
Department of Planning and Environment

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Guidance on strategic planning outcome - Understanding revenue sources

Regulatory and assurance framework for local water utilities

October 2022



Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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1 Introduction

Local water utilities can best meet the needs of their customers, and manage key risks, when their decisions and activities are based on effective, evidence-based strategic planning.

The NSW Department of Planning and Environment is committed that all local water utilities should have in place effective, evidence-based strategic planning. This will ensure utilities deliver safe, secure, accessible, and affordable water supply and sewerage services to customers. It will also ensure they can manage key risks now and into the future, and in the event of significant shocks. Local water utilities remain responsible for conducting strategic planning.

The department gives assurance of effective, evidence-based strategic planning. Local water utilities not making dividend payments¹ are encouraged, but not compelled, to use the department's assurance framework, experience and capacity to support effective strategic planning.

Through the department's assurance role under section 3 of the [Regulatory and assurance framework for local water utilities \(PDF, 1613.11 KB\) - Regulatory and Assurance Framework](#) - we establish what outcomes we expect effective, evidence-based strategic planning to achieve (see section 3.2 of the Regulatory and Assurance Framework) and assess if a utility's strategic planning achieves these outcomes to a reasonable standard (see sections 3.3 and 3.4 of the Regulatory and Assurance Framework).

We give separate, optional guidance in the department's guidance [Using the Integrated Planning and Reporting framework for local water utility strategic planning \(PDF, 573.33 KB\)](#) to explain how utilities can achieve the strategic planning outcomes to a reasonable standard using the *Integrated Planning and Reporting Framework* for councils under the *Local Government Act 1993*.

1.1. Purpose of this document

This document supplements the Regulatory and Assurance Framework and gives guidance on achieving the outcome of understanding revenue sources to a reasonable standard.

This guidance is consistent with the objectives and principles established under the Regulatory and Assurance Framework, including being outcomes focused and risk-based.

This document sets out good practice for **all local water utilities** to apply when doing strategic planning to achieve the outcome of understanding revenue sources.

¹ Sections 3 and 4 of the Regulatory and Assurance Framework, are also the Guidelines for council dividend payments for water supply or sewerage services, under section 409(6) of the *Local Government Act 1993*. Before taking a dividend payment from a surplus of the council's water supply and/or sewerage business, a council must have in place effective, evidence-based strategic planning in accordance with section 3 of the Regulatory and Assurance Framework.

1.2. Structure of this document

This guidance is structured providing:

- the expectations for achieving this outcome to a reasonable standard
- an appendix with optional 'how to' guidance that helps utilities achieve assurance expectations
- an appendix providing templates, case studies and tools useful for utilities to achieve assurance expectations.

1.3. Review of this guidance

As part of our commitment to continuous improvement, we will review the performance of the Regulatory and Assurance Framework within 2 years from finalisation. There will also be periodic reviews of the full suite of relevant regulatory and assurance documents, which will happen at least every 5 years.

We welcome feedback on this guidance and will update it when needed based on feedback or a 'lessons learned' review following our assessment of strategic planning by local water utilities.

2. Oversight of local water utility strategic planning

Under section 3 of the [Regulatory and assurance framework for local water utilities \(PDF, 1613.11 KB\)](#), the department establishes what outcomes it expects effective, evidence-based strategic planning to achieve (see section 3.2) and assesses whether a local water utility's strategic planning achieves these outcomes to a reasonable standard (see sections 3.3 and 3.4).

Councils making a dividend payment from a surplus of their water and/or sewerage business must meet the expectations set out in section 3 and section 4 of the Regulatory and Assurance Framework.² Local water utilities not making dividend payments are encouraged, but not compelled, to utilise the department's assurance framework, experience and capacity to support effective strategic planning.

For effective, evidence-based strategic planning to occur, the department expects strategic planning to achieve the following outcomes to a reasonable standard:

- Understanding service needs
- Understanding water security
- Understanding water quality
- Understanding environmental impacts
- Understanding system capacity, capability and efficiency
- Understanding other key risks and challenges
- Understanding solutions to deliver services
- Understanding resourcing needs
- Understanding revenue sources (**this guidance**)
- Make and implement sound strategic decisions
- Implement sound pricing and prudent financial management
- Promote integrated water cycle management

A **reasonable standard** is met if the utility considers and addresses an outcome in a way that is:

- **sufficient:** underpinned by evidence-based analysis that supports the conclusions reached
- **appropriate:** underpinned by relevant departmental guidance and industry standard approaches to conduct planning and reach conclusions
- **robust:** underpinned by evidence that draws on appropriate sources and recognises and rebuts potential alternative interpretations.

² Sections 3 and 4 of the Regulatory and Assurance Framework, are also the Guidelines for council dividend payments for water supply or sewerage services, under section 409(6) of the *Local Government Act 1993*. Before taking a dividend payment from a surplus of the council's water supply and/or sewerage business, a council must have in place effective, evidence-based strategic planning in accordance with section 3 of the Regulatory and Assurance Framework.

The assessment considerations the department will apply and how these may be addressed are set out in more detail in the Regulatory and Assurance Framework.

3. Guidance on understanding revenue sources

Under section 3.2 of the Regulatory and Assurance Framework, the department expects utilities to achieve the strategic planning outcome **understanding revenue sources** to a reasonable standard. This includes considering:

- What are the revenue sources available to fund the delivery of services?
- What is customers' ability to pay for services?
- What is customers' willingness to pay for services?

3.1 Understanding of revenue sources

In the following sections we set out **what** the department's expectations are for **understanding revenue sources** to a reasonable standard. In Appendix A and Appendix B, we provide optional guidance and case-studies and tools on **how** some of these expectations could be met.

3.2 What are the revenue sources available to fund the delivery of services?

A local water utility's water and sewerage prices and developer charges should be its primary funding source to recover the costs of providing water and sewerage services

Local water utilities could potentially access a range of different funding sources to recover the costs of delivering water-related services. These can include:

- prices charged to customers for water and sewerage services, including periodic prices and developer charges
- prices charged for other services generated using water and/or sewerage assets, such as income from renting their facilities and assets, biodiversity credits generated from land required for the supply of water and/or sewerage services, and selling waste or by-products, such as biosolids for fertiliser
- funding streams from the NSW Government, such as grants
- funding streams from the Australian Government, such as infrastructure-related funding
- funding from the council in the form of a community service obligation.

A local water utility should primarily recover their efficient costs of providing water and sewerage services (delivered to required standards) from prices they charge for the services and from developer charges. This is explained in more detail in separate guidance on the outcome of implement sound pricing and prudent financial management.

A local water utility's prices for each service should recover its efficient costs of providing that service to its customers. This means the revenues that the utility requires to operate and maintain its network to supply its services to customers at a required standard should come from the discrete charges available for each of its services, including:

- water charges
- sewerage charges
- recycled water charges
- trade waste charges
- water and sewerage developer charges.

However, prices should also account for the ability of customers to pay (affordability). Where full cost recovery from pricing is not feasible on affordability grounds, there is a role for funding from other sources.

Consistent with the National Pricing Principles³, where customers' capacity to pay will restrict the local water utility's ability to recover its efficient costs from prices, the utility should provide clear evidence to demonstrate that this is the case.

The NSW and Australian governments both run ongoing funding programs and project-specific grants to help local water utilities manage service and supply risks and achieve a range of other goals.

Where local water utilities are unable to recover sufficient revenue from water and sewerage prices and developer charges due to customers' lack of ability or willingness to pay, and other revenue sources are not available or sufficient to cover costs, local water utilities should reconsider their proposed approach to service delivery. For example, the local water utility may consider implementing cost reductions or efficiencies to reduce its costs without lowering service standards below acceptable levels to customers, so that the prices generate revenues that better match cost.

A local water utility should understand their revenue requirements and revenue sources for the next pricing period and over the medium and long term

To allow local water utilities to undertake effective strategic planning, including ensuring they have sufficient revenue to deliver their services to required standards now and into the future, utilities should understand their revenue requirements and revenue sources over the next pricing period and over a forecast medium- and longer-term period.⁴

³ National Water Initiative Pricing Principles, p 15.

⁴ Each local water utility should determine this according to its specific circumstances. In general, medium term could be considered a 10-year horizon and long term could be considered a 20-year horizon.

A local water utility should look at their:

- revenue sources across the utility as a whole
- revenue sources by service (water, sewerage, trade waste and others) and how much of the total efficient cost of each service will be funded from prices.

Although it can be challenging to model and forecast costs and revenues over longer timeframes, doing so is important to support longer-term strategic planning. Longer-term modelling will also help to provide advance notice of potential revenue shortfalls and provide longer lead times in which to take action.

3.3 What is customers' ability to pay for services?

A local water utility should understand its customers' ability to pay in proportion to any proposed price rise, and should transparently justify any instance where the ability to pay prevents full cost recovery from prices

A customer's ability or capacity to pay refers to the ability of both individuals and businesses to pay for essential services without undue financial stress.

Local water utilities provide an essential service. Without effective water and sewerage services, the safety, health and welfare of the community could be at risk.

A utility is expected to make strategic revenue decisions that reflect an understanding of what its customers can afford to pay. Failing to consider the customer's ability to pay can lead to under-recovery of costs, unstable or unequitable revenue streams and a reduction of community welfare.

Importantly, it can also constrain utilities' capacity to implement its strategic plans.

Local water utilities should:

- develop a clear understanding of their customers' capacity to pay for water and sewerage services. This is most important where the utility is considering price rises. In these circumstances, the utility should conduct a level of analysis proportionate to the potential price rise(s).
- be able to justify any capacity-to-pay concerns if these concerns are the basis for any proposal to recover less than their efficient costs from user prices and charges (and hence to justify prices that are less than cost-reflective).

In evaluating their customers' capacity to pay, utilities should consider:

- **affordability**, which is the general ability of customers to pay their water bill. Affordability becomes an important consideration when the price of an essential service is high relative to customers' capacity to pay
- **vulnerability**, which relates to individual customers or specific groups of customers whose characteristics or personal circumstances at a given point in time (today or in the future) may make them particularly vulnerable to price rises.

Financial stress may affect some or many customers and may be a result of high prices or the rate of price increase.

A local water utility should develop ways to measure its customers' ability to pay

A utility should develop measures or indicators of its customers' ability to pay. This will allow it to understand when there are ability-to-pay concerns and help it understand its customers' ability to pay any potential future price rises.

There are no standard metrics or methodologies for measuring and assessing the ability to pay. Rather, a utility should develop its own measures, ideally in consultation with its customers. Some possible measures are provided in Appendix A.

A local water utility should periodically monitor its customers' ability to pay to understand whether there are any prevailing affordability concerns

A utility should periodically monitor key affordability/vulnerability measures to understand its customers' prevailing ability to pay, including the extent of any affordability concerns. This may need further investigation if there are any significant movements away from historical trends.

Regularly monitoring customers' prevailing ability to pay will help a utility assess its customers' ability to cope with price increases. For example, if a utility is confident there are no general affordability concerns under existing prices, it should be able to maintain prices in real terms (i.e., by indexing them to the Consumer Price Index) without needing additional analysis outside of periodic monitoring.

Monitoring will also indicate the level of price rise that may trigger affordability concerns and the extent of analysis needed under a potential price increase (considered below).

If a local water utility is considering raising prices, it should conduct a proportionate analysis of the impact on its customers and their ability to pay

Before making significant changes to price levels, a utility should analyse its customers' ability to pay any increase. The extent of this analysis should be in proportion to the level or rate of the potential price increase and consider the existing ability to pay (mentioned above). This means that the larger the potential real increase in prices proposed, the more in-depth the analysis should be and more affordability measures/indicators should be examined.

Consider different customer groups

When assessing customers' ability to pay, it is important to be mindful of the different capacities between customer groups within a water utility's operation and between different regions and water utilities. Some areas are more socio-economically disadvantaged than others. Socio-economic Indexes for Areas (SEIFA) scores produced by the Australian Bureau of Statistics can be a useful tool to highlight areas of disadvantage and potential vulnerability to financial stress.

However, this is a broad metric that should be treated as a starting point. Each community is unique.

To make this easier, utilities should:

- leverage their existing community engagement processes (such as those already in train under the IP&R Framework) to hear from customers, including vulnerable groups
- draw on other measures or indicators of affordability (such as those listed in Table 1 in Appendix A).

Consider the impact of changes to specific charges and/or to the pricing structure

Price increases will have different impacts across the customer base and the impacts of a general increase will be different from isolated increases in specific charges (such as trade waste charges) or changes to price structure. For example, an increase in the share of costs recovered from fixed service availability charges may increase the bills of customers with low water usage, which may include a relatively high proportion of pensioners and single parents. On the other hand, an increase in the share of costs recovered from water usage prices may increase costs to renters.

Some customer groups may be able to cope with relatively large price rises. For example, water bills may be a minor component of a business' costs, particularly for large businesses that do not use water as a major input in production. In this case, the utility's analysis of ability to pay may only need to show that this customer group has very low rates of unpaid bills or payment plans and that the proposed price rises are not unreasonable when considering historical prices and prices of neighbouring or comparable utilities.

Consider phasing in price changes

A strategic planning outcome set out in the Regulatory and Assurance Framework is 'sound pricing and prudent financial management'. Utilities should weigh any potential affordability concerns when understanding revenue sources against the benefits of cost-reflective pricing. For example, even if water is a major input to a business' production, there is a strong case to ensure that it faces costs that truly reflect the efficient costs of supply to promote efficient investment and consumption decisions.

One way to balance affordability and cost-reflective pricing is to gradually phase in large price increases. This provides customers with time to adjust to higher prices and potentially allows them to mitigate any adverse impacts. In assessing ability to pay, utilities should understand how this might change if price rises were phased-in. As noted in the separate guidance on the outcome of sound pricing and prudent financial management, this can be done in a way that still allows the utility to recover its costs in present value terms.

Reasonable notice of developer charges in relevant development areas

Developer charges can play an important role in signalling the costs of developing different areas. This helps ensure that development occurs where it is efficient (i.e., where the benefits of development exceed its costs).

Developer charges will either be passed on to the owner of the undeveloped land (for example, as a lower price paid by the developer, which is likely if the developer is given sufficient notice of the developer charge), passed onto the purchaser of the new development or absorbed by the developer (or a combination of these). If these parties together are not willing or able to pay the developer

charge (assuming it reflects the incremental costs of servicing the development area), this suggests the costs to society from the development would be greater than its benefits.

Nevertheless, utilities should ensure that developers receive sufficient notice and ‘line of sight’ of the likely level of developer charges they would face in a development area so they can factor these into their investment decisions. Good information is important for promoting efficient investment decisions and for minimising any potential adverse impacts on developers.

The department’s developer charges guidance, 2016 Developer Charges Guidelines for Water Supply, Sewerage and Stormwater, allows local water utilities to:

- levy less than the developer charge calculated according to the department’s recommended methodology and to cap developer charges to maintain affordability and avoid ‘stranded assets’
- phase-in any increase in developer charges over 3 years.

If the utility caps developer charges, it should calculate the resulting cross-subsidy from existing customers and disclose this in the relevant development servicing plan, its annual report, the annual operational plan and in communication materials for consultation with stakeholders. It should also prominently disclose and explain the impact of cross-subsidies for new development on its typical residential bills on its website and report this to the department.

3.4. What is customers’ willingness to pay for services?

A local water utility should understand its customers’ preferences and willingness to pay in certain circumstances

Customers may be willing to pay for service levels or outcomes beyond or outside of those required by regulation. Utilities should include the efficient costs of achieving this service level or outcome in their cost allowances when setting prices consistent with their customers’ willingness to pay.

It is important to have an accurate understanding of a customer’s willingness to pay because, unlike in a competitive market, customers cannot switch their water provider if they are unwilling to pay for new or varied services.

A utility should assess its customers’ willingness to pay when it is proposing:

- to deliver services to regulated minimum standards through an approach that is not based on the least cost (this may be because a more expensive option can deliver greater community value (i.e., greater net-benefit)
- to deliver services above and beyond the required level of service specified by its regulatory obligations
- a service where there are no regulatory or other externally imposed firm obligations that determine the quantity and/or standard of service to be delivered (where the utility is reviewing/determining service levels).

A local water utility's willingness-to-pay analysis should be proportionate to the level of cost/value involved in the decisions to be informed by WTP estimates, and follow best-practice principles

It is important to accurately estimate customer willingness to pay, as these estimates can ultimately influence customer bills. If a utility invests in a new service or an improved service based on a flawed measure of willingness to pay, there is a risk the benefits customers receive from the service are less than its costs. This can lead to a customer backlash.

Ideally, local water utilities should use economic approaches to estimating customer willingness to pay, as these produce the most robust estimates. Stated preference approaches (contingent valuation or choice modelling) are generally most suited to estimate the willingness to pay for potential water and sewerage service levels and related outcomes. However, these can be costly to properly design, implement and analyse (often requiring expert assistance).

If a local water utility considers that an economic approach is too costly given the potential cost/value of the willingness-to-pay question(s), it may decide to use one or more alternative approaches to generate its best estimate of customer WTP ('approximate WTP'). For example, it can leverage its community engagement processes such as those already in train under the IP&R Framework to hear from customers.

A local water utility's chosen approach to understanding its customers' willingness to pay should demonstrate:⁵

- **clear and detailed information** – the information provided to participants should be clear, sufficiently detailed to explain the proposal, relevant, easy to understand and objective. For example, this can be tested using focus groups and pilot surveys or consultation with stakeholders and include appropriate maps and diagrams
- **the context provided** – participants are encouraged to consider the context of their decisions, including the broader context of expected or proposed changes in prices for other services, as well as alternative approaches to achieving the outcomes
- **a reasonable range of options** – among other options include a business-as-usual option in the set offered to customers
- **consequentiality** – participants are given the impression that their answers are consequential and that they may be compelled to pay any amount they commit to
- **a credible payment mechanism** – the payment mechanism by which people would financially contribute is specific and credible (for example, an annual change in water or wastewater bills)
- **that costs, bill impacts and outcomes are explained** – the costs, bill impacts and outcomes (such as service or environmental outcomes) of each option are clearly described and understood by respondents

⁵ Source: Adapted from Independent Pricing and Regulatory Tribunal, 2020 [Review of Prices for Hunter Water Corporation from 1 July 2020 \(PDF 5.63 MB\)](#), p 301 (based on Productivity Commission, 2014. Environmental Policy Analysis, [A Guide to Non-Market Valuation](#), pp 44–47 and Gillespie Economics, 2020, [Assessment of Hunter Water's and Sydney Water's Customer Willingness to Pay Surveys \(PDF 479 KB\)](#), p 5.)

- **alignment between proposed investment and level of good provided** – there is alignment between the outcomes/attributes being valued and the likely investments. The engagement with customers should not reflect an overly optimistic view about what benefits/outcomes the option would achieve, and major uncertainties are made clear
- **the investigation of bias** – follow-up questions are used to detect potential sources of bias, such as cases where participants did not understand the valuation question(s) or the information provided
- **a representative sample** – the sample of people surveyed or engaged with is representative of the broader customer base and includes potentially vulnerable groups.

If an economic willingness-to-pay study is not being used, any numerical values derived to represent the willingness to pay should be treated as uncertain and deployed conservatively.

No matter the approach used, a utility should adhere to the following best-practice principles for applying willingness to pay:

- If the efficient costs of delivering the incremental service or outcome (the costs above and beyond the costs of delivering minimum standards) are less than customers' willingness to pay, only the efficient incremental cost should be charged (not the full willingness-to-pay amount).
- For service proposals without clear quantities and/or standards of service prescribed by regulatory obligations, the utility should charge no more than customers' willingness to pay and should provide the standard and quantity of the service that can be delivered within that amount.

Appendix A: Optional ‘how to’ guidance for understanding revenue sources

To support utilities in achieving the strategic planning outcome **understanding revenue sources** to a reasonable standard, we offer the following optional how-to guidance.

The optional how-to guidance in this section covers a variety of areas that may help address one or more of the expectations set out in section 3 of this guidance document.

Understanding customers’ ability to pay

Table 1 lists some potential measures that could be used to assess customers’ ability to pay, grouped into 2 categories:

- affordability metrics, which aim to capture the customer base’s aggregate ability to pay and external socioeconomic factors that may reduce or improve affordability over time
- vulnerability metrics, which aim to capture the number of customers who cannot afford to pay or are at risk of being unable to pay their water bill and may therefore require targeted assistance.

Measures and indicators such as those in Table 1 can be examined to assess the number and proportion of customers struggling to pay their bills today and the number and proportion of those who may struggle to pay their bills in the future under potential price rises or changes. A utility can get many of the affordability measures from publicly available sources such as the Australian Bureau of Statistics (ABS).

Table 1: Measuring the ability to pay

Affordability metrics	Vulnerability metrics
<ul style="list-style-type: none"> • Local unemployment rate • Rental and mortgage stress • SEIFA indices • Number and proportion of customers on: <ul style="list-style-type: none"> – Aged Pension – Disability Support Pension – Single Parent Pension • Median Equivalised Household Income (ABS) • Proportion of low-income households • Proportion of residents over retirement age • Proportion of the population on a fixed income (e.g. pension) • Demographic profile – the proportion of the population that is over retirement age or has dependents in the household • Customer complaints about affordability • Average bills compared to those of neighbouring or comparable communities • Average bills as a proportion of household income 	<ul style="list-style-type: none"> • Total number and proportion of (residential/non-residential) customers who have had their service flow restricted or disconnected due to non-payments • Total number and proportion of residential customers who are subject to the water utility’s hardship or payment difficulty program • Number of referrals from social assistance organisations to hardship plans or payment plan support • Proportion of customers on payment plans whose debt is increasing, stable or reducing over a regular period • Proportion of customers who pay by payment plan or through Centrepay • Remote communities • Indigenous communities

Utilities can use the indicators and measures listed in Table 1, along with consideration of the dollar and percentage increases in typical bills for different customer groups, to assess customers’ ability to pay a potential price change.

To the extent relevant, consider the potential impacts on different:

- customer groups/types such as residential, commercial, small commercial and industrial, medium commercial and industrial, large commercial and industrial, and agricultural
- types of water users such as large versus small
- geographic regions within the utility’s area of operations
- demographic and/or socioeconomic groups such as pensioners, renters and indigenous customers.

Analysis should be proportionate to potential impact. For example, if prices are proposed to be kept constant in real terms and there are no material affordability concerns now, utilities might do no analysis apart from periodic review. If material real price increases are proposed and there are concerns about affordability under existing prices, utilities should do an analysis that draws on all available information for relevant groups.

Ability-to-pay analysis can also consider:

- the history of price levels/changes, including whether a potential price rise is one of several over the last few years or the first real price increase in many years
- options to mitigate the impact of potential price increases, including phasing in price increases over time
- the ability of customers to reduce or control their bills (for example, through reducing the discretionary use of water)
- access to concessions (such as pensioner discounts).

Effective payment difficulty programs to understand customers' ability to pay

The utility may have payment difficulty policies or programs, such as payment plans, to help customers who are experiencing payment difficulty to manage their bills.⁶ Customers in need of such help may self-identify or be identified by community welfare organisations or the utility itself.

Provided there is reasonable customer awareness of such a program, payment difficulty programs can help mitigate the impact of price rises on vulnerable customers and enhance the utility's understanding of its customers' ability to pay. For example, if there is a significant increase in customers seeking access to such a program, this indicates there may be some affordability concerns and/or an increase in the number of vulnerable customers.

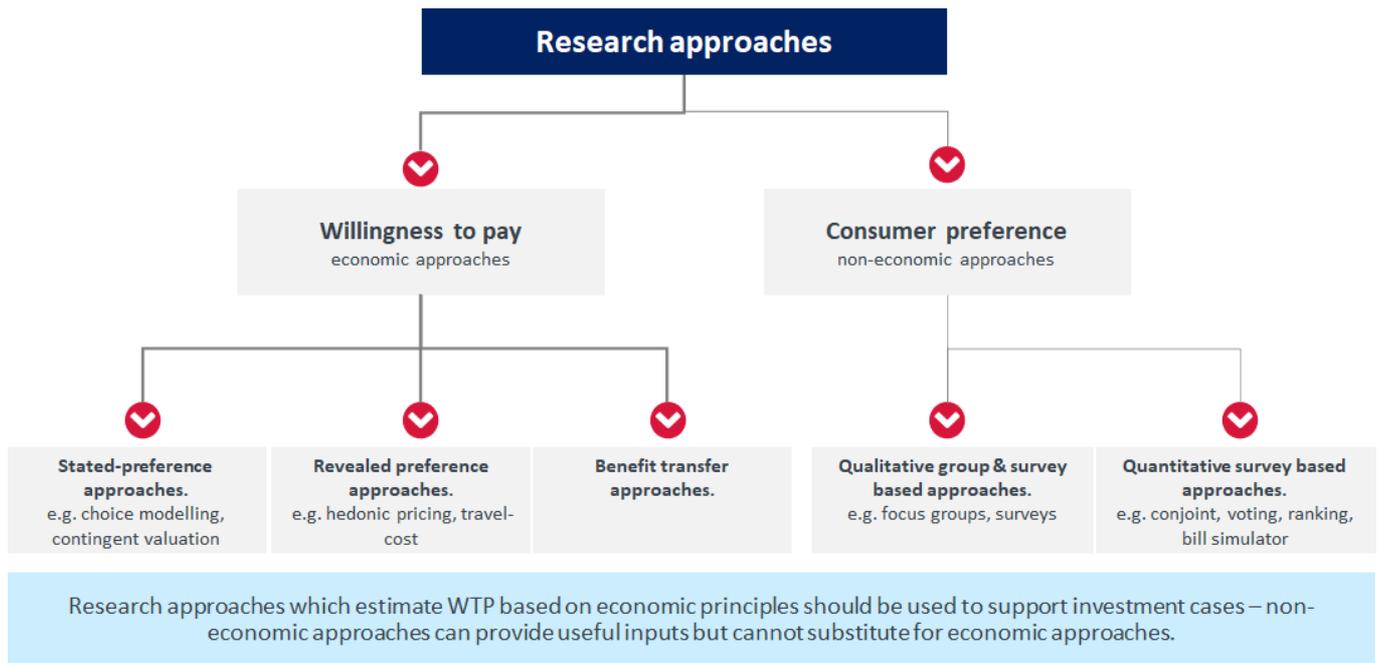
Understanding customer preferences and willingness to pay

There is a range of economic and non-economic social research methods that utilities and other entities have used to examine customer preferences and willingness to pay, as outlined in

⁶ This is a common feature of water utilities. For example, see Part 6 of Sydney Water and Hunter Water's Operating Licences.

Figure 1.

Figure 1. The family of consumer preference and willingness-to-pay research approaches



As mentioned previously, economic approaches should ideally be used to estimate customer willingness to pay, as these produce the most robust estimates. Stated preference approaches (contingent valuation or choice modelling) are generally most suited to estimate the WTP for potential water and sewerage service levels and related outcomes. However, these can be costly to design, implement and analyse properly, and often require expert assistance.

The level and extent of analysis of WTP should be proportionate to the size of the potential cost/value involved. If a utility considers an economic approach too costly given the potential cost/value of the question(s), it could decide to use one or more alternative approaches. For example, it could use a non-economic quantitative approach (such as a bill simulator) complemented by a qualitative approach (such as a focus group or deliberative forum).

Table 2, Table 3 and

Table 4 below provide, respectively, a brief overview of the:

- economic approaches to estimating willingness to pay
- quantitative non-economic approaches to researching customer preferences
- qualitative non-economic approaches to researching customer preferences.

Table 2: Economic approach to estimate willingness to pay. Source: Frontier Economics

Approach	Description	Pros and cons
Stated preference	<p>Contingent valuation (CV) asks customers whether they are willing to pay for a specified change in service. It usually varies the price impact of the changed service across customers to observe the demand for the changed service at different price points.</p> <p>Choice modelling (CM) tests willingness to pay for different choice sets. Each choice set includes a 'bundle' of services or service attributes. The output of CM is the willingness to pay for changes in the level of each service or attribute.</p> <p>CV can be analytically simpler than CM. However, it can be susceptible to respondents 'agreeing' with an interviewer's request regardless of their true views.⁷ CV is not suited to the valuation of multiple options that involve changes in the levels of attributes. CM is preferred in this case.</p>	<p>Pros. It produces robust estimates of willingness to pay. If samples are representative of the population, the estimate can be aggregated to the population.</p> <p>Cons. Biases in survey design must be managed. It requires expert design and analysis and can be costly, depending on sample size and method (online methods are more cost-effective, but samples need to be balanced and inclusive).</p>
Revealed preference	<p>Uses information from related markets to impute values for non-market goods/services</p> <p>For example, hedonic pricing can look at:</p> <ul style="list-style-type: none"> • substitute relationships – the price of bottled water may indicate customers' willingness to pay for water services • complement relationships – the willingness to pay for environmental services may be estimated by customers' expenditure on related recreational activities • attribute relationships – the decrease in the amenity of an area from odour from a sewage treatment plant may be estimated by comparing the sales prices of adjacent properties to those of like properties further away. <p>The travel-cost method uses the travel costs of visitors to a site (such as a lake) to estimate the willingness to pay for the attributes of that site (such as water quality).</p>	<p>Pros. It is based on observable market behaviour.</p> <p>Cons. It can only value service levels that have been experienced.</p> <p>It is difficult to value small changes in quality using hedonic methods.</p> <p>It only captures use value and cannot estimate 'non-use' value</p> <p>It is not likely to apply to a lot of water services.</p>
Benefit transfer	<p>Involves using values from another study</p> <p>For this to be accurate, the source study should be robust and the context and conditions of the case of interest should be similar to those of the source study.</p>	<p>Pros. It is low cost.</p> <p>Cons. Applicability will be limited to outcomes with a large body of research</p> <p>There are likely to be few cases where this can be used.</p>

⁷ Blamey, R, Gordon J & Chapman R 1999, 'Choice modelling: assessing the environmental values of water supply options', *The Australian journal of Agricultural and Resource Economics*, vol. 43, no. 3, pp. 337-357.

Table 3: Quantitative customer research approaches. Source: Frontier Economics

Approach	Description	Pros and cons
<p>Conjoint analysis</p>	<p>Statistical analysis that involves breaking a good or service down into its attributes, which are then combined into several configurations for respondents to choose from</p> <p>The approach is premised on the idea that any good or service can be broken down into a set of attributes that ultimately impact users' perception of value.</p> <p>There are 3 forms – conjoint rating, conjoint ranking and paired comparison.</p>	<p>Pros. It mimics realistic choices and can model interactions between attributes.</p> <p>Cons. Respondents are not committed to selecting one alternative.</p> <p>The models are not underpinned by a full economic model of consumer choice.</p> <p>Survey design can be complicated (as the number of combinations of attributes increases, the number of potential profiles increases exponentially).</p>
<p>Voting/ranking</p>	<p>Involves presenting multiple options (often business as usual and one or more alternatives) alongside specified outcomes and the estimated cost of delivering the outcome</p> <p>Participants are asked to vote for their preferred option, or in the case of multiple options, rank the options.</p> <p>The output is the percentage of participants supporting, or ranking a position to, each option.</p> <p>A subset of this is best-worst scaling, where respondents are asked to provide top and bottom-ranked items from a list.</p>	<p>Pros. Voting/ranking tends to work better later in the economic evaluation process once options have been shortlisted and are unlikely to change.</p> <p>It is relatively low cost and timely to implement.</p> <p>Best-worst scaling is reliable in terms of test-retest reliability.</p> <p>Cons. It does not infer a scale between preferences and a willingness-to-pay value cannot be inferred.</p>
<p>Bill simulator</p>	<p>Involves embedding multiple voting questions within one larger question</p> <p>Customers can change the services and see the impact on their bills.</p> <p>Often this is an online tool where respondents are asked questions followed by a sliding scale where respondents select the appropriate balance between 2 anchors. As respondents select their chosen point on the slider, the impact on customer bills is calculated and presented.</p>	<p>Pros. It mimics a bill that consumers are used to.</p> <p>It can model trade-offs between attributes.</p> <p>Cons. The research approach is hypothetical, and the models are not underpinned by a full economic model of consumer choice.</p>

Table 4: Qualitative customer research approaches. Source: Frontier Economics

Approach	Description	Pros and cons
<p>Focus groups</p>	<p>A gathering of customers and stakeholders to discuss a set of open-ended questions or discussion points, allowing customers to voice their opinions and attitudes</p> <p>Focus groups allow customers to share their perspectives on the benefits and value customers receive from their services, determine what issues are relevant to them and how they perceive different aspects of quality. These insights can inform the development of quantitative research.</p>	<p>Pros. It allows for a broad range of issues to be addressed with perceptions from a diverse customer base.</p> <p>Findings can be used to form quantitative studies.</p> <p>Cons. It does not provide robust data that can be readily analysed to return an economic value.</p>
<p>Deliberative research</p>	<p>Can be viewed as a hybrid between consultation and research</p> <p>It provides an opportunity for participants to discover more about a topic, consider the evidence and discuss evidence with other participants before expressing their views. This process may occur over several weeks or months.</p> <p>The range of approaches includes citizen juries, consensus conferences and deliberative workshops.</p>	<p>Pros. It provides a deep level of insight and can investigate complex trade-offs</p> <p>You can recruit participants with specific characteristics.</p> <p>Cons. It can take time to develop the needed materials.</p> <p>It usually involves a smaller sample, so it cannot be treated as indicative of a wider population.</p> <p>It can be expensive.</p> <p>It can exclude members of the community not present.</p> <p>The quality of the consultation is crucial to the quality of the result</p> <p>Unlike stated preference and revealed preference, the results cannot be directly compared with costs or preferences for other goods and results can't be scaled up.</p>

Approach	Description	Pros and cons
<p>Qualitative panel</p>	<p>A group that participates in ongoing research over time and is readily on hand for a business to use when needed and as a question arises</p> <p>The panel is made up of people with a familiarity and understanding of the issues of the business so they can give more informed and nuanced positions at shorter notice and/or as issues arise.</p>	<p>Pros. It allows for deep insight into perceptions on issues and how perception changes over time.</p> <p>Participants hold a more informed, familiar and nuanced position on research questions than ‘fresh’ participants.</p> <p>Research can be turned around quickly as the panel already exists.</p> <p>Cons. It does not provide robust data that can be readily analysed to return an economic value.</p> <p>Findings cannot be generalised to the wider population, panels need to be closely maintained and research fatigue may reduce the quality of responses.</p>

Appendix B: Case studies and tools

To support utilities in achieving the strategic planning outcome understanding revenue sources to a reasonable standard, we give the following optional how-to tools and case studies:

Useful data sources for considering ability to pay

The following data sources may be useful in considering customers' ability to pay.

ABS:

- socioeconomic indicators (SEIFA, welfare receipts)
- census data (demographics, income).

Bureau of Meteorology (BOM) National Performance Reports:

- useful for larger utilities (serving more than 10,000 connections) to compare prices and restrictions or legal action taken for non-payment.

NSW Department of Planning and Environment:

- population projections
- local water utility performance monitoring – to compare typical bills of local water utilities, among other measures.

NSW Office of Local Government's Your Council Report time series data

- Compare council demographics and finances.

IPART

- Used as a template or example, IPART often assesses the potential impacts on customers under its price determinations in the final reports accompanying its water price determinations.

Useful resources for considering ability to pay

Actions to address ability to pay under the NSW *Local Government Act 1993*

The Local Government Act has provisions to allow utilities to address affordability and vulnerability concerns. For instance, utilities can:

- exempt local charities and benevolent institutions from water supply and wastewater rates (sections 558 and 559 of the Local Government Act)

- reduce or waive rates for those receiving benefits under the NSW *Social Security Act 1991* (Section 582 of the Local Government Act).

Utilities should make pensioners aware of eligible concessions and extending concessions.

Other guidance on specific interventions for vulnerable customers

Guidance of economic regulators, for example:

- Australian Energy Regulator (AER) (2016), Sustainable payment plans: A good practice framework for assessing customers' capacity to pay
- Ofwat (2017), Delivering Water 2020: Our final methodology for the 2019 price review Appendix 1: Addressing affordability and vulnerability.

Hardship and payment assistance policies of water utilities, for example:

- Central Coast Council (2021), Debt Recovery and Hardship Policy
- Sydney Water Corporation (2021), Payment assistance policy
- Hunter Water Corporation (2017) Debt Recovery and Hardship Policy.

Case study. Essential Water – 2021 pricing proposal

Essential Water provides water and wastewater services to Broken Hill and the surrounding areas. In its 2021 price reset, it provided IPART with a summary of its customer base and its assessment of its customers' capacity to pay water and sewerage prices.

This summary and assessment supported Essential Water's proposal to not materially increase its prices in real terms, to continue to set its water and sewerage prices below cost-reflective levels, and to continue to receive a subsidy from the NSW Government to cover the difference between the building block (upper bound) costs of providing its water and sewerage services and the revenue received from customers for these services.⁸

In assessing its customers' ability to pay, Essential Water considered:

- growth in its typical customer bills in recent times
- comparisons of typical customer bills with similar water utilities
- comparisons of typical customer bills as a proportion of household income with similar water utilities
- SEIFA – a measure that ranks regions in terms of socio-economic conditions
- the ongoing impact of the COVID-19 pandemic on the local community and its customer base.

Using publicly available ABS data, Essential Energy also noted that Broken Hill has:

- an ageing and rapidly declining customer base
- low average household incomes and high relative socio-economic disadvantage
- a disproportionate number of customers on fixed incomes, including almost double the proportion of its working-age population receiving JobSeeker and the Youth Allowance relative to NSW.

These facts helped support an argument that Essential Water's customer base has a constrained ability to pay the full cost of water and wastewater services. In its draft decision, IPART acknowledged the current government contribution is needed to keep bills affordable and in line with bills in other regional areas with similar demographics.⁹

⁸ Essential Water (June 2021), *Essential Water Pricing Proposal*.

⁹ IPART (June 2022) *Review of Essential Water's prices for water and wastewater services in Broken Hill: Draft Report*, p. 1.

Case study. Qualitative research to understand customer preferences

As part of the 2021 Waterways and Drainage Investment Plan preparation, Melbourne Water conducted both qualitative and quantitative surveys and used a deliberative forum to help it better understand customers' preferences and willingness to pay for services delivered under the waterways and drainage charge.

The research topics related to services included within the waterways and drainage charge, but where service levels could be driven by customer preference rather than legislative or regulatory obligation. The research aimed to test materially different cost/service level options. The 3 main customer groups included in the research were rural residential, metropolitan residential and non-residential.

Qualitative research

The qualitative research was used to explore and understand community knowledge around the waterways and drainage charges to inform the quantitative survey. The survey involved a series of 8 customer focus groups designed to be geographically and demographically diverse. Eight participants were recruited per group, with an expected turnout of 6 to 8 members. There was a total of 57 participants across the 8 groups.

The focus groups were given stimulus to inform people about who Melbourne Water is, its service area, the waterways and drainage charge and the metro/rural division. Where relevant, further stimulus was provided covering images of infiltration trenches, grass swales and concrete/rehabilitated creeks, and maps of sites of significant biodiversity for rural groups.

To guide the discussion, Melbourne Water's services were grouped into 8 key areas including waterway condition, waterway accessibility, land management, cultural values, emergency response, flood risk management, urban development and stormwater management. Each focus group explored 4 of these areas looking at a comprehensive set of programs, allowing the participants to give their views on experiences and priorities at a program-specific level.

The findings of these focus group sessions were used to inform the quantitative survey conducted subsequently.

Melbourne Water also used a deliberative panel to inform its customer research. The panel included 40 community members (a mix of people who were new to engagement and who had previously participated in engagement) and 4 meetings. The community members were selected to represent the diverse community interests and views on Melbourne Water's future investment in waterways and drainage.

Case study. A hypothetical process to help understand the approximate willingness to pay

The following hypothetical case study provides a simplified overview of a potential process, leveraging a non-economic approach, that can help a local water utility understand customer preferences and approximate the willingness to pay for a specified investment that goes above and beyond current regulatory requirements.

1. A local water utility seeks to provide a service over and above regulated minimum standards



Current regulations require investment to deliver no more than 10 water outage events per year.



The utility seeks to fund upgrades to ensure no more than 5 water outage events per year (a better outcome that is above minimum standards).

The utility must demonstrate an understanding of its customer's willingness to pay for 5 fewer outages per year.

2. The local water utility must engage with the community to understand preferences



The utility conducts a focus group to ensure it has a thorough understanding of community views on water outages relative to other issues.



The utility conducts a qualitative survey panel followed by a survey in line with best-practice principles to ensure customers understand the project and to find out their willingness to pay.

3. The local water utility uses cost-benefit analysis and willingness-to-pay results to progress the investment



Willingness-to-pay results are used within the cost-benefit analysis to confirm if the project is likely to have a net benefit for the community (the benefits of the investment are likely to exceed the costs from the perspective of society).



The cost-benefit analysis demonstrated the project is beneficial (net present value is above zero) and the willingness to pay exceeds project costs. However, only project costs, not the price the community is willing to pay, will be charged to customers through bills.