To keep up to date with opportunities to be involved in ongoing research and consultation, visit https://yourvoice.hunterwater.com.au/

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4. How does your household/business **PIPING BASED ON Q1** get water and wastewater bills?

    a. I get bills from Hunter Water

    b. I get bills from Hunter Water and from my body corporate

    c. My landlord/managing agent gets bills from Hunter Water and charges the full amount to me as a specific charge separate from rent

    d. My landlord/managing agent gets bills from Hunter Water and charges part of the bill to me as a specific charge separate from rent

    e. My landlord/managing agent charges me an amount for water and wastewater, separate from rent, but I don't know how that amount relates to the Hunter Water bill

    f. I don't pay a separate amount for water and wastewater **TERMINATE**

HOUSEHOLD ONLY

Please give a rough estimate of the amount you pay for water and wastewater services.

If you receive bills from Hunter Water, these come every four months. If you are unsure how much you pay, please use these examples as a guide:

- a small household would pay around $315
- a typical household in an apartment would pay around $300
- a typical household in a house would pay around $400
- a large household or a household with a garden would pay around $475

5. The amount I pay for water and wastewater services each four-monthly bill is about:

_____

BUSINESS ONLY

Please give a rough estimate of the amount your business site pays for water and wastewater services.

If you receive bills from Hunter Water, these typically come every four months. If you are unsure how much you pay, please use these examples as a guide.

- a small shop, using a similar amount of water to a small household, would pay around $350 four-monthly
- a small shop with slightly larger (25mm) pipes connecting to our network, with water use similar to a typical or large residential property, would pay around $650 four-monthly
- A fast food outlet, using about three times more water than a typical residential property, would pay around $960 four-monthly
- A small nursery, using about three times more water than a typical residential property, would pay around $830 four-monthly
- A large nursery, using about 10 times more water than a typical residential property, would pay around $1,850 four-monthly
- A licensed club or hotel would pay around $2,000 - $20,000 four-monthly depending on whether it is medium or large
- businesses with larger pipes and higher water usage would pay higher amounts and pay monthly.

6. The amount my business site pays for water and wastewater services each bill is about:

_____ every

   a. month

   b. four months

RECORD ANNUAL BILL ESTIMATE = INPUT*12 IF (a) OR INPUT*3 IF (b)

THIS IS USED TO CALCULATE LEVELS IN THE CHOICE TASKS

7. What is the postcode of your home address/business site? **PIPING BASED ON Q1. TERMINATE IF OUT OF AREA.**

_____

HOUSEHOLD ONLY

8.   What is your age?

   a.   Less than 18 years **TERMINATE**

   b.   18-29 years

   c.   30-39 years

   d.   40-49 years

   e.   50-59 years

   f.   60-69 years

   g.   70-79 years

   h.   80 years or more

BUSINESS ONLY

9.   Does your business site operate 24 hours a day, 7 days a week?

   a.   Yes

   b.   No

10. Please describe the processes carried out at your business site that are reliant on water

   _____

11. Is there any back-up water supply on the site?

   a.   Yes

   b.   No

   c.   Don't know

This questionnaire is about water supply interruptions and water pressure.

It has three main parts:

- Questions about water supply interruptions
- Questions about low water pressure
- Questions about you

Water supply interruptions

Sometimes, Hunter Water will need to turn off the mains water supply to fix water pipes in your area.

HOUSEHOLD ONLY

While the water supply is turned off, you won't be able to get water from the taps on your property. For example, you will not be able to:

- pour a glass of drinking water
- flush the toilet (after it's been flushed once)
- rinse or wash dishes or clothes, or
- have a shower or bath.

BUSINESS ONLY

While the water supply is turned off, you won't be able access water on your site. This will affect businesses in different ways. For example, it may mean that your staff and customers will be unable to pour a glass of drinking water or flush toilets for the duration of the interruption and for larger businesses it may affect the operation of cooling towers or operational processes.

Please take a moment to consider how a water supply interruption might affect the operation of your business.

Sometimes, Hunter Water will give you warning about a water interruption by placing a <u>flyer in your letterbox</u> or for larger customers calling or advising by letter beforehand.

On other occasions, the work will be urgent and Hunter Water will not be able to warn you about an interruption.

Interruptions with warning typically happen after 8am. In business areas, we work with customers to schedule the water shutdown at a time that is most convenient.

Interruptions that occur without warning could happen at any time of day or night.

PLEASE MAKE THE UNDERLINED TEXT ABOVE A HYPERLINK TO THE FOLLOWING IMAGE:

WATER SUPPLY
INTERRUPTION
NOTICE

Job number: _____

To carry out essential maintenance to the water system,

THE WATER SUPPLY TO YOUR PROPERTY WILL BE INTERRUPTED ON:

Day: _____

Date: _____

Between: _____ and _____

Expected duration: _____ hour/s

Important advice

The water interruption may be delayed without notice up to 24 hours after the above date. Please read reverse side of this card for further information.

For information about what you should do before and after this interruption, including advice on protecting your hot water system, please read the reverse side of this card.

12. How many water supply interruptions can you recall experiencing at home/your business site? **PIPING BASED ON Q1**

_____ interruptions in

_____ years.

SKIP Q13 IF Q12 = 0

13. When was the most recent water interruption you experienced?

    a. In the past 6 months

    b. 6-12 months ago

    c. 1-2 years ago

    d. 3-5 years ago

    e. More than 5 years ago

BUSINESS ONLY

14. Which of the following impacts would you incur if there were an unexpected water interruption at your business site? **MULTIPLE SELECTION**

    a. Dissatisfied customers

    b. Inability to use equipment

    c. Lost revenues from fewer sales/lower production

    d. Damage to processes and equipment

    e. Additional time and labour to restart systems

    f. Overtime wages incurred

    g. Spoilage or loss of goods

15. Roughly, how much lost revenue and additional expenses would your business incur due to an unexpected 1-hour water interruption on the site during business hours? (<u>Do not</u> include lost revenue that would be made up for later. <u>Do</u> include any extra costs in making up for lost production later.)

$_____

16. Roughly, how much lost revenue and additional expenses would your business incur if the unexpected water interruption lasted for <u>5 hours</u>?

$_____

Hunter Water reduces the risk of unexpected interruptions by doing things like:

- replacing ageing large pipes that supply several suburbs

- replacing ageing smaller pipes within a suburb

- installing automatic valves in the water pipes so that we can close off smaller sections of the pipe to do repairs and close them off quickly.

These activities come at a cost that needs to be recovered in Hunter Water bills paid by you and other customers. We want to know your views on how we should balance this cost with the risk of unexpected water supply interruptions.

You will now be asked about hypothetical service scenarios.

Here is an example of the type of question you will be asked.

			Current Package	Package A	Package B
Supply interruptions without warning					
Short unplanned interruptions	Chance each year of an interruption lasting 1-3 hours		14 per cent	16 per cent	13 per cent
Long unplanned interruptions	Chance each year of an interruption lasting 5-8 hours		2.5 per cent	4 per cent	2 per cent
Supply interruptions with written notice					
Planned interruptions	Chance each year of a planned interruption lasting 1-3 hours		4 per cent	5.5 per cent	4.5 per cent
The cost to you					
Cost	The permanent change in the amount you pay for water each year		No change	You save $10	You pay an extra $5
Your choice					
If these were the only three options available to you, which option would you choose?					

EXAMPLE ONLY

In each question, three water service packages will be described by the chances of you experiencing water interruptions and the impact on your water bill.

You will be asked to choose your preferred package by ticking one box in the bottom row.

The chance of events happening each year is expressed as a percentage. Under the 'current package' in this example, there is a 2.5 per cent chance each year that you will experience a long unplanned interruption. If you prefer, you can use a drop-down box above the choice tasks to express the chance of events in terms of the number of properties affected in 1,000. Under the 'current package' in this example, long interruptions would happen to 25 in 1,000 properties each year (that is, in an area the size of a Newcastle suburb or two Cessnock suburbs).

Some of the packages may look strange. That is because there are a range of repair and replacement activities Hunter Water could undertake to deliver different outcomes.

			Current Package	Package A	Package B
Supply interruptions without warning					
Short unplanned interruptions	Chance each year of an interruption lasting 1-3 hours		14 per cent	16 per cent	13 per cent
Long unplanned interruptions	Chance each year of an interruption lasting 5-8 hours		2.5 per cent	4 per cent	2 per cent
Supply interruptions with written notice					
Planned interruptions	Chance each year of a planned interruption lasting 1-3 hours		4 per cent	5.5 per cent	4.5 per cent
The cost to you					
Cost	The permanent change in the amount you pay for water each year		No change	You save $10	You pay an extra $5
Your choice					
If these were the only three options available to you, which option would you choose?			EXAMPLE ONLY		

Answering questions about hypothetical situations

Although the situations presented in this survey are hypothetical, your responses will influence decisions about the management of the water system in Lower Hunter region, which will affect the number of water interruptions and low-water-pressure events that happen and also the amount you pay for water. Therefore, please answer the questions as if you were really facing these decisions.

17. <choice question 1>

18. <choice question 2>

19. <choice question 3>

20. <choice question 4>

21. <choice question 5>

22. <choice question 6>

Now a few questions about how you answered the choice questions.

23. Did you find the choice questions difficult to answer in the time you had available?

    a.   They were very difficult questions

    b.   They were somewhat difficult questions

    c.   They were not difficult questions

24. Was the "current package" shown in each choice question similar to the level of service you currently get?

    a.   Yes **SKIP TO Q26**

    b.   No

    c.   Don't know **SKIP TO Q26**

25. How did you go about answering the questions given you found the "current package" to be different to your experience?

    a.   I assumed that by selecting "current package" I would be getting the service levels described in the question

    b.   I assumed that by selecting "current package" I would be getting the service levels I have experienced in the past

26. Did you believe that Hunter Water would be able to deliver any of the packages presented?

    a. Yes **SKIP TO Q28**

    b. No

    c. Don't know **SKIP TO Q28**

27. When you saw packages that you did not believe Hunter Water could deliver, how did you go about answering the question(s)?

    a. I answered the question(s) as though I would be getting the service levels and bill impacts described in the packages

    b. I answered the question(s) as though I would be getting different service levels or bill impacts to those described in the packages

IF SELECTED AN OPTION OTHER THAN 'CURRENT PACKAGE' IN AT LEAST ONE CHOICE QUESTION, SKIP Q28 AND GO TO Q29 (IN OTHER WORDS, Q28 IS ONLY FOR RESPONDENTS WHO CHOSE 'CURRENT PACKAGE' IN ALL SIX CHOICE QUESTIONS)
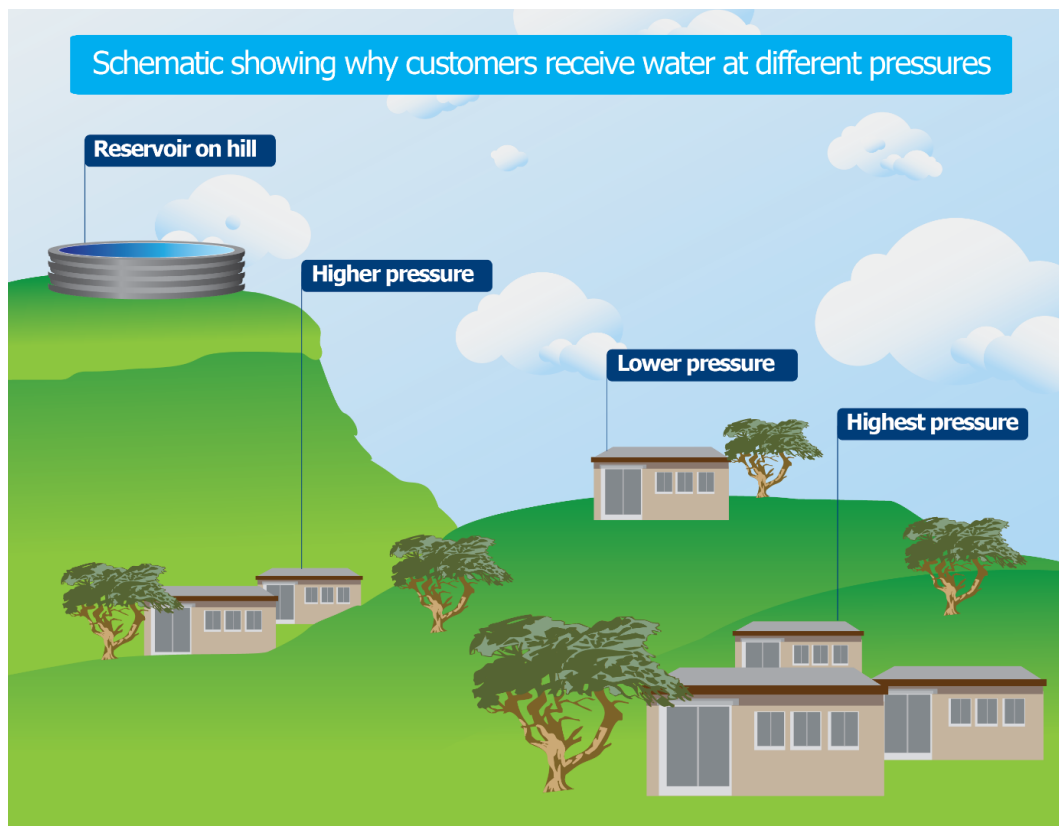
28. Why did you select the current package in every choice question? (tick as many as apply)

    a. I didn't have enough time to properly consider the options

    b. I didn't have enough information to be confident choosing the other options

    c. I disagree with the idea of people paying to avoid water supply interruptions

    d. I disagree with the idea of offering people money to face more water supply interruptions

    e. I'm concerned that Hunter Water might put prices up without making the service improvements

    f. I'm concerned that Hunter Water might let service get worse without reducing prices

    g. Other _____

29. Earlier in the survey we told you that your responses will affect the number of water supply interruptions that happen and also the amount you pay for water. To what degree do you expect the results of this survey will affect decisions made by Hunter Water?

    a. It is very likely the survey will affect Hunter Water's decisions

    b. It is somewhat likely the survey will affect Hunter Water's decisions

    c. I don't think the survey will affect any of Hunter Water's decisions

Low water pressure

Another problem that some of our customers sometimes experience is low water pressure.

We use gravity to get water to you from a reservoir located at a high point in your area. Water pressure varies at different locations depending on how far you are from the reservoir and your elevation in relation to the reservoir. Water pressure also changes when we connect new properties to the water system.

Schematic showing why customers receive water at different pressures

Reservoir on hill

Higher pressure

Lower pressure

Highest pressure

Water pressure in our system can fall when people are using a lot of water. In areas with lower pressure, this may result in slow flow of water from your taps. You may notice:

- taking a few minutes to fill a bucket
- only a trickle of water coming from second-floor taps/shower
- not being able to use water in more than one place in the home (e.g. not being able to shower while using the washing machine).

30. How many times in the last two years have you experienced low water pressure at your property?

    a. Never

    b. Once or twice

    c. Several times

    d. Often during summer

    e. Often throughout the year

BUSINESS ONLY

31. Can you continue to operate your business during a water pressure failure?

    a. Yes

    b. No, my business would need to stop operation during a water pressure failure

    c. My business would need to stop operation if the water pressure failure lasted for a period of more than (please specify) _____

Some properties experience low water pressure occasionally – only on very hot summer days when people are using a lot of water. Under current regulations, Hunter Water must ensure that no more than 4800 properties each year experience at least one low water pressure event.

Other properties experience low water pressure frequently – on most days of the year, for around half of each day, except in winter when people are not using much water. We fix water pressure for these customers when the cost of the work would not push up bills for other customers. There are around 300 of these 'worst-impacted' properties that we have not fixed because it would be relatively expensive.

These customers are located in small areas within the Lake Macquarie, Newcastle, Cessnock and Maitland local government areas.

Hunter Water could improve water pressure by doing things like:

- installing bigger water pipes
- installing booster pumps.

These investments come at a cost that would need to be paid for by Hunter Water customers through their bills.

You may not experience low water pressure at your own property, but we want to know whether you would be willing to pay more on your bill to improve water pressure for other customers.

We would keep you informed of progress in fixing water pressure using our existing communication methods, such as our newsletter to all Lower Hunter households (The Fountain), website content, social media or media.

Your answer to the next question will affect the water pressure experienced by other customers and also the size of your water bill. Please answer the question as if you were really facing this decision.

Also, please remember your income is limited and there may be other things you want to pay for.

ASK EITHER Q32 OR Q33 BY LEAST FILL

32. Hunter Water is considering a program that would fix water pressure for 2500 properties who would otherwise experience <u>occasional</u> low water pressure events over the next 10 years (only on very hot summer days when people are using a lot of water).

    If this program increased the amount you pay for water and wastewater services every year by $X …

    $X <draw from $1, $3, $10, $30>

    … for a period of 10 years would you vote for the program?

    a.   At that cost to me, I definitely would vote for the program **SKIP Q34**

    b.   At that cost to me, I probably would vote for the program **SKIP Q34**

    c.   At that cost to me, I am not sure whether I would vote for the program

    d.   At that cost to me, I probably would not vote for the program

    e.   At that cost to me, I definitely would not vote for the program

33. Hunter Water is considering a program that would fix water pressure for 300 properties who would otherwise experience <u>frequent</u> low water pressure events over the next 10 years (on most days of the year, for around half of each day, except in winter when people are not using much water).

    If this program increased the amount you pay for water and wastewater services every year by **$X <draw from $1, $3, $10, $30>** for a period of 10 years would you vote for the program?

    a.   At that cost to me, I definitely would vote for the program **SKIP Q34**

    b.   At that cost to me, I probably would vote for the program **SKIP Q34**

    c.   At that cost to me, I am not sure whether I would vote for the program

    d.   At that cost to me, I probably would not vote for the program

    e.   At that cost to me, I definitely would not vote for the program

34. What were your main reasons for not voting for the first program? (tick as many as apply) **ROTATE**

   a. The program seems like poor value for money

   b. The information about water pressure was too confusing

   c. I didn't have enough information to be confident voting for the program

   d. I disagree with the idea of people paying to get a basic level of service

   e. I am concerned that Hunter Water might put prices up without fixing the water pressure problem

   f. I do not care about the water pressure experienced by other people

   g. I do not think I should be the one paying for the program

   h. It didn't help the worst-served customers

   i. Other _____

Hunter Water currently pays rebates to customers who experience longer or more frequent water supply interruptions or low-water-pressure events. We intend to provide those customers with higher rebates in recognition of the increased inconvenience.

Now we want to ask you four questions about how inconvenient different events would be compared to a long water interruption.

The answers to these questions will be used to decide how Hunter Water uses a fixed budget for paying rebates to customers.

35. Compared to a rebate for one unexpected water interruption lasting 5-8 hours, how much should the rebate be for three unexpected water interruptions within a 12-month period each lasting 5-8 hours?

   a. No rebate at all

   b. 90% lower

   c. 50% lower

   d. 20% lower

   e. Same

   f. 20% higher

   g. 50% higher

   h. Double

   i. Three times higher

   j. Four times higher

   k. Five times higher

   l. Other

   m. Don't know

36. Compared to a rebate for one unexpected water interruption lasting 5-8 hours, how much should the rebate be for three water interruptions with advance warning within a 12-month period each lasting 5-8 hours?

    a. No rebate at all
    b. 90% lower
    c. 50% lower
    d. 20% lower
    e. Same
    f. 20% higher
    g. 50% higher
    h. Double
    i. Three times higher
    j. Four times higher
    k. Five times higher
    l. Other
    m. Don't know

37. Compared to a rebate for one unexpected water interruption lasting 5-8 hours, how much should the rebate be for a boil water alert issued by NSW Health lasting 2 days, during which you are required to boil water before drinking it to reduce the risk of getting sick?

    a. No rebate at all
    b. 90% lower
    c. 50% lower
    d. 20% lower
    e. Same
    f. 20% higher
    g. 50% higher
    h. Double
    i. Three times higher
    j. Four times higher
    k. Five times higher
    l. Other
    m. Don't know

38. Compared to a rebate for one unexpected water interruption lasting 5-8 hours, how much should the rebate be for discoloured (dirty) water for two hours?

   a. No rebate at all

   b. 90% lower

   c. 50% lower

   d. 20% lower

   e. Same

   f. 20% higher

   g. 50% higher

   h. Double

   i. Three times higher

   j. Four times higher

   k. Five times higher

   l. Other

   m. Don't know

39. How would you feel if your water supply was interrupted for an extended period of time (5-8 hours) and you were given a rebate of *$X?* (Select all that apply) **<draw randomly from $37, $50, $100> MULTIPLE SELECTION**

   a. I would be happy to receive the rebate

   b. I would feel adequately compensated for the inconvenience

   c. I would be satisfied that Hunter Water has paid a penalty for the inconvenience caused

   d. A rebate is a waste of money that could have been spent on maintaining the system

   e. The problem should be fixed and I want to be assured that it won't happen again

   f. Don't know

   g. Other _____

40. In a survey we conducted last year a lot of customers told us they did not expect a rebate for once-off or infrequent disruptions that are fixed quickly. There are other ways Hunter Water could be penalised for the inconvenience caused.

Which of the following ways would be acceptable to you? (Select all that apply)
MULTIPLE SELECTION

a.   Expanding the annual Love Water grants program that provided $180,000 in 2020-21 towards community projects that support water conservation and education in the Hunter

b.   Starting a new grants program for community projects, with customer and community participation in project selection

c.   Assisting customers experiencing financial hardship

d.   Donating to WaterAid Australia a registered charity that enables the world's poorest people to gain access to clean water, decent toilets and good hygiene

e.   Offering you the choice, each time you are eligible for a rebate, of receiving the dollar value as a discount on your bill or nominating a charity to receive the money

f.   None of the above

g.   Don't know

h.   Other _____

HOUSEHOLD ONLY

Finally, a few questions about you.

41. Are you…

a.   Male

b.   Female

c.   Non-binary

d.   Other

e.   Prefer not to say

42. How often do you have someone at home during business hours on weekdays?

a.   Never / very rarely

b.   Some of the time

c.   Very often / all of the time

d.   Prefer not to say

43. Is the place you live in:

     a. Owned outright or with a mortgage

     b. Being rented or occupied rent-free

     c. Other (please specify) _____

44. Do you speak a language other than English at home?

     a. No, English only

     b. Yes

45. Are you of Aboriginal or Torres Strait Islander origin?

     a. Yes

     b. No

     c. Prefer not to say

46. Which best describes your household:

     a. Couple/family without children at home

     b. Couple/family with children at home

     c. One parent family

     d. Group household

     e. Single person household

     f. Other

     g. Prefer not to say

47. What is your work status?

     a. Working full time

     b. Working part time/casually

     c. Student

     d. Not currently employed

     e. Home duties

     f. Retired

     g. Other

48. What is your approximate annual household income before tax?

   a.   Less than $41,600

   b.   Between $41,600 and $78,000

   c.   Between $78,000 and $104,000

   d.   Between $104,000 and $156,000

   e.   More than $156,000

   f.   Prefer not to say

49. How would you describe your financial situation? **SKIP IF Q48=a-e**

   a.   Live comfortably

   b.   Meet basic expenses with a little left over for extras

   c.   Just meet basic expenses

   d.   Don't have enough to meet basic expenses

   e.   Prefer not to say

50. In what type of dwelling do you live?

   a.   Separate house

   b.   Semi-detached, row or terrace house, townhouse

   c.   Flat or apartment

   d.   Other

51. You are eligible for a pensioner rebate on your Hunter Water bill if you are the owner and occupier of a property and hold a Pensioner Concession Card or a Department of Veterans' Affairs Gold Card. Do you receive a pensioner rebate from us? **SKIP IF Q48=c-e**

   a.   Yes

   b.   No

   c.   Don't know

   d.   Prefer not to say

52. If you are a residential customer finding it hard to pay your water bill we can help through flexible payment options or the Payment Assistance Scheme operated through registered community welfare agencies. Have you ever used one of our assistance programs? **SKIP IF Q48=c-e OR IF Q49=a-b**

    a. Yes

    b. No

    c. Don't know

    d. Prefer not to say

BUSINESS ONLY

53. How many employees do you have in your business across all sites (full time equivalents other than the proprietor)?

    a. Non-employing / sole trader

    b. 1-4 employees

    c. 5-19 employees

    d. 20-199 employees

    e. 200 employees or more

54. In which industry does your business mainly operate?

    a. Accommodation and Food Services

    b. Administrative and Support Services

    c. Agriculture, Forestry and Fishing

    d. Arts and Recreation Services

    e. Construction

    f. Currently Unknown

    g. Education and Training

    h. Electricity, Gas, Water and Waste Services

    i. Financial and Insurance Services

    j. Health Care and Social Assistance

    k. Information Media and Telecommunications

    l. Manufacturing

    m. Mining

    n. Other Services

o.   Professional, Scientific and Technical Services

p.   Public Administration and Safety

q.   Rental, Hiring and Real Estate Services

r.   Retail Trade

s.   Transport, Postal and Warehousing

t.   Wholesale Trade

55. What is your position or title within your business?

a.   Owner / proprietor

b.   Senior management

c.   Other employee

CLIENT LINK VERSION ONLY

56. Would you be happy to provide an email address or phone number we could use to contact you if you are drawn as a winner of one of five $200 Coles Group and Myer gift cards or to invite you to participate in a phone interview discussing the material in this survey in more detail?

a.   Yes, you can contact me for the purposes of the prize draw or a follow-up interview

b.   Yes, you can contact me for the purpose of the prize draw only

c.   Yes, you can contact me for the purpose of a follow-up interview only

d.   No, please do not enter me into the prize draw or contact me for a follow-up interview **SKIP Q57**

57. Please provide your contact details below. These will be used only for the purpose you indicated in the previous question.

a.   Name_____

b.   Phone_____

c.   Email_____

REQUIRE RESPONSE TO a&b OR a&c

58. Finally, is there any feedback you would like to provide on this survey? **ALLOW NO RESPONSE**

_____
_____
_____
_____

Thank you for participating in this survey. Your opinions are very important.

To keep up to date with survey findings and how they are being used by Hunter Water visit https://yourvoice.hunterwater.com.au/

10 Questionnaire: wastewater

Welcome...

Thank you for participating in this survey, which is being run by Pureprofile and the Centre for International Economics on behalf of Hunter Water.

As part of Hunter Water's commitment to understanding customers and community preferences and reflecting that understanding in our decisions, we are asking you to provide your views on wastewater overflows. Wastewater is another name for sewage.

In 2020 our customers told us this is an important aspect of the wastewater service that we provide. We are now seeking views on future performance outcomes. Your input is very important and will be used to inform the performance standards in our Operating Licence.

This questionnaire will take around 10-15 minutes to complete.

CLIENT LINK VERSION ONLY

By participating, you could go into the draw to win one of five $200 Coles Group & Myer gift cards.

We wish to reassure you that this is genuine market research and, as always, your individual survey responses will remain confidential and anonymous at all times.

In the unlikely event of any technical difficulties please click on the technical support e-mail link.

For other enquiries, please contact Hunter Water on 1300 657 657.

Please Keep In Mind...

Do not use your Back or Forward browser buttons while you are taking this survey. Once you answer a question, you will not be able to go back and change your answer.

Before we go through to the main questions we would like to ask you some questions to make sure we have responses from a good range of customers.

1. Are you:

    Please select one.

    a. A business owner or sole trader with a commercial premises **GO TO BUSINESS VERSION**

    b. Responsible for managing business operations at a commercial premises **GO TO BUSINESS VERSION**

    c. None of the above **GO TO HOUSEHOLD VERSION**

HOUSEHOLD ONLY

Please fill out this questionnaire on behalf of your household.

BUSINESS ONLY

Please fill out this questionnaire on behalf of your business. If your business has multiple sites in the Hunter region, please choose one site and answer the survey questions in relation to this site only. Please choose the site where you know most about how water is used and how much you pay for water.

HOUSEHOLD ONLY

2. Do you or anyone in your household work for any of the following industries/organisations?

    Water supply or wastewater services

    Market research

    IPART (Independent Pricing and Regulatory Tribunal)

    NSW Health in a role related to water quality regulation

    NSW Environment Protection Authority

    a. Yes **TERMINATE**
    b. No

BUSINESS ONLY

3. Does your business operate in the water and wastewater service or market research industries?

    a. Yes **TERMINATE**

    b. No

TERMINATE PAGE

Thank you for taking part in the survey so far. One of your answers precludes you from continuing through the survey, however we very much value your time today and encourage you to take part in future surveys that are more relevant to you.

To keep up to date with opportunities to be involved in ongoing research and consultation, visit https://yourvoice.hunterwater.com.au/

---

4. How does your household/business **PIPING BASED ON Q1** get water and wastewater bills?

    a. I get bills from Hunter Water

    b. I get bills from Hunter Water and from my body corporate

    c. My landlord/managing agent gets bills from Hunter Water and charges the full amount to me as a specific charge separate from rent

    d. My landlord/managing agent gets bills from Hunter Water and charges part of the bill to me as a specific charge separate from rent

    e. My landlord/managing agent charges me an amount for water and wastewater, separate from rent, but I don't know how that amount relates to the Hunter Water bill

    f. I don't pay a separate amount for water and wastewater **TERMINATE**

HOUSEHOLD ONLY

Please give a rough estimate of the amount you pay for water and wastewater services.

If you receive bills from Hunter Water, these come every four months. If you are unsure how much you pay, please use these examples as a guide:

- a small household would pay around $315
- a typical household in an apartment would pay around $300
- a typical household in a house would pay around $400
- a large household or a household with a garden would pay around $475

5. The amount I pay for water and wastewater services each four-monthly bill is about:

_____

BUSINESS ONLY

Please give a rough estimate of the amount your business site pays for water and wastewater services.

If you receive bills from Hunter Water, these typically come every four months. If you are unsure how much you pay, please use these examples as a guide.

- a small shop, using a similar amount of water to a small household, would pay around $350 four-monthly
- a small shop with slightly larger (25mm) pipes connecting to our network, with water use similar to a typical or large residential property, would pay around $650 four-monthly
- A fast food outlet, using about three times more water than a typical residential property, would pay around $960 four-monthly
- A small nursery, using about three times more water than a typical residential property, would pay around $830 four-monthly
- A large nursery, using about 10 times more water than a typical residential property, would pay around $1,850 four-monthly
- A licensed club or hotel would pay around $2,000 - $20,000 four-monthly depending on whether it is medium or large
- businesses with larger pipes and higher water usage would pay higher amounts and pay monthly.

6. The amount my business site pays for water and wastewater services each quarter is about:

_____ every

   a. month

   b. four months

RECORD ANNUAL BILL ESTIMATE = INPUT*12 IF (a) OR INPUT*3 IF (b)

THIS IS USED TO CALCULATE LEVELS IN THE CHOICE TASKS

7. What is the postcode of your home address/business site? **PIPING BASED ON Q1. TERMINATE IF OUT OF AREA.**

_____

HOUSEHOLD ONLY

8. What is your age?

    a. Less than 18 years **TERMINATE**

    b. 18-29 years

    c. 30-39 years

    d. 40-49 years

    e. 50-59 years

    f. 60-69 years

    g. 70-79 years

    h. 80 years or more

This questionnaire is about wastewater overflows.

It has five parts:

- Background information about wastewater overflows
- Questions about any overflows you've experienced
- Questions about how you think Hunter Water should balance its spending with the risk of overflows
- Questions about the rebates Hunter Water pays to customers who experience overflows
- Questions about you

Wastewater is the used water that goes down drains from sinks, toilets, laundries, showers and baths. When the wastewater system becomes blocked, for example due to tree roots, wastewater can overflow from the maintenance holes (also known as access chambers) that are used to access Hunter Water's wastewater pipes or from a grate in your yard.

Wastewater is mostly water, but it can contain viruses, bacteria and other organisms that are harmful to humans, animals and the environment. In the event of an overflow you would need to stop using your toilets, sinks and other drains and keep away from the affected area until the blockage has been cleared and the area has been thoroughly cleaned by Hunter Water staff.

Wastewater overflows can happen at any time of day. It typically takes between one and three hours for Hunter Water to stop the overflow and unblock our pipe. It may take longer to fully clean the affected area.

9. How many wastewater overflows can you recall experiencing on your own private property?

    _____ overflows in

    _____ years.

SKIP Q10 IF Q9 = 0

10. When was the most recent overflow you experienced?

    a. In the past 6 months

    b. 6-12 months ago

    c. 1-2 years ago

    d. 3-5 years ago

    e. More than 5 years ago

HOUSEHOLD ONLY

SKIP Q11 IF Q9 = 0

11. Which of the following impacts did you experience during the most recent overflow? **MULTIPLE SELECTION**

    a. Bad smell

    b. Liquid wastewater inside the house

    c. Solids in wastewater inside the house

    d. Liquid wastewater in the yard (outside the house)

    e. Solids in wastewater in the yard (outside the house)

    f. Could not use toilet, sinks or other drains

    g. Slow draining

    h. Other _____

BUSINESS ONLY

12. Which of the following impacts would you incur if there was a wastewater overflow and you were unable to use toilets, sinks and drains at your business site? **MULTIPLE SELECTION OR (F)**

    a. Dissatisfied customers

    b. Inability to use equipment

    c. Lost revenues from fewer sales/lower production

    d. Overtime wages incurred

    e. Other _____

    f. None of the above (no impact)

13. Roughly, how much lost revenue and additional expenses would your business incur due to a wastewater blockage and overflow lasting 1 hour on your site during business hours? (Do not include lost revenue that would be made up for later. Do include any extra costs in making up for lost production later.)

    $_____

14. Roughly, how much lost revenue and additional expenses would your business incur if the wastewater blockage and overflow lasted for 3 hours?

    $_____

Hunter Water reduces the risk of wastewater overflows by doing things like:

- putting cameras down pipes to monitor their condition

- replacing ageing pipes or relining them, and

- cleaning the inside of pipes to clear tree roots and other objects that shouldn't be there.

These activities come at a cost that needs to be recovered in Hunter Water bills paid by you and other customers. We want to know your views on how we should balance this cost with the risk of wastewater overflows onto your property.

You will now be asked about hypothetical service scenarios.

Here is an example of the type of question you will be asked.

		Current Package	Package A	Package B
Your service level				
Chance of one wastewater overflow on your property each year		1.3 per cent	1.9 per cent	0.7 per cent
Chance of three wastewater overflows on your property each year		0.01 per cent	0.05 per cent	0.01 per cent
Time taken to unblock pipes so you can use your toilets, sinks and other drains		2 hours	2 hours	3 hours
The cost to you				
The permanent change in the amount you pay for wastewater services each year	$	No change	You save $10	You pay an extra $10
Your choice				
If these were the only three options available to you, which option would you choose?		EXAMPLE ONLY	○	○

In each question, three wastewater service packages will be described by the chances of you experiencing wastewater overflows and the impact on your water and wastewater bill.

You will be asked to choose your preferred package by selecting one box in the bottom row.

The chance of events happening each year is expressed as a percentage. Under the 'current package' in this example, there is a 1.3 per cent chance each year you would experience one wastewater overflow on your property. If you prefer, you can use a drop-down box above the choice tasks to express the chance of events in terms of the number of properties affected in 10,000. Under the 'current package' in this example, wastewater overflows would be experienced by 130 in 10,000 properties each year (that is, in an area roughly one seventh of Newcastle, or one third of Maitland, or half of Cessnock).

Some of the packages may look strange. That is because there are a range of repair and replacement activities Hunter Water could undertake to deliver different outcomes.

		Current Package	Package A	Package B
Your service level				
Chance of one wastewater overflow on your property each year		1.3 per cent	1.9 per cent	0.7 per cent
Chance of three wastewater overflows on your property each year		0.01 per cent	0.05 per cent	0.01 per cent
Time taken to unblock pipes so you can use your toilets, sinks and other drains		2 hours	2 hours	3 hours
The cost to you				
The permanent change in the amount you pay for wastewater services each year	$	No change	You save $10	You pay an extra $10
Your choice				
If these were the only three options available to you, which option would you choose?		EXAMPLE ONLY		

Answering questions about hypothetical situations

Although the situations presented in this survey are hypothetical, your responses will influence decisions about the management of the wastewater system in Lower Hunter region, which will affect the number of overflows that happen and also the amount you pay for wastewater services. Therefore, please answer the questions as if you were really facing these decisions.

---

15. <choice question 1>

16. <choice question 2>

17. <choice question 3>

18. <choice question 4>

19. <choice question 5>

20. <choice question 6>

Now a few questions about how you answered the choice questions.

21. Did you find the choice questions difficult to answer in the time you had available?

    d. They were very difficult questions

    e. They were somewhat difficult questions

    f. They were not difficult questions

22. Was the "current package" shown in each choice question similar to the level of service you currently get?

    d. Yes **SKIP TO Q24**

    e. No

    f. Don't know **SKIP TO Q24**

23. How did you go about answering the questions given you found the "current package" to be different to your experience?

    c. I assumed that by selecting "current package" I would be getting the service levels described in the question

    d. I assumed that by selecting "current package" I would be getting the service levels I have experienced in the past

24. Did you believe that Hunter Water would be able to deliver any of the packages presented?

    d. Yes **SKIP TO Q26**

    e. No

    f. Don't know **SKIP TO Q26**

25. When you saw packages that you did not believe Hunter Water could deliver, how did you go about answering the question(s)?

    c. I answered the question(s) as though I would be getting the service levels and bill impacts described in the packages

    d. I answered the question(s) as though I would be getting different service levels or bill impacts to those described in the packages

IF SELECTED AN OPTION OTHER THAN 'CURRENT PACKAGE' IN AT LEAST ONE CHOICE QUESTION, SKIP Q26 AND GO TO Q27 (IN OTHER WORDS, Q26 IS ONLY FOR RESPONDENTS WHO CHOSE 'CURRENT PACKAGE' IN ALL SIX CHOICE QUESTIONS)

26. Why did you select the current package in every choice question? (tick as many as apply)

    h. I didn't have enough time to properly consider the options

    i. I didn't have enough information to be confident choosing the other options

    j. I disagree with the idea of people paying to avoid wastewater overflows

    k. I disagree with the idea of offering people money to face more wastewater overflows

    l. I'm concerned that Hunter Water might put prices up without making the service improvements

    m. I'm concerned that Hunter Water might let service get worse without reducing prices

    n. Other _____

27. Earlier in the survey we told you that your responses will affect the number of wastewater overflows that happen and also the amount you pay for water. To what degree do you expect the results of this survey will affect decisions made by Hunter Water?

    a. It is very likely the survey will affect Hunter Water's decisions

    b. It is somewhat likely the survey will affect Hunter Water's decisions

    c. I don't think the survey will affect any of Hunter Water's decisions

Hunter Water currently pays rebates to customers who experience wastewater overflows in dry weather. We intend to provide higher rebates to customers for events that are more inconvenient to them.

28. What level of rebate do you feel is reasonable to be paid for:

    one wastewater overflow on your property ('single overflow')

    a wastewater overflow on your property within 12 months of a previous overflow ('repeat overflow')

    Please allocate 100 tokens across the two events to show how inconvenient you think each event would be. For example, if you choose 50/50, you are saying the rebate should be the same for the two events. If you choose 20/80, you are saying the rebate for a repeat overflow should be four times greater than the rebate for a single overflow.

    a. Use all tokens for single overflow (no rebate for repeat overflow)

    b. 90 tokens for a single overflow, 10 tokens for a repeat overflow

    c. 80 tokens for a single overflow, 20 tokens for a repeat overflow

    d. 70 tokens for a single overflow, 30 tokens for a repeat overflow

    e. 60 tokens for a single overflow, 40 tokens for a repeat overflow

    f. 50 tokens for a single overflow, 50 tokens for a repeat overflow

    g. 40 tokens for a single overflow, 60 tokens for a repeat overflow

    h. 30 tokens for a single overflow, 70 tokens for a repeat overflow

    i. 20 tokens for a single overflow, 80 tokens for a repeat overflow

    j. 10 tokens for a single overflow, 90 tokens for a repeat overflow

    k. Use all tokens for repeat overflow (no rebate for single overflow)

    l. Don't know

29. How would you feel if you experienced a wastewater overflow on your property and were given a rebate of *$X?* **<draw $X randomly from $75, $125, $200>** **MULTIPLE SELECTION**

    a.   I would be happy to receive the rebate

    b.   I would feel adequately compensated for the inconvenience

    c.   I would be satisfied that Hunter Water has paid a penalty for the inconvenience caused

    d.   A rebate is a waste of money that could have been spent on maintaining the system

    e.   The problem should be fixed and I want to be assured that it won't happen again

    f.   Don't know

    g.   Other __

30. In a survey we conducted last year a large proportion of customers told us they did not expect a rebate for once-off or infrequent disruptions that are fixed quickly. There are other ways Hunter Water could be penalised for the inconvenience caused. Which of the following ways would be acceptable to you? (Select all that apply) **MULTIPLE SELECTION**

    a.   Expanding the annual Love Water grants program that provided $180,000 in 2020-21 towards community projects that support water conservation and education in the Hunter

    b.   Starting a new grants program for community projects, with customer and community participation in project selection

    c.   Assisting customers experiencing financial hardship

    d.   Donating to WaterAid Australia a registered charity that enables the world's poorest people to gain access to clean water, decent toilets and good hygiene

    e.   Offering you the choice, each time you are eligible for a rebate, of receiving the dollar value as a discount on your bill or nominating a charity to receive the money

    f.   None of the above

    g.   Don't know

    h.   Other _____

HOUSEHOLD ONLY

Finally, a few questions about you.

31. Are you…

    a. Male

    b. Female

    c. Non-binary

    d. Other

    e. Prefer not to say

32. How often do you have someone at home during business hours on weekdays?

    a. Never / very rarely

    b. Some of the time

    c. Very often / all of the time

    d. Prefer not to say

33. Is the place you live in:

    a. Owned outright or with a mortgage

    b. Being rented or occupied rent-free

    c. Other (please specify) _____

34. Do you speak a language other than English at home?

    a. No, English only

    b. Yes

35. Are you of Aboriginal or Torres Strait Islander origin?

    a. Yes

    b. No

    c. Prefer not to say

36. Which best describes your household:

    a. Couple/family without children at home

    b. Couple/family with children at home

    c. One parent family

    d. Group household

    e. Single person household

    f. Other

    g. Prefer not to say

37. What is your work status?

    a. Working full time

    b. Working part time/casually

    c. Student

    d. Not currently employed

    e. Home duties

    f. Retired

    g. Other

38. What is your approximate annual household income before tax?

    a. Less than $41,600

    b. Between $41,600 and $78,000

    c. Between $78,000 and $104,000

    d. Between $104,000 and $156,000

    e. More than $156,000

    f. Prefer not to say

39. How would you describe your financial situation? **SKIP IF Q38=a-e**

    a. Live comfortably

    b. Meet basic expenses with a little left over for extras

    c. Just meet basic expenses

    d. Don't have enough to meet basic expenses

    e. Prefer not to say

40. In what type of dwelling do you live?

    a. Separate house

    b. Semi-detached, row or terrace house, townhouse

    c. Flat or apartment

    d. Other

41. You are eligible for a pensioner rebate on your Hunter Water bill if you are the owner and occupier of a property and hold a Pensioner Concession Card or a Department of Veterans' Affairs Gold Card. Do you receive a pensioner rebate from us? **SKIP IF Q38=c-e**

    e. Yes

    f. No

    g. Don't know

    h. Prefer not to say

42. If you are a residential customer finding it hard to pay your water bill we can help through flexible payment options or the Payment Assistance Scheme operated through registered community welfare agencies. Have you ever used one of our assistance programs? **SKIP IF Q38=c-e OR IF Q39=a-b**

    a. Yes

    b. No

    c. Don't know

    d. Prefer not to say

BUSINESS ONLY

43. How many employees do you have in your business across all sites (full time equivalents other than the proprietor)?

    a. Non-employing / sole trader

    b. 1-4 employees

    c. 5-19 employees

    d. 20-199 employees

    e. 200 employees or more

44. In which industry does your business mainly operate?

    a. Accommodation and Food Services

    b. Administrative and Support Services

    c. Agriculture, Forestry and Fishing

    d. Arts and Recreation Services

    e. Construction

    f. Currently Unknown

    g. Education and Training

    h. Electricity, Gas, Water and Waste Services

    i. Financial and Insurance Services

    j. Health Care and Social Assistance

    k. Information Media and Telecommunications

    l. Manufacturing

    m. Mining

    n. Other Services

    o. Professional, Scientific and Technical Services

    p. Public Administration and Safety

    q. Rental, Hiring and Real Estate Services

    r. Retail Trade

    s. Transport, Postal and Warehousing

    t. Wholesale Trade

45. What is your position or title within your business?

    a. Owner / proprietor

    b. Senior management

    c. Other employee

46. Would you be happy to provide an email address or phone number we could use to contact you if you are drawn as a winner of one of five $200 Coles Group and Myer gift cards or to invite you to participate in a phone interview discussing the material in this survey in more detail?

    a. Yes, you can contact me for the purposes of the prize draw or a follow-up interview

    b. Yes, you can contact me for the purpose of the prize draw only

    c. Yes, you can contact me for the purpose of a follow-up interview only

    d. No, please do not enter me into the prize draw or contact me for a follow-up interview **SKIP Q47**

47. Please provide your contact details below. These will be used only for the purpose you indicated in the previous question.

    a. Name_____

    b. Phone_____

    c. Email_____

    REQUIRE RESPONSE TO a&b OR a&c

48. Finally, is there any feedback you would like to provide on this survey? **ALLOW NO RESPONSE**

    _____
    _____
    _____
    _____

Thank you for participating in this survey. Your opinions are very important.

To keep up to date with survey findings and how they are being used by Hunter Water visit https://yourvoice.hunterwater.com.au/

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