



RESPONSE TO ISSUES PAPER

On prices to apply from 1 July 2016



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Hunter Water Corporation
Submission to IPART on prices to apply from 1 July 2016

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1 INTRODUCTION

Hunter Water welcomes the opportunity to provide comment on the Independent Pricing and Regulatory Tribunal's (IPART) Issues Paper, Review of prices for Hunter Water Corporation from 1 July 2016 (Issues Paper).

Hunter Water lodged its price submission with IPART on 30 June 2015 (the 2015 price submission or submission). The submission provided a detailed breakdown of proposed capital and operating expenditure programs, proposed annual revenue requirements and proposed prices for all regulated services. The submission also provided the background to key issues, the rationale for expenditure and pricing proposals and an analysis of the likely bill impacts for various customer categories.

The 2015 price submission described Hunter Water's ongoing efforts to deliver core services at least cost to its customers. In the most recent National Performance Report, Hunter Water had the lowest water bill of any major water utility in Australia, when compared on a like-for-like basis. This was largely driven by the fact that Hunter Water had the lowest operating costs per property in Australia.

Hunter Water's focus on getting the basics right means that the proposed prices would only see a modest one per cent real increase in the annual revenue requirement over the four-year price period. The 1.2 per cent increase in operating costs is in line with the rate of new water and wastewater connections and is coming off a base year of 2014-15 in which Hunter Water's budgeted operating costs are \$5 million lower than the amount deemed as efficient by IPART in its 2013 price determination.

The majority of customers (about 85 per cent) would see their bills rise by no more than the rate of inflation under Hunter Water's proposed prices.

- The estimated typical residential bill would fall by about 1 per cent in real terms by the year 2019-20.
- The estimated typical pensioner bills would also fall by about 1 per cent in real terms by the year 2019-20, noting that pensioner rebates will rise in line with inflation.
- The owners of flats and units would see an increase of 4.7 per cent each year for four years in real terms – as prices adjust so that all residential customers pay the same fixed sewer charge (in line with IPART's preferred price structure).
- Most commercial and industrial customers will see no bill increase above the rate of inflation, based on case studies using different customer profiles.

The public release of Hunter Water's revenue and pricing proposals in June 2015 was the first step in IPART's propose-respond regulatory model. IPART is applying this approach to the setting of metropolitan water utility prices for the first time. Under the propose-respond, Hunter Water was required to comply with IPART's November 2014 guidelines for water agency pricing submissions – some 45 specific requests for information and supporting data and analysis. Hunter Water also lodged its regulatory information returns at this time, with an update in mid-September 2015 using actual 2014-15 data.

The Issues Paper provides a summary of all relevant information and pricing proposals included in Hunter Water's 2015 price submission. Hunter Water considers that its detailed submission sets out its considered position on the majority of all issues for this commencement phase of the IPART review.

Hunter Water's response to the Issues Paper focuses on a subset of key questions and issues. These are the subject areas where the Issues Paper outlines a new IPART policy position or invites more detailed commentary on key topics.

The propose-respond regulatory model involves a new timetable for the price review and public consultation process. IPART released its Issues Paper on 7 September 2015 and provided a four-week period for all responses. At the same time, IPART appointed independent consultants to conduct the comprehensive review of Hunter Water's past, current and proposed operating and capital expenditure programs. The expenditure reviews, a key stage in all IPART price reviews, are resource intensive in terms of key people and time. Hunter Water must respond to detailed information requests, coordinate documents and data, and manage and prepare for the on-site interviews. Hunter Water has given top priority to providing documents and information for the IPART expenditure reviews and the parallel IPART audit of Hunter Water's Operating Licence.

Sydney Water's 2015 price submission sets out a detailed package of changes to the regulatory framework. Sydney Water has asked IPART to consider new arrangements to encourage cost savings by sharing the benefits with customers, cost pass-through arrangements and proposals to allow greater price flexibility for non-residential customers. Sydney Water's prices are being reviewed in parallel with Hunter Water's prices. Hunter Water would have appreciated more time to consider IPART's comments on the various proposals when compiling this response.

Hunter Water would welcome the opportunity to provide constructive comment on ways to improve and streamline the IPART propose-respond framework and timetable when the current price review process is complete.

The wholesale pricing of water and wastewater services supplied by Hunter Water (and Sydney Water) to Water Industry Competition Act 2006 (WIC Act) licensees is an important and timely part of the current review.

Hunter Water is keen to assist IPART with developing a robust and workable pricing framework that can be applied through time. To help with this task, Hunter Water engaged Frontier Economics to prepare a report, which forms part of this response, on the economics of wholesale pricing. Frontier Economics' report provides some context that is relevant to Hunter Water, develops a set of pricing principles, and assesses alternative pricing methodologies for setting wholesale prices. Frontier Economics concludes that the retail minus avoidable cost approach is likely to meet IPART's objectives relating to efficient entry of alternative retail suppliers of water and wastewater and is particularly suitable for the kind of entry which is occurring in the Hunter Water's area of operation. This response also explores the implementation issues associated with setting system-wide price caps for wholesale services.

Hunter Water welcomes IPART's preliminary position to set wholesale prices as part of the upcoming determination. However, at this point in time, Hunter Water has questions as to whether it should pursue a voluntary undertaking in the near term given the costs and time involved. Hunter Water has reservations about allocating resources to such an approach when there is uncertainty as to whether a voluntary undertaking would cover the type of bundled service that WIC Act licensees and prospective new entrants are requesting from Hunter Water.

Hunter Water looks forward to the opportunity to expand on the matters outlined in this Issues Paper response at IPART's public hearing in Newcastle on 2 November 2015. In terms of wholesale pricing matters, Hunter Water supports IPART's decision to hold a separate public workshop in Sydney on 8 December 2015. That workshop will allow Hunter Water to explain the basis and method for implementing retail minus avoidable cost pricing and the legal issues and cost-effectiveness of alternative approaches for establishing efficient and equitable wholesale prices.

2 HUNTER WATER'S RESPONSE TO KEY ISSUES

Form of regulation

IPART Question 2: Should a weighted average price cap apply to a subset of Hunter Water's customers, such as large non-residential customers, for the 2016 Determination?

(Issues Paper, page 27)

Hunter Water is of the view that Sydney Water's proposed weighted average price cap for larger non-residential customers has the potential to deliver wider benefits for all customers as it can be used as a tool to encourage changes in the timing of water use.

Hunter Water has a number of large commercial and industrial customers located near residential populations where there are emerging capacity constraints in the water network. In these areas, peak water use by the industrial customer can coincide with peak water residential demand, most notably during summer. This results in a drop in the water pressure supplied to all customers in that part of the network. Under the weighted average price cap approach, Hunter Water would have the flexibility to alter prices, possibly offering off-peak rates for the large industrial customer. If customer-specific pricing was successful in changing consumption patterns, Hunter Water could defer the capital expenditure necessary to augment constrained parts of the network.

Hunter Water does not propose to introduce a weighted average price cap as part of the 2016 determination, although it considers that there is merit in developing this proposal for the following price period. Hunter Water observes a number of issues associated with implementing the proposal:

- Hunter Water currently has location based pricing for large customers in defined zones within its area of operation. This arrangement complicates the application of the weighted average price cap approach and further work is needed to consider the possible interaction of the different pricing approaches.
- IPART suggests that a large non-residential customer may have to opt-out of any IPART determined price. It is likely that large customers would only ever agree to such an arrangement if their overall bill was lower. Placing this restriction on the proposal would curb its roll out.
- The arrangement does involve some additional operational and administrative costs.

IPART Question 3: Should IPART's decisions on changes to Sydney Water's form of regulation (including decisions on an EBSS and WAPC) also apply to Hunter Water for the 2016 Determination?

(Issues Paper, page 27)

Hunter Water does not propose to introduce an efficiency benefit sharing scheme or weighted average price cap as part of the 2016 determination. Hunter Water acknowledges the work undertaken by Sydney Water and IPART to develop and assess these proposals. While Hunter Water understands the merits of providing incentives to reduce costs and allowing greater price flexibility within the determination period, both proposals also involve some degree of complexity and additional administrative burden.

IPART has indicated that it is likely to allow Sydney Water to adopt both proposals in some form. Hunter Water will look on with keen interest at Sydney Water's experience in designing, implementing and managing any change to the regulatory framework. Given the relative scale of each utility, Hunter Water considers that it would be best to reflect on the lessons learnt by Sydney Water over the next determination period. Hunter Water would then consider proposing similar measures, adapted where necessary for region-specific circumstances, as part of the following price review process.

While IPART has moved to the propose-respond model, that approach still allows IPART to conduct reviews at any time. As a more general comment, Hunter Water would prefer that reviews of pricing arrangements or the regulatory framework were scheduled in the period between price reviews, consistent with past practice. This would allow Hunter Water the time to develop detailed and considered policy responses. More importantly, it provides time to prepare workable proposals that could be implemented in full at the following determination.

Alignment of determination periods

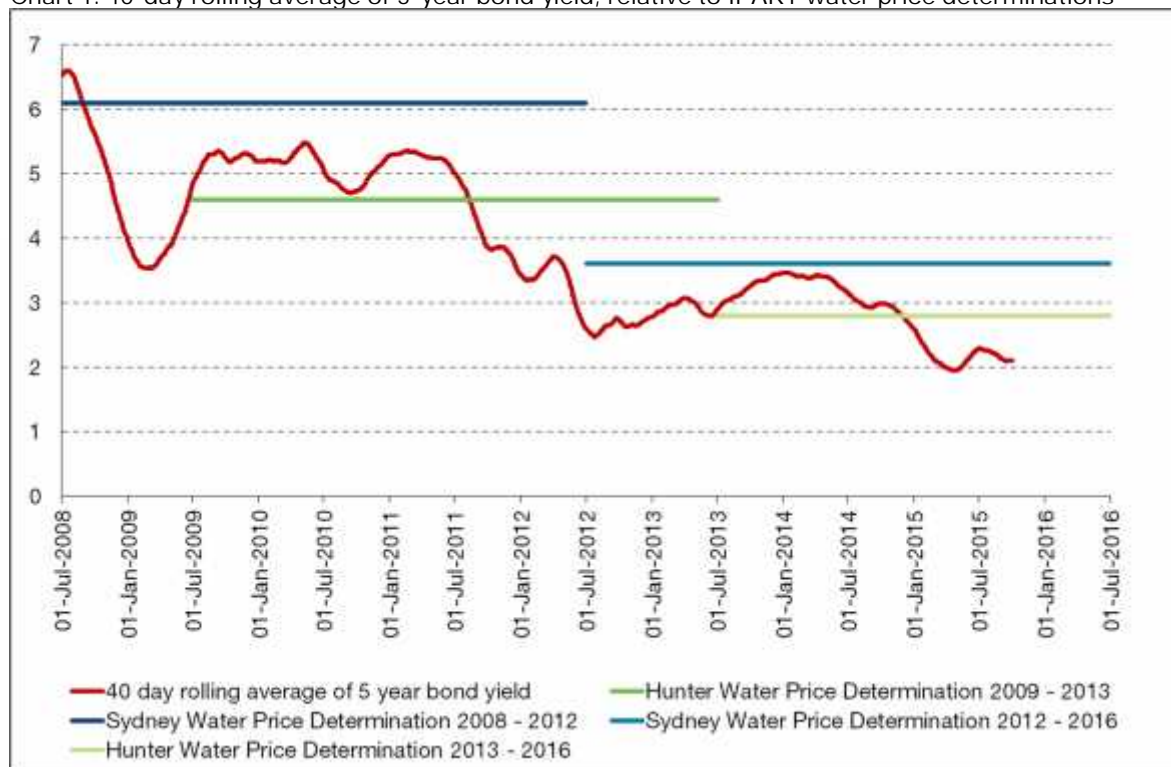
IPART Question 5: Is alignment of Hunter Water's determination period with other utilities' determination period important? Is so, which utilities and why?

(Issues Paper, page 30)

Hunter Water prefer its determination cycle to remain aligned with the timing of Sydney Water's cycle. The main reason for stating this preference relates to interest rate cycles which flow through to the weighted average cost of capital (WACC) calculation. The yield on Commonwealth Government bonds sets the risk-free rate for debt and equity returns in the WACC calculation.¹ Over the past two determination periods (2009 and 2013), Hunter Water has lagged Sydney Water by one year. In both cases, the timing of the Hunter Water determination coincided with a period of lower long-term bond yields relative to the earlier Sydney Water determination.

The different timing of water utility determinations is shown in Chart 1 – a high-level indication of past movements in interest rate cycles.² Timing is particularly important given that the point-in-time WACC decision is locked in for the full determination period (four-years in most cases).

Chart 1: 40-day rolling average of 5-year bond yield, relative to IPART water price determinations



The calculation of the annual revenue requirement is more sensitive to changes in the WACC than any other input. Consequently, a higher or lower WACC has an impact on credit metrics, credit ratings and the overall movement in prices. This may show Hunter Water performing better or worse than Sydney Water when a key underlying driver may be prevailing bond yields and the timing of the WACC decision. Hunter Water's customers form judgements and perceptions about Hunter Water's performance by making comparisons with Sydney Water. A large part of the local media reporting of Hunter Water's 2015 price submission focused on the relative bill savings for Sydney Water customers. It is not easy to give a short answer that explains how Sydney Water's WACC has fallen from 5.6% (2012) to 4.6% (2015) – the same as the current and proposed WACC for Hunter Water.

Hunter Water supports IPART's preliminary position as set out in the Issues Paper to adopt a four-year price period and, as noted above, considers that alignment of with Sydney Water is important in facilitating comparisons of performance and pricing between the two largest water utilities in New South Wales.

¹ IPART has altered its methodology for calculated the risk-free rate through time. In earlier determinations, IPART applied a 20-day rolling average of the 5-year Commonwealth Government bond yield. IPART's current approach uses a weighting of 50 per cent for a 40-day rolling average of the 10-year Commonwealth Government bond yield and 50 per cent weighting for a ten-year historical average (provided that market volatility is within one standard deviation of IPART's uncertainty index).

² Given changes in the IPART methodology, a 40-day rolling average of the five-year Commonwealth Government bond yield was used to simplify the comparison through time.

Regulatory treatment of asset disposals

IPART Question 11: What is the appropriate regulatory treatment of asset sales?

(Issues Paper, page 54)

The Issues Paper (Appendix B) sets out IPART's intended approach to valuing the amount to be removed from the regulatory asset base when regulated assets are sold. IPART's methodology draws a distinction between pre and post the year that IPART established Hunter Water's 'line-in-the-sand' regulatory asset base (2000). It also outlines separate approaches for significant and non-significant assets. The proposal has no bearing on the sale of unregulated assets.

IPART's proposed approach, for significant pre-2000 assets, is to base the amount to be removed from the regulatory asset base on the ratio of the regulatory asset base to the depreciated replacement cost of the utility's assets at the time regulatory asset base was established (a ratio of 0.42 for Hunter Water). The ratio would then be multiplied by the actual sale value realised for the asset. Any significant asset acquired after 2000, and subsequently sold, would be removed at the regulatory asset base value, adjusted for the effect of depreciation and indexation.

Hunter Water agrees with the methodology proposed by IPART. It reduces a potential disincentive for utilities to pursue the sale of assets that no longer contribute to the provision of regulated customer services or not do so in the most efficient way. It would also be relatively simple to administer.

The main asset type that would fall into the category of pre-2000, and no known value at that time, is non-operational land. Hunter Water is currently considering the disposal of some small land parcels that were acquired, through various means, many decades ago. The total value of these asset sales, should they occur, is in the order of a few million dollars. As such, while Hunter Water supports the proposal, the financial impact would not be significant in the near term. More importantly, the IPART approach does establish a clear and simple valuation rule should Hunter Water contemplate the sale of land that becomes non-operational through time.

Hunter Water raises three minor issues associated with implementing IPART's proposed approach:

- IPART defines significant asset write offs to include the book value of the 'class of asset'. Hunter Water interprets this to apply when a whole class of asset is written off. Hunter Water would prefer to use the term 'book value of the disposed asset or assets'.
- In terms of calculating the asset sale value for the sale of significant pre-2000 assets, the cost of transacting any sales should be deducted from the sales amount.
- Hunter Water supports IPART's proposal to treat non-significant asset sales in a 'simple, uniform manner' using the ratio of the utility's regulatory asset value to book value in the year in which the disposal occurs multiplied the sale value. Hunter Water seeks clarification that this approach applies to all non-significant asset sales, whether acquired pre or post 2000.

Rate of return

IPART Question 13: What is a suitable rate of return on Hunter Water's assets?

(Issues Paper, page 59)

Hunter Water's 2015 Price Submission emphasised that business decisions involving infrastructure assets should take into account the asset lives of such investments. Like all investors in infrastructure assets, when undertaking the financial evaluation of capital projects, Hunter Water makes an assessment of the long-term cash flows that could be generated by these assets. A key part of this project evaluation work is net present value discounting using a long-term rate of return. Higher and lower rates of return around the long-term average form part of the sensitivity analysis.

Long-term Commonwealth Government bond yields have followed a consistent downward trend over the last 5 years. Hunter Water argues that a benchmark firm in the water utility sector would not make a substantial investments in major capital project based off a point- in-time reference to bond yields and interest rates that are sitting at, or near, historic lows. On this basis, Hunter Water considers it reasonable to question the weighting applied to the current and long term risk-free rates.

IPART's uncertainty index is a combination of indices that seek to measure movements in current economic conditions. If the uncertainty index is outside one standard deviation from the long-term average, and there is evidence of shift in financial market conditions, IPART will consider moving away from the mid-point of the WACC input parameters.

Hunter Water observes that there has been recent volatility on the Australian Securities Exchange and the major global share markets. At the same time, the Australian economic growth outlook has weakened considerably as commodity prices have dropped sharply.

IPART's August 2015 bi-annual update of key WACC parameters reported that the uncertainty index was sitting close to the base line. Hunter Water would welcome further information on the weighting and interaction of the various indices in the uncertainty index so as to better understand the likelihood of a movement outside of the standard deviation band.

Water sales volatility mechanism

IPART Question 15: What regulatory mechanism, if any, should we use to account for sales volatility?

(Issues Paper, page 69)

IPART has previously put in place a mechanism to make an adjustment to either future revenue requirements or the regulatory asset base should the actual water sales over the course of a determination differ from that allowed by IPART. To trigger this adjustment mechanism, the actual water sales over the course of a determination period would have to be either 10 per cent above or 10 per cent below the IPART determined volumes.

IPART also notes that, based on Hunter Water's 2015 price submission, it is unlikely that a material variation will eventuate for the 2013 determination period. Comparisons of the actual versus determined water sales volumes from previous price reviews reveals that material variations do occur in particular years, more often than not resulting in an under-recovery of revenue. However, in all cases, the volatility adjustment mechanism would not be triggered over the course of a price period.

While supportive of proposals that deliver greater revenue certainty, Hunter considers that the current settings make the mechanism ineffective:

1. The threshold level of the dead-band trigger is too insensitive.
2. Even if the dead-band is exceeded, only the level of over or under recovery that exceeds the 10 per cent dead-band would be considered for an adjustment in the following IPART price review.
3. IPART's 2013 determination report states that the recovery might occur through an adjustment to Hunter Water's regulatory asset base, thereby delaying any revenue upside for Hunter Water.

Hunter Water suggests that IPART reconsider the dead-band thresholds, including an analysis of historical variances for Hunter Water and other regulated metropolitan water utilities.

Water usage price

IPART Question 17: If a revised estimate of the long run marginal cost of water supply for Hunter Water is lower than the current estimate, should the water usage price be reduced over the 2016 determination period to reflect this lower long run marginal cost?

(Issues Paper, page 76)

IPART's 2009 determination report stated that it was convinced that the long run marginal cost (LRMC) approach to water pricing was the most appropriate and efficient approach for Hunter Water. IPART noted at the time that setting usage charges to reflect the LRMC of supply is the best way to ensure that water prices send efficient consumption signals to customers and encourages responsible consumption³.

IPART's 2012 review of price structures for metropolitan water utilities reaffirmed that setting the water usage charge with reference to the long run marginal cost of the next augmentation of the water supply system was the most efficient and equitable approach.

IPART maintained this approach, based on earlier estimates of long run marginal cost, in Hunter Water's 2013 determination.

Given IPART's long held position on this price structure question, by definition, the water usage price would fall if IPART's estimate of the long run marginal cost were lower.

³ | Independent Pricing and Regulatory Tribunal (NSW), 2009, Review of prices for water, sewerage, stormwater and other services for Hunter Water Corporation, Water – Determinations and Final Report, July, Sydney. Final Report page 125.

IPART Question 18: Should the water usage charge be set with reference to the long run marginal cost of water supply, or should greater weight be placed on customer preferences?

(Issues Paper, page 76)

Hunter Water has historically had a low service charge due to the usage charge being set with reference to the LRMC, and the fixed service charge set to recover the residual water revenue requirement. Hunter Water's 2015 price submission shows that a typical household's annual water usage bill represents over 90 per cent of the annual water bill⁴. Hunter Water's 2012 and 2014 customer engagement surveys found strong customer support for maintaining 'controllability' of water bills (using price as way of encouraging customers to limit water use). This is important given that residential customers have no control over wastewater bills as these are set as a fixed charge.

Hunter Water's 2015 price submission outlined the work that was undertaken to prepare the Lower Hunter Water Plan, which was published in April 2014. The development of the Plan was led by the Metropolitan Water Directorate in collaboration with Hunter Water and a range of stakeholder groups. An examination of the supply-demand balance concluded that the Lower Hunter is secure for around twenty years and, consequently, there was not the imperative to identify the next source augmentation. The Plan's findings mean that Hunter Water does not have any formal suite of major demand management and supply increment measures on which to recalculate the LRMC.

Hunter Water's response to IPART's proposition about customer preferences is that the proposed water usage charge (based on the best available estimate of LRMC) supports the expressed views of Hunter Water's customers in relation to controllability. Hunter Water's survey work found that most customers would like more of their bill to be variable and less fixed. Maintaining the current usage price at the same level in real terms has the additional benefit of providing price stability for a key bill component across determination periods. Hunter Water's observation therefore is that the LRMC approach and customer preferences align.

Cost pass-through mechanism

IPART Question 19: Should the 2016 Determination for Hunter Water include a cost pass-through mechanism for alternative sources of water in times of relative water scarcity? If so, for which measures and how should this flow through to water prices?

(Issues Paper, page 76)

The 2014 Lower Hunter Water Plan includes actions to supply, save and substitute that are already in place or underway to ensure that there is no imperative to identify the next source augmentation in the short term. It also describes a package of alternative water sources and demand suppression measures that are only activated during times of relative water scarcity to ensure the region can withstand drought. The alternative water sources described in the Lower Hunter Water Plan are inter-regional water transfers, temporary desalination and additional groundwater extraction.^[1]

There is precedent for incorporating a cost pass-through mechanism in determined water prices whereby the additional costs of supply from an alternative water source are automatically passed through to customers. For example, the costs of operating Sydney Desalination Plant are passed through to Sydney Water's customers when the plant is not in standby. Typically the pass-through relates to operating expenditure only. Any additional capital expenditure incurred above regulatory allowances would be reviewed for prudence at the next price review and included in the regulatory asset base where appropriate.

Hunter Water agrees with IPART's view that such a mechanism would address revenue adequacy in situations of uncertainty. The change in retail prices may also encourage customers to undertake additional water conservation measures.

Hunter Water envisages that IPART's indicative circumstances when such a cost pass-through mechanism may apply are unlikely to be met in the next price period and therefore it is not seeking inclusion of a mechanism in the 2016 determination.^[3]

Hunter Water notes that there is no mechanism for recovery of additional operating expenditure incurred in providing additional water efficiency or other demand management programs.

⁴ Hunter Water Corporation, 2015 Submission to IPART on process to apply from 1 July 2016. Appendix K Bill Impacts.

^[1] NSW Government, 2014, Lower Hunter Water Plan, pages 2 and 3.

^[3] IPART, 2015, Review of prices for Hunter Water Corporation from 1 July 2016: Water – Issues Paper, page 76.

Pricing terminology

IPART Question 27: What is the most appropriate name for the current fixed 'service charge'?

(Issues Paper, page 93)

The Issues Paper outlines concerns raised during Sydney Water's customer engagement work that asked about the meaning of the terminology 'service charge' for water and wastewater services. Hunter Water has also fielded customer calls over recent years questioning what service is provided for the payment of a service charge. For example, some larger non-residential customers have questioned why they pay a particular meter equivalent service charge when they infrequently use the full capacity of the connection.

While the number of customer queries is not substantial in any one year, Hunter Water supports IPART's suggestion to refine the terminology so as to assist customer understanding. IPART sets the service charge to ensure that each regulated water utility achieves the overall revenue adequacy requirement for each product offering. For that purpose, the term needs to capture the concept that the charge covers the full cost of having water and wastewater services available and on-line throughout the billing period, including periods of peak consumption and peak discharges.

Hunter Water's water service charge was called an 'availability charge' during the late 1990s. This led to some customer complaints about paying the availability charge following supply interruptions.

Hunter Water considers that IPART's public consultation process provides the best opportunity to canvass the views of customers as to an appropriate term for fixed service charges.

Major service connection charge

IPART Question 33: What are your views on Hunter Water's proposed methodology for calculating the major service connection charge for connecting existing properties to its wastewater system?

(Issues Paper, page 103)

If IPART considers the service to be a monopoly service subject to price regulation, Hunter Water supports a review of the major service connection charge as part of a later consolidated review of developer charges. Hunter Water further suggests that IPART considers contestability implications in its review of cost allocation between customers requesting a connection and those customers already connected.

3 WHOLESALE WATER PRICING

Background

Hunter Water is aware of a number of well advanced and prospective new developments where WIC Act licensees are planning to establish water utility services within Hunter Water's area of operations. These large-scale developments are built in stages over a period of years (up to 10 years in some cases). These developments share a number of common features:

- a greenfield development site (multi-thousand lot developments)
- generally on the fringes of Hunter Water's area of operations from a water supply perspective (all current WIC Act licensees are in areas outside of Hunter Water's location based pricing zones)
- predominately residential end-use customers (in some cases, the development also includes non-residential end-use customers, eg cafes, sporting facilities, schools)
- the WIC Act licensee is constructing and operating an on-site, self-contained wastewater treatment facility for the entire development, which then provides recycled water supply to end-use customers and other areas within the development
- Hunter Water has received requests from the WIC Act licensees for temporary connection to Hunter Water's wastewater system – an interim arrangement up to the point the WIC Act licensee has a functioning wastewater treatment facility.

In Hunter Water's experience, all of the WIC Act licensee requests relate to the provision of a single, ongoing service – the supply of potable water delivered to a connection point located immediately adjacent to the new development for on-supply to end-use customers. In effect, the WIC Act licensee is requesting a bundled service of treated drinking water delivered via Hunter Water's water network.

Hunter Water expects to finalise utility service agreements with two WIC Act licensees in 2015, almost a decade after the WIC Act was first legislated. In the process of preparing the agreements, and the commercial terms and conditions in each contract, Hunter Water has given consideration to the pricing arrangements for services supplied to WIC Act licensees (the wholesale price for the wholesale customer). Along the way, Hunter Water has had some difficulty contemplating how to give effect to the pricing component of such agreements given the absence of an explicit legal framework in either the WIC Act or Hunter Water's 2013 determination.

In that context, Hunter Water welcomes IPART's decision to include wholesale pricing of services supplied by Hunter Water to wholesale customers as part of the current price review. It is important that IPART establishes the right economic framework for making wholesale pricing decisions. Additionally, Hunter Water welcomes discussion, and clarification where possible, of the legal issues associated with implementing wholesale pricing to WIC Act licensees.

In response to IPART's preliminary positions and questions listed in the Issues Paper, Hunter Water engaged Frontier Economics to provide detailed advice on the relevant economic principles and methodologies for wholesale pricing. Frontier Economics' report compares and assesses alternative pricing approaches and looks at implementation of the retail-minus avoidable cost approach. The following section includes a summary of the key matters and conclusions detailed by Frontier Economics. The full report is provided as accompanying part of this response.⁵

Pricing principles and pricing method

IPART Question 36: What is the most appropriate methodology or basis for setting wholesale prices?

(Issues Paper, page 110)

Before considering the basis for setting wholesale prices, it is important to establish the key principles for assessing the merits of alternative approaches. Based on the WIC Act objects clause and pricing principles, the IPART pricing principles and the CoAG urban water pricing principles, Frontier Economics considered that the following set of generic pricing principles were the most relevant for any consideration of wholesale pricing arrangements:

- Economic efficiency: new entry should be encouraged where it is efficient to do so, but should not be encouraged for its own sake.
- Revenue adequacy: ensuring that costs of assets used to provide urban water services are recovered over the life of the asset, including an appropriate return commensurate with the commercial and regulatory

⁵ Frontier Economics, 2015, Pricing of wholesale water services, a report prepared for Hunter Water, October, Melbourne.

risks. Hunter Water and its customers should not be compensated for the loss of customers caused by competition, but should not bear the additional costs from opening up the market to competition.

- **Flexibility:** able to cater for a range of circumstances including changing supply and demand conditions, changing customer preferences and technologies.
- **Ease of operation and administrative simplicity:** resources required to implement a pricing approach (in terms of administration, compliance, enforcement and information costs) are proportional to the benefits of the approach.
- **Transparency:** whether WIC Act licensees and other stakeholders can readily ascertain and understand what prices are being charged and how they are determined.
- **Equity:** includes preservation of 'postage-stamp' pricing.

In Hunter Water's experience, it is important to recognise that competition occurs once at a particular point in time – when a developer decides to enter into an agreement with the incumbent utility or a potential WIC Act licensee to provide water utility services for that development. It is also at this stage where a technology decision is made about the particular infrastructure that will deliver services for many decades into the future. Unlike other sectors, there is no ongoing competition to offer a better price or service for end-use customers. In that context, Hunter Water endorses IPART's statement regarding efficient entry:

"It is important to get wholesale pricing right otherwise prices may:

- encourage inefficient, costly, completion, if the prices are too low, and
- discourage efficient, beneficial competition if the price is too high."

IPART's price determinations set out a requirement for Hunter Water to charge all residential customers the same water and wastewater prices across the entire area of operations. Postage stamp pricing is also a key pricing principle in the WIC Act – a system of pricing in which the same kinds of customers within the same area of operations are charged the same prices for the same service.

In Hunter Water's view, any wholesale pricing arrangement should encourage competitive entry, but not lead to a situation where Hunter Water is left servicing the highest cost customers from any new growth. Such an outcome would benefit WIC Act licensees while pushing up Hunter Water's average costs. This would result in higher average prices across Hunter Water's entire customer base. Hunter Water recognises that postage stamp pricing is more important for the delivery of wastewater services, given that the wastewater charge is entirely fixed for residential customers and the cost of servicing different parts of the wastewater system varies considerably from location to location.

Retail minus avoidable cost pricing

Based on an assessment against the pricing principles outlined in its report, Frontier Economics makes the following points in support of the retail minus approach.

- Hunter Water's retail prices are regulated on a postage stamp basis using a cost of service approach. Consequently, we can be confident that retail prices on average include no monopoly rent component. This means that the retail minus approach should encourage entry only where it will reduce the total cost of service provision to society. If WIC Act licensees can perform the functions of Hunter Water at lower (avoided or avoidable cost than Hunter Water, then efficient entry is promoted.
- The retail minus approach is particularly suitable for situations where a new entrant displaces the incumbent. The only type of entry to date has been where a WIC Act licensee is seeking services from Hunter Water, and this appears to involve a kind of displacement whereby entrant WIC Act licensees are competing 'for the market' to supply greenfield infrastructure and retail services. The displacement that occurs here is notional, as otherwise Hunter Water would be obligated to service these users at postage stamp prices.
- The retail minus approach also scores well against the other criteria: consistent with revenue adequacy for the incumbent utility; flexible to different access arrangements; equitable for end users; and is no less transparent than other cost-based approaches.

IPART does not explicitly state how it would implement all aspects of its retail-minus pricing approach in the Issues Paper. IPART rules out the use of 'non-residential' prices on the grounds it would give rise to an 'arbitrage' or 'riskless profit' opportunity. Under such an approach, the wholesale customer would only pay Hunter Water the non-residential service charge for water or wastewater services based on a per meter equivalent basis for a single connection. The wholesale customer would then charge all end-use customers based on customer type. In any development, with thousands of residential lots, the non-residential service charge paid to Hunter Water would be much less than the total revenue that the WIC Act licensees collect from their residential end-use customers. Hunter Water notes that, to date, IPART has not sought to place any limit on the retail price that a WIC Act licensee can charge to end-use customers within the licensee's area.

IPART should clarify that its retail minus methodology would enable Hunter Water to levy the water and wastewater fixed service charge, where relevant, based on end-user customer type.

IPART Question 37: What is a reasonable retail-minus avoidable cost price cap to apply to all wholesale customers?

(Issues Paper, page 112)

Hunter Water considers that there are three issues associated with estimating the retail-minus component of IPART's proposed price caps:

1. **Avoided versus avoidable costs:** Frontier Economics observes that avoidable costs make more sense where a wholesale customer does not seek to duplicate parts of Hunter Water's network. In that case, there will be no efficiency losses from duplicating sunk infrastructure. An avoidable costs approach is preferable where a long term perspective on the replacement of sunk asset is relevant. Hunter Water notes that, if the question only relates to retailing functions, the difference in either interpretation will be small.
2. **Average or customer-specific costs:** Frontier Economics is of the view that the most practicable approach is to use avoided or avoidable costs that are averaged across all of Hunter Water's output ie. the average costs not incurred when those services are not provided across the network. Unlike a customer-specific method, an averaging approach would make it possible to implement generic price caps.
3. **Facilitation costs:** in preparing utility service agreements, Hunter Water has become aware of the up-front and ongoing transaction costs associated with negotiating and managing these customer-specific contracts. Such costs are additional to those incurred in servicing other large customers, such as managing emergencies and other critical events, indemnity provisions, and ongoing infrastructure maintenance conditions.

Hunter Water's retailing activities are a small component of its overall vertically-integrated operation – in the order of 2 or 3 per cent, not the 10 per cent suggested in the Issues Paper. Frontier Economics makes the case for applying the percentage reduction for avoidable costs to both the fixed service charges and usage prices.

Hunter Water will provide IPART with data on average retail avoidable costs (billing, meter reading, call centre functions) and actual facilitation costs should IPART pursue the retail-minus price cap approach as part of the draft determination, Hunter Water has no concern with the public release of this information.

In terms of implementation, the billing of the service charge based on end-customer type will require the WIC Act licensee to provide Hunter Water with up-to-date information on customer numbers and customer categories within each WIC Act licensee's area. Under current arrangements, Hunter Water does not have reliable information on water use beyond the connection point and has no contractual relationship with end-use customers. IPART will need to consider whether it is necessary to give legal effect to this information requirement as part of the upcoming determination.

The legal framework for setting wholesale prices

IPART Question 38: Should wholesale prices be regulated under the Water Industry Competition Act, IPART's price determination or a combination of both?

(Issues Paper, page 114)

Hunter Water supports IPART's preliminary view that it should set wholesale water and wastewater price caps as part of the 2016 determination, as outlined in the Issues Paper. IPART does not explore or explain the legal basis for including wholesale prices in the next determination, but infers that it is possible do so using IPART's current powers.

For Hunter Water, the setting of system-wide price caps for wholesale services as a separate category of customer prices would minimise the costs associated with negotiating the commercial terms and conditions of all utility services agreements. IPART's wholesale price cap proposal is a welcome and positive development given the current state of legal uncertainty in this area.

The Issues Paper goes on to state that any IPART determined prices would only apply for a temporary period. IPART's preliminary position is that the determined wholesale prices would expire 12 months after a voluntary access undertaking covering the wholesale services had been approved by IPART or prices have been agreed between Hunter Water and the wholesale customer under the access regime of the WIC Act. The 12 month period after approval of a voluntary undertaking is provided to give time for the parties to negotiate individual access agreements. IPART does not define a timeframe for the expiry of the temporary wholesale prices, although it implies that it a certain date within the next determination period.

Hunter Water has concerns about the relevance, cost-effectiveness and legal basis of any voluntary undertaking under the WIC Act given the type of service that Hunter Water expects to provide to new wholesale customers. As outlined earlier, the predominant wholesale water service model relates to the supply of potable water by Hunter Water to a WIC Act licensee at the point of connection to the licensee's infrastructure. This is essentially the same service that Hunter Water currently provides to its retail customers: a bundled service of drinking water and the transport of water.

Frontier Economics observes that the potential distinction between a 'wholesale' service and access to a service of a monopoly facility is crucial and draws out two important implications:

1. The first is whether prices for wholesale services can in fact be determined through the access framework established under the WIC Act. This would seem to require an interpretation of the meaning of 'infrastructure service' under the Act to include the supply of water itself as an "inseparable aspect of the storage, conveyance or reticulation of water and sewage". If reliance is to be placed on the access regime as the appropriate institutional arrangement for setting wholesale prices in the longer term, it would seem important to remove any uncertainty on this issue.
2. The second relates to how the different types of services might be priced. For example, a 'wholesale water or wastewater service' involves more activities – and hence more costs to supply – than an unbundled transport service. In the hypothetical event that a new entrant secured their own source of potable water (eg from its own desalination plant), the price for transporting this water through the public utility's network should not include the cost of the bulk water supply itself. Ideally, to avoid competitive distortions the approach adopted to access pricing and wholesale pricing should be supportive and consistent.

From Hunter Water's perspective, there are additional practical issues to consider. Under the voluntary undertaking path, Hunter Water would need to draft and publish a cost allocation manual approved by IPART. The next step would be to keep separate detailed accounts for infrastructure services that are subject to the undertaking. Finally, Hunter Water and the WIC Act licensee would attempt to negotiate an agreement by referencing the cost information. This may then require IPART to arbitrate a final outcome if there is dispute over the costs or the method of applying them.

At this point in time, Hunter Water considers that a better option may be for IPART to set price caps using the retail-minus avoidable cost approach as part of the 2016 determination. Should Hunter Water receive enquiries for an access service that does not involve the bundled delivery of water or wastewater services, this could trigger a review of IPART's approach at the following determination. No such enquiries have been received to date. Hunter Water has concerns about investing the resources and effort required to prepare a voluntary undertaking when it does not see any interest from wholesale customers seeking the traditional form of network access as contemplated by the WIC Act.

Hunter Water has not taken legal advice on whether the WIC Act covers the provision of potable water or the provision of wastewater treatment in combination with network (transport) services. The definition of 'infrastructure services' in the WIC Act seems to contradict itself in parts. Hunter Water would welcome guidance from IPART as to its interpretation of what the WIC Act covers.



Pricing of Wholesale Water Services

A REPORT PREPARED FOR HUNTER WATER

October 2015

Pricing of Wholesale Water Services

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Pricing of Wholesale Water Services

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Summary and overview

Frontier Economics (Frontier) has been engaged by Hunter Water to provide independent analysis of alternative approaches to pricing of services provided by Hunter Water to WIC Act licensees. This has been prompted by the release of IPART's Issues Paper on the prices to be charged by Hunter Water.

In this issues paper, IPART expresses preliminary views that it should determine temporary wholesale water and sewerage price caps, and should use a retail minus avoidable costs methodology in doing so.

IPART defines wholesale customers as utilities that buy drinking water and/or wastewater services from Hunter Water, and then on-sell water and/or wastewater services to end use customers. While IPART's Issues Paper also refers to "wholesale water and wastewater services" it does not explicitly define what it means by those terms. Implicitly, it would appear that a 'wholesale water service' relates to the supply of potable water by Hunter Water to a WIC licensee at the point of connection to the licensee's infrastructure. Significantly, this service includes the water itself (as opposed to simply the transport of water on behalf of the new entrant). This can be differentiated from *access to the transport services* provided by Hunter Water's network (i.e. the type of service sought by Services Sydney in its access application to Sydney Water).

Our review of the WIC Act and the IPART Issues Paper has focused on both the appropriate regulatory approach to setting wholesale and/or access prices, and suitable pricing methodologies.

Our conclusions are that:

- There is some uncertainty about the obligations of Hunter Water and IPART with respect to setting prices for wholesale water and wastewater services, which would be helpful to clarify. This would avoid the potential for duplicative regulation.
- A retail minus pricing approach is likely to meet IPART's objectives relating to efficient entry of alternative retail suppliers of water and wastewater and is particularly suitable for the kind of entry which is occurring in Hunter Water's region. There are some practical issues associated with the calculation of retail minus wholesale prices, but these are relatively minor for the water and wastewater services currently sought by WIC Act licensees.
- If IPART remains minded to set wholesale prices as a price cap, it should based these on a percentage reduction to Hunter Water's retail prices, where:
 - The retail prices used are from Hunter Water's price schedule, which levies both fixed and variable charges on the basis of end customer type.
 - Avoided or avoidable costs are calculated on an average basis across all of Hunter Water's customers. The alternative of calculating customer-

specific wholesale prices is potentially more efficient, but raises severe practical issues and would mean that it would not be possible to implement a price cap approach for a generic service.

- For larger customers, the retail prices and avoided or avoidable costs are derived separately based on the location-specific retail prices and the average avoidable costs of serving larger customers.
- For wholesale water and sewerage services, there is not likely to be a material difference between avoided and avoidable costs. This distinction may be more important where bypass of long-lived infrastructure is a possibility.
- Where other services are required by WIC Act licensees, prices for these services may be calculated using a retail minus approach, but this requires more complex calculations and should be specifically negotiated outside of the current determination process.

Given the increasing number of such prospective schemes, it is critical to establish appropriate arrangements for pricing of services provided by incumbent water utilities to WIC licensees at the outset to ensure that the arrangements are consistent with the Government's policy objectives for new entry (i.e. encourage efficient entry rather than simply arbitrage or 'riskless profit' opportunities) and provide certainty for new entrants in making investment decisions.

1 Purpose and scope of this report

Frontier Economics has been engaged by Hunter Water to provide independent analysis of alternative approaches to pricing of services provided to WICA licensees by Hunter Water and in particular to provide our views on the approach proposed by IPART in its Issues Paper for its review of prices for Hunter Water from 1 July 2016.

The remainder of this report is structured as follows:

- Section 2 provides contextual background on the emergence of competition from alternative service providers licensed under the WICA Act and outline key elements of the regulatory framework.
- Section 3 sets out the objectives and principles which we consider should underpin the approach to pricing of these services.
- Section 4 identifies and assesses alternative pricing methodologies which could be adopted.
- Section 5 draws together our key conclusions.
- Attachment A illustrates how the proposed methodology would apply in a typical scenario.

2 Contextual background

2.1 Emerging private entry and competition

Background

There is growing support within Australia (and elsewhere) for efforts to increase competition in the provision of water and wastewater services through access-based competition and private sector involvement, and there is increasingly effective action to allow this to occur.

As it currently stands, New South Wales is the only jurisdiction which has implemented a state-based access and associated licensing regime to support the emergence of new suppliers and technologies for the provision of water and wastewater services. The key features of these regimes are described below.

Urban water competition in Hunter Water's area of operations has emerged in the form of private sector provision of water, wastewater and recycled water services to discrete greenfields developments. Since August 2013, the Minister for Water has approved four WIC Act licence applications in Hunter Water's area of operations and several more are currently being processed.

The potential scope of competition has expanded since amendments to the WIC Act in 2014. Previously, WIC Act licensees were required to obtain sufficient water other than from a public utility such as Hunter Water – reflecting a desire during the drought to promote investment in new sources of water. This came to be seen as a potential barrier to entry and inhibited, for example, a WIC licensee from providing a potable water supply together with recycled water to a development. Related amendments limited the right of WICA licensees to provide retail services only in connection with a scheme approved under the WIC Act, so that they could not simply purchase water from a public utility and on-sell it without providing any investment in physical infrastructure.

These changes gave effect to the Government's intent to promote competition to service new greenfield or infill developments ('competition for the market'), rather than full retail contestability across all of a public utility's region ('competition in the market'). The Government's concerns with retail contestability were that it may provide incentives to sell more water, thereby compromising water security. The amendments do however allow for 'competition in the market' to service industrial and larger commercial customers. The Government has indicated that more analysis and consultation would be required before a decision could be made to move to a full retail contestability model.

Services provided by Hunter Water to new entrants

To date, the majority of Hunter Water's interactions with private network operators (PNOs) have involved the provision of a bulk water supply to the boundary of a new development area (predominately residential developments). Under this model, the PNO would on-sell drinking water to each customer in the development as well as provide self-contained sewerage and recycled water services. In addition to the provision of potable water for the licensee to reticulate and on-sell to its customers, a PNO may also seek:

- temporary or permanent connection to the sewerage network
- receipt of overflows from the licensee's wastewater treatment plant (WWTP)
- receipt of WWTP sludge into the utility's sewer for processing and disposal.

This highlights that there may be a range of 'wholesale' services sought by new entrants that extend beyond access to the transport services provided by Hunter Water's network to include supply of the water itself and/or the treatment and disposal of waste products. This issue is discussed in more detail in section 4.1.2 below.

Hunter Water is working to establish utility services agreements (USAs) with a number of PNOs. While no agreement has been finalised to date, the final terms and conditions of each agreement will cover matters such as the provision of growth forecasts for water usage, specific requirements for the connection to infrastructure, ongoing maintenance of infrastructure conditions, appropriate responses to emergencies and other critical incidents, and indemnity provisions. Each utility services agreement will also set out the pricing arrangements for the provision of Hunter Water's services to the private network operator. Hunter Water expects to execute a number of these agreements prior to commencement of the next price period (which is expected to commence on 1 July 2016).

These USAs (which include prices for services provided by Hunter Water) are being negotiated commercially outside of the formal regulatory arrangements.

Questions are emerging about how these services should be priced and/or regulated:

- To promote efficient end-use decisions by consumers, within the context of broader social pricing objectives.
- To facilitate new entry where it is efficient, but avoid bypass of infrastructure where it is not.
- To avoid excessive transaction costs for both parties.

Given the increasing number of such prospective schemes, it is critical to establish appropriate arrangements for pricing of services provided by incumbent water utilities to WIC licensees at the outset to ensure that the arrangements are

consistent with the Government's policy objectives for new entry and to provide certainty for new entrants in making investment decisions.

2.2 Current regulatory framework

The following discussion briefly outlines key relevant feature of the current regulatory framework, namely:

- regulation/pricing of Hunter Water retail services
- regulation/pricing of services provided by Hunter Water to WICA licensees
- regulation/pricing of services provided by WICA licensees to their customers.

2.2.1 Regulation/pricing of Hunter Water retail services

Hunter Water is a State Owned Corporation (SOC) providing drinking water, wastewater, recycled water and some stormwater services to a population approaching 575,000 people across the Lower Hunter. It is a vertically-integrated business which owns and operates dams, a bulk transfer and distribution network, and provides retail services to end customers.

IPART determines the maximum prices Hunter Water charges end customers for water, sewer and drainage services and is currently undertaking a review to set prices for the next regulatory period to apply from 1 July 2016.

In doing so, IPART adopts the so-called 'building blocks' methodology to determine a notional revenue requirement for Hunter Water which defines the total level of revenue which Hunter Water is permitted to earn from the prices it charges its customers. This revenue requirement reflects the costs associated with operating, maintaining and financing its assets across the entire supply chain (including bulk water, bulk transfer/distribution and retail activities). This means that retail charges levied on end customers reflect the cost of all of these bundled activities.

This revenue requirement is then allocated across services and customer classes and ultimately into a schedule of retail tariffs. Tariffs for the principal water and wastewater services provided by Hunter Water are shown in Table 1 below.

Table 1: Hunter Water – Principal Tariffs (effective 1 July 2015- 30 June 2016)

	Water	Sewerage
Residential		
Usage charge (\$/kl)	2.22	n.a.
Service Charge (\$ p.a.) - House	17.75	593.58
Service Dwelling Charge (\$ p.a.) – Unit/flat	17.75	430.34
Environmental Improvement Charge (\$ p.a.) - House	n.a.	38.37
Environmental Improvement Charge (\$ p.a.) – Unit/flat	n.a.	38.37
Non-residential		
Usage charge (\$/kl)	2.22 ^a	0.67
Service Charge – base (properties with one 20mm meter)	17.75	593.58
Service charge – (properties with multiple 20mm meters)	18.54	1179.58
Service charge – (properties with one or more meters of 25mm or greater, per meter equivalent)	28.97	1843.09
Environmental Improvement Charge (\$ p.a)	n.a.	38.37

Source: Hunter Water

Notes:

a :Lower usage charges may apply to customers consuming in excess of 50 00 kl per annum depending on their location.

A stormwater service charge is also levied at a rate of \$71.86 for residential houses and non-residential properties and at \$26.59 for residential units/flats.

A two-part tariff applies to the supply of potable water whereby each customer pays \$2.22 per kilolitre of water consumed together with a fixed annual service charge (which varies depending on the nature of the customer and meter size). The relatively low levels of the water service charges mean that the vast majority of revenue earned by Hunter Water for the supply of potable water is via the volumetric usage charge.

In contrast, for sewerage services a much greater proportion of revenue is collected via the fixed annual service charges. For residential customers, the charge is entirely fixed. For non-residential customers a sewerage usage charge is also levied based on a formula which applies a sewerage discharge factor to metered water consumption.

We note that Hunter Water's pricing submission for the 2016 regulatory period proposes to keep the water usage charge constant (and slightly reduce the sewerage usage charge applying to non-residential customers) while significantly increasing the service charge for water for both residential and non-residential customers (to \$58.72 for residential customers and small non-residential customers and \$105.75 per meter equivalent for other non-residential customers by 2019-20).

A key feature of the current tariff structure is that the charge for each service for each type of customer is uniform across Hunter Water's service region, regardless of the actual cost of serving customers in different locations. This reflects a 'postage stamp' pricing policy which has been adopted on equity grounds.

The one exception to this postage stamp pricing policy is that lower water usage charges apply to customers who consume very large volumes of water (more than 50 000 kl per annum) located in certain zones which are low cost to serve as they do not draw on much of Hunter Water's distribution network. The location-based charge applies only to consumption by these customers in excess of 50 000 kilolitres. IPART's current review of Hunter Water's prices will determine whether this location-based discount should be retained.

2.2.2 Regulation/pricing of services provided by Hunter Water to WICA licensees

The Water Industry Competition Act (WICA) establishes an access regime for the storage and transportation of water and sewage using existing significant water and sewerage networks in the areas covered by Sydney and Hunter Water – the first access regime developed specifically for the water industry in Australia.

An access seeker who is seeking access to an infrastructure service covered by a coverage declaration or access undertaking must apply to the service provider for an access agreement.

The access regime provides a negotiate/arbitrate model for access to transport and storage services (but explicitly not to the water itself – this would seem to need to be negotiated separately outside the access regime, depending on the interpretation placed on the definition under the WIC Act)¹. It also provides for a voluntary access undertaking.

¹ Under the WIC Act 'infrastructure service' means the storage, conveyance or reticulation of water or sewage by means of water industry infrastructure, and includes the provision of connections between any such infrastructure and the infrastructure of the person for whom water or sewage is stored, conveyed or reticulated, but: (a) does not include the storage of water behind a dam wall, and (b) does not include: (i) the filtering, treating or processing of water or sewage, or (ii) the use of a production process, or (iii) the use of intellectual property, or (iv) the supply of goods (including the supply of water or sewage), except to the extent to which it is a subsidiary but inseparable aspect of the storage, conveyance or reticulation of water or sewage.

Negotiation protocols have been prepared to assist access seekers and service providers with the application process. If an access seeker and a service provider are unable to agree on the terms on which access is to be provided, either party may refer the matter to IPART for arbitration.

However, as noted above, at present prices of services provided by Hunter Water to WICA licensees are being determined through commercially negotiated agreements (against the backdrop of potential regulation). Hunter Water's infrastructure has not yet been the subject of a declaration nor has Hunter Water made a voluntary access undertaking.

As discussed below, it is also possible that IPART could seek to directly regulate the prices of wholesale services provided by Hunter Water to WICA licensees.

2.2.3 Regulation/pricing of services provided by WICA licensees

As part of the WICA regime, a new regulatory framework was introduced to ensure appropriate regulatory obligations are placed on new suppliers to protect consumers and the public interest in relation to a range of factors, including: security of supply; ensuring water quality; protection of public health; environmental matters; and allocating responsibilities for managing emergencies and national security matters.

It is important to note that the licensing regime is complementary to, but distinct from, the access regime. That is, it is possible for a new entrant to be licensed to operate infrastructure and/or provide retail services without necessarily requiring access to the incumbent utility's infrastructure services (e.g. through operation of a standalone wastewater treatment/recycled water supply system).

Under the licensing regime overseen by IPART:

- Private operators require a network operator's licence to construct, maintain or operate water industry infrastructure.
- A retail supplier's licence is required for the commercial supply of drinking water, recycled water or the provision of wastewater services by means of any water infrastructure.

Generally a network operator's licence and a retail supplier's licence are required for each development, although these can be held by separate entities. Under amendments to the WIC Act in 2014, customers of retail supplier licensees are now deemed to have an implied contract on standard terms and conditions to put entities regulated by the WIC Act in the same position as public utilities such as Hunter Water.

The WIC Act provides for the Minister to declare that a specified licensed retail supplier or licensed network operator is a monopoly supplier in relation to a specified water supply or sewerage service, a specified area, and a specified class

of customers if certain conditions hold, namely that it is a service for which there are no other suppliers to provide competition in the part of the market concerned, and for which there is no contestable market by potential suppliers in the short term. The Minister can also declare monopoly supplier status in the case of a mandated water supply service for recycled water. IPART would then be able to regulate the prices of services provided by these licensees.

2.3 Current IPART review

In May 2015, IPART informed Hunter Water of its intention to address “wholesale pricing” for services provided to WIC licensees as part of its 2015 review of periodic prices, due to take effect from 1 July 2016. This follows concerns raised by Flow Systems Pty Ltd about future pricing for on-selling arrangements in its submission to IPART’s review of Sydney Water’s Operating Licence. In particular, Flow Systems raised concerns about the possible treatment of WIC Act licensees by Sydney Water as third-party access seekers, rather than non-residential customers, and requiring WIC Act licensees to enter into access agreements.

IPART specifically stated that it would consider:

- whether WIC Act licensees should be a separate customer category for water supply services and sewerage services in the upcoming determination
- the appropriate pricing approach for these arrangements, such as retail-minus avoidable costs, in light of postage stamp pricing requirements
- whether an access arrangement under the WIC Act would be a preferable approach in the longer term.

IPART released its Issues Paper for Hunter Water’s price review on 7th September 2015. This Issues Paper states that in its view wholesale customers and access seekers should be charged on a retail-minus avoidable costs approach.

It also stated that in principle, it considers that wholesale prices should be regulated through the WICA access regime. However, it observed that without an approved access undertaking in place (or a coverage declaration being made) there may be barriers to entry, especially for smaller utilities.

IPART’s preliminary view is that it should temporarily determine wholesale and sewerage price caps until:

- A specified period (e.g. 12 months) after a voluntary access undertaking covering these wholesale services has been approved by IPART or
- Prices have been agreed between Hunter Water and the wholesale customer under the WICA access regime.

IPART is now seeking views on its proposed approach to the regulation of these services.

3 Objectives and principles

3.1 Introduction

In considering possible approaches to how prices of services provided by Hunter Water to WIC licensees should be priced and/or regulated, it is critical that decisions are based on clear underlying objectives and on sound principles.

Amendments to the WIC Act in 2014 inserted an Objects clause which states that the objects of this Act are:

- a) to protect public health and safety and the environment in connection with the water industry, including in the longer term, and
- b) to protect the interests of consumers (particularly small retail customers) in the quality, reliability and price of water and sewerage services, including in the longer term, and
- c) to facilitate the efficient, reliable and sustainable provision of water and sewerage services, having regard to financial, environmental and social considerations, and
- d) to promote the sustainable use of resources in connection with the water industry, and
- e) to facilitate competition in the water industry with a view to encouraging innovation and improved efficiency in the industry.

Clearly, these objects should be given due consideration in the approach adopted to the pricing of wholesale services provided to WICA licensees and the broader regulatory framework for the provision of water and related services in NSW.

3.2 Pricing principles under the WICA Act

The WIC Act includes a number of access pricing principles as follows:

- a) the price of access should generate expected revenue for the service that is at least sufficient to meet the efficient costs of providing access to the service, and include a return on investment commensurate with the regulatory and commercial risks involved,
- b) the price of access should allow multi-part pricing and price discrimination when it aids efficiency,
- c) the price of access should not allow a vertically integrated service provider to set terms and conditions that discriminate in favour of its downstream operations, except to the extent to which the cost of providing access to other operators is higher,

- d) the price of access should provide incentives to reduce costs or otherwise improve productivity.

The Act also provides that these principles must be implemented in a manner that is consistent with any relevant pricing determinations for the supply of water and the provision of sewerage services, including (where applicable) the maintenance of “postage stamp pricing” (that is, a system of pricing in which the same kinds of customers within the same area of operations are charged the same price for the same service).

3.3 IPART pricing principles

IPART’s high level pricing principles are contained in section 15(1) of the IPART Act. The section states that in making determinations and recommendations under this Act, the Tribunal is to have regard to the following matters (in addition to any other matters the Tribunal considers relevant):

- the cost of providing the services concerned
- the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
- the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales
- the effect on general price inflation over the medium term
- the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
- the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment
- the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets
- the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body
- the need to promote competition in the supply of the services concerned
- considerations of demand management (including levels of demand) and least cost planning
- the social impact of the determinations and recommendations

- standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

3.4 NWI/CoAG Urban Water Pricing Principles

The 2004 National Water Initiative contains some high-level principles for water pricing encompassing consumption based pricing and full cost recovery for water services to ensure business viability and avoid monopoly rents.

Subsequently more detailed pricing principles for urban water services to urban users were agreed by the Council of Australian Governments (CoAG) in 2010.

These principles include:

- **Cost recovery:** Water businesses should be moving to recover efficient costs consistent with the National Water Initiative (NWI) definition of the upper revenue bound: ‘to avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes, provision for the cost of asset consumption and cost of capital, the latter being calculated using a Weighted Average Cost of Capital (WACC).
- **Tariff structures:** Two-part tariffs (comprising a service availability charge and a water usage charge) should be used to recover the revenue requirement from retail residential and non-residential and bulk customers.
- **Cost reflective tariffs:** The water usage charge should have regard to the long run marginal cost of the supply of additional water.
- **Setting the service availability charge:** The revenue recovered through the service availability charge should be calculated as the difference between the total revenue requirement and the revenue recovered through water usage charges and developer charges. The service availability charge could vary between customers or customer classes, depending on service demands and equity considerations. Unattributable joint costs should be allocated such that total charges to a customer must not exceed stand-alone cost or be less than avoidable cost where it is practicable to do so.
- **Differential water charges:** Water charges should be differentiated by the cost of servicing different customers (for example, on the basis of location and service standards) where there are benefits in doing so and where it can be shown that these benefits outweigh the costs of identifying differences and the equity advantages of alternatives.

3.5 Generic pricing principles

From the pricing principles promulgated in the WICA Act, the IPART Act, and the NWI/COAG documents it is possible to distil generic underlying principles

which should apply to prices for wholesale services. The criteria used to assess the pricing options considered in this report are:

- economic efficiency
- revenue adequacy
- flexibility
- ease of operation/administrative simplicity
- transparency
- equity.

The rationale behind each of these criteria and the basis for assessing how any given wholesale pricing approach might rate against them is discussed in detail below.

3.5.1 Economic efficiency

This objective relates to obtaining the greatest net benefits to the community as a whole from the use and allocation of resources. Key aspects of economic efficiency include:

- **technical or productive efficiency:** operating the required water provision systems including extraction, storage, treatment as well as transport systems, at the least overall cost;
- **allocative efficiency:** ensuring that resources are allocated to their most productive use in the economy through production and consumption decisions that are based on prices that reflect the opportunity cost of the available resources; and
- **dynamic efficiency:** ensuring signals for efficient investment decisions in the long term (i.e. the right combination of options and the right timing).

In the context of wholesale services provided to WICA licensees, promotion of economically efficient outcomes should be given considerable weight in light of the WICA Objects (c) and (e) above which clearly imply that new entry should be encouraged where it is efficient to do so, but should not be encouraged for its own sake, particularly if new entry occurs in circumstances where it is not efficient.

As noted by IPART in its Issues Paper (p.106):

It is important to get wholesale prices right, otherwise prices may encourage inefficient, costly, competition if price is too low, and discourage efficient, beneficial competition if price is too high.

The efficiency objective is strongly supported by the principles espoused in the NWI and the regulatory and pricing principles of water regulators in each of the relevant jurisdictions. The NWI refers to the promotion of efficient resource use,

and the importance of achieving user pays and price transparency while avoiding perverse pricing outcomes.

3.5.2 Revenue adequacy

Revenue adequacy is concerned with ensuring that the costs of assets used to provide urban water services are recovered over the life of the asset. These costs should include operating costs, capital costs and an appropriate return commensurate with the commercial and regulatory risks involved. Setting prices to recover these costs ensures that water agencies remain financially viable, but also that water agencies and other investors will continue to be encouraged to invest in the water industry.

The NWI supports this objective. In particular, the NWI lists the objective of “ensuring sufficient revenue streams to allow efficient delivery of the required services (but avoiding monopoly rents)”. In addition, revenue adequacy is generally stated as a primary objective for economic regulators to consider in making pricing determinations.

In the current context, this principle would require that Hunter Water should be able to recover its costs of providing services including transaction costs and supplier of last resort obligations. Hunter Water and its customers should not be compensated for the loss of customers caused by competition, but should also not bear the additional costs from opening up the market to competition.

3.5.3 Flexibility

Pricing mechanisms should provide flexibility to cater for a range of circumstances including changing supply and demand conditions, changing consumer preferences and technologies.

In the context of wholesale services provided by Hunter Water, the approach will need to be able to deal with a wide range of circumstances, given the services required by WICA licenses may vary considerably in each instance.

3.5.4 Ease of operation/administrative simplicity

Ease of operation is concerned with ensuring that a pricing approach is practical to implement. In particular, ease of operation is concerned with ensuring there are no institutional, administrative or other barriers that would prevent the approach being implemented. Administrative simplicity means that the resources required to implement a pricing approach (in terms of administration, compliance, enforcement and information costs) are proportional to the benefits of the approach.

Guiding questions in assessing this criterion include:

- Is it practical to implement?

- Are there institutional, administrative or other barriers that would prevent an approach being implemented?
- What are the administrative costs for water service providers, regulators and customers (and do these costs outweigh the benefits that are likely to accrue by implementing the approach)?

3.5.5 Transparency

Transparency ensures that water users and others can understand and hence have confidence in the arrangements. The NWI objectives highlight the importance of price transparency in water storage and delivery systems. In assessing this criterion a key question is whether WICA licensees and other stakeholders can readily ascertain and understand what prices are being charged and how they are determined.

3.5.6 Equity

Equity is concerned with the implications of alternative pricing approaches for different customer groups.

Key equity issues in the consideration of wholesale pricing include the preservation of postage stamp pricing: end-customers should not face widely differing prices when the cost of servicing them is similar just because of the identity of their supplier.

3.5.7 Weighing the criteria in an overall assessment

There are likely to be conflicts and hence trade-offs to be made between the criteria outlined above. For example, equity considerations and administrative simplicity can affect the efficiency or effectiveness of pricing arrangements.

4 Alternative pricing methodologies for wholesale services

4.1 Introduction

There is no universal rule for determining the price for access to a service. The appropriate pricing rule will depend on particular objectives of the decision maker (perhaps given in legislation), the characteristics of the industry, including any retail pricing constraints, if relevant, and the service provided by the facility in question.

This section identifies and assesses alternative pricing methodologies for wholesale services provided by Hunter Water to WIC licensees against the criteria/principles established in the preceding section.

4.1.1 IPART's preliminary position

IPART notes in the Issues Paper that it:

- “is important to get wholesale prices right, otherwise prices may:
- encourage inefficient, costly, competition if the price is too low, and
 - discourage efficient, beneficial competition if the price is too high.”

We agree these are the major detriments that might emerge from inappropriate wholesale charging.

IPART then sets out four possible wholesale pricing approaches:

- **retail price minus avoidable costs** – the retail charges less the costs Hunter Water no longer incurs
- **cost of service** – the actual cost of supplying the particular wholesale customer
- **non-residential charge** – the non-residential customer charge based on the connection size, as set under our prevailing price determination, and
- **mixed multi premise charge** – the mixed multi premise charge based on the number of properties, as set under our price determination.

Commonly, a taxonomy of access prices recognises two broad categories:

- A top down or ‘retail-minus’ approach, which starts at the retail price and removes costs to derive an access price
- A bottom up or ‘cost of service’ approach, which builds up the costs of providing the service and include variants such as short-run marginal cost,

long-run marginal cost and long-run average cost (which includes building block models).

It is therefore not surprising that IPART considers both of these approaches its Issues Paper for the pricing of ‘wholesale services’. IPART’s two other approaches, namely using the non-residential charge or mixed multi-premises charge, are set under the retail price determination. That is, they are retail prices designed for larger customers with different costs and demands from residential users. This prospective use of retail prices as wholesale prices raises the issue of whether these are distinct pricing methods, and broader questions about what we are pricing and why. Therefore, before examining the merits of alternative pricing methodologies we think it is important to be clear about the nature of the service/s for which the price/s is being established.

4.1.2 The nature of the ‘wholesale services’

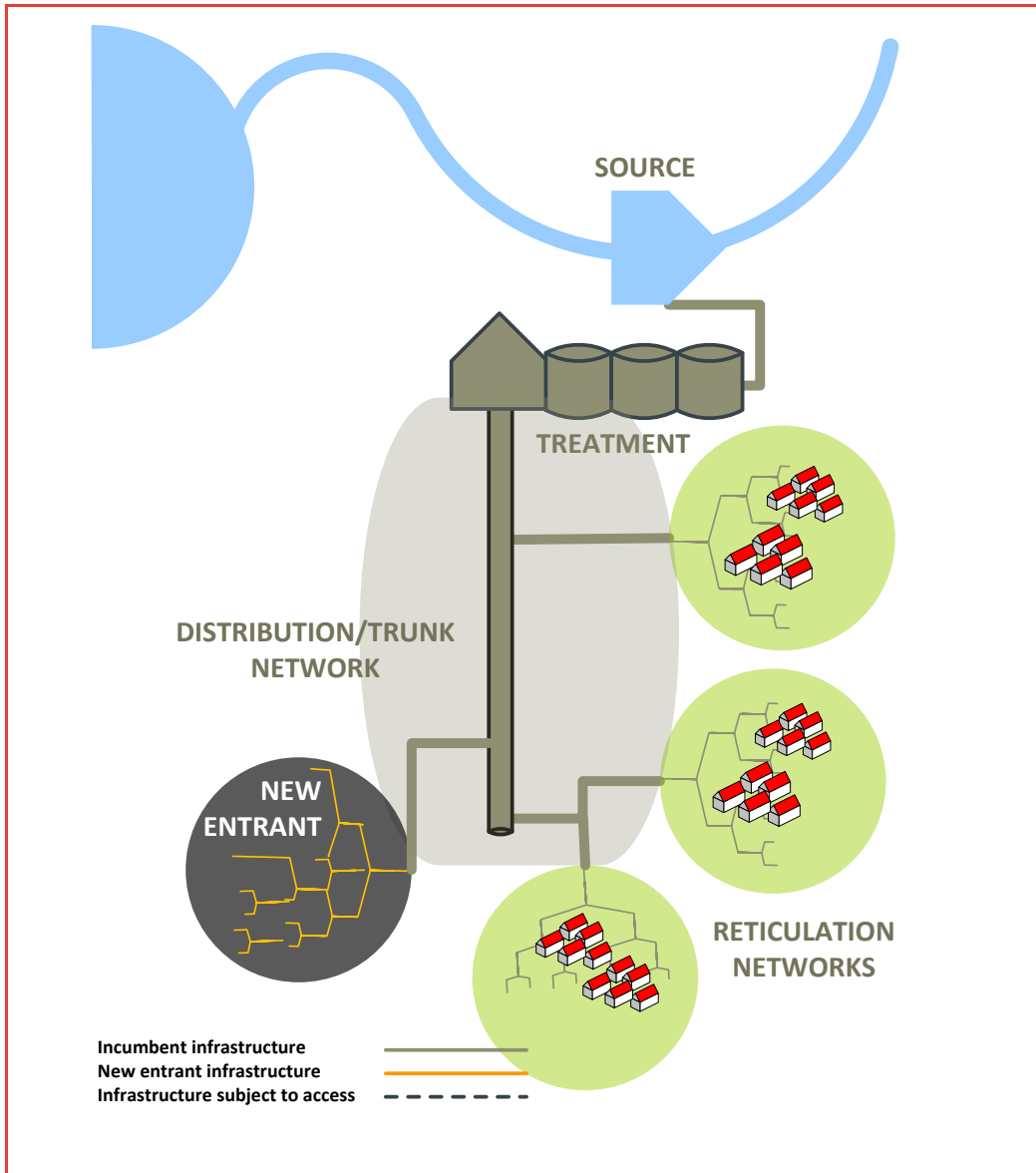
IPART’s Issues Paper refers to “wholesale water and wastewater services” but does not explicitly define what it means by those terms.

Implicitly, it would appear that a ‘wholesale water service’ relates to the supply of potable water by Hunter Water to a WIC licensee at the point of connection to the licensee’s infrastructure. This is essentially the same service that Hunter Water currently provides to its retail customers. Significantly, this service includes the water itself (as opposed to simply the transport of water on behalf of the new entrant).

Figure 1 depicts a new entrant seeking wholesale water services from Hunter Water. The figure depicts a new entrant who has invested in its own reticulation network and is seeking to connect to Hunter Water’s trunk and distribution network in order to purchase wholesale or bulk water services from Hunter Water so that it can on-sell these services as retail water services to customers through its reticulation network.

Similarly, a ‘wholesale wastewater service’ would seem to relate to the receipt, transport, treatment and disposal of water products by Hunter Water. In some cases this may be essentially the same bundled service which Hunter Water provides to its retail customers. In some cases, however the wholesale sewerage service may be to receive a waste product which varies markedly from a domestic equivalent (e.g. a concentrated waste product from a recycled water plant). These services can be differentiated from *access to the transport services* provided by Hunter Water’s sewerage mains (i.e. the type of service sought by Services Sydney in its access application to Sydney Water).

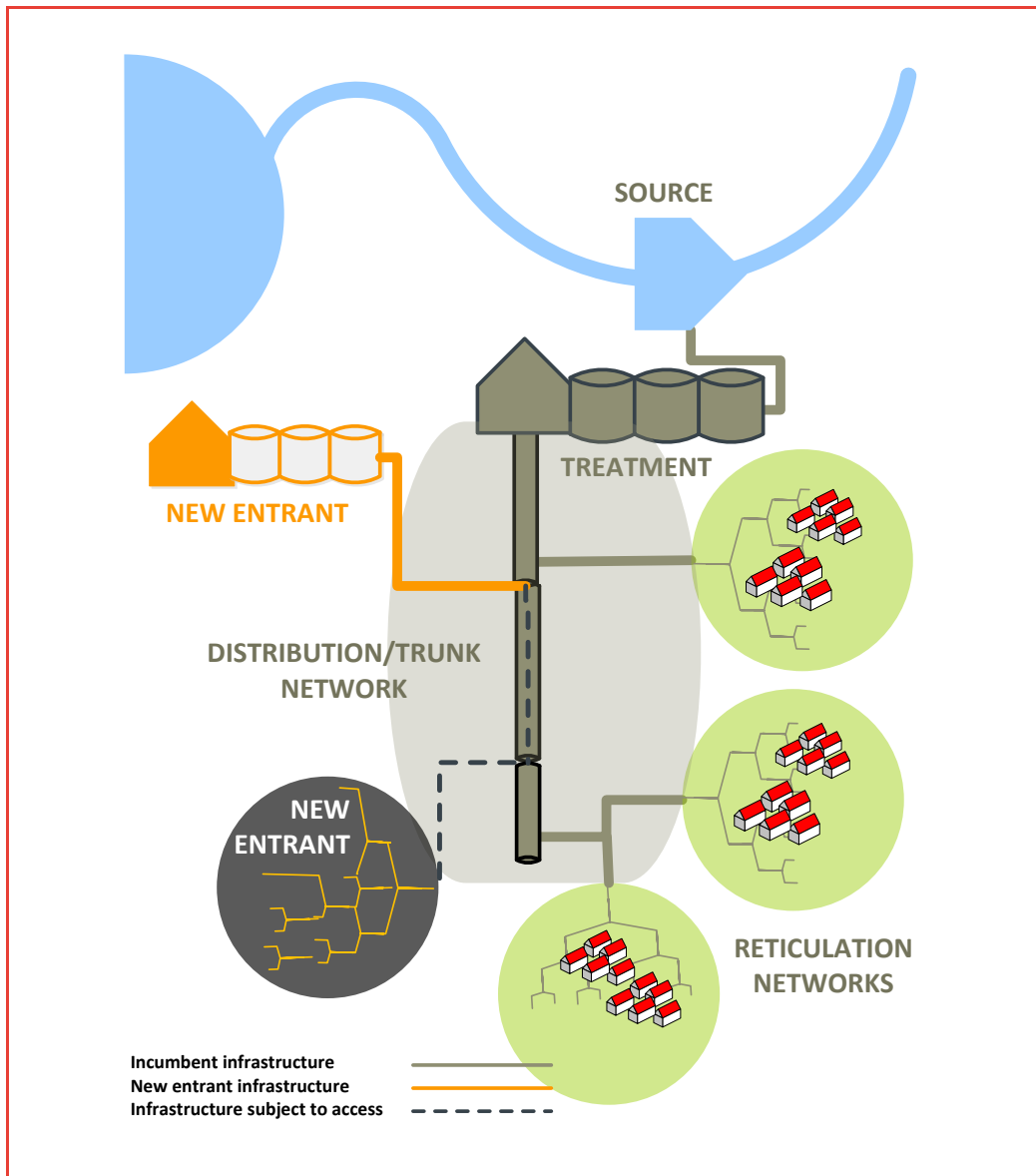
Figure 1: Wholesale services to a new entrant



Source: Frontier Economics

Figure 2 depicts a new entrant seeking access to Hunter Water's trunk and distribution infrastructure in order to provide either water or sewage treatment services to a third party. In the figure the third party is also a new entrant providing retail and reticulation services to customers.

Figure 2: Provision of access to a new entrant



Source: Frontier Economics

The potential distinction between a ‘wholesale’ service and access to a service of a monopoly facility is crucial. It may have several implications:

- The first is whether prices for wholesale services can in fact be determined through the access framework established under the WIC Act. This would seem to require an interpretation of the meaning of ‘infrastructure service’ under the Act to include the supply of the water itself as an “inseparable aspect of the storage, conveyance or reticulation of water or sewage”. If reliance is to be placed on the access regime as the appropriate institutional arrangement for setting wholesale prices in the longer term, it would seem important to remove any uncertainty on this issue.

- The second issue relates to how the different types of services might be priced. For example, a ‘wholesale water or wastewater service’ clearly involves more activities – and hence more costs to supply – than an unbundled transport service. For example, in the hypothetical (and perhaps unlikely) event that a new entrant secured their own source of potable water (e.g. from its own desalination plant), the price for transporting this water through the public utility’s network should not include the cost of the bulk water supply itself. Ideally, to avoid competitive distortions the approach adopted to access pricing and wholesale pricing should be supportive and consistent.

IPART notes that, in principle, its view is that wholesale prices should be regulated through the WIC Act’s access regime.

4.2 Retail minus

4.2.1 Overview

The retail-minus approach is a rule for setting the price of an input that is necessary to compete in a downstream market, when that input is controlled by a regulated, vertically integrated monopolist.

IPART defines the retail minus approach as retail prices less costs no longer incurred by Hunter Water.

There are a number of practical implementation issues to be addressed in determining a retail minus price; for example, how to estimate costs no longer incurred and how transactions costs should be treated. We first consider the conceptual case for retail minus before considering these implementation issues.

4.2.2 Assessment against principles

We concur with IPART that retail-minus access or wholesale prices can achieve IPART’s objective of promoting efficient competition, and deterring inefficient competition.

The retail minus approach is closely related to the Efficient Component Pricing Rule (ECPR), which holds that policies for efficient entry should allow for the integrated monopolist to continue to recover existing contributions to fixed and common costs in its access prices. Under certain conditions, this access pricing approach has claims to be the most efficient access pricing methodology. In particular, these claims are relevant where:

- No monopoly rents are earned on the initial end-to-end supply of service by the access provider.
- The access provider’s retail tariffs are not allowed to reflect the costs of serving (individual or groups of) users.

- The costs of distorted retail prices are not captured via other regulatory instruments (such as a universal service fund).
- Downstream competitors will substitute for the access provider's services.²

Hunter Water's retail prices are regulated on postage stamp basis using a cost of service approach. Consequently, we can be confident that retail prices on average include no monopoly rent component. This means that the retail minus approach should encourage entry only where it will reduce the total cost of service provision to society. If access seekers can perform the functions of Hunter Water at lower (avoided or avoidable) cost than Hunter Water, then efficient entry is promoted.

The retail minus approach is particularly suitable for situations where a new entrant displaces the incumbent (e.g. an existing retail customer switches from one retailer to another). The only type of entry to date has been where a PNO is seeking services from Hunter Water, and this appears to involve a kind of displacement whereby entrant PNOs are competing 'for the market' to supply greenfields infrastructure and retail services. The displacement that occurs here is notional, as otherwise Hunter Water would be obligated to service these users at its postage stamp prices.

The retail minus approach also scores well against the other criteria we discuss in Section 3. In particular, it is consistent with revenue adequacy for the access provider, is flexible to different access arrangements (see also our discussion in Section 5), is equitable for end users and is no less transparent than other cost-based approaches.

4.3 Implementing a retail minus approach

As we discuss in this report, the retail minus approach is robust to a number of different wholesale or access scenarios. It does, however, raise some practical issues about to apply this methodology in particular circumstances.

4.3.1 What is the retail price?

To use the retail minus approach, we first must have a good conception of the appropriate retail prices from which costs are deducted. We have noted Hunter Water's retail prices in Table 1. These prices are postage stamp prices; and so for the retail minus method to be valid, any wholesale price derived from these prices must also be postage stamp prices. The retail minus price involves calculating the percentage of costs that would be avoided by Hunter Water from not serving the end use customers, and then deducting these costs from the current retail price

² See, for example, Armstrong, M., "The Theory of Access Pricing and Interconnection", in Cave et al, *Handbook of Telecommunications Economics*, Vol. 1, p. 316.

(See Box 1 for examples of how this is calculated where fixed and variable charges are levied).

A further complication may arise if a customer is charged a location-specific price, which we understand applies to large users located in certain supply zones who use more than 50 000 kl per annum, in respect of their consumption in excess of this threshold. In this case, the retail price from which costs are deducted must be the retail price applicable to those users. The wholesale charge so derived will then also mirror the retail charging structure.

Box 1: Applying a retail minus approach to fixed and variable charges

Hunter Water's residential and non-residential charges are tariffs in two parts – with fixed and variable charges. How should the retail structure translate into a wholesale pricing structure? The appropriate approach is to apply a 'minus' deduction to all elements of the retail price, including both fixed and retail charges. This may be done in one of two ways:

- If the avoided fixed and avoided variable costs can be separately identified, these should be deducted from the fixed and variable charges respectively (e.g. if they are 20% of fixed costs are avoided, and 5% of variable costs are avoided, then fixed charges would be equal to the retail price times 80% and variable charges the retail price times 95%).³
- If avoidable (long run) costs are used, the total percentage of avoidable cost in the retail price should be applied to both fixed and variable charges.

Both approaches reflect that the retail minus method is designed to ensure that the access price does not undermine contributions to fixed and common costs earned from retail customers in retail prices.

For completeness, we note that a price calculated in this way will require the wholesale customer to provide information to the access provider about how many end-use customers are being served. Any other method – such as applying the retail minus to only usage charges – risks creating a distorted wholesale and retail pricing structure.

Source: Frontier Economics

4.3.2 What is the minus?

There are two main issues to be considered in determining the 'minus' element of the price:

- Whether it should refer to costs 'avoided' or costs 'avoidable' by Hunter Water.
- Whether costs should be calculated on average, or avoided/avoidable in relation to each access application.

³ Note that this principle remains relevant even if current fixed and variable charges do not reflect the fixed and variable costs incurred. Again, the principle is to ensure that the wholesale competitor faces the same pricing constraints as does the retail provider.

Avoided or avoidable

IPART refers to the following definitions in the Issues Paper, both of which were promulgated by the ACCC in the Service Sydney arbitration:

- Avoided costs are the costs that Hunter Water would actually avoid if it no longer directly supplied water or sewerage services to end-use customers (i.e., short run marginal costs).
- Avoidable costs typically include long term costs that Hunter Water may avoid in the present and future or could have been avoided in the past if the entry of a wholesale customer was expected. (footnotes omitted)

It is questionable whether either of these definitions are appropriate, and we recommend that IPART should re-consider their relevance.

With respect to avoided costs, there is no reason why these would align specifically with short run marginal cost (SRMC). What if the access agreement was for 10 years? It is clear that some fixed costs would be relevant over such a timeframe. Equally, it may be applicable to more than marginal units of output if that is the scale of entry.

With respect to avoidable costs, the ACCC's definition is an oxymoron. Avoidable cost is an explicit reference to the future, not the past. Past costs that might have been avoided have no relevance to this definition.

IPART favours the avoidable cost approach in the Issues Paper, and explains it in the following terms:

We support the avoidable cost approach, as it reflects optimised investment decisions that consider the potential of future market entry. Incumbent utilities may not be able to recover all the actual costs of their operations (i.e., there is a risk of asset stranding). However, this is a legitimate business risk, in that Hunter Water should be making capital investment decisions with an understanding of the risk of market entry. It ensures that competitors are not subsidising the cost of any over investment by Hunter Water (due to unanticipated market entry).⁴

This emphasis on 'legitimate' business risks seems peculiar given that the WIC Act was only introduced in 2006, and much of Hunter Water's asset base will be far older than this. It is therefore not clear how Hunter Water could have made investment decisions with that risk in mind. Further, it is unclear whether the kinds of wholesale services being priced by IPART will involve the stranding of any of Hunter Water's assets (recognising that such stranding might be relevant for other access services).

In our view, the case for avoided or avoidable costs is more nuanced than the simple case that IPART puts forward.

⁴ IPART (2016) Review of prices for Hunter Water Corporation From 1 July 2016 Water - Issues paper, p. 108.

The practical difference between the avoided and avoidable interpretations primarily relates to the timeframe for costs. Avoidable costs allow for a longer term perspective on the replacement of sunk assets; in the long run, most sunk assets must be replaced and so can be considered avoidable. Avoided costs are costs that relate more directly to the access seeker's request for access, and will generally refer to a shorter timeframe. This will commonly not include sunk infrastructure as these costs will not be avoided with or without the entry.

Which of the two approaches is to be preferred? In our opinion, the choice of avoided or avoidable cost requires an examination of the particular circumstances around the desirability of competition at different levels of the value chain. For water infrastructure assets that bear the characteristics of natural monopoly services, the access price should discourage the duplication of long-lived sunk assets.⁵ This would favour the use of retail minus avoided costs. Specifically, using retail-minus avoided costs will (appropriately) deter inefficient bypass of long-lived assets – as if the existing system has sufficient supply capacity, avoided costs will be very low and the wholesale price will be close to the retail price.

Importantly, retail minus avoided costs will still promote competition and entry where system augmentation is required, if the new entrant can develop the new components of the system at lower cost than the incumbent. As we shall go on to discuss in section 5, this seems to characterise much of the proposed entry.

For the parts of Hunter Water's network that are not natural monopolies, the access price should not discourage the duplication of assets where there would be economic benefits from doing so. In that case, the possibility of efficiency losses from duplication should be outweighed by the benefits of competition. This would seem to characterise assets used in functions such as retailing. Taking that interpretation, it seems reasonable to use avoidable costs. So, the retail minus avoidable cost approach should facilitate efficient entry wherever an access seeker's incremental costs of entry are lower than Hunter Water's avoidable costs of retailing (and other avoidable functions, if relevant).

Summing up, we conclude that IPART will need to carefully consider the appropriate deductions from the retail price to generate a wholesale price that encourages efficient entry while discouraging inefficient entry. Using a definition of avoidable costs that looks backwards will not achieve these twin objectives, and using avoided costs will be more relevant than avoidable costs where access to natural monopoly infrastructure is sought.

⁵ In sectors with higher rates of technological change, (such as telecommunications) the benefits of competition in terms of promotion of innovation and dynamic efficiency may merit some level of duplication of infrastructure and (static) productive inefficiency.

Average or customer-specific costs?

One other important feature of retail minus price is how the avoided or avoidable output is costed; does it apply to each individual customer (or group of customers), or across the output produced by Hunter Water as a whole?

In our view, the approach here that is most practicable is to use avoided or avoidable costs that are averaged across all of Hunter Water's output. This would mean, for example, that if the wholesale customer sought water and wastewater services, the deduction for costs would be the average costs not incurred when those services are not provided *across the network*. The alternative of calculating customer-specific wholesale prices is potentially more efficient, but raises severe practical issues unless it is for particularly large customers (i.e. (customers who use more than 50 000 kl per annum). It would mean, for example, that it would not be possible to implement a price cap approach for a generic access service.

4.3.3 The costs of providing access

IPART does not mention the costs associated with supplying access or wholesale services to third parties. However, it is clear that there is a burden created if there are consequential costs from supplying access seekers. This burden might take the form of transactional costs in designing and implementing contracts with access seekers (undertaking 'wholesale functions'), or in network augmentation.

Hunter Water has advised Frontier that the upfront legal and other costs in establishing agreements with WIC licensees and the ongoing day-to-day management of contracts and customer relationships with each PNO can be significant, depending on the technical nature of each supply arrangement.

In other industries with which we are familiar, such as telecommunications, the access provider is explicitly allowed to recover the costs associated with facilitating access.⁶

4.4 Cost of service approach

4.4.1 Overview

IPART defines the cost of service or building block approach as follows.

⁶ For example, the ACCC's recent draft decision on Telstra's fixed line access services makes an explicit allowance for a share of the operating costs of Telstra Wholesale, which is Telstra's wholesale unit that arranges for the supply of wholesale services. See ACCC, *Public inquiry into final access determinations for fixed line services – primary price terms Further Draft Decision – Outstanding Issues*, June 2015, p. 65.

A cost of service, or building block, approach to wholesale (or access) pricing is a bottom up approach (whereas the retail minus approach is top down). That is, the actual costs of providing the service to a wholesale customer are added to calculate a charge for drinking water and/or sewerage services.

Under the Building block methodology the access charge is based on new entrant's *share* of long run average costs calculated as the sum of: return on capital for the assets required to provide the relevant services; a return of that capital (depreciation); and operating and maintenance expenditure.

A building block access price is well understood by regulators in Australia and the principles that would be applied have been clearly articulated. It is premised on the access seeker making a contribution to the costs of the incumbent in providing the relevant assets that is proportionate to the access seeker's use of those assets. In certain circumstances (e.g. for new services for which there is no existing retail price) this may be the appropriate basis for pricing access.

4.4.2 Assessment against principles

The key issue in a cost of service approach is to what degree it uses average costs across the network, or marginal / incremental costs of serving an access seeker, as the pricing benchmark.

For a wholesale or access price to encourage efficient entry and dissuade inefficient entry, it would require that entrants and Hunter Water be allowed to price to end users on the basis of the wholesale and retail costs incurred in supplying them. However, postage stamp retail pricing obligations means that the efficient entry conditions will not be met if wholesale prices are set on a geographically de-averaged basis. In this case, pricing access at a geographically de-averaged 'cost' is sub-optimal.⁷

The consequences of geographic de-averaging would be:

- Inefficient bypass of long-lived assets, which increases the total cost of service provision to society.
- It will undermine Hunter Water's ability to maintain uniform retail prices. A building block access price will enable access seekers to identify which customers are low cost to service relative to current retail prices, and to target those customers. Whilst this may be useful in unwinding cross-subsidies (and promoting allocative efficiency), it will be inconsistent with maintaining uniform retail tariffs;

⁷ This conclusion is well supported in the economic literature: notably in Armstrong, "The Theory of Access Pricing and Interconnection", *Handbook of Telecommunications Economics*, Vol. 1, 2002. See conclusions at pp. 334-335.

We understand that from IPART's discussion paper that it concurs with these views (p. 109).

How a bottom up approach could promote efficient entry

Although we generally support the retail minus approach, for completeness we note that the building block or cost of service approach can be made more consistent, if not fully reconciled, with the retail postage stamp price. The key with such an approach is to ensure that the structure of wholesale charges mirrors retail charges, such that (a) wholesale charges are geographically averaged (as are retail prices) and (b) fixed service charges which are levied on a per customer or premises basis at the retail level are also charged at the wholesale level.

If wholesale charging structures mirror retail charging structures, then opportunities for inefficient entry are minimised. This is shown using the simple example below, which relies on a bottom up costing method such as using a BBM with costs allocated to wholesale and retail services. We can see that if the wholesale charge is set at \$15, then there is no incentive to enter the low cost area unless the supplier is more efficient at retail activities than the incumbent. The \$5 gap between wholesale price and cost acts as an output tax in the low cost area, and subsidy in the high cost area.

Table 2 Illustrative example of efficient wholesale prices with postage stamp retail prices

	High cost area	Low cost area
Retail price	20	20
Retail + other costs	5	5
Network / wholesale cost	20	10
Wholesale charge	15	

Source: Frontier

We highlight the salience of this example as used in telecommunications (see Box 2) and consider some illustrative examples in Attachment A.

It can further be noted here that the primary difference between the approach above and the 'retail minus' approach relates to how the retail cost is calculated. If the \$5 approximates avoidable cost, then there is no difference in the methodologies. However, the retail cost derived from a building block approach may differ from the avoidable cost approach as retail costs in a bottom up

method are calculated using a fully allocated cost approach.⁸ This might mean lower wholesale charges under this approach, although the materiality of this difference is presently unknown.⁹

Box 2: Wholesale averaging of leased copper lines

The issue of consistency between wholesale and retail pricing structures was a major source of dispute in Australian telecommunications markets for many years. In 1999, the ACCC required Telstra to start offering other carriers access to Telstra's raw copper lines, known as unconditioned local loop services (ULLS). At the time, and subsequently, Telstra was under retail price obligations to offer line rental services (which used the ULLS) on a uniform basis across Australia. Consequently, Telstra pushed for geographically-averaged ULLS prices, reckoning that de-averaged prices would allow for inefficient competition in low-cost areas of the network. This debate was the subject of a 2006 decision of the Australian Competition Tribunal, at which the Tribunal concurred with the ACCC that averaged prices were not reasonable on the basis that the retail price controls still gave Telstra considerable pricing freedom. However, the Tribunal also noted that:

To the extent that the alternative wholesale services were priced at averaged cost-based levels, an averaged ULLS charge may prevent inefficient use of, and investment in, the infrastructure by which fixed-line telecommunications services are provided to end-users.

In 2011, the ACCC reversed its position on geographic averaging, and decided to set uniform prices for bands 1-3 (CBD and more dense urban areas, which contain around 85 per cent of total lines). It did this with regard to "the changing nature of the telecommunications industry and NBN Co's stated intention to charge uniform national wholesale prices."

Source: Frontier, Australian Competition Tribunal (Telstra Corporation Ltd (No 3) [2007] ACompT 3), ACCC

One final advantage of the cost of service approach can be noted. This advantage is that a bottom up approach does not depend on the access provider offering to supply a comparable product to the end user (in contrast with retail-minus access pricing, which, as noted, is designed as a tool for pricing access where the incumbent is displaced from supplying existing retail services). This may be a particularly relevant consideration if an access seeker was proposing to supply recycled water as a substitute for potable water supply.

4.5 Non-residential charge or mixed multi-premises charge

IPART also refers to two other potential methodologies for setting wholesale water and wastewater prices. Both of these methods involve variations on the retail non-residential charge.

⁸ That is, some retail costs may not be avoidable, and so not deducted from the retail price.

⁹ Indeed, this loss of contribution to fixed and common costs ("opportunity cost") has been a major source of the debate between proponents of the ECPR and critics of that access pricing approach.

As IPART notes, under its current determination, non-residential customers are charged for water and wastewater based on the size of their connection (service charges) and the quantity of use (and, in the case of wastewater, a deemed usage) (usage charges). These services and prices are cost reflective for end users, not intermediaries.

IPART states that both approaches are inappropriate:

- Allowing wholesale customers access to a non-residential charging scheme, but allowing on-selling to residential customers may give rise to arbitrage opportunities if the fixed costs of serving the residential customers is below the fixed service charge set by IPART.
- Offering wholesale customers the mixed multi premises charge based on its customer numbers will offer the wholesaler no margin to recover its own costs, and not reflect the costs avoided by Hunter Water.

Notably, both of these approaches are variants of the ‘cost of service’ approach – as retail prices are regulated – and so could be amended as described earlier to produce wholesale prices consistent with achieving IPART’s objectives. In particular, so long as wholesale price structures mirror retail price structures and wholesale charges are averaged, then competition for the retail margin can produce the desired efficiency and equity outcomes.

4.6 Prescriptive pricing or pricing principles?

IPART notes that it has three options for how it could regulate Hunter Water’s prices to its wholesale customers under its determination powers:

- set explicit maximum prices (price caps)
- set a methodology for calculating maximum prices, or
- monitor prices against pricing principles.

IPART’s preliminary view is that it should determine temporary wholesale water and sewerage price caps.

The advantages of setting price caps or explicit maximums are that it can resolve the uncertainty and cost associated with the ‘negotiate and arbitrate’ framework of the WIC Act, and can be explicitly designed to be consistent with the retail determination. Specifying a methodology or monitoring prices are potentially lower cost in the short term, but do not resolve uncertainty and increase transaction costs. However, they may also reduce the possibility of inefficient entry.

The disadvantage of setting price caps is that they are by definition prescriptive, and so IPART must be clear about what wholesale services are being priced. As we go on to discuss in Section 5, the WIC Act anticipates entry in a range of different circumstances and seems to place few limits on the types of unbundling

that might be required by Hunter Water. IPART also notes that it is difficult to apply price caps where, for example, a wholesale customer performs a service in addition to on-selling, such as recycled water.

We have been informed by Hunter Water that to date all requests for wholesale services relate to new estates, where the request for supply is for potable water services and, in some cases, interim wastewater services. It therefore would seem that the best approach would be to set wholesale prices for these services, by calculating average avoidable or avoided costs from the non-provision of these services by Hunter Water.

Other services potentially sought by access seekers should be negotiated under the WIC Act outside of the present determination process.

5 Conclusions

In the preceding sections, we have demonstrated that:

- The retail minus pricing approach is likely to meet IPART's objectives relating to efficient entry of alternative retail suppliers of water and wastewater and is particularly suitable for the kind of entry which is occurring in Hunter Water's region.
- The cost of service or building block approach could also potentially be used for wholesale prices, but may not be as straightforward to implement as is the retail minus approach in the current circumstances for pricing wholesale water and wastewater.
- Both approaches are superior to allowing wholesale customers to access retail tariffs that are not specifically designed for their use, and which give rise to arbitrage opportunities.
- There are some practical issues associated with the calculation of retail minus wholesale prices, but these are relatively minor for the water and wastewater services currently anticipated to be supplied. In particular, there may not be a significant difference between avoided and avoidable costs, which can be important where bypass of long-lived infrastructure is a possibility.
- There is some uncertainty about whether prices for wholesale services can in fact be determined through the access framework established under the WIC Act.

We therefore conclude that:

- IPART should set a wholesale price for water and wastewater services based on a fixed percentage reduction to retail prices based on end use customer type, where the 'minus' reflects those costs avoided or avoidable averaged across Hunter Water's network. The alternative of calculating customer-specific wholesale prices is potentially more efficient, but raises severe practical issues and would mean that it would not be possible to implement a price cap approach for a generic service.
- Other wholesale or access charges can be calculated on a retail minus basis, but should be negotiated outside of the current determination process.
- Uncertainty about whether wholesale services represent an 'infrastructure service' under the WIC Act should be resolved as soon as possible.

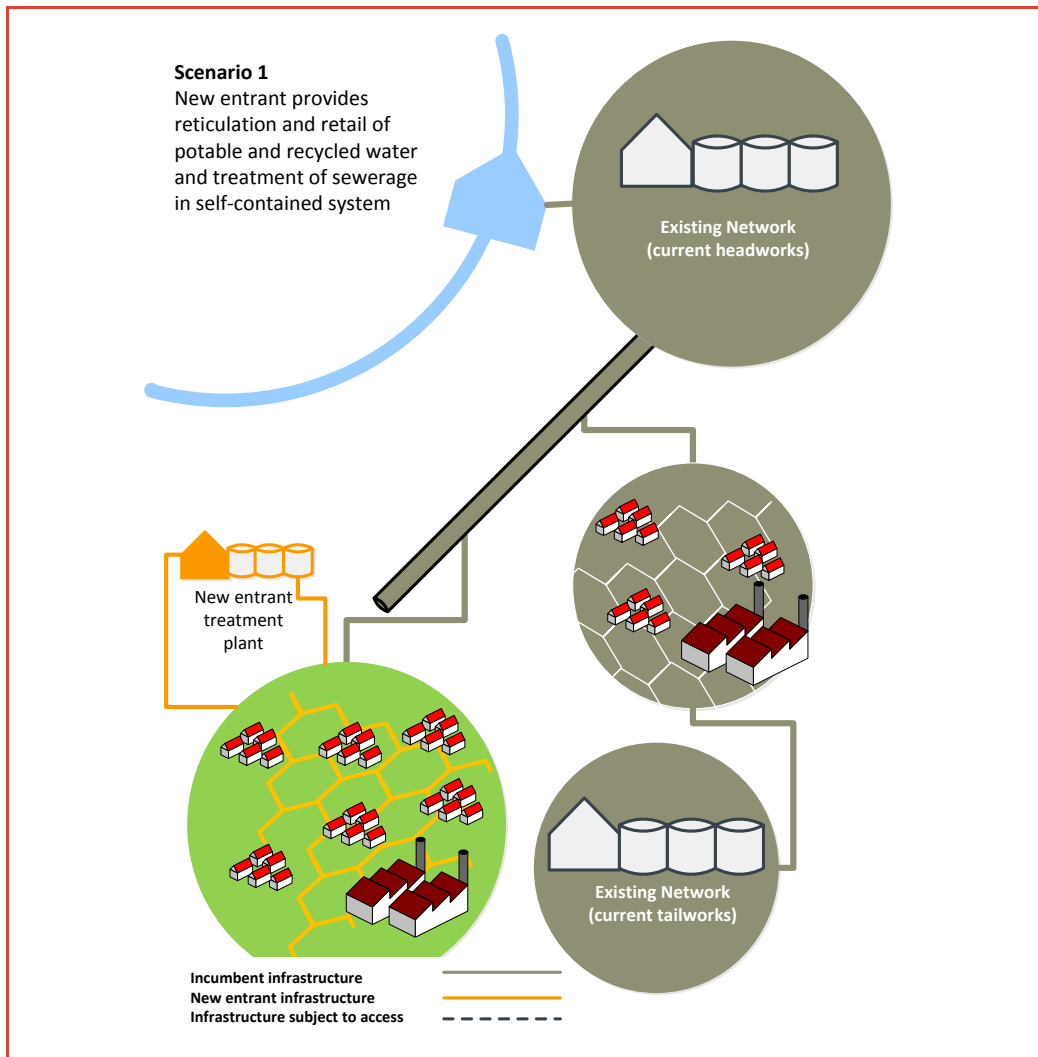
Attachment A: Application of pricing methodology to wholesale services

This Attachment illustrates the application of the preferred (and alternative) pricing methodology to scenarios representative of those currently occurring in Hunter Water's region.

Scenario 1: Wholesale potable water services

This scenario relates to a new entrant seeking a wholesale potable water supply from Hunter Water. In this scenario the new entrant has established a local reticulation water and sewerage network and is seeking to connect this network to Hunter Water's trunk/distribution network. The new entrant has also established a treatment plant to treat sewage generated by customers within the development and to then supply recycled water from the plant for non-potable purposes within the development. This system is self-contained and therefore the new entrant does not require any wholesale sewerage services from Hunter Water.

Figure 3: Scenario 1: New entrant seeking wholesale water services



Source: Frontier Economics

Given that the total revenue requirement upon which the retail price is based on is essentially a summation of all expenditures associated with source, treatment, trunk/distribution networks, reticulation networks and retail activities, both the retail minus and cost of service based approaches should produce similar prices, premised on the assumption that both are based on a system-wide average and are not based on geographically specific or location costing.

The main difference is that the retail minus approach is a top down approach while the cost of service approach is a bottom up type approach. Under this scenario the distinguishing factor between the two approaches is that a cost of service approach would typically include an allocation of the shared costs associated with shared assets (such as overheads), while the retail minus approach based on avoided (or avoidable costs) would typically exclude such costs — under an avoidable cost approach shared costs cannot be avoided as they will be

incurred in the provision of other services. This would imply that under this scenario, a price based on a retail minus approach would be marginally greater than a price based on a cost of service approach.

Using the retail minus approach to derive a wholesale price

The avoided costs under a retail minus approach are those associated with retailing activities and the operation and maintenance of reticulation networks. Given that retail prices are based on a postage stamp pricing approach, these retailing activities should also be all those that relate to similar end users (e.g. residential customers). It is reasonable to assume that these costs would be marginal and that resulting wholesale price for the supply and delivery of potable water would be very similar to the current retail price.

Under a retail minus approach the retail prices currently levied on the end users (in this case predominantly residential but also some non-residential customers) would be translated into wholesale prices for the new entrant by identifying the avoided costs (offset by any transaction costs incurred by Hunter Water) and determining the net impact of avoiding these costs on the revenue needed to service these customers — that is the expected revenue generated by the retail tariff less the value of the costs avoided.

The impact on the expected revenue is then used to set the wholesale price. For example, if an avoided cost resulted in a 5% reduction in the expected revenue then the parameters for the wholesale price would be determined by reducing the retail pricing parameters by an equivalent amount.

It is worth noting the fixed component of the retail price in the scenario would ordinarily (in the absence of the new entrant) be levied on multiple end users (not just the one customer) and consequently the fixed wholesale price will need to reflect the aggregation of the connections that are being serviced by the new entrant's reticulation network. An illustrative hypothetical example of how to derive a wholesale price under this approach is outlined in Table 3.

Table 3: Deriving a wholesale price using retail minus

Step	Outcome
STEP 1 determine the adjustment factor	
Base revenue expectations (total for water)	\$1,401.32 per customer ^a
Less	
Avoided costs (total retail costs)	\$42.04 per retail customer ^b
Avoided costs (total reticulation opex)	\$14.01 per retail customer ^c
Plus	
Transaction costs	\$11.36 per retail customer ^d
Equals	
Adjusted revenue expectation	\$1,356 per customer
Adjustment	3.19% ^e
STEP 2 apply adjustment to prices	
Residential service charge	\$58.72 per retail customer
Residential usage charge	\$2.24 per kL
Non-residential service charge (other)	\$105.75 per retail customer
Non-residential usage charge	\$2.24 per kL
Apply adjustment factor	
Less 3.19%	
Adjusted residential service charge	\$56.85 per retail customer
Adjusted residential usage charge	\$2.17 per kL
Adjusted non-residential service charge (other)	\$102.38 per retail customer
Adjusted non-residential usage charge	\$2.17 per kL
STEP 3 Derive wholesale prices	
Wholesale usage charge	\$2.17 per kL
Wholesale service charge	\$268,340.52 per wholesale customer ^f

Note: ^a For the sake of simplicity we have assumed that Hunter Water's total customer base is comprised of 100,000 customers. Total revenue is based on that being proposed by Hunter Water in its pricing submission to IPART for 2019-20 of \$140.132million. ^b Avoided cost of retail is based on WSAA benchmark of 3%. ^c Based on an assumed cost of 1% of total water cost. ^d These costs are specific to the development and based on the assumption the development will service 4000 residential customers and 400 non-residential customers. ^e The adjusted revenue represents a percentage adjustment on the base revenue expectation. ^f Aggregation of retail service charges 4000 residential plus 400 non residential at the adjusted rate.

Using the cost of service based approach to derive a wholesale price

Under a cost of service approach the wholesale price would be determined by determining an appropriate share of:

- All expenditure associated with source (storage) related activities:
 - Operating and maintenance expenditure associated with source related activities
 - A return on and of all assets related to source activities
- All expenditure associated with water treatment related activities:
 - Operating and maintenance expenditure
 - A return on and of all related assets
- All expenditure associated with trunk or distribution network related activities:
 - Operating and maintenance expenditure
 - A return on and of all related assets
- An allocation of shared costs/overheads such as those relating to corporate governance.

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