

Independent Pricing and Regulatory Tribunal
New South Wales

Prices for wholesale water and sewerage services

Sydney Water Corporation and Hunter Water Corporation



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1 Executive Summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is responsible for regulating the prices Sydney Water Corporation (Sydney Water) and Hunter Water Corporation (Hunter Water) can charge for wholesale water and sewerage services.^{1,2} These are services purchased by wholesale customers for the purpose of supplying water and/or sewerage services to end-use (or 'retail') customers. These wholesale customers are private-sector providers licensed under the *Water Industry Competition Act 2006* (the WIC Act).

This is our first review of prices for wholesale water and sewerage services, as the emergence of competition in the NSW water market is relatively new. By encouraging innovation, competition can deliver benefits to water and sewerage customers. Given the early stage of market development, we are seeking to encourage entry where this will ultimately deliver benefits to customers.

This **Final Report** sets out our decisions for this review and explains how we reached these decisions. This Report and accompanying Final Determinations follow our Supplementary Draft Report and accompanying Supplementary Draft Determinations, which were released in March 2017.³ We also released an earlier Draft Report and Draft Determinations in November 2016.⁴

1.1 Overview of our decisions

As this is our first review of wholesale water and sewerage prices, the review has considered a broad range of issues, including:

- ▼ How to regulate wholesale prices?
- ▼ What services should prices be set for?
- ▼ What is the appropriate pricing approach for each service?
- ▼ How to implement these pricing approaches?

In making decisions on these issues, we have sought to balance a number of factors including:

¹ This review is conducted under section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act).

² We also regulate the water and sewerage prices of the Central Coast Council. We will consider the potential regulation of prices for wholesale water and sewerage services at our next review of the Council's prices (due to commence mid 2018).

³ IPART, *Sydney Water Corporation: Maximum prices for wholesale water, sewerage and trade waste services from 1 July 2017, Water – Supplementary Draft Determination*, March 2017; and IPART, *Hunter Water Corporation: Maximum prices for wholesale water, sewerage and trade waste services from 1 July 2017, Water – Supplementary Draft Determination*, March 2017.

⁴ IPART, *Sydney Water Corporation: Maximum prices for wholesale water, sewerage and trade waste services from 1 March 2017, Water – Draft Determination*, November 2016 and IPART, *Hunter Water Corporation: Maximum prices for wholesale water, sewerage and trade waste services from 1 March 2017, Water – Draft Determination*, November 2016.

- ▼ seeking to support efficient entry into the water and sewerage market, given the relatively early development of competition in this market
- ▼ establishing efficient pricing signals when there is limited information regarding some costs, and
- ▼ providing certainty to market participants, while also providing flexibility for market participants to agree/negotiate solutions where possible.

We have **maintained our draft decisions on the pricing approaches** to apply to the services⁵ that have been considered in this review, ie:

- ▼ retail-minus pricing is the appropriate approach for on-selling water and sewerage services, including where a wholesale customer operates a recycled water plant
- ▼ non-residential retail pricing is the appropriate approach for the supply of drinking water to top up a recycled water plant and disposal of waste from a recycled water plant that is not used for on-selling sewerage services, and
- ▼ facilitation costs should be reflected in wholesale prices in certain circumstances.

However, we have made several key changes to how these decisions are implemented (ie, the **regulatory framework**), including:

- ▼ **Widening the exclusion of schemes from the system-wide retail-minus prices for on-selling services in the determinations.**
 - We have widened the definition of existing schemes, to exclude schemes from the system-wide determinations where supply has commenced, to be where, before the commencement date of the Determinations (1 January 2018):
 - a connection has been made, or
 - agreement for supply has been reached
 - We have also excluded on-selling schemes with recycled water plants from the system-wide determinations, to recognise that, at this stage, we can only set prices for these schemes on a scheme-specific basis.
- ▼ **Not including prices for potable top-up and disposal of waste from a recycled water plant that is not used for on-selling in the system-wide wholesale price determinations.**
 - We have maintained our decision that the non-residential retail prices are appropriate prices for these two services, but we have decided not to include prices for these services in the system-wide wholesale price determinations because these prices are already included in the 2016 retail price determinations for Sydney Water and Hunter Water.⁶
- ▼ **Streamlining the process for scheme-specific reviews, to minimise the time and cost associated with such reviews.**
 - We have reduced the timeframe for a scheme-specific review to four months.

⁵ Where a customer does not rely on Sydney Water's or Hunter Water's water or sewerage network to provide services to end-use customers, no wholesale service is provided and therefore these services are not included in our wholesale pricing framework.

⁶ IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016; and IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016.

1.1.1 The regulatory framework for wholesale prices

Our decisions mean that the regulatory framework for wholesale prices is comprised of:

- ▼ system-wide prices for on-selling water and sewerage services for **new wholesale arrangements where there is no recycled water plant**⁷
 - to apply from 1 January 2018 to 30 June 2021
- ▼ scheme-specific price reviews and determinations, and
- ▼ unregulated pricing agreements.

Under the framework outlined in this Final Report:

- ▼ **Existing schemes** would continue to be subject to existing pricing agreements or the retail price determinations,⁸ unless a wholesale customer or service provider seeks a scheme-specific price determination by IPART (and until a scheme-specific determination is made by IPART).
- ▼ **New schemes with a recycled water plant** would also be subject to unregulated pricing agreements or, where applicable, the retail price determinations, unless a wholesale customer or service provider seeks a scheme-specific price determination by IPART (and until a scheme-specific determination is made by IPART).
- ▼ **New schemes without a recycled water plant, and which are on-selling water and sewerage services**, would be subject to the system-wide prices in the accompanying determinations (and discussed in Chapter 4 and Chapter 8), unless:
 - the wholesale service provider and wholesale customer agree to opt out of the determination and enter an unregulated pricing agreement, or
 - the wholesale service provider or wholesale customer seeks a scheme-specific price determination by IPART (and until a scheme-specific determination is made by IPART).

We recognise that, given the current legislative and market environment, there may be few schemes where the system-wide retail-minus prices would apply, as most wholesale schemes have a recycled water plant.

However, we consider these system-wide prices represent reasonable estimates of average or typical minus values for reasonably efficient competitor costs of **retail** and **reticulation** functions. As such, they may inform negotiations between wholesale service providers and customers, which may reduce the need for scheme-specific reviews, and/or reduce the scope of issues to be considered in a scheme-specific review. These prices would apply to new schemes where on-selling services are being received and a recycled water scheme is planned for the future (eg, in several years' time), but not yet present.

This report explains the regulatory framework, including our decisions on principles and approaches that we will likely apply in conducting scheme-specific price reviews, and how

⁷ The Determinations provide for the system-wide prices for on-selling to not apply to existing schemes (ie, where there is a connection or an agreement in place for the wholesale service prior to 1 January 2018) and to not apply to schemes where a recycled water plant is present.

⁸ The 2016 retail price determinations for Sydney Water and Hunter Water set prices for services supplied to a "Property", as defined in those Retail Determinations. In addition, the prices set under the Retail Determinations do not apply to services supplied to a "Large Non Residential Property" where the parties have opted out of the Retail Determinations.

we have applied these to set system-wide prices that apply to specific services for new wholesale arrangements.

Our decisions on pricing approaches for services outlined in this report would provide the starting point for a scheme-specific review. For example, if we were to undertake a scheme-specific review for on-selling services in a scheme with a recycled water plant, our current view is that retail minus reasonably efficient competitor costs, plus net facilitation costs, is the most appropriate pricing approach. However, we would consider views and information put forward by stakeholders in the scheme-specific review, as well as the matters listed in section 15 of the IPART Act.

Chapter 7 outlines our planned process for conducting scheme-specific reviews. We would consider undertaking a scheme-specific review for existing or new wholesale schemes in response to a request from a wholesale service provider or a wholesale customer. In undertaking scheme-specific reviews, we would seek to minimise the time and costs associated with a review. We have streamlined the process for undertaking a review compared to the process outlined in our March 2017 Supplementary Draft Report, and reduced the time that would be taken to complete a scheme-specific review to four months. In the case of a new scheme, a scheme-specific review could be undertaken at the same time as the licence application process was being undertaken.

Where an existing agreement is in place between a wholesale service provider and wholesale customer, we have not sought to replace any agreed prices with our system-wide prices.

We note that, apart from our wholesale pricing framework outlined above, new water utilities could instead elect to enter the market through the WIC Act's access provisions, which allow third parties to seek access to certain Sydney Water and Hunter Water infrastructure services. These infrastructure services primarily relate to the **transport** of water and sewage (ie, via Sydney Water's and Hunter Water's pipe networks).⁹ They do not relate to the bundled services that wholesale customers may wish to purchase. For example, these services can include water that is both treated and transported, or sewage transportation, treatment and disposal. The WIC Act is a negotiate/arbitrate access regime, subject to pricing principles. We have drawn on access pricing principles in developing our approach to wholesale pricing.

1.1.2 Retail-minus pricing is the appropriate pricing approach for on-selling water and sewerage services

We have maintained our view that retail-minus is the most appropriate pricing approach for on-selling water and sewerage services.

⁹ WIC Act, Part 3 and Dictionary (definition of 'infrastructure service').

Retail minus reasonably efficient competitor cost prices for on-selling

We have maintained our decision that **retail minus**¹⁰ **reasonably efficient competitor cost prices** should apply for water and sewerage services¹¹ that a wholesale customer purchases for the purposes of on-selling:

- ▼ **Retail-minus** pricing would enable efficient entry and competition for the benefit of end-use customers over time – given Sydney Water’s and Hunter Water’s current regulated retail prices for their water and sewerage services to end-use customers.
 - Retail-minus pricing ensures that wholesale service providers and wholesale customers are on a level playing field in competing for the provision of ‘upstream’ and ‘downstream’ services to end-use customers. Other pricing approaches such as location-based cost-of-service or non-residential retail prices would result in inefficient pricing signals. This is explained further in Chapter 4.
- ▼ Minus values, based on the costs a ‘**reasonably efficient competitor**’ would incur in providing services from the point of wholesale purchase to end-use customers, provide greater scope for competition and therefore dynamic efficiency gains than other approaches (such as the ‘as efficient competitor’ or ‘avoidable’ cost approach).
 - However, over time as the market develops, there would be a case to move towards basing the minus component on ‘as efficient’ competitor costs. This is explained further in Chapter 4.

We consider the retail-minus approach to be more appropriate than a location-based cost-of-service approach or a non-residential retail price approach as:

- ▼ Sydney Water and Hunter Water are bound to postage stamp retail prices, and as such, inefficient price signals would be created under location-based cost-of-service wholesale prices (explained further in section 4.2.1).
- ▼ A non-residential price creates an arbitrage opportunity for on-selling (explained further in section 4.2.2).

Retail-minus prices should apply to on-selling, even if the wholesale customer operates a recycled water plant

While we have not set system-wide retail-minus prices for on-selling services where there is a recycled water plant present, we maintain our decision that **retail-minus prices** should apply when a wholesale customer is purchasing Sydney Water’s or Hunter Water’s sewerage services (which include sewage transportation, treatment and disposal) to **on-sell** these services – regardless of whether the wholesale customer operates a recycled water plant.

This is because, regardless of the operation of a recycled water plant, the wholesale customer would be purchasing the wholesale sewerage service to on-sell it to a market (retail sewerage services) where Sydney Water and Hunter Water are constrained by regulated

¹⁰ Retail-minus is based on the total end user retail charges (as determined by IPART) minus the costs of the services provided from the point of wholesale purchase to end-use customers. The services included in the minus element can relate to retail (eg, billing, dealing with customer queries, meter reading) and reticulation services (transporting water and/or sewerage from or to the point of wholesale connection and end-use customers).

¹¹ In the system-wide wholesale price determinations, sewerage services include trade waste services.

retail prices. As explained in Chapter 4, under current regulated price structures, Sydney Water and Hunter Water are required to charge customers differently depending on whether they are residential or non-residential. If the retail non-residential price were to apply to these wholesale services, the wholesale customer could use the difference between its wholesale price (retail **non-residential**) and Sydney Water's and Hunter Water's regulated retail prices (**residential and non-residential**) to either:

- ▼ 'Out-compete' Sydney Water and Hunter Water for services to retail sewerage customers by charging lower retail prices, but not necessarily on the basis of lower cost or better service, just by virtue of the difference between Sydney Water's and Hunter Water's regulated retail prices for their residential and non-residential customers.
 - In turn, this would increase the costs for Sydney Water's and Hunter Water's remaining customers (and/or owners, being the Government), with little benefit in terms of lower overall costs and/or better services to water consumers.
- ▼ Use the difference between its wholesale price (retail non-residential) and the price it could sell retail sewerage services (Sydney Water's and Hunter Water's retail residential and non-residential charges) to subsidise its recycled water business.
 - This could provide incentives for inefficient over-investment in recycled water projects, at the expense of Sydney Water's and Hunter Water's customers (see point above).
 - This would also be inconsistent with funding opportunities available for Sydney Water's and Hunter Water's recycled water schemes: we require these schemes to be self-financing (ie, their costs to be recovered from recycled water customers, rather than the broader water and/or sewerage customer base), unless they can demonstrate avoided costs to water and/or sewerage customers.

We note that our retail-minus pricing framework does account for the potential for the above-mentioned avoided water and/or sewerage costs from recycled water. This is through the provision for negative facilitation costs (or cost savings) associated with recycled water schemes (see below and Chapter 6). That is, if the recycled water scheme reduces water or sewerage costs of the wholesale service provider, then (all other things being equal), the wholesale price should be reduced accordingly.

Therefore, while retail-minus pricing should apply where a wholesale customer is purchasing sewerage services from Sydney Water or Hunter Water to on-sell these services – regardless of the operation of a recycled water plant – the recycled water plant may determine the value of avoided costs (or negative facilitation costs) to be subtracted from the wholesale price. At this stage, as we cannot determine the system-wide or typical impact of a wholesale customer's recycled water plant on a wholesale service provider's costs, **we have decided to exclude schemes with recycled water plants from the application of the system-wide retail-minus prices.**

As outlined below, we consider that non-residential retail prices are appropriate where a wholesale customer is operating a recycled water plant and discharging to Sydney Water's or Hunter Water's sewerage network, but **not on-selling** sewerage services.

System-wide retail-minus prices

We have set system-wide prices for on-selling services based on retail minus reasonably efficient competitor costs for **retail** and **reticulation** services¹². These prices would apply to new schemes where there is no recycled water plant present. As noted above, we recognise that the prevalence of recycled water plants in wholesale schemes means that these prices may apply to few schemes. In addition, for schemes where these prices do apply, and they do not reflect particular scheme-specific characteristics (eg, due to facilitation costs and/or where a wholesale customer provides services other than retail and reticulation functions), wholesale customers and/or service providers can request IPART to undertake a scheme-specific price review.

Retail minus reasonably efficient competitor cost prices for water and sewerage on-selling would be:

- ▼ the sum of end-use customer retail charges based on the prevailing Sydney Water or Hunter Water Determination for water and sewerage, less
- ▼ the minus values shown in Table 1.1, applied based on the number of end-use customers and kilometres of pipeline for the applicable service.

The minus values in Table 1.1 are presented in 'real' \$2016-17. The minus values in the accompanying system-wide determinations are in \$2017-18 ie, the values outlined in Table 1.1 adjusted for one year of inflation.¹³

Table 1.1 IPART decision on reasonably efficient competitor cost – annual minuses (\$2016-17)

	System-wide minus
Water	
Retail (\$/customer/year)	129
Reticulation (\$/kilometre/year)	3,945
Sewerage	
Retail (\$/customer/year)	80
Reticulation (\$/kilometre/year)	7,742

Note: The Determinations commence on 1 January 2018.

1.1.3 Non-residential retail pricing is the appropriate approach for drinking water top-up and, where there is no on-selling, waste from recycled water plants

We have maintained our decision that a wholesale customer should be subject to **non-residential retail prices** where it:

- ▼ discharges waste from a recycled water plant into Sydney Water's or Hunter Water's sewerage network, but is not using this wholesale sewerage service to on-sell (eg, retail) sewerage services; and/or
- ▼ purchases drinking water to top up its recycled water plant.

¹² Wholesale customers commonly provide retail and reticulation services to end-use customers.

¹³ The Determinations then allow the minus values in \$2017-18 to be updated for inflation from 2018-19 onwards.

In these circumstances, the wholesale customers are not using the wholesale services to compete with Sydney Water or Hunter Water in 'upstream' or 'downstream' retail drinking water and sewerage services markets where Sydney Water and Hunter Water are constrained by regulated retail prices. Because the wholesale customers are not on-selling the wholesale service to retail customers, but rather using it as an input in the production of another product (recycled water), the wholesale customers are effectively the same as other non-residential customers.

However, we have decided not to include these prices in our system-wide wholesale price determinations as these prices are included in the 2016 retail price determinations for Sydney Water and Hunter Water.

If there are cases where a wholesale scheme is seeking the supply of either of these services from Sydney Water or Hunter Water, and the retail determinations do not apply (eg, where the service is not provided to a 'property' as defined in the retail determinations), prices for these services could be set by unregulated pricing agreement or by IPART through a scheme-specific review.

1.1.4 Additional costs and savings are best addressed in scheme-specific reviews

Wholesale customers may impose additional costs or cost savings on wholesale service providers beyond those reflected in retail-minus (for on-selling services) or non-residential retail (for potable top-up and, where there is no on-selling, disposal of waste from a recycled water plant) prices. We refer to these as positive (costs) or negative (cost savings) facilitation costs.

For instance:

- ▼ a positive facilitation cost may arise if a wholesale service provider needs to upgrade or extend its water or sewerage network to provide water or sewerage services to a wholesale customer, and
- ▼ a negative facilitation cost may arise if a wholesale customer produces recycled water that allows the wholesale service provider to defer its next scheduled water supply or sewage treatment augmentation.

Net facilitation costs therefore represent the sum of positive and negative facilitation costs (ie, facilitation costs *less* cost savings). A positive (negative) net facilitation cost would result in higher (lower) wholesale charges.

We have maintained our draft decision that, in principle, prudent and efficient facilitation costs should be included in wholesale prices, where they are:

- ▼ additional to what the wholesale service provider would have otherwise incurred in the absence of servicing the wholesale customer, and
- ▼ not reflected elsewhere in the wholesale price or recovered via another charging or funding mechanism of the wholesale service provider.

We also consider that facilitation costs should:

- ▼ reflect the status of water and sewerage developer charges
- ▼ include positive (costs) and negative costs (cost savings), where appropriate

- ▼ exclude initial transaction costs, and
- ▼ exclude ongoing administration costs, except where they are material.

We note that, in practice, given Sydney Water's and Hunter Water's water and sewerage developer charges are currently set to zero by the Government, facilitation costs relating to augmentation to part of the supply network should generally be zero where such costs are prudent and efficient and consistent with the wholesale service provider's 'business as usual' growth plans. This is because the wholesale service provider would have the ability to fund these costs via its regulated retail customer base (ie, through retail postage stamp prices).

However, we recognise that there may be other facilitation costs or cost savings, such as those associated with the operation of a recycled water plant by a wholesale customer, which should be reflected in wholesale prices.¹⁴ As part of this review, we explored the feasibility of including typical or average negative facilitation costs (cost savings) associated with recycled water plants in the system-wide determinations (see Chapter 6).

Nevertheless, we have maintained our decision to not include facilitation costs in the system-wide determinations. At this stage, we consider facilitation costs can only be estimated to a reasonable degree of accuracy on a scheme-by-scheme basis. Therefore, if a wholesale service provider and/or customer consider the facilitation costs of a scheme to be material, they should consider seeking a scheme-specific review (if they cannot come to an unregulated pricing agreement).

Over time, if more information is revealed and tested through conducting scheme-specific reviews, we may be in a position to establish estimates of benchmark or typical facilitation costs.

1.2 Our review process

As part of our review process, we have undertaken extensive investigation and public consultation, including:

- ▼ inviting Sydney Water and Hunter Water to consider the issue of wholesale pricing as part of their pricing proposals submitted in June 2015 for our reviews of retail water and sewerage prices
- ▼ consulting on wholesale pricing as part of the Issues Papers¹⁵ for the reviews of Sydney Water's and Hunter Water's retail prices for water and sewerage services, which were released in September 2015
- ▼ inviting stakeholders to make submissions on the Issues Papers and the pricing proposals of Sydney Water and Hunter Water

¹⁴ We note that an individual wholesale scheme with a recycled water plant may not be large enough to impact on upstream augmentations in their own right. However, there may be a cumulative effect of a number of wholesale schemes with recycled water plants which may result in a reduction in the augmentation of a wholesale service provider's network. We would consider this as part of undertaking a scheme-specific review.

¹⁵ IPART, *Review of prices for Sydney Water Corporation from 1 July 2016 – Issues Paper*, September 2015; and IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 – Issues Paper*, September 2015.

- ▼ holding a separate public hearing on wholesale pricing in December 2015
- ▼ deciding to conduct a separate review of wholesale pricing and releasing a Discussion Paper in April 2016, outlining our preliminary views
- ▼ inviting stakeholders to make submissions on the Discussion Paper
- ▼ engaging consultants to provide expert advice
- ▼ releasing a Draft Report and Draft Determinations in November 2016, inviting stakeholders to make submissions in response to these drafts, and holding a further public hearing in November 2016
- ▼ releasing a Supplementary Draft Report and Draft Determinations in March 2017 and inviting stakeholders to make submissions, and
- ▼ considering all submissions received on the Supplementary Draft Report prior to releasing this Final Report and Determinations.

Our Reports, stakeholder submissions, the transcripts from the public hearings, and consultants' reports are available on our website (www.ipart.nsw.gov.au).

1.3 Structure of this report

The rest of this Final Report discusses our decisions in more detail:

- ▼ Chapter 2 explains the **context for the review**, including the factors we have taken into account in making our decisions
- ▼ Chapter 3 sets out our decision on the **regulatory framework** to apply to wholesale pricing
- ▼ Chapters 4 and 5 outline our decisions on the **pricing approaches** for specific services, including:
 - on-selling water and sewerage services, and
 - drinking water top-up to, and the collection, treatment and disposal of waste from, recycled water plants that do not on-sell water and/or sewerage services
- ▼ Chapter 6 explains on our decisions on **facilitation costs**
- ▼ Chapter 7 explains the process we will follow in conducting **scheme-specific price reviews** and determinations
- ▼ Chapter 8 sets out the **system-wide prices** that would apply to on-selling services in new schemes where a recycled water plant is not present, and
- ▼ Chapter 9 sets out **matters we have considered** in making our decisions, and that we are required to consider under the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act).

1.4 List of decisions

Our decisions are outlined in the chapters in this Final Report. For convenience, they are also listed below.

Regulatory framework for wholesale pricing

- | | | |
|---|---|----|
| 1 | We have decided to: | 30 |
| | – Determine system-wide wholesale prices for on-selling services to new schemes without a recycled water plant. | 30 |
| | – Not set system-wide prices for any services relating to a recycled water plant, rather prices for these services could be settled by unregulated agreement between wholesale suppliers and customers, or be regulated via scheme-specific reviews, or (where applicable) be regulated by the relevant retail price determination. | 30 |
| | – Consider requests to undertake price reviews and determinations for individual wholesale schemes (ie, ‘scheme-specific’ reviews), for existing and new schemes. | 31 |
| | – Allow for wholesale customers and wholesale service providers to enter unregulated pricing agreements, where there is mutual agreement to do so, which can mean these parties avoid the need for scheme-specific determinations or (where relevant) opt out of the determined system-wide prices. | 31 |
| 2 | We have decided to adopt a determination period from 1 January 2018 to 30 June 2021, for the system-wide determinations. | 38 |

Pricing approach for on-selling drinking water and sewerage services

- | | | |
|---|--|----|
| 3 | We have decided that retail-minus is the appropriate approach to set prices for the wholesale supply of drinking water and sewerage services for the purpose of on-selling to end-use customers. | 41 |
| 4 | We have decided that retail-minus is the appropriate pricing approach for the supply of sewerage services relating to waste from recycled water plants where the wholesale customer on-sells sewerage services to end-use customers. | 47 |
| 5 | We have decided the reasonably efficient competitor cost approach is appropriate for calculating the minus component in retail-minus prices for the supply of drinking water and sewerage services for the purpose of on-selling to end users. | 49 |

Pricing approach for recycled water plant services

- | | | |
|---|--|----|
| 6 | We have decided that the appropriate pricing approach for supplying drinking water to top up recycled water schemes is the supplier’s retail non-residential service and usage prices for drinking water supply. | 54 |
| 7 | We have decided that for wholesale customers that purchase drinking water for the purpose of on-selling <i>and</i> drinking water top-up for their recycled water plants the appropriate pricing approaches should be: | 55 |
| | – a retail-minus price for the water supplied for drinking water on-selling, and | 55 |
| | – the retail non-residential water service and usage prices for the water supplied for drinking water top-up. | 55 |

8	We have decided that the appropriate pricing approach for the supply of sewerage services relating to waste from recycled water plants where the wholesale customer does not on-sell sewerage services to end-use customers, is the supplier's retail non-residential prices for sewerage services.	56
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Facilitation costs

9	We have decided that facilitation costs should be included in wholesale prices where they are:	59
	– additional to what the wholesale service provider would have otherwise incurred in the absence of servicing the wholesale customer, and	59
	– not reflected elsewhere in the wholesale price or recovered via another charging or funding mechanism of the wholesale service provider.	59
10	We have decided not to include facilitation costs in the system-wide wholesale prices but will consider them in scheme-specific determinations.	59
11	We have decided that facilitation costs should:	59
	– reflect the status of water and sewerage developer charges	59
	– include positive (costs) and negative costs (cost savings), where appropriate	60
	– exclude initial transaction costs, and	60
	– exclude ongoing administration costs, except where they are material.	60

Scheme-specific reviews and unregulated pricing agreements

12	We have decided to use the indicative process in Table 7.1 to review and determine scheme-specific prices for wholesale water and/or sewerage services.	72
13	We have decided not to set an interim price to apply while a scheme-specific review is being undertaken or apply a true-up mechanism to adjust for any differences between the price before and after a scheme-specific determination is made.	72
14	We have decided to allow wholesale service providers and wholesale customers to opt-out of IPART's determined system-wide wholesale water and sewerage prices by voluntarily entering into unregulated pricing agreements.	80

System-wide prices for on-selling services

15	We have decided the retail component of the retail minus reasonably efficient competitor cost prices will be based on the:	83
	– retail prices for water, sewerage and trade waste services included in the prevailing Sydney Water or Hunter Water retail price determinations	83
	– number of end-use customers being serviced by the wholesale customer, and	83
	– the volume of water supplied to wholesale customers.	83

16	We have decided not to include an adjustment mechanism to account for any over or under recovery in relation to system-wide retail-minus prices.	83
17	We have decided to set system-wide minus values:	86
	– for water and sewerage retail and reticulation services	86
	– that are the same for Sydney Water and Hunter Water	86
	– that are based on ‘customers’ for retail services and ‘kilometres’ of pipe for reticulation services	86
	– adopting a modern engineering equivalent replacement asset value approach	86
	– adopting a weighted average of retail and reticulation costs based on the composition of existing schemes as weights	86
	– adopting the same building block method used in retail price reviews to establish the minuses, including carrying forward tax losses, and using tax asset lives to calculate tax depreciation	86
	– using straight-line depreciation when calculating tax depreciation, and	86
	– using an equivalent annuity of the annual building block costs over a 50-year period, applying a discount rate based on the prevailing Sydney Water and Hunter Water real pre-tax WACC of 5.9%.	86
18	We have decided to set system-wide minus values as shown in Table 8.1.	86

2 Context for this review

As Chapter 1 noted, this is our first review of prices for wholesale services provided by Sydney Water and Hunter Water. To provide context for this review, the sections below outline:

- ▼ why we are regulating wholesale prices
- ▼ our main objective for regulating wholesale prices
- ▼ the current market for water and sewerage services
- ▼ the factors we took into consideration
- ▼ other issues that are relevant to competition in the water and sewerage market, and
- ▼ the approach we used to make our decisions.

This chapter also describes how we take issues such as ‘liveability’ and integrated water cycle management (IWCM), including the benefits of recycled water, into account when setting prices. These issues have been raised by stakeholders during our review.

2.1 We are regulating wholesale prices so that services are provided efficiently to all water and sewerage customers

Under the IPART Act, we are required to determine the maximum prices that Sydney Water and Hunter Water can charge their customers for their water, sewerage, stormwater, trade waste and miscellaneous services.

Until recent years, these utilities only supplied end-use (or ‘retail’) customers, so we only needed to regulate the prices for these services. However, wholesale customers have emerged. We consider that wholesale services are “water supply services” and “sewerage services” under the *Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997*. Therefore, we are required to regulate prices for wholesale services.¹⁶

Unlike retail customers, wholesale customers do not purchase services from Sydney Water or Hunter Water for their own use. They can use these services to on-sell water and sewerage services to other customers, and to potentially compete with Hunter Water and Sydney Water in the market for end-use customers. As part of this review, we have considered what the appropriate approach to regulating prices for specific wholesale services is so that services are provided efficiently to all water and sewerage customers.

¹⁶ We also consider there to be an in-principle need for IPART to regulate Sydney Water and Hunter Water’s wholesale prices because Sydney Water and Hunter Water are monopoly suppliers of water and sewerage services in their areas of operation.

2.2 Our main objective for regulating wholesale prices

Our main objective for this review is to establish an approach for regulating wholesale prices that allows new entry to the market for end-use water and sewerage services to occur where this is efficient, to promote competition for the benefit of consumers.

This means we need to set wholesale prices that:

- ▼ encourage efficient entry where it would result in lower prices (at the same or better service levels) or enhanced service levels¹⁷ over time for end-use customers, and
- ▼ do not encourage inefficient entry where it would result in higher prices over time for end-use customers.

Over time, increasing competition should encourage greater efficiency in the supply of water and sewerage services, and thus reduce costs and enhance services for the benefit of consumers.

2.3 Current market for end-use water and sewerage services

Currently, a number of *Water Industry Competition Act 2006* (NSW) (the WIC Act) licensees purchase services from either Sydney Water or Hunter Water in order to provide services to end-use customers. The services purchased from Sydney Water and/or Hunter Water and the services provided to end-use customers vary in each scheme. Services purchased from Sydney Water and/or Hunter Water by WIC Act licensees can include the following:

- ▼ drinking water, to on-sell to end-use drinking water customers
- ▼ sewerage services (sewage transportation, treatment and disposal), to on-sell to end-use sewerage customers
- ▼ drinking water to top up recycled water plants, to sell recycled water to end-use customers, and
- ▼ sewerage services in order to sell recycled water to end-use customers.

In this review, we have considered the above services and made decisions on the appropriate pricing approach for these services and how to implement these pricing approaches, particularly in relation to whether to set system-wide, or scheme-specific, prices.

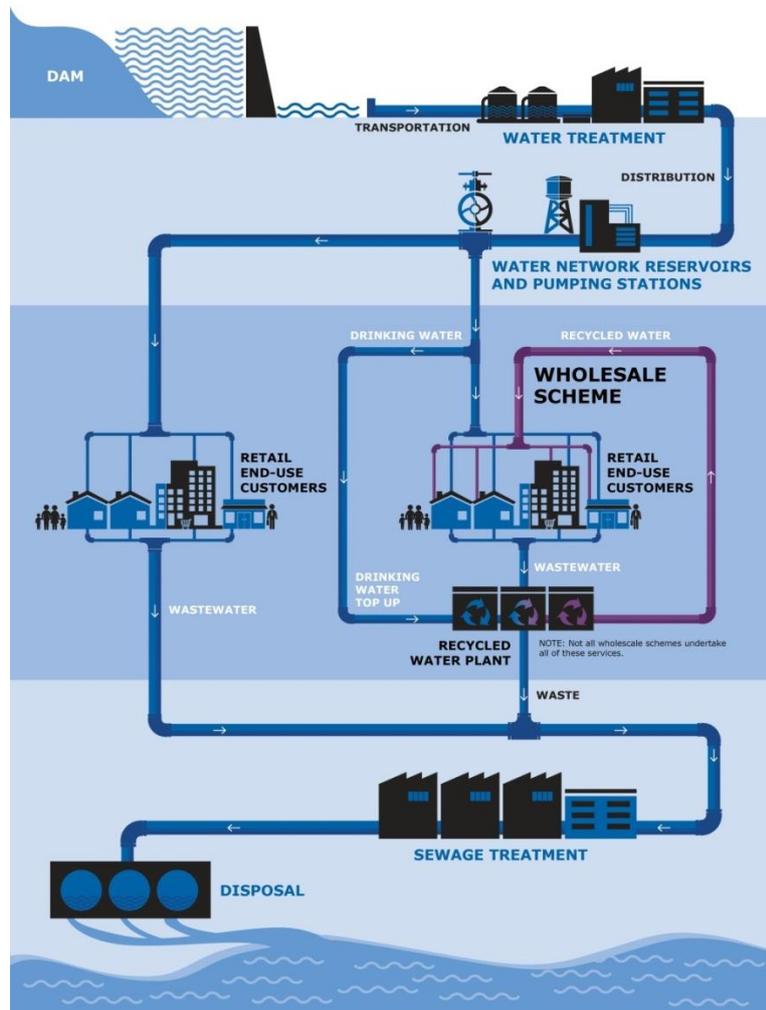
At this stage, we have decided to only determine system-wide prices for wholesale services that are on-sold by new schemes without a recycled water plant. Where services are provided and they are not covered by the system-wide determinations, prices for these services, depending on the service being provided by Sydney Water or Hunter Water, could be:

- ▼ settled by unregulated agreement between wholesale suppliers and customers
- ▼ covered by the retail price determinations for Sydney Water and Hunter Water, or
- ▼ determined via a scheme-specific review.

¹⁷ That match customers' willingness to pay.

Figure 2.1 below is an example of a scheme that on-sells drinking water and sewerage services (ie, provides retail water and sewerage services) and provides recycled water to end-use customers.

Figure 2.1 Example of a wholesale scheme



Note: Not all schemes include all the services shown.

While the scale of entry in the provision of water and sewerage services to end users is relatively small at this stage, it may increase in the future. There are a number of WIC Act licensed schemes in Sydney Water’s area of operations, and four in Hunter Water’s area of operations (in Appendix B we provide further details on each of the licensed schemes). Based on the licenses approved, the current schemes could eventually provide services to over 10,000 residential lots¹⁸ in Sydney Water’s areas of operations (this compares with Sydney Water’s current residential customer base of about 1.9 million properties¹⁹), and similarly over 10,000 residential lots in Hunter Water’s area of operations (this compares with Hunter Water’s current residential customer base of about 228,000 properties²⁰).

¹⁸ See Appendix B. This estimate does not include the 19 commercial residential and hotel buildings at Barangaroo South, and future commercial and residential buildings of Barangaroo Central.

¹⁹ Sydney Water Corporation, *Sydney Water Annual Report 2015-16*, October 2015, p 9.

²⁰ Hunter Water Corporation, *Hunter Water Annual Report 2015-2016*, October 2015, p 31.

Hunter Water noted that WIC Act licensees may supply almost half of the projected greenfield dwellings growth in the Lower Hunter region.²¹

2.4 Factors we took into consideration

To arrive at our decisions, we had regard to the existing legislative framework and current NSW Government policies. This legislative and policy environment affects what we are able and required to do in making our pricing decisions, as well as what we need to consider to meet our objectives for this review.

The factors that particularly affected our decision making included:

- ▼ the nature of wholesale services and customers
- ▼ the requirements of the IPART Act
- ▼ the structure of Sydney Water's and Hunter Water's regulated retail prices, including the current postage stamp retail pricing policy for Sydney Water's and Hunter Water's water and sewerage services
- ▼ the NSW Government's current direction that Sydney Water and Hunter Water set water and sewerage developer charges to zero, and
- ▼ the effects of integrated water cycle management and recycled water supply.

2.4.1 Nature of wholesale services and customers

Wholesale customers are a relatively new category of customers for Sydney Water and Hunter Water. To date, our determinations for Sydney Water and Hunter Water have set maximum prices for 'residential' and 'non-residential' customers (or properties²²), with no specific reference to wholesale customers.²³ As part of this review, we considered the nature of wholesale services to:

- ▼ identify the scope of this price review - ie, to differentiate between wholesale services and customers, and retail (or end-use) customers, and
- ▼ inform our decisions on what services to set prices for in this review.

In considering the nature of wholesale services as part of this review, we are not seeking to define the potential wholesale market, the scope for competition in the NSW water and sewerage market, or the types of services that will be provided as the market evolves. In future price reviews, we may consider setting prices for different services to reflect market developments.

²¹ Hunter Water submitted that the Department of Planning and Environment's Draft Hunter Regional Plan and the Draft Plan for Growing Hunter City, forecasts 60,000 new dwellings in the Lower Hunter region by 2036 (of these new dwellings around 70% is envisaged to occur in greenfield areas). Hunter Water submission to IPART Discussion Paper, May 2016, p 5.

²² The retail price determinations set prices to apply to water, sewerage and stormwater services that are supplied to 'properties', rather than 'customers'.

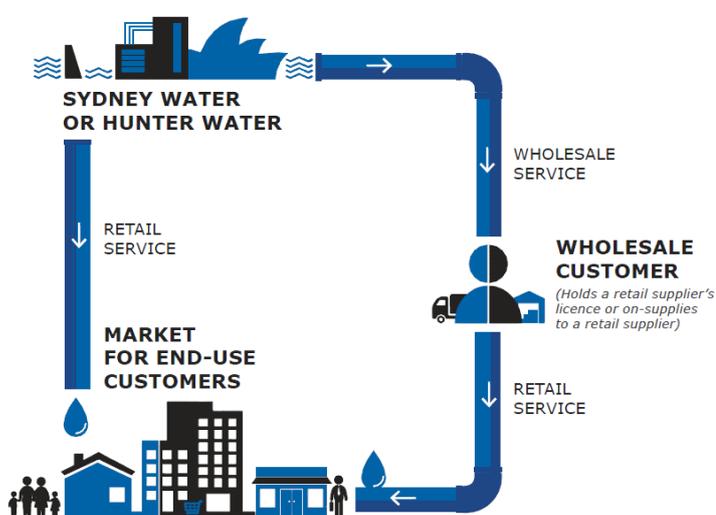
²³ IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016; IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016.

Wholesale services are different to retail services

In principle, wholesale services are different to retail services because they can be used by the wholesale customer to compete with Sydney Water or Hunter Water for end-use water and/or sewerage customers. As Figure 2.2 illustrates:

- ▼ Sydney Water or Hunter Water provide the service to the wholesale customer
- ▼ this customer then uses the service to produce a product or service to supply to its end-use customers, and
- ▼ Sydney Water or Hunter Water could produce the same or a close substitute product or service to supply to their end-use customers.

Figure 2.2 Features of a wholesale service



The service purchased by the wholesale customer is used to provide its end-use customers with the same service or a close substitute to one provided by Sydney Water or Hunter Water (the wholesale service provider). This means that wholesale customers are competing, or could compete, in the same market.

In setting system-wide prices for on-selling services in the accompanying determinations, it was necessary to define the service and customers that the system-wide prices would apply to. This is discussed further in section 3.4.

2.4.2 Requirements of the IPART Act

The IPART Act limits the form our regulation of prices can take. In particular, it requires us to either:

- ▼ fix a maximum price, such as a price cap (as we currently do for Sydney Water's and Hunter Water's retail water and sewerage services), or

- ▼ set a methodology for fixing the maximum price (a pricing methodology).²⁴

The IPART Act also requires us to have regard to a range of matters in making a determination.²⁵ Appendix A summarises how we have had regard to each of the matters listed in section 15(1) of the IPART Act in making our decisions.

We note that in conducting any subsequent scheme-specific price determinations (see Chapter 7), we would also be required to have regard to section 15 matters in making those price determinations.

2.4.3 Postage stamp pricing policy

The current postage stamp pricing policy means Sydney Water and Hunter Water charge their retail customers in their area of operations the same water and sewerage prices – regardless of differences in the cost to supply them due to their location and other site-specific factors.²⁶ In other words, their retail water and sewerage prices reflect the system-wide average cost of supplying the service in their area of operations. This results in cross-subsidies between the retail customers where:

- ▼ customers located in areas that are lower than average cost to supply (eg, because they are close to a sewage treatment works or in a lower cost sewage treatment catchment) pay more than the actual cost of supply, and
- ▼ customers located in areas that are higher than average cost to supply (eg, because they are far from a sewage treatment works or in a higher cost sewage treatment catchment) pay less than the actual cost of supply.

The wholesale prices we determine take into account the postage stamp pricing policy for water and sewerage services. If they did not, and instead the wholesale prices were based on the costs of actually supplying wholesale services to each area (ie, a bottom-up ‘cost-of-service’ approach), wholesale customers may face a competitive disadvantage in areas that are more expensive to supply. This is because wholesale service providers can offer lower retail prices to end-use customers in these areas (ie, the postage stamp price), rather than a price that reflects the costs to service that particular location, due to these cross-subsidies. Alternatively, in areas that are less expensive to supply, the wholesale service providers may face a disadvantage because they must charge a higher price to end-use customers (ie, the postage stamp price), rather than the price that reflects the actual servicing costs.

Furthermore, as explained in section 4.2.1, this would lead to cherry-picking, where entry occurs only in low cost areas, potentially by inefficient utilities. Cherry-picking increases Sydney Water’s and Hunter Water’s average cost by reducing the low cost customer base while leaving the high cost customer base unchanged. This would push up the postage stamp price as higher than average costs need to be recovered over a smaller number of customers. In turn, this could lead to further cherry-picking.

²⁴ *Independent Pricing and Regulatory Tribunal Act 1992*, section 13A. IPART may also use a combination of the two approaches, fixing a maximum price for part of the service, and setting a methodology for the fixing of a maximum price for the other parts of the service.

²⁵ *Independent Pricing and Regulatory Tribunal Act 1992*, section 15.

²⁶ However, there are some exemptions. For example, Hunter Water has location-based water usage charges for customers that consume over 50,000kL of water per year and are located in particular zones, it also has some catchment-based trade waste charges. (see IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 104 and 192).

As outlined in Chapter 4, we have also considered the current retail price structures for residential and non-residential prices for Sydney Water and Hunter Water in deciding the appropriate pricing approach for services.

2.4.4 Developer charges set at zero

Under IPART's 2000 water and sewerage developer charges determination,²⁷ Sydney Water and Hunter Water could levy developer charges to recover the additional costs (relative to postage stamp pricing revenue) of servicing new developments (see Box 2.1). However, in 2008, the then NSW Government directed Sydney Water and Hunter Water to set developer charges for water, sewerage and stormwater assets to zero.²⁸

The combined effect of postage stamp pricing and zero developer charges is that Sydney Water and Hunter Water can use revenue from the broader customer base to cross-subsidise growth infrastructure in areas that are higher than average cost to service. That is, provided IPART considers this expenditure prudent and efficient, Sydney Water and Hunter Water can recover the costs of servicing new development areas through their retail postage stamp prices.

This can provide Sydney Water and Hunter Water with a competitive advantage over other providers (including wholesale customers), as other providers may have to recoup all the costs of servicing a new development area through charges to customers in the area (rather than spread the costs across a broader 'postage stamp pricing' customer base). This can effectively limit new entrants to growth areas where they can identify servicing solutions that are viable at the retail price caps set by Sydney Water's or Hunter Water's average costs, rather than incremental connection costs. This means the incumbent utilities can have no or little threat of competition in higher cost growth areas, which can reduce their incentive to find the most efficient servicing solution.

Our framework includes provision for facilitation costs, which can include a range of costs (eg, augmentation-related costs, cost savings associated with recycled water plants). In considering facilitation costs associated with augmentation of a wholesale supplier's network, we would seek to address this issue in the context of the current policy framework for developer charges. This is discussed further in Chapter 6.

²⁷ IPART, *Sydney Water Corporation, Hunter Water Corporation, Gosford City Council, Wyong Shire Council Developer Charges from 1 October 2000, Determination No. 9, 2000*, September 2000.

²⁸ Developer charges can still be levied for out-of-sequence developments (for Sydney Water) and recycled water. See IPART, *Review of prices for water, sewerage, stormwater and other services for Hunter Water Corporation – Final Report*, July 2009, p 190.

Box 2.1 Developer charges are based on the postage stamp price

A developer charge is a site-specific up-front charge that reflects the additional costs of servicing that development area (above the average network-wide costs recovered through postage stamp retail pricing revenue).

Under IPART's 2000 determination, the basic formula for calculating Sydney Water and Hunter Water's maximum developer charge for a new development area is:

$$\text{Developer charge} = \frac{\text{Net present value [capital costs + operating costs - revenue]}}{\text{Number of customers}}$$

The capital costs in this formula include past, present and future capital expenditure required to service the development area (in practice, this means capital costs have to be shared or allocated between the particular development and other customers). The operating costs reflect the expected operating costs of servicing the new development. The forecast revenue included in the calculation is from postage stamp retail prices (usage and service charges) to be levied on customers within the new development area.

The developer charge was designed to recover the total difference between the average system cost (reflected in the postage stamp price) and the costs of the servicing the development.

Source: IPART, *Sydney Water Corporation, Hunter Water Corporation, Gosford City Council, Wyong Shire Council Developer Charges from 1 October 2000, Determination No. 9, 2000, September 2000.*

2.4.5 The effects of integrated water cycle management and recycled water supply

Throughout this review, several stakeholders have argued that wholesale prices should recognise and reflect the benefits of IWCM and, in particular, recycled water schemes (see Box 2.2 below).

Box 2.2 Stakeholder views on the benefits of IWCM and recycled water schemes

Stakeholder submissions to both our November 2016 Draft Report and March 2017 Supplementary Draft Report outlined the benefits associated with recycled water plants and IWCM.

- ▼ **Flow Systems** argued that IWCM provides clear benefits to the NSW economy through value-add and transformative water services, which have clear and measureable value to the State, to customers and the broader community. It also argued that removing the barriers to cost-effective water recycling will improve housing affordability and the development of communities that may never have been serviced.
- ▼ **The City of Sydney** argues that incremental investment in small local recycled water schemes can prevent large investments such as a second desalination plant or dam augmentations in the event of a future drought.
- ▼ **Hunter Water** stated that IPART's pricing framework was sufficiently flexible to lower the wholesale price to reflect the deferral benefits (cost savings) that a public water utility and its customers receive due to the presence of a recycled water plant.
- ▼ **Sydney Water** argued that IWCM and recycled water can be used to achieve positive outcomes for the community, which include enhanced environmental outcomes and liveability.
- ▼ **Lendlease** outlined that recycled water plants will result in negative facilitation costs (cost savings) and referred to the benefits of recycled water outlined in the NSW Metropolitan Water Plan. Lendlease argued the benefits included water security, reducing stormwater run-off and the burden of connecting new developments to centralised sewer networks.
- ▼ The **Institute for Sustainable Futures** noted the benefits of recycled water plants include upstream removal of solids, which benefits the nearby sewers and reduces the volume of pollutants discharged.
- ▼ The **Urban Development Institute of Australia** argued that the removal of barriers to cost-effective water recycling can improve housing affordability, reduce network water prices, reduce demand on drinking water supplies, enhance liveability and enable growth in Western Sydney
- ▼ The **Total Environment Centre** argued that water reuse and recycling have a significant benefit to NSW by decreasing the need for source water, reducing source water infrastructure costs, increasing the availability of water for environmental needs, reducing waste discharge and improving water reliability and security.

Sources: Flow Systems submission to IPART Supplementary Draft Report, May 2017, pp 5 and 8; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 2; Hunter Water submission to IPART Supplementary Draft Report, May 2017, pp 2 and 7; Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 6; Lendlease submission to IPART Supplementary Draft Report, May 2017, pp 6-7 and 9; Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, p 8; Urban Development Institute of Australia NSW submission to IPART Supplementary Draft Report, May 2017, p1; Total Environment Centre submission to IPART Supplementary Draft Report, May 2017, p1.

We note that IWCM and recycled water supply are not benefits or 'ends' in themselves. Rather, they can be means of achieving a range of objectives, which are largely related to environmental protection and enhanced liveability and include:

- ▼ enhanced environmental outcomes as result of less water extracted from the natural environment and/or less sewerage discharged to the natural environment
- ▼ downward pressure on water prices from avoided upstream and/or downstream water and/or sewerage infrastructure augmentation

- ▼ more secure water supply (eg, reducing the likelihood, and hence cost, of water restrictions), and
- ▼ enhanced liveability, through urban greening and cooling.

Ideally, from the community's and water users' perspectives, the least cost (or most efficient) means of achieving these objectives should be pursued. IPART does not pre-emptively favour specific servicing solutions or means of achieving regulatory objectives. Rather, we aim to set prices that allow regulated water utilities to recover their efficient costs, while complying with their regulatory obligations. This should send appropriate signals to water suppliers and consumers, so that resources are used and distributed optimally, to maximise community benefit.

Below we provide an overview of how we have considered and addressed these issues in our retail price determinations and this review.

How we address liveability and environmental issues into our retail price reviews

We primarily factor relevant liveability considerations, such as environmental sustainability, into Sydney Water's retail prices through the following process:

1. Parliament passes legislation and government (including through agencies such as the Environment Protection Authority (EPA), Department of Primary Industry – Water (DPI Water) and the Department of Planning and Environment) sets policy and regulatory requirements to reflect the relevant legislative requirements. This includes requirements imposed on Sydney Water, amongst other entities.
2. Sydney Water develops a plan and estimates the level of expenditure required to deliver its services and meet its obligations. Sydney Water then makes a pricing proposal to IPART.
3. We review Sydney Water's pricing proposal to ensure that Sydney Water's prices reflect the prudent and efficient costs of delivering its services and meeting its mandated obligations as set out in point 1 above.

We adopt the same approach for Hunter Water and for other water utilities that we regulate.

This approach recognises that IPART is not responsible for setting the environmental or liveability objectives of the community, nor for determining the best way for such objectives to be met. Rather, we ensure the prices we set for Sydney Water and Hunter Water reflect the efficient costs of these utilities' complying with their regulatory requirements.

IPART would consider, and could allow, expenditure proposals to achieve standards higher than those mandated by Parliament and/or government. In such a case, IPART would require clear evidence that it would be prudent and efficient for customers to pay to exceed the mandated standards. For instance, IPART would consider:

- ▼ Whether the issue has been considered by Parliament and/or government when setting the existing standard or regulatory requirements and whether the facts around the issue have changed since that time.

- ▼ Whether the proposal would fit best with Sydney Water’s responsibilities or whether it would fit best with another party or parties’ responsibilities such as another arm of government or local government.
- ▼ Whether Sydney Water’s customers have both the capacity and willingness to pay more to realise the higher standard.
 - Proponents would need to provide evidence for IPART to consider in forming a judgement on whether Sydney Water’s customers have the capacity and willingness to pay the higher prices required to meet the higher standard.

Further information on our approach to addressing liveability and environmental matters in our retail price determinations is available in Chapter 2 of the Final Report of IPART’s 2016 Sydney Water price determination.²⁹

How we price Sydney Water’s and Hunter Water’s recycled water schemes

Under our 2006 Guidelines for recycled water prices, recycled water schemes operated by Sydney Water and Hunter Water are to be ring-fenced and self-financing.³⁰ This means that recycled water customers should pay prices that reflect the costs of the recycled water scheme. However, exceptions under these Guidelines are where:

- ▼ the scheme gives rise to **avoided water and/or sewerage costs** that benefit the water agencies and users other than the direct users of the recycled water
 - where such avoided costs are demonstrated, Sydney Water and Hunter Water can add the avoided costs to their water or sewerage cost bases (and hence recover these avoided costs from their water and sewerage prices) to make up any shortfall between recycled water customers’ willingness to pay and the costs of the recycled water scheme
- ▼ the scheme gives rise to broader **external benefits** for which **external funding** is received, or
- ▼ the Government **formally directs** IPART to allow a portion of recycled water costs to be passed on to a water agency’s broader customer base.³¹

How we have considered the effects of recycled water and IWCM in this review

We consider that **net facilitation costs** (ie, additional costs *less* cost savings to the wholesale service providers from servicing the wholesale customer) should be included in wholesale prices. This means that if, for example, a wholesale customer’s recycled water operations result in avoided or deferred costs to the wholesale service provider, this should be reflected in the wholesale price through a price reduction. Examples of such avoided or deferred costs could include a reduction in bulk water supply and/or sewage treatment costs - including through deferral of the need for asset or infrastructure augmentation.

²⁹ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 34-41.

³⁰ IPART, *Pricing arrangements for recycled water and sewer mining – Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council - Final Report*, September 2006, pp 53 and 63.

³¹ IPART, *Pricing arrangements for recycled water and sewer mining – Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council – Final Report*, September 2006, p 26.

Facilitation costs and our consideration of the impact of wholesale customers' recycled water plants on wholesale service providers are discussed further in Chapter 6.

We also note that several stakeholders such as Flow Systems and Lendlease have argued that, in its pricing decisions, IPART should better recognise that the community wants more recycled water and IWCM.³² There are two broad ways this could be reflected in prices:

- ▼ First, through recycled water customers' willingness to pay. IPART does not currently regulate the prices wholesale customers can charge for their services to their customers³³ – including recycled water. Therefore, wholesale customers are currently free to set their recycled water prices at levels that reflect their customers' willingness to pay for these services.
- ▼ Second, through Parliament passing legislation and government (including through agencies such as the EPA, DPI Water and the Department of Planning and Environment) setting regulatory requirements that target or increase standards relating to the effects of recycled water and IWCM, which flow through to prices as avoided costs. This is a way of internalising, to the extent deemed appropriate by Parliament on behalf of the broader community, external benefits and costs related to recycled water and IWCM.
 - For instance, greater restrictions around the extraction of water from the natural environment (eg, enhancing the environmental flow regime) and/or the discharge of sewage to the natural environment may increase the avoided costs created by recycled water schemes, and therefore (all other things being equal) lower the wholesale price.
 - We note that best practice regulatory principles dictate that the focus here should be on identifying the optimal outcome to be targeted by regulation – which, simply as a consequence, may enhance the viability of recycled water schemes and IWCM projects, to the extent they are least cost means of achieving this outcome. The focus should not be on introducing regulation with the aim of promoting a specific servicing solution (ie, recycled water schemes) – as there may be other, lower cost, means of achieving the end objective.

In the absence of avoided costs (or negative facilitation costs), it is not appropriate for IPART to require Sydney Water's and Hunter Water's water and sewerage customers to contribute to the cost of recycled water schemes that they do not use through a reduction to the wholesale price.

2.5 Other factors that impact on competition

The prices that apply to the provision of wholesale services are only one element of the regulatory framework for Sydney Water and Hunter Water's monopoly services. Their operating licences also place requirements on them in relation to levels of service and obligations to service certain customers.

³² Flow Systems submission to IPART Draft Report, December 2016, pp 6-7; and Lendlease submission to IPART Draft Report, December 2016, p 9.

³³ Section 51 of the WIC Act provides that a specified WIC Act licensee may be declared by Ministerial order to be a monopoly supplier in relation to a specified service, area and class of customers. Such a declaration may only be made if the Minister is satisfied that it is a service for which there are no other suppliers to provide competition and for which there is no contestable market by potential suppliers in the short term. Following such a declaration, the Minister may refer the service to IPART for a pricing determination under section 52 of the WIC Act.

The emergence of wholesale services and customers and the implications for the development of competition in the NSW water sector requires the consideration of factors other than prices, including whether there should be any requirements imposed on Sydney Water and Hunter Water in terms of:

- ▼ obligations to service wholesale customers within their areas of operations
- ▼ the level of service to wholesale customers, and
- ▼ any other consumer protection measures required for wholesale customers.

The current operating licences for Hunter Water and Sydney Water do not distinguish between wholesale and retail services and customers. Matters relating to levels of service and the obligation to service are outside the scope of this price review. However, we recently completed a review of Hunter Water's operating licence and made recommendations in relation to obligation to serve WIC Act licensees.³⁴ A review of Sydney Water's operating licence is expected to begin in 2018.

2.5.1 Broader review of policy settings for competition

Throughout this review, a number of stakeholders have called for a broader review of the water sector, with a view to removing all impediments to competition between the incumbent utilities (Sydney Water and Hunter Water) and new entrants, enhancing competition, and promoting integrated water cycle management and alternative water servicing solutions (see Box 2.3).

³⁴ Details can be found at <https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Licensing-Hunter-Water-Corporation/Review-of-Hunter-Waters-Operating-Licence-2012-2017>

Box 2.3 Call for a broader review of the NSW water industry

In submissions to our Supplementary Draft Report, several stakeholders called for a broad review of the NSW water sector to be undertaken:

- ▼ **Sydney Water** supported a broader industry review to clarify the Government's objectives for competition and consider the value (direct and indirect) and benefits of IWCM.
- ▼ **Lendlease** recommended IPART support the conduct of a broader review and seek to influence the terms of reference so that the review can inform the setting of appropriate system-wide prices for customer operating recycled water plants before the next price determination process commences.
- ▼ **Flow Systems** requested a pause to the current review and price setting for wholesale water and sewerage services pending a broader industry review.
- ▼ **Institute for Sustainable Futures** argued a broader industry review inclusive of the provision of integrated water, wastewater and stormwater services is warranted and would avoid the dangers of single lever responses.
- ▼ **Green Building Council Australia** argued it was imperative for a broader review of the water sector, with a view to removing impediments to competition.
- ▼ **City of Sydney** recommended a broad review of the NSW water sector to ensure the public benefits of recycled water are recognised and that policy and regulatory settings are adjusted to address distortions and increase competition in the sector.
- ▼ **Total Environment Centre** requested the current pricing determination be paused until the completion of the Metropolitan Water Plan.
- ▼ **Urban Development Institute of Australia** requested a pause to IPART's current review of wholesale water and wastewater prices until an industry review is completed.

Sources: Sydney Water submission to IPART Supplementary Draft Report, May 2017, p i; Lendlease submission to IPART Supplementary Draft Report, May 2017, p 14; Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 5; Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, p 7; Green Building Council Australia submission to IPART Supplementary Draft Report, May 2017, p 1; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 1; Total Environment Centre submission to IPART Supplementary Draft Report, May 2017, p 2; Urban Development Institute of Australia submission to IPART Supplementary Draft Report, May 2017, p 2.

We agree that it is important that all unnecessary impediments to competition in the water industry are removed and that, where necessary, policy and regulatory settings should be adjusted. We also agree that competition in the water industry extends beyond wholesale pricing.

We note that 2017 Metropolitan Water Plan recommended establishing an independent inquiry into barriers and enablers to the uptake of cost-effective water recycling, including consideration of potential regulatory and pricing reforms.³⁵

We do not consider that our current review of wholesale pricing should be put on hold or delayed until a broader review of the water industry occurs. This wholesale pricing review is an important step to facilitating efficient entry and competition in the water market. This review provides a regulatory framework for wholesale prices, which will assist market

³⁵ Metropolitan Water, *2017 Metropolitan Water Plan: Water for a Liveable, Growing and Resilient Greater Sydney*, March 2017, p 48.

participants in making decisions regarding their participation in the market. Future IPART reviews and determinations of wholesale prices (including any scheme-specific price determinations) would take account of the policy and legislative framework that applies at the time that the review is being undertaken.

Under the standing reference to investigate and determine prices for monopoly services supplied by Sydney Water and Hunter Water, in the event that substantial regulatory and policy changes occur in the future, IPART could undertake a further review of system-wide wholesale prices to take account of relevant changes.

2.6 Future work

In our retail price reviews for Sydney Water and Hunter Water, we identified a number of areas of future work that are related to wholesale pricing. For instance, we have stated that we may decide to use **component pricing** in future retail price reviews. This would mean that we may allocate costs and set prices for each component of Sydney Water's and Hunter Water's water and sewerage supply chains. This could involve, for example, determining separate costs and prices for each of the following supply chain components:

- ▼ Water
 - bulk water services
 - treatment services
 - transport services
 - reticulation services, and
 - retail services.
- ▼ Sewerage
 - retail services
 - reticulation services
 - transport services
 - treatment services, and
 - disposal services.

In particular, this work may inform future wholesale price determinations. In addition, we are planning to conduct the following reviews in 2017-18:

- ▼ **Recycled water pricing** - We plan to conduct a review of our approach to regulating Sydney Water's, Hunter Water's and the Central Coast Council's recycled water prices in 2017-18. This will include a review of our 2006 determination on pricing arrangements for recycled water and sewer mining.³⁶
- ▼ **Developer charges** - We plan to conduct a review of our developer charges determinations (for water, sewerage, stormwater and recycled water services) in 2017-18. This will provide us with an opportunity to:
 - Review and, where necessary, update the current 'active' developer charges determinations, being those that are not subject to the above-mentioned 2008

³⁶ IPART, *Pricing arrangements for recycled water and sewer mining – Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council – Final Report*, September 2006.

Government direction (ie, the Central Coast Council's developer charges and Sydney Water and Hunter Water's recycled water developer charges).

- Update all other developer charges determinations (including those that are currently 'inactive') to reflect our decisions on any required changes to the terms of the determination, methodologies, input values and parameters. This will mean these determinations are up to date, in the event the Government decides to reverse or change the 2008 direction.
- Consider any potential new charges – eg, in the 2015-16 review of Hunter Water's retail prices, Hunter Water proposed a new 'major service connection charge', which we said we would consider in the 2017-18 review of developer charges.³⁷
- Consider our approach to reviewing Sydney Water and Hunter Water's proposed growth expenditure in future retail price determinations.

Additionally, the outcomes of any scheme-specific reviews of wholesale prices would inform future wholesale price reviews, for example, by providing information about the impacts of wholesale customers' recycled water plants on the costs of the wholesale service provider.

2.7 Our approach for making our decisions

To meet our main objective for this review and take account of the current market for end-use water and sewerage services, we considered the following topics to make our decisions:

- ▼ **Identifying the appropriate pricing approach for specific services.** This involved considering the nature of each service and assessing different pricing approaches.
- ▼ **Deciding how to implement these pricing approaches for this review,** which includes a framework that allows for:
 - system-wide wholesale prices in certain, limited situations
 - scheme-specific wholesale prices, and
 - unregulated pricing agreements.

³⁷ IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 144.

3 Regulatory framework for wholesale pricing

This chapter outlines our approach to regulating wholesale pricing. The key elements of the regulatory framework are:

1. providing for scheme-specific price reviews for *new* and *existing* schemes
2. setting system-wide prices that could apply in some circumstances – ie, to *new* schemes for **two** services where there is **no recycled water plant**:
 - on-selling water, and
 - on-selling sewerage.
3. allowing for wholesale customers and service providers to enter into unregulated pricing agreements (provided both parties can reach agreement), which can mean these parties:
 - avoid the need for scheme-specific determinations, or
 - where relevant, choose to opt out of the determined system-wide prices.

We provide an overview of this regulatory framework below, with further information on its key elements explained in subsequent chapters.

We also outline our decision on the application of system-wide determinations (ie, to new wholesale arrangements only, where a recycled water plant is not present), as well as the durations of these determinations.

In addition to deciding on the regulatory framework, we have made decisions on the pricing approaches to apply to on-selling water and sewerage services, the supply of drinking water to top up a recycled water plant and disposal of waste from a recycled water plant which is not being used for on-selling. Our decisions on pricing approaches for these services are outlined in Chapters 4 and 5.

3.1 The regulatory framework

Decision

- 1 We have decided to:
 - Determine system-wide wholesale prices for on-selling services to new schemes without a recycled water plant.
 - Not set system-wide prices for any services relating to a recycled water plant, rather prices for these services could be settled by unregulated agreement between wholesale suppliers and customers, or be regulated via scheme-specific reviews, or (where applicable) be regulated by the relevant retail price determination.

- Consider requests to undertake price reviews and determinations for individual wholesale schemes (ie, ‘scheme-specific’ reviews), for existing and new schemes.³⁸
- Allow for wholesale customers and wholesale service providers to enter unregulated pricing agreements, where there is mutual agreement to do so, which can mean these parties avoid the need for scheme-specific determinations or (where relevant) opt out of the determined system-wide prices.

The final regulatory framework maintains the three key elements of the regulatory framework set out in the March 2017 Supplementary Draft Report (ie, system-wide prices for new schemes, provision for unregulated pricing agreements and scheme-specific reviews). However, the key changes are not setting system-wide prices for any services relating to a recycled water plant. Rather, prices for these services could be settled by unregulated pricing agreements between wholesale suppliers and customers (where both parties agree), by scheme-specific reviews, or where the retail price determinations apply.³⁹ Scheme-specific reviews are discussed further in Chapter 7.

Our decisions on the regulatory framework mean that for:

- ▼ **A new scheme without a recycled water plant**, the system-wide prices in the accompanying Determinations would apply for on-selling services, or parties may seek a scheme-specific determination by IPART if either party considers the system-wide prices set by IPART do not reflect the characteristics of the scheme and they cannot reach agreement on price.
- ▼ **A new scheme with a recycled water plant**, a wholesale customer or service provider may seek a scheme-specific determination by IPART if they cannot reach agreement on price.
- ▼ **An existing scheme**, a wholesale customer or service provider may seek a scheme-specific determination by IPART if they cannot reach agreement on price.

Where a wholesale customer is supplied a service that is not provided to a “property” as defined in the retail determinations (and therefore not covered by the retail price determinations) and not covered by the system-wide wholesale price determinations, these services would be unregulated. This means that the wholesale customer and wholesale service provider may reach an unregulated agreement or either party may request a scheme-specific review.

³⁸ Any scheme-specific price review would be initiated pursuant to IPART’s standing reference, under section 11 of the IPART Act, to conduct investigations and determine prices for the monopoly services supplied by Hunter Water and Sydney Water.

³⁹ The 2016 retail price determinations for Sydney Water and Hunter Water set prices for services supplied to a “Property”, as defined in those Retail Determinations. In addition, the prices set under the Retail Determinations do not apply to services supplied to a “Large Non Residential Property” where the parties have opted-out of the Retail Determination pricing.

Key elements maintained under the regulatory framework

Currently, Sydney Water and Hunter Water's prices for wholesale services could be either subject to the retail price determinations (where services are provided to a wholesale customer's property⁴⁰) or unregulated pricing agreements.

We recognise that most WIC Act licensees operate, or propose to operate, recycled water plants and that for new schemes this is expected to continue to be the case and therefore the system-wide price determinations may have a limited application. However, if a wholesale customer seeks to enter the market without a recycled water plant, these system-wide prices provide a reasonable price for 'typical' on-selling services. Furthermore, the system-wide Price Determinations will help to:

- ▼ inform the market on IPART's wholesale pricing approach
- ▼ aid negotiation between wholesale customers and wholesale service providers, and
- ▼ inform the approach taken for scheme-specific reviews.

While we have maintained our decision that the non-residential retail prices are the appropriate prices for the recycled water services of drinking water top-up and recycled water waste disposal (where there is no on-selling), we have decided not to include prices for these services in this system-wide wholesale price determination. This is because these prices are already included in the retail price determinations and to prevent any unintended issues in regulating these prices in advance of other upcoming reviews. For further detail, refer to Chapter 5.

We will seek to design our scheme-specific reviews so that they are as targeted as possible, focusing on key areas of disagreement or dispute between wholesale service providers and customers. Over time, we also expect that scheme-specific determinations would reveal information that reduces their cost and potentially reduces the need for them (eg, by providing reference points to better facilitate unregulated pricing agreements or information that allows us to refine and expand the applicability of future system-wide determinations). Chapter 7 discusses our decisions on scheme-specific reviews of wholesale prices and unregulated pricing agreements in further detail.

In its submission to our November 2016 Draft Report, Sydney Water requested that the process for the treatment of wholesale revenue in the next retail price review be addressed.⁴¹ We will work with Sydney Water and Hunter Water in relation to this issue in advance of the next retail price reviews.

3.2 The system-wide retail minus prices will not apply to schemes with a recycled water plant

We have maintained our decision the retail-minus reasonably efficient competitor cost approach is the appropriate pricing approach for on-selling services, including where a wholesale customer operates a recycled water plant. However, we have decided not to set

⁴⁰ IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, sch 1 and 2; and IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, sch 1 and 2.

⁴¹ Sydney Water submission to IPART Draft Report, December 2016, p 38.

system-wide prices for any services relating to a recycled water plant, including on-selling services.

That is, in the Determinations accompanying this Final Report, we have not set system-wide prices for:

- ▼ drinking water top-up to recycled water plants
- ▼ waste disposal from recycled water plants (without on-selling water or sewerage services), or
- ▼ on-selling water and sewerage services where a recycled water plant is present in the wholesale customer's scheme.

This is because, at this stage, we cannot estimate the typical or system-wide average impacts of a recycled water plant on the wholesale service provider's costs with a reasonable degree of accuracy. Given this, we can only set prices for on-selling services where there is a recycled water plant on a scheme-specific basis.

We have maintained our decision that the retail non-residential prices are appropriate for drinking water top-up and waste from recycled water plants that do not on-sell sewerage services. These prices are included in the 2016 retail price determinations for Sydney Water and Hunter Water.

As information on the impacts of recycled water plants improves over time, we may be able to set system-wide prices that include an average or typical on-selling scheme with a recycled water plant in future wholesale pricing determinations.

3.3 The system-wide wholesale prices will not apply to existing schemes

Sydney Water and Hunter Water currently supply wholesale services to customers in their areas of operation. These supply arrangements can be subject to contractual agreements that have been privately negotiated between the parties.

We have maintained our draft decision that system-wide prices will apply to new wholesale arrangements only – ie, our determined prices will **not** apply to **existing services**. Our Final Determinations provide for the exclusion of existing schemes from the system-wide determinations where supply has commenced. That is, a service is classified as 'Existing' (and therefore excluded from the system-wide price determinations) where **before the Commencement Date (1 January 2018)**:

- ▼ supply of that service is provided for under an agreement made between Sydney Water or Hunter Water and the wholesale customer, or
- ▼ there is a physical connection between the wholesale customer's infrastructure and Sydney Water or Hunter Water's infrastructure to facilitate supply of that service (consistent with the definition of supply in our retail determinations).

In reaching our decision to exclude existing schemes from the system-wide determinations, we were mindful of the following:

- ▼ Existing agreements have been accepted by both parties and were negotiated prior to our prices being released. We have sought to provide flexibility to the parties to those agreements to determine the best course of action in response to our pricing decisions - eg, to retain the current arrangements, negotiate a new agreement or request a scheme-specific price review and determination by IPART.
- ▼ Our pricing decisions may warrant some transitional arrangements to be put in place to manage the impacts of the pricing decision. We do not currently have sufficient information regarding the current pricing arrangements in every existing scheme to be able to accurately assess the impact of our pricing decisions on particular schemes or customers. In the absence of this information, it is not possible to adequately consider and design any necessary transitional arrangements for individual schemes.
- ▼ If current arrangements are unsatisfactory to either party, a wholesale service provider or wholesale customer is able to seek a scheme-specific price review and determination from IPART. Our decisions outlined in this Final Report provide information to parties to an existing agreement of our likely approach to a scheme-specific determination.

Both Sydney Water and Hunter Water supported the decision to not capture agreements negotiated prior to the determination of system-wide prices.⁴² Lendlease also noted that the system-wide determinations could impact on existing arrangements, through the terms of existing agreements and/or the incentives the determinations may create around renegotiation of existing agreements.⁴³ In response to the March 2017 Supplementary Draft Report, Lendlease stated that any monopoly service being supplied to an existing scheme should be excluded from system-wide price Determinations.⁴⁴

In response to our November 2016 Draft Report, Sydney Water, along with Lendlease, requested clarification on whether the determination would apply to existing agreements as they are reset throughout the term and/or on expiration of the existing agreement.⁴⁵ In response, we note that our intention is for existing schemes (regardless of the duration of any relevant pricing agreement) to be excluded from the application of the system-wide Determinations. However, we recognise that existing schemes could be affected or captured in some way by the Determinations based, for example, on the terms of the existing agreement between both parties. In these cases, the parties could apply for a scheme-specific review and determination, or enter into a new or amended unregulated pricing agreement.

3.4 The services and customers that the system-wide prices apply to

The sections below outline how we have defined wholesale customers and on-selling services for the purposes of the system-wide price determinations.

⁴² Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 21 and Hunter Water submission to IPART Draft Report, December 2016, p A.2.

⁴³ Lendlease submission to IPART Draft Report, December 2016, pp 33-34.

⁴⁴ Lendlease submission to IPART Supplementary Draft Report, May 2017, p 15.

⁴⁵ Lendlease submission to IPART Draft Report, December 2016, p 33 and Sydney Water submission to IPART Draft Report, December 2016, p 38.

3.4.1 Wholesale customers are considered to be WIC Act licensees

As this is our first review of wholesale water and sewerage services, we have adopted a pragmatic approach to considering the nature of wholesale services and customers for the system-wide determinations.

We have done this by limiting the definition in the Determinations of a ‘wholesale customer’ to an entity that is licensed under the WIC Act (or on-supplies services to a licensed retail supplier for certain wholesale services included in the Determinations).

The benefit of this approach is that it is simple and clear. The drawback is that there may be some potential ‘wholesale’ scenarios that may not be covered by the system-wide determinations.

A retail supplier’s licence is required under the WIC Act to supply water or provide sewerage services by means of any water industry infrastructure.⁴⁶ There are several exemptions from this requirement, including public water utilities providing services within their area of operations and local councils providing water and sewerage services.⁴⁷

The licensing framework under the WIC Act will change when the *Water Industry Competition Amendment (Review) Act 2014* (Amending WIC Act) comes into force. Under the Amending WIC Act, retailer’s licences will only be required for schemes servicing 30 or more small retail customers.⁴⁸

On-supply of services

There could be situations where the customer of Hunter Water or Sydney Water is not licensed under the WIC Act, but on-supplies the services that are ultimately used to provide a service to end users. We consider that it is important to capture this situation in relation to on-selling water and sewerage services as the service provided by Sydney Water or Hunter Water is being used by other parties to compete with them in the market for water and sewerage services to end-use customers.

3.4.2 The service is a monopoly service

We regulate the maximum prices Sydney Water and Hunter Water can charge for monopoly services – that is, services for which they are the only supplier in that part of the market, and for which there is no contestable market by potential suppliers in the short term in that part of the market.⁴⁹ Therefore, for the purpose of this price review, a wholesale service must be a monopoly service sold by Sydney Water or Hunter Water.

⁴⁶ *Water Industry Competition Act 2006*, section 5(1)(b).

⁴⁷ *Water Industry Competition Act 2006*, sections 5(3) and (4).

⁴⁸ *Water Industry Competition Amendment (Review) Act 2014*, sections 5(1)(a) and 9.

⁴⁹ The Premier has declared certain services provided by Sydney Water and Hunter Water to be “government monopoly services” under section 4 of the IPART Act: see *Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997*.

3.4.3 The limits of Sydney Water's and Hunter Water's Operating Licences

Sydney Water and Hunter Water are currently limited in the services they can provide (and hence the markets where they can serve) by their operating licences in two key ways:

- ▼ Authorised services – the operating licences describe the types of services the utilities can provide (eg, the supply of water, provision of sewerage and drainage services and disposing of sewage).⁵⁰
- ▼ Area of operation – the operating licences limit the area within which the utilities can provide the services, generally defined as local government areas.⁵¹

For the purpose of this review, wholesale services are considered those services used to supply end-use customers with services that Sydney Water or Hunter Water could provide within the limits of their operating licences.

3.4.4 Services that system-wide prices have been set for

In this review, we have set system-wide prices for two on-selling services, where there is not a recycled water plant. On-selling services relate to:

1. The purchase of drinking water for the purpose of selling drinking water to end-use customers.
2. The purchase of sewerage services for the purpose of selling sewerage or trade waste services to end-use customers.

Each of the above services is separately defined in Schedule 3 of the Determinations. Chapter 4 of this report explains why we have decided that a retail minus reasonably efficient competitor cost approach is the appropriate pricing approach for these on-selling services, including where there is a recycled water plant (and why we would favour that approach for scheme-specific determinations of on-selling services). Chapter 8 and Appendix E outline how we have derived the minus values in the Determinations.

The system-wide price determinations include on-suppliers, along with WIC Act licensees, in the definition of wholesale customers. This means that, for the purposes of the Determinations:

- ▼ a 'wholesale customer' means
 - a Retail Supplier licensed or authorised under the WIC Act;
 - a Network Operator licensed or authorised under the WIC Act; or
 - any other person who is an On-Supplier to a Retail Supplier (or to any other person who supplies those services as part of a supply chain to that Retail Supplier). This could include a person exempt from licensing requirements under the WIC Act.

The table below summarises the definitions of each of the services included in the Determinations.

⁵⁰ Hunter Water Corporation Operating Licence 2012-2017, p 1; Sydney Water Corporation Operating Licence 2015-2020, pp 3-4.

⁵¹ Hunter Water Corporation Operating Licence 2012-2017, p 33; Sydney Water Corporation Operating Licence 2015-2020, p 31.

Table 3.1 Services that are covered by the Wholesale Determinations

On-Selling Water Services	On-Selling Sewerage Services
Monopoly Service supplied by Sydney Water/Hunter Water	Monopoly Service supplied by Sydney Water/Hunter Water
a water supply service	a sewerage service or a trade waste service
supplied to a Retail Supplier or a Network Operator licensed under the WIC Act, or to any other person who on-supplies the service to a Retail Supplier	supplied to a Retail Supplier or a Network Operator licensed under the WIC Act, or to any other person who on-supplies the service to a Retail Supplier
used by a Retail Supplier to supply a water supply service (other than the supply of Recycled Water)	used by a Retail Supplier to supply a sewerage service or a trade waste service
used by the Retail Supplier to supply to Retail Customers Downstream of that Wholesale Connection Point and within Sydney Water's/Hunter Water's area of operations	used by the Retail Supplier to supply to Retail Customers Upstream of that Wholesale Connection Point and within Sydney Water's/Hunter Water's area of operations
NOT supplied to a Recycled Water System	NOT supplied to a Recycled Water System
NOT an "Existing Service"	NOT an "Existing Service"
NOT supplied under a "Negotiated Services Agreement"	NOT supplied under a "Negotiated Services Agreement"

3.4.5 On-selling services include some tankering services

For the system-wide Determinations, we have maintained our approach to the definition of an on-selling scenario service where waste from a wholesale scheme is collected by a tankering service. We have:

- ▼ **Included** tankering services in the Determinations where they are supplied by a wholesale service provider (Sydney Water or Hunter Water) to the wholesale customer (including where Sydney Water/Hunter Water sub-contracts the provision of that service to a third party tanker transport company) as part of the wholesale service.
 - This is because the wholesale customer is using the wholesale provider's network (albeit substituting a tanker for pipeline transportation) to dispose of its waste, to enable it to on-sell (retail) sewerage services.
- ▼ **Excluded** tankering services from the Determinations, where they are supplied in other scenarios (ie, where these services are not provided by the wholesale provider as part of the wholesale service). This means scenarios such as the following are excluded:
 - where a wholesale service provider supplies waste disposal services to a tanker transport company and/or private waste facility, where that tanker transport company and/or private waste facility is disposing of waste collected from a wholesale customer under contract with the wholesale customer, and
 - where a wholesale customer engages a tanker company to transport waste to a wholesale service provider's network.

In the above **excluded** scenarios, the wholesale customer is indirectly relying on elements of the wholesale service provider's network to provide a retail service so, in principle, this is an on-selling service. However, we have excluded these scenarios because:

- ▼ it would be administratively complex (due to the requirement for a wholesale service provider to charge a wholesale price to a tanker transport company or private waste facility depending on whether they were disposing of waste from a wholesale customer); and
- ▼ the tankering service/private waste facility would replace some aspects of the wholesale sewerage service (eg, sewage transportation and treatment), which is not reflected in the system-wide retail minus prices (ie, the system-wide prices are based on the wholesale sewerage service, including the costs of sewage transportation from the wholesale connection point).

In response to the March 2017 Supplementary Draft, Sydney Water submitted that the wording of the Supplementary Draft Determinations would capture tankering scenarios that include private waste facilities with a connection to Sydney Water's infrastructure. This would result in Sydney Water being required to charge the private waste facility the wholesale price. Sydney Water stated this would be administratively complex, due to the number of independent parties involved in the supply chain. Sydney Water stated that where tankering arrangements are used by a wholesale customer as a direct alternative to a physical connection to a wholesale service provider's infrastructure, these should be included in the determination.⁵²

We have considered these comments and made adjustments to the Determinations to ensure they exclude tankering scenarios involving a private waste facility and those tankering scenarios which are not reflected in the system-wide retail-minus prices.

3.5 Determination length of system-wide determinations

Decision

- 2 We have decided to adopt a determination period from 1 January 2018 to 30 June 2021, for the system-wide determinations.

The decision in our March 2017 Supplementary Draft Report was to adopt a determination period of four years, from 1 July 2017 to 30 June 2021. Our final decision is to delay the commencement date of the determinations to **1 January 2018** in order to provide time for stakeholders to prepare for their application. We have maintained the end date of the determinations of **30 June 2021**. Stakeholder views and the reasons for our decision are outlined below.

The length of the determination period for any scheme-specific determination would be decided by IPART, taking account of views from stakeholders, as part of the scheme-specific review (see Chapter 7).

Stakeholder views on the duration of the system-wide determinations

Hunter Water supported a four year determination period, as this would strike a reasonable balance between providing some certainty to wholesale customers, without locking in costs and prices that may become more refined over time. Hunter Water also sees benefit in the one-year lag between retail and wholesale price determinations (in terms of evening out the

⁵² Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 26.

resourcing requirements for key stakeholders), which would be achieved under a four year wholesale price determination.⁵³

Similarly, Sydney Water supported a determination period of “no longer than four years”, as this would allow all parties to assess how the determination has worked and recommend changes in approach as needed. It also noted that a four year determination period allows scope for a potential broader review of the water market, without entrenching regulations for the longer-term.⁵⁴

Lendlease argued that IPART should consider the length of this determination period having regard to the timing of the broader review of the NSW water market.⁵⁵ In its response to the November 2016 Draft Report, it also argued that the wholesale, retail and recycled water price reviews should be undertaken at the same time to ensure a holistic approach to price setting.⁵⁶

In earlier submissions, the Central Coast Council supported a typical four-year determination period aligned to retail price reviews;⁵⁷ while Permeate Partners supported system-wide prices being subject to minor adjustments at each retail price review.⁵⁸

Three and a half year determination period for the system-wide determinations

As this is the first time wholesale prices have been set, there is a strong case to take a cautious approach and not set a long determination period. We also note that the retail price determinations generally have durations of four years.

We consider that a three and a half year determination period, similar to the previously planned four year period, strikes an appropriate balance between minimising administrative and regulatory costs, providing some certainty to market participants and ensuring prices take account of market developments and, potentially, enhanced information over time.

The current retail price determinations for Sydney Water and Hunter Water are due to end on 30 June 2020. This means the system-wide wholesale price determinations would lag the retail price determinations by one-year.

⁵³ Hunter Water submission to IPART Draft Report, December 2016, p A.1.

⁵⁴ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 2.

⁵⁵ Lendlease submission to IPART Supplementary Draft Report, May 2017, p 14.

⁵⁶ Lendlease submission to IPART Draft Report, December 2016, p 33.

⁵⁷ Central Coast Council submission to IPART Discussion Paper, May 2016, p 2.

⁵⁸ Permeate Partners submission to IPART Discussion Paper, June 2016, p 5.

4 Pricing approach for on-selling drinking water and sewerage services

This chapter outlines our decisions on the pricing approach for on-selling services. On-selling refers to where a wholesale customer:

- ▼ buys drinking water from Sydney Water or Hunter Water to sell drinking water to end-use customers, and/or
- ▼ buys sewerage services from Sydney Water or Hunter Water to sell sewerage services to end-use customers.

Typically, in these cases, once they have purchased the wholesale services, the wholesale customers perform retail and local reticulation services for their end-use customers.

4.1 Summary of decisions

We have decided to **maintain our draft decision to apply a retail-minus** approach for wholesale water and sewerage services purchased for the purpose of on-selling to end-use customers. This pricing approach allows wholesale customers and wholesale service providers to compete for end-use (or 'retail') customers, without being advantaged or disadvantaged by regulated retail pricing policies that apply to Sydney Water and Hunter Water (such as the postage stamp pricing policy, and differences between regulated residential and non-residential prices).

Further, we have **maintained our draft decision that the minus component** of retail-minus prices for these wholesale services is to reflect the costs a **reasonably efficient competitor** would incur in performing retail and/or local reticulation services for their end-use customers (ie, the services from point of wholesale purchase to end-use customers). This approach takes account of the likely smaller scale of wholesale customers (compared to Sydney Water and Hunter Water) and is designed to enable reasonably efficient wholesale customers to match Sydney Water or Hunter Water's postage stamp retail price when supplying end-use customers.

We have also **maintained our draft decision that the retail-minus pricing approach** applies to all situations where the wholesale customer on-sells sewerage services, including where there is a recycled water plant. We have decided that the **retail-minus pricing approach** is appropriate when a wholesale customer is using Sydney Water's or Hunter Water's sewerage services (which include sewage transportation, treatment and disposal) to **on-sell** these services to sewerage customers – **regardless of whether the wholesale customer operates a recycled water plant**. This is because the wholesale customer is purchasing a wholesale sewerage service to on-sell it to a market (retail sewerage services) where Sydney Water and Hunter Water are constrained by regulated retail prices.

This would mean that, where a wholesale scheme supplies sewerage services to end-use customers, retail-minus pricing⁵⁹ would apply to discharges to Sydney Water or Hunter Water’s sewerage network, even if the scheme has a recycled water plant.

We have maintained our draft decision to set system-wide retail-minus prices for on-selling water and services. However, as noted earlier, **we have decided to limit the application of these system-wide prices to where there is not a recycled water plant.** This is because the system-wide prices do not account for the impacts of the operation of a recycled water plant on the costs of the wholesale service provider. As such, it is not possible to set system-wide prices for on-selling services where there is a recycled water plant. Therefore, the Final Determinations include system-wide prices for water on-selling and sewerage on-selling for new schemes without a recycled water plant, based on the retail minus reasonably efficient competitor cost approach.

In schemes where the system-wide prices apply, the prices may not be appropriate for all on-selling scenarios where there is no recycled water plant.⁶⁰ As outlined in Chapter 7, where these system-wide prices do not sufficiently reflect scheme-specific characteristics, wholesale customers and/or service providers can request IPART to undertake a scheme-specific review or enter into an unregulated pricing agreement.

This chapter explains our decisions on the overall pricing approach for on-selling water and sewerage services. Chapter 8 explains in detail our methodology and approach to calculating the system-wide prices that are included in the Final Determinations accompanying this Final Report.

4.2 Retail-minus pricing approach is appropriate for on-selling water and sewerage services

Decision

3 We have decided that retail-minus is the appropriate approach to set prices for the wholesale supply of drinking water and sewerage services for the purpose of on-selling to end-use customers.

In reaching this decision, we considered three possible alternative approaches for pricing wholesale water and sewerage services⁶¹ purchased for the purpose of on-selling to end users:

- ▼ retail-minus approach
- ▼ cost-of-service approach, and
- ▼ non-residential retail price approach.

⁵⁹ As outlined in Chapter 3, we have decided not to set system-wide retail-minus prices for on-selling services where there is a recycled water plant as these prices can only be on a scheme-specific basis.

⁶⁰ For example, where there are significant facilitation costs. Refer to Chapter 6 for further details on facilitation costs.

⁶¹ Appendix C provides an overview of price setting approaches or methodologies that could be applied to wholesale pricing.

Under a retail-minus approach, the wholesale price for on-selling a service would be based on the total postage stamp retail prices of that service, minus the costs of the contestable service (or services).

The contestable service(s) is the service the wholesale customer is providing (or seeking to provide) to retail customers 'upstream' or 'downstream' of the wholesale services it has purchased from the wholesale service provider. That is, the service(s) between the wholesale connection point and the end-use (retail) customers. They often include reticulation and retail services.

To ensure a level playing field between wholesale service providers (incumbents) and wholesale customers (new entrants), and therefore efficient entry and competition for the benefit of water consumers, wholesale prices for on-selling water and sewerage services need to reflect the regulated retail prices for these services.

Sydney Water's and Hunter Water's retail water and sewerage prices are regulated by IPART. Key elements of this regulatory regime include:

- ▼ the Government's policy of postage stamp retail pricing, and
- ▼ the structure of retail residential and non-residential prices.

Retail-minus pricing creates a margin for the new entrant (the minus) that reflects an estimate of the cost of the contestable services. This ensures the wholesale service provider (incumbent) and wholesale customer (new entrant) are competing on the basis of their respective costs of supplying the contestable services, rather than on the basis of an arbitrage opportunity or artificial margin created by virtue of the nature of regulated retail prices.

The sections below explain why **cost-of-service** and **non-residential** prices for on-selling water and sewerage wholesale services are incompatible with Sydney Water's and Hunter Water's regulated retail prices.

There are divergent views among stakeholders on the application of retail-minus prices (see Box 4.1) along the following lines:

- ▼ Wholesale service providers (ie, Sydney Water and Hunter Water) are supportive of retail-minus pricing.
- ▼ Wholesale customers (Flow Systems and Lendlease) and some other stakeholders generally oppose retail-minus pricing.

Box 4.1 Stakeholders views on application of retail-minus pricing for on-selling

A summary of stakeholders' views on the application of retail-minus pricing for on-selling services is outlined below.

- ▼ **Sydney Water** argued that the retail-minus pricing approach was the only appropriate pricing approach for on-selling of services within a postage stamp pricing environment and without changing the structure of retail and wholesale markets.
- ▼ **Hunter Water** supported retail-minus pricing of water and wastewater services supplied to private water utilities that are on-sold to end-use customers.
- ▼ **Water Services Association of Australia** argued that the retail-minus approach is the only pricing approach that is consistent with a policy of postage stamp pricing.
- ▼ **Flow Systems** argued that retail-minus pricing is the wrong methodology to apply to the pricing of IWCM and recycled water services and results in excessive wholesale prices and a terminal margin squeeze.
- ▼ **Lendlease** argued system-wide retail-minus prices reflect the prices that the wholesale service provider should charge an on-seller, but have no basis as a starting point for determining the prices to be charged to a customer operating a recycled water scheme.
- ▼ **City of Sydney** expressed disappointment IPART has proposed a retail-minus tariff as this will dramatically increase costs of recycled water schemes, making them commercially unviable.
- ▼ **Institute for Sustainable Futures** argued that the retail-minus pricing approach does not reflect efficient cost principles and wholesale pricing should not be used as a proxy to address inefficiencies and deficiencies in current retail price structures.
- ▼ **Green Building Council Australia** argued that applying the draft 'retail-minus tariff' will discourage private investment in innovative water solutions, and put some of the state's most innovative water operations out of business.
- ▼ **Total Environment Centre** argued that retail-minus pricing is contrary to the principle previously adopted by IPART that developing alternatives to potable water provides benefits to all customers, not just those directly supplied.
- ▼ **Urban Development Institute of Australia** argued that a retail-minus tariff places the future of the water recycling market in jeopardy through a substantial increase in costs for water recycling schemes.

Sources: Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 2; Hunter Water submission to IPART Supplementary Draft Report, May 2017, p i; WSAA submission to IPART Draft Report, December 2016, p 3; Green Building Council Australia submission to IPART Supplementary Draft Report, May 2017, pp 1; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 3; Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, pp 3 and 6; Total Environment Centre submission to IPART Supplementary Draft Report, May 2017, p 1; Lendlease submission to IPART Supplementary Draft Report, May 2017, p 10; Urban Development Institute of Australia submission to IPART Supplementary Draft Report, May 2017, p 2; Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 4.

As outlined above we have decided to limit the application of system-wide prices so that they will not apply where there is a recycled water plant. This is discussed further below. As outlined in Chapters 6 and 7, to the extent that the presence of a recycled water scheme delivers savings to Sydney Water and Hunter Water, these would be factored into scheme-specific wholesale prices via provision for net facilitation costs.

4.2.1 Cost-of-service pricing is inferior to retail-minus pricing where a postage stamp price is applied

A cost-of-service approach sets the wholesale price equal to the cost of providing the wholesale service to the wholesale customer. A location-based cost-of-service price would typically be:

- ▼ lower in low cost areas, and
- ▼ higher in high cost areas.

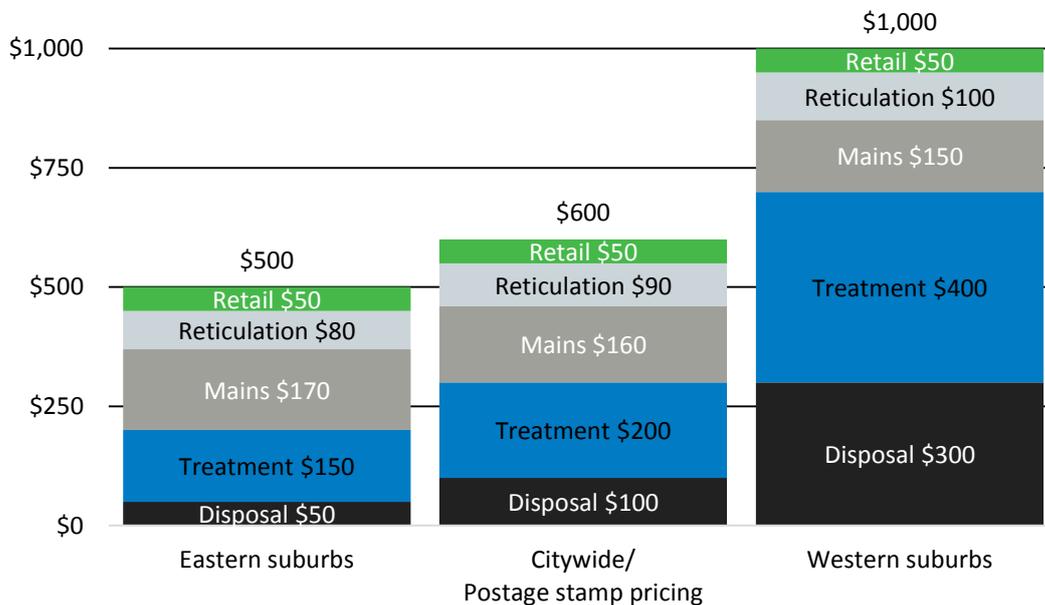
Under postage stamp retail pricing, Sydney Water and Hunter Water generally charge all their retail customers in their area of operations the same drinking water, sewerage and stormwater prices – regardless of differences in the cost of supplying different locations and other site-specific factors.⁶²

Figure 4.1 shows an illustrative example of a postage stamp sewerage service charge compared to the actual cost of providing the service in different locations across Sydney Water's or Hunter Water's area of operation. The postage stamp retail price is \$600 per year and the localised cost-of-service ranges from \$500 to \$1000 per year. The postage stamp retail price therefore includes cross-subsidies between end users in locations with different servicing costs.

Given Sydney Water and Hunter Water are bound to postage stamp retail prices, inefficient price signals would be created under location-based cost-of-service wholesale prices.

⁶² Exceptions to postage stamp pricing include recycled water prices, Sydney Water's Rouse Hill stormwater area and trade waste charges, and Hunter Water's location-based water usage charges for large consumers and trade waste charges. Refer to IPART, *Sydney Water Corporation: Maximum prices for water sewerage, stormwater drainage and other services from 1 July 2016 - Determination*, June 2016; Hunter Water Corporation: *Maximum prices for water sewerage, stormwater drainage and other services from 1 July 2016 - Determination*, June 2016.

Figure 4.1 Illustration of effect of postage stamp pricing compared to the cost of providing the service in different locations (\$ per year)



Note: The costs shown in this figure are illustrative only.

In Figure 4.1 above, if the wholesale price reflected the actual bottom-up cost of servicing a specific wholesale scheme:

- ▼ A retailer seeking to enter in the Eastern suburbs would have a margin of \$150 per year (being the retail postage stamp price of \$600 less the cost-of-service wholesale charge of \$450 (the sum of disposal, treatment, mains and reticulation)). This is \$100 more per year than the efficient cost of retail services, allowing inefficient entry (ie, a wholesale customer that was less efficient than Sydney Water or Hunter Water could enter and compete).
- ▼ A retailer seeking to enter in the Western suburbs would have a margin of negative \$350 per year (being the retail postage stamp price of \$600 less the cost-of-service wholesale charge of \$950 (the sum of disposal, treatment, mains and reticulation)). This would block entry, even if the wholesale customer is more efficient than Sydney Water or Hunter Water.

This would lead to cherry-picking, where entry occurs only in low cost areas, potentially by inefficient utilities. Cherry-picking increases Sydney Water’s and Hunter Water’s average cost by reducing the low cost customer base while leaving the high cost customer base unchanged. This would push up the postage stamp price as higher than average costs need to be recovered over a smaller number of customers. In turn, this could lead to further cherry-picking. The regulated customers of Sydney Water and Hunter Water would be worse off having to pay higher water and sewerage prices than they would otherwise face.

4.2.2 The non-residential price creates an arbitrage opportunity for on-selling

Under the current price structures for retail water and sewerage prices, Sydney Water and Hunter Water charge customers differently depending on whether the properties are used for non-residential or residential purposes.

Residential customers' service charges are set on a per dwelling basis (ie, an apartment serviced by Sydney Water is charged the same as a house, regardless of the size of the meter servicing the apartment block);⁶³ whereas non-residential customers' service charges are based on the actual meter size at point of connection. This means that if Sydney Water or Hunter Water were to charge a wholesale customer the **non-residential service charge** (based on meter size at connection) and the wholesale customer was then able to on-sell and charge individual houses and/or apartments Sydney Water's **residential service charges**, an arbitrage opportunity may exist (see Table 4.1).

Such an arbitrage opportunity could make it profitable for wholesale customers to enter the market without providing any additional services or improving overall system efficiency. That is, wholesale customers could enter the market through the arbitrage opportunity rather than by being as or more efficient than the wholesale service provider. Over time, this could increase the revenue Sydney Water and Hunter Water need to recover from their wider customer bases, which would increase prices to all their remaining retail customers, without any offsetting system-wide efficiency gains from the new entry.

Table 4.1 The indicative difference between non-residential and residential retail prices for water and sewerage services

		
Description	Commercial tower	Residential tower
Units	100 businesses	100 apartments
Meter connection	80mm	80mm
Service charge basis	Meter based	Dwelling based
Water usage	16,000kL	16,000kL
Discharge factor	75%	75%
Annual bill in Sydney	\$53,312	\$99,355 (\$46,043 more)
Annual bill in Newcastle	\$58,143	\$83,894 (\$25,751 more)

Sources: IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016; IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016; and IPART analysis.

⁶³ This follows IPART's 2012 pricing principles, which state that water and sewerage residential service charges should be the same for all residential dwellings, unless there is evidence that there are material differences in the cost of servicing different residential property types (IPART, *Review of price structures for metropolitan water utilities – Final Report*, March 2012, p 3). For the recent reviews of Sydney Water's and Hunter Water's retail prices (for prices to apply from 1 July 2016), we decided that all residential customers (including houses and apartments) be *deemed* to have a 20mm meter for the purpose of determining service charges (by 2019-20 for Hunter Water). Sources: IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 27; IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 19.

4.3 Sewerage services can be on-sold via a recycled water plant

In some cases, a wholesale customer that on-sells sewerage services to end users will also supply recycled water. Sewage from its end-use customers will be processed in a recycled water plant, and then a portion will be sold as recycled water, and the remainder may be discharged into Sydney Water's or Hunter Water's sewerage network.

We have maintained our draft decision where the wholesale customer on-sells a sewerage service as outlined below.

Decision

- 4 We have decided that retail-minus is the appropriate pricing approach for the supply of sewerage services relating to waste from recycled water plants where the wholesale customer on-sells sewerage services to end-use customers.

4.3.1 Retail-minus pricing is the appropriate pricing approach

We have maintained the position of our Supplementary Draft Report that retail-minus prices should apply where a wholesale customer on-sells the sewerage service to end-use customers, including where the wholesale customer has a recycled water plant. However, we have excluded schemes with recycled water plants from the system-wide price determinations.

We consider that the retail-minus price is appropriate because the wholesale customer is purchasing a wholesale sewerage service to on-sell to sewerage customers, where Sydney Water and Hunter Water are constrained by regulated retail prices.

This pricing approach means that, regardless of whether a wholesale scheme includes a recycled water plant, wholesale customers and wholesale service providers can compete for end-use sewerage customers, without being advantaged or disadvantaged by regulated retail pricing policies that apply to Sydney Water and Hunter Water. Retail-minus pricing means the wholesale sewerage service provider and wholesale customer are competing on the basis of their respective costs of supplying the contestable services.

As outlined above, under current regulated retail price structures, Sydney Water and Hunter Water are required to charge customers differently depending on whether they are residential or non-residential. If the retail non-residential price were to apply to these wholesale services, the wholesale customer could use the difference between its wholesale price (retail **non-residential**) and Sydney Water's and Hunter Water's regulated retail prices (**residential and non-residential**) to either:

- ▼ 'Out-compete' Sydney Water and Hunter Water for services to retail sewerage customers by charging lower retail prices, but not necessarily on the basis of lower cost or better service, just by virtue of the difference between Sydney Water's and Hunter Water's regulated retail prices for their residential and non-residential customers.
 - In turn, this would increase the costs for Sydney Water's and Hunter Water's remaining customers (and/or owners, being the Government), with little benefit in terms of lower overall costs and/or better services to water consumers.

- ▼ Use the difference between its wholesale price (retail non-residential) and the price it could sell retail sewerage services (Sydney Water's and Hunter Water's retail residential and non-residential charges) to subsidise its recycled water business.
 - This could provide incentives for inefficient over-investment in recycled water projects, at the expense of Sydney Water's and Hunter Water's customers.
 - This would also be inconsistent with funding opportunities available for Sydney Water's and Hunter Water's own recycled water schemes: we require these schemes to be self-financing (ie, their costs to be recovered from recycled water customers, rather than the broader water and/or sewerage customer base), unless they can demonstrate avoided costs to water and/or sewerage customers.⁶⁴

We support competition where it results in more efficient outcomes and do not favour a specific method of production, such as recycled water. Where recycled water plants lead to avoided costs for the wholesale service provider, these that should be reflected in wholesale prices for on-selling through the provision of negative facilitation costs (ie, an additional discount to retail-minus prices). To this end, we sought advice from Oakley Greenwood.⁶⁵ Chapter 6 outlines our consideration of positive and negative facilitation costs – including potential cost savings from recycled water plants.

We agree with stakeholders that the retail-minus price should account for the impacts of a recycled water plant on the costs of providing the wholesale service. This would be addressed through scheme-specific reviews, to identify net facilitation costs.

Given the inability to take into account the impacts of recycled water plants in a system-wide average price, we have explicitly limited the application of system-wide prices so that they will not apply where a recycled water plant is present. This means that where wholesale schemes have a recycled water plant, prices to these schemes will be subject to unregulated pricing agreements, a scheme-specific review/determination (if either party requests such a review) or the retail price determinations (where the service is supplied to a 'property', as defined in the retail price determinations). A scheme-specific review would consider, amongst other factors, the impact of a recycled water plant on the wholesale supplier's costs (as discussed in Chapter 6).

4.4 Reasonably efficient competitor cost is the appropriate approach to calculating the minus component

In order to apply the retail-minus price approach to on-selling, we considered four approaches for determining the minus component:

⁶⁴ Under our 2006 recycled water pricing guidelines, recycled water prices should recover the full direct cost of implementing the recycled water scheme concerned, unless:

- the scheme gives rise to **avoided costs** that benefit the water agencies and users other than the direct users of the recycled water
- the scheme gives rise to broader **external benefits** for which external funding is received, or
- the Government **formally directs** IPART to allow a portion of recycled water costs to be passed on to a water agency's broader customer base.

(See IPART, *Pricing arrangements for recycled water and sewer mining – Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council - Final Report*, September 2006).

⁶⁵ Oakley Greenwood, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants*, March 2017.

- ▼ as efficient competitor cost
- ▼ avoidable cost
- ▼ reasonably efficient competitor cost, and
- ▼ avoided cost.

We have maintained our draft decision to use the reasonably efficient competitor cost approach.

Decision

- 5 We have decided the reasonably efficient competitor cost approach is appropriate for calculating the minus component in retail-minus prices for the supply of drinking water and sewerage services for the purpose of on-selling to end users.

4.4.1 The reasonably efficient cost approach balances the need to maximise productive and dynamic efficiencies

The reasonably efficient competitor cost approach is based on determining the costs that a reasonably efficient competitor would incur in delivering water and/or sewerage services from the wholesale connection point to end users. This approach results in a larger minus - ie, a lower wholesale price, than other approaches to calculating the minus components. These other approaches include 'as/equally efficient competitor' costs (ie, the costs of a new entrant *as efficient* as the wholesale service provider); avoided costs (actual costs that are avoided by the wholesale service provider); or avoidable costs (costs that may be avoided by the wholesale service provider) from no longer supplying end-use customers (as these are supplied by the wholesale customer).

Using the reasonably efficient competitor cost approach assists entry to allow wholesale customers to reach a competitive scale. This approach may sacrifice some immediate productive efficiency for longer term dynamic efficiency gains from enhanced competition.

This approach should ensure that a reasonably efficient wholesale customer can enter the market, while charging the retail prices of Sydney Water or Hunter Water.

The reasonably efficient competitor cost approach can be used in industries with increasing returns to scale, which could benefit from competition. That is, where dynamic efficiencies are expected to be realised.

In industries with increasing returns to scale, scale is a major impediment to entry. It would not be feasible for a wholesale customer to replicate the scale economies available to Sydney Water or Hunter Water immediately upon entry, particularly as they are largely restricted to new growth areas. As such, an entrant could not reasonably be expected to match the retailing costs of Sydney Water and Hunter Water in the short-term.

In these instances, entry could be assisted to allow wholesale customers to reach a competitive scale, where the benefits of competition can be realised. That is, potentially sacrificing some immediate productive efficiency for longer term dynamic efficiency gains. We note that greater competition for the market could create a stronger incentive for Sydney

Water and Hunter Water to reduce their costs of servicing new developments, increasing productive efficiency even if actual entry did not occur.

Over time, as the market develops and wholesale customers have had an opportunity to grow and experience economies of scale, there would be a case to transition away from the reasonably efficient competitor cost approach towards the as efficient competitor costs approach.

Sydney Water and Hunter Water continue to argue against the use of the reasonably efficient competitor approach. Sydney Water supports the use of equally efficient competitor costs while Hunter Water supports the use of avoidable costs (see Box 4.2 below).

Submissions from wholesale customers and other organisations that did not support retail-minus prices did not comment specifically on the use of the reasonably efficient competitor approach, as opposed to other approaches to calculate the minus component, such as avoidable cost. The Institute for Sustainable Futures agrees with the reasonably efficient competitor approach to create a more level playing field, and Flow Systems noted IPART has used this approach to address some of the stakeholder concerns regarding the need to promote competition.⁶⁶ However, it also states that this does not overcome its objections to the retail-minus approach and continues to support the use of non-residential prices. Our responses to stakeholders' comments regarding the size and the approach to calculating the minus value for the system-wide prices are outlined in Chapter 8 and Appendix E.

In considering stakeholders' views in relation to the use of the reasonably efficient competitor approach, we note that the arguments put forward against the approach were similar to those put forward in response to our Discussion Paper (released in April 2016), the Draft Report (released in November 2016) and the Supplementary Draft Report (released March 2017). **We have decided to maintain our draft decision that the reasonably efficient competitor cost approach is appropriate for calculating the minus component of retail-minus prices.** Box 4.2 provides a summary of the arguments stakeholders put forward in submissions to our Supplementary Draft Report against the use of the reasonably efficient competitor cost approach.

⁶⁶ Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, p 5; and Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 19.

Box 4.2 Stakeholders views on the use of the reasonably efficient competitor cost approach to calculating the minus component

- ▼ **Sydney Water** did not support a reasonably efficient competitor costs approach, and preferred an equally efficient competitor costs approach. Sydney Water argued it is unlikely that dynamic efficiency gains will outweigh the under-recovery associated with the reasonably efficient competitor cost approach, and suggested it would be beneficial for IPART to measure and report on dynamic efficiency gains.
- ▼ **Hunter Water** supported an avoidable costs approach over the reasonably efficient competitor cost approach.
- ▼ **Institute for Sustainable Futures** agreed that the reasonably efficient competitor approach started to address the issue of creating a level playing field, however, it highlighted that additional minus values should be included, particularly where there is a recycled water plant. The Institute for Sustainable Futures suggested including the average cost savings resulting from recycled water plants that were quantified in Oakley Greenwood's report as system-wide minus components.
- ▼ **Flow Systems** stated that the reasonably efficient competitor approach did not overcome its objections to the use of the retail-minus approach.

Sources: Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 11-12; Hunter Water submission to IPART Supplementary Draft Report, May 2017, p 4; Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, p 5; Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 19.

Retail minus reasonably efficient competitor costs may encourage some inefficient entry

We acknowledge the risks associated with using the reasonably efficient competitor costs approach in relation to encouraging inefficient entry. The reasonably efficient competitor cost standard is designed to support entry by utilities that are less efficient than the wholesale service provider. We consider that this is necessary at this stage of the market's development, to encourage entry when increasing returns to scale apply.

It could lead to some inefficient entry, particularly where the wholesale customer does not become more efficient over time. However, IPART can manage this risk by periodically reviewing the use of the reasonably efficient competitor cost approach, including considering transitioning over time to the use of the 'as efficient competitor' cost or avoidable cost approach to calculating the minus values.

We note that Hunter Water requested the provision of some guidance on the factors and indicators that we would consider important in judging the success or otherwise of the reasonably efficient competitor cost approach.⁶⁷ Sydney Water also suggested it would be beneficial for IPART to measure and report on dynamic efficiency gains.⁶⁸

In addition, the use of alternative approaches, such as the avoidable cost approach, to calculating the minus components, is likely to become more feasible over time as better information is available on the efficient costs of providing retail and wholesale water and sewerage services, eg, via scheme-specific reviews and the application of component pricing for Sydney Water and Hunter Water.

⁶⁷ Hunter Water submission to IPART Draft Report, December 2016, p 5.

⁶⁸ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p iii.

Sydney Water and Hunter Water have noted the use of the reasonably efficient competitor cost approach to calculating the minus component leads to higher minus values than under alternative approaches such as the avoidable cost or 'as efficient competitor' cost approach.⁶⁹ This means that the minus component is greater than the costs they avoid. Sydney Water requested that IPART state that a revenue recovery mechanism is necessary and provide a transparent method for recovering these costs.⁷⁰

We note the requests for further details of how the difference between the minus values based on the reasonably efficient competitor cost approach and the costs avoided by a wholesale service provider would be funded. We maintain the position outlined in our November 2016 Draft Report and March 2017 Supplementary Draft Report that there are broadly two entities that would fund the difference between avoided cost and the 'minus':

- ▼ Sydney Water or Hunter Water's other customers, or
- ▼ Sydney Water or Hunter Water's shareholders.

The next review of retail prices for Hunter Water and Sydney Water is the appropriate forum to review this issue. A key consideration would be the evidence provided to support the estimates of the size of any deficit.

⁶⁹ Sydney Water submission to IPART Draft Report, December 2016, p iv; Hunter Water submission to IPART Draft Report, December 2016, p 4.

⁷⁰ Sydney Water submission to IPART Draft Report, December 2016, p 16.

5 Pricing approach for other recycled water plant services

This chapter outlines our decisions on the pricing approach for the following services:

- ▼ drinking water top-up, and
- ▼ disposal of recycled water waste, where a wholesale customer does not on-sell sewerage services to end-use customers.

We have considered what pricing approach is appropriate for these services. We took into account the nature of the services, particularly whether the wholesale service is being on-sold to end users or used as an input to supply a different service to end users.

5.1 Summary of decisions

We have maintained our decision that non-residential retail prices are appropriate for drinking water top-up and disposal of recycled water waste where a wholesale customer does not on-sell sewerage services. However, as outlined in Chapter 3, we have decided not to include prices for these services in the system-wide wholesale price determinations. This is because these prices are already included in the retail price determinations, to the extent these services are supplied to ‘properties’ as defined in those retail determinations.

In cases where a wholesale customer is seeking one of these services and the retail determinations do not apply (ie, the service is not being supplied to a property), prices for these services could be set by IPART in a scheme-specific review or agreed by the parties, noting that there has been general agreement among stakeholders in this review that the non-residential retail prices are appropriate for these two services.

5.2 Non-residential retail pricing is the appropriate approach for drinking water top-up

A number of wholesale customers buy drinking water to top up the supply of water to their recycled water schemes. This is known as ‘drinking water top-up’ or ‘potable top-up’. This water is an input to the recycled water system, not directly on-sold to end-use customers for drinking purposes (that is, the final product sold to end-use customers is recycled water).

This service is used to ensure a constant supply from the recycled water systems to their end-use recycled water customers. Drinking water top-up may be needed if the plant operator is temporarily unable to source sufficient input to its recycled water system through other sources, such as sewerage services, sewer mining or stormwater harvesting.

In some instances, wholesale customers that purchase drinking water to top-up a recycled water scheme will also purchase drinking water for the purpose of on-selling to end-use customers (through separate reticulation infrastructure).

Decision

- 6 We have decided that the appropriate pricing approach for supplying drinking water to top up recycled water schemes is the supplier's retail non-residential service and usage prices for drinking water supply.

We consider that retail non-residential prices are appropriate for drinking water top-up, because the customers purchasing the drinking water are not on-selling it to drinking water markets where Sydney Water and Hunter Water are constrained by regulated retail prices.

Because they are not on-selling the wholesale service, but rather using it as an input in the production of another product (recycled water), the wholesale customers are effectively the same as retail non-residential customers.

Drinking water top-up is a relatively minor input into recycled water production that is only used occasionally and not in fixed proportion to recycled water output.⁷¹ Recycled water plants, just like factories, bottling plants and cafés, use drinking water as one input into their production process. The main input into the production of recycled water is sewage.⁷² Drinking water top-up is only used when the supply of sewage is insufficient to cover recycled water demand. Drinking water for top-up is sold as recycled water (that is, not for drinking). Sydney Water forecasts that less than 20% of Rouse Hill recycled water is drinking water top-up, and Hunter Water forecasts that about 2% of the recycled water it sells to residential recycled water customers will be comprised of drinking water top-up.⁷³ In this sense, drinking water top-up is an input into a recycled water scheme in the same way that drinking water is an input into many non-residential customers' production processes.

Flow Systems and City of Sydney supported applying the non-residential price to drinking water top-up.⁷⁴ Sydney Water argued that drinking water top-up is not a wholesale service and the retail non-residential price is appropriate for this type of service as it reflects the costs and capacity to provide the service.⁷⁵ Hunter Water also stated that it would accept non-residential prices for drinking water top-up, noting that there is little difference between the pricing outcomes under non-residential compared with retail-minus approaches.⁷⁶

We have decided not to include prices for drinking water top-up in the system-wide wholesale price determinations, as these prices are set out in the 2016 retail price determinations for Sydney Water and Hunter Water.⁷⁷

⁷¹ Lendlease noted in its submission to IPART's Draft Report that 'It is incorrect to suggest that drinking water top-up is only "a relatively minor input" into recycled water production. In the early stages of a recycled water scheme being developed, potable water top-up is essential' (Lendlease submission to IPART Draft Report, December 2016, p 38). We acknowledge this comment, but note that it can be considered a minor input over the life of a scheme.

⁷² Other inputs to the production of recycled water may include stormwater.

⁷³ Sydney Water Annual Information Return, September 2015; Hunter Water Annual Information Return, September 2015.

⁷⁴ Flow Systems submission to IPART Draft Report, December 2016, p 3; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 3.

⁷⁵ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 16.

⁷⁶ Hunter Water submission to IPART Draft Report, December 2016, p 10.

⁷⁷ IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, sch 1; and IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, sch 1.

In its submission to the Supplementary Draft Report, Sydney Water stated that it would be unlikely to be able to levy the drinking water top-up charges included in the Supplementary Draft Determinations to a WIC Act licensee in cases where Sydney Water was the drinking water service provider. This was because, unless the WIC Act licensee owns the property on which the recycled water plant is located, Sydney Water has the water connection with the property owner.⁷⁸

As outlined in Chapter 3, we have decided not to include the non-residential retail prices in the system-wide wholesale price determination as these are already included in the 2016 retail price determinations for Sydney Water and Hunter Water.

In cases where a WIC Act licensee is seeking a drinking water top-up service from Sydney Water or Hunter Water and the retail price determinations do not apply, prices for these services can be agreed between the parties or set via a scheme-specific review by IPART. Our decision in this review on the appropriate pricing approach to apply to drinking water top-up would inform our approach to a scheme-specific review.

5.2.1 A consistent pricing approach for schemes that purchase water for drinking water top-up and on-selling

In some cases the wholesale customer buys drinking water both to top-up to its recycled water scheme and to on-sell drinking water to end-use customers. We have maintained our draft decision that Sydney Water and Hunter Water should charge for each of these services separately and consistently with the relevant pricing approach for each service:

- ▼ a retail-minus price for water to water on-selling (as outlined in Chapter 4), and
- ▼ the non-residential price for water for drinking water top-up (as outlined above).

This means that wholesale customers are levied consistent prices for drinking water top-up and drinking water for on-selling, regardless of whether they are receiving one or both of these services.

Decision

- 7 We have decided that for wholesale customers that purchase drinking water for the purpose of on-selling *and* drinking water top-up for their recycled water plants the appropriate pricing approaches should be:
- a retail-minus price for the water supplied for drinking water on-selling, and
 - the retail non-residential water service and usage prices for the water supplied for drinking water top-up.

In the Supplementary Draft Report we included a draft decision that where a recycled water system is not separately metered, and the wholesale customer is receiving drinking water for both on-selling and top-up: the wholesale customers should be charged a non-residential retail service charge for drinking water top-up based on a deemed meter size of 100mm. Sydney Water and Hunter Water supported this decision.⁷⁹

⁷⁸ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 16.

⁷⁹ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 4; Hunter Water submission to IPART Supplementary Draft Report, May 2017, p 1; and Hunter Water submission to IPART Draft Report, December 2016, p A.3.

Given that they do not cover schemes with recycled water plants, we have not needed to include this decision in the 2017 system-wide wholesale price determinations. However, this decision would inform our approach to a scheme-specific review where a wholesale customer is purchasing drinking water to both top-up its recycled water plant and to on-sell drinking water to end-use customers. In addition, this decision could inform negotiations between wholesale service providers and customers.

5.3 Recycled water waste disposal for schemes that are not on-selling a sewerage service

As outlined in Chapter 4, where wholesale customers on-sell a wholesale sewerage service to end-use customers, we consider a retail-minus price should apply to that wholesale sewerage service (ie, regardless of whether the sewage passes through a recycled water plant).

However, in some cases the customer **only** supplies end-use customers recycled water and does not on-sell sewerage services. In producing recycled water, there is a need to dispose of the waste from the recycled water plant, which may be done by discharging the waste into Sydney Water's or Hunter Water's sewerage network.

Decision

- 8 We have decided that the appropriate pricing approach for the supply of sewerage services relating to waste from recycled water plants where the wholesale customer does not on-sell sewerage services to end-use customers, is the supplier's retail non-residential prices for sewerage services.

Non-residential (retail) prices are appropriate for recycled water waste disposal if the wholesale customers purchasing the sewerage service are not on-selling this sewerage service to a market where Sydney Water and Hunter Water are constrained by regulated retail prices.⁸⁰

Instead, the wholesale sewerage service is only purchased to supply a different service (recycled water). This means the customer can be viewed in a similar way to any other retail non-residential customer that uses Sydney Water's or Hunter Water's sewerage network to dispose of a by-product it generates in producing a different product or service.

Wholesale customers may also incur trade waste charges as set out in the prevailing Sydney Water and Hunter Water retail price determinations and Appendix F. Trade waste is defined as sewage (or wastewater) from commercial and industrial customers in which the concentrations of pollutants exceed a domestic equivalent.⁸¹ Sydney Water and Hunter Water currently levy trade waste charges to recover the costs of the transport, treatment and disposal of trade waste, the costs of corrosion from high strength wastes, and the costs of

⁸⁰ In these schemes, the inputs to the production of recycled water may be sourced from sewer mining, stormwater and/or groundwater.

⁸¹ A domestic equivalent is a concentration or level that is the same as would be found in household sewerage discharge.

administering trade waste agreements and conducting inspections. IPART reviews these trade waste charges along with Sydney Water's and Hunter Water's other retail prices.⁸²

In response to the Supplementary Draft Report, most stakeholders indicated support for non-residential prices to apply to recycled wastewater disposal services. However, a key distinction amongst stakeholders is that some stakeholders, including wholesale customers, argued that the non-residential retail prices should apply to all cases of recycled water waste disposal including where a recycled water plant is being used to on-sell sewerage services. Whereas Sydney water and Hunter Water argued that non-residential prices should only apply to recycled water waste disposal where the customer is not on-selling sewerage services. Stakeholder submissions have been outlined in Box 5.1.

Box 5.1 Stakeholder views on non-residential prices for recycled water waste disposal

- ▼ **Sydney Water** argued the provision of a recycled water plant waste disposal service (where wholesale sewerage services are not being on-sold), is not a wholesale service, and is essentially a sewer mining scheme.
- ▼ **Hunter Water** argued that the retail price determination applies to the service of disposing of waste from a recycled water plant that is not used to on-sell services.
- ▼ **Lendlease** considered that a new class of customer for customers operating a recycled water scheme should be created, and prices capped at the non-residential prices. This would acknowledge the type of customers that are likely to invest in and operate recycled water schemes, creating certainty and alleviating the need to go through scheme-specific reviews.
- ▼ **City of Sydney** stated the non-residential price should apply for recycled water waste disposal.
- ▼ **Flow Systems** argued that the relevant non-residential price for recycled water disposal is a price for a trade waste service and no evidence was provided in IPART's Supplementary Draft Report to suggest this price was not cost reflective for wholesale customers operating recycled water plants.

Sources: Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 16; Hunter Water submission to IPART Supplementary Draft Report, May 2017, p A.2; Lendlease submission to IPART Supplementary Draft Report, May 2017, pp 13 -14; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 3; Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 34.

We have decided not to include prices for recycled water waste disposal where there is no on-selling in the system-wide wholesale price determinations, as these prices are set out in the 2016 retail price determinations for Sydney Water and Hunter Water.⁸³

Sydney Water's submission to our March 2017 Supplementary Draft Report stated that it did not believe there was a need for a wholesale price where Sydney Water provided retail sewerage services to a scheme and a WIC Act licensee provides recycled water only. Sydney

⁸² See, for example: IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020*, June 2016, Chapter 11; and IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020*, June 2016, Chapter 9.

⁸³ IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, sch 1; and IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, sch 1.

Water states that sewer mining and trade waste agreements provided a sufficient framework to deal with recycled water plant waste disposal services where Sydney Water was the retail sewerage service provider. Sydney Water argued that its sewer mining framework enables parties to negotiate terms of the agreement and allows Sydney Water to recover the costs incurred to enable sewer mining connection and operation and that this would not be able to be recovered under the draft decisions included in the Supplementary Draft Report.⁸⁴

Hunter Water's submission to our Supplementary Draft Report stated that the supply scenario associated with waste disposal services to a recycled water plant that is not used for on-selling sewerage services does not involve the provision of wholesale services, so the pricing schedule for these services in the Supplementary Draft Determinations was redundant as the retail determination applies.⁸⁵

As outlined in section 2.6, we are planning to review our sewer mining pricing guidelines in the next year. In light of this and stakeholders' views, we have not included prices for recycled water waste disposal where there is no on-selling of wholesale sewerage services in the system-wide wholesale price determinations. Prices for this service are set in the 2016 retail price determinations. In cases where a WIC Act licensee is seeking this service from Sydney Water or Hunter Water and the retail price determinations do not apply, prices for these services can be agreed between the parties or set via a scheme-specific review by IPART. Our decision in this review on the appropriate pricing approach to apply to this service would inform our approach to a scheme-specific review.

⁸⁴ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 17.

⁸⁵ Hunter Water submission to IPART Supplementary Draft Report, May 2017, p A.2.

6 Facilitation costs

Wholesale customers may impose additional costs or cost savings on wholesale service providers beyond those reflected in retail-minus or non-residential prices. Throughout this review, we have held the position that the customer receiving a wholesale service should pay for the **net facilitation costs** that service provision creates. This will mean reflecting the prudent and efficient net facilitation costs in wholesale prices.

Facilitation costs include costs (positive) or cost savings (negative) to the wholesale service provider of servicing the wholesale customer. For example:

- ▼ a positive facilitation cost may arise if a wholesale service provider needs to upgrade or extend its water or sewerage network to provide water or sewerage services to a wholesale customer, and
- ▼ a negative facilitation cost may arise if a wholesale customer produces recycled water that creates benefit for the wholesale service provider, for example, allowing the wholesale service provider to defer its next scheduled water supply or sewerage treatment augmentation.

Net facilitation costs will therefore represent the sum of positive and negative facilitation costs (ie, facilitation costs *less* cost savings). A positive (negative) net facilitation cost will result in higher (lower) wholesale charges.

This chapter outlines our decisions on facilitation costs as they relate to wholesale prices.

6.1 Summary of decisions on approach to facilitation costs

We have maintained the approach to facilitation costs outlined in our March 2017 Supplementary Draft Report. This approach, its key elements, and our response to stakeholder submissions on facilitation costs are outlined below.

Decisions

- 9 We have decided that facilitation costs should be included in wholesale prices where they are:
 - additional to what the wholesale service provider would have otherwise incurred in the absence of servicing the wholesale customer, and
 - not reflected elsewhere in the wholesale price or recovered via another charging or funding mechanism of the wholesale service provider.
- 10 We have decided not to include facilitation costs in the system-wide wholesale prices but will consider them in scheme-specific determinations.
- 11 We have decided that facilitation costs should:
 - reflect the status of water and sewerage developer charges

- include positive (costs) and negative costs (cost savings), where appropriate
- exclude initial transaction costs, and
- exclude ongoing administration costs, except where they are material.

6.2 Facilitation costs should be additional costs not reflected elsewhere in the wholesale price or other charges

In order to be included in wholesale prices, facilitation costs (or cost savings) should be additional to what the wholesale service provider would have otherwise incurred (or realised) in the absence of servicing the wholesale customer. However it should be noted that these additional costs could be positive or negative (ie, cost savings).

Further, the wholesale price should not double-count costs. Facilitation costs should not be reflected elsewhere in the wholesale price (or recovered via another charging mechanism or funding source of the wholesale service provider).

In submissions to the Supplementary Draft Report stakeholders raised concerns of double charging. Flow Systems and the Institute for Sustainable Futures raised concerns regarding ‘double-charging’ for trade waste services, both through the retail component of retail-minus pricing and the potential for additional retail trade waste charges from a recycled water plant operated by the wholesale customer.⁸⁶ When undertaking a scheme-specific review, we would ensure that no double-charging occurs.

Sydney Water identified that cost savings to water network and treatment operation that were due to the operation of a recycled water plant would already be accounted for in the reduced volumetric charges in the wholesale price and therefore should not be also included in the assessment of negative facilitation costs, as this would be compensating the wholesale customer twice.⁸⁷ We would consider this, as well as other relevant matters, in assessing net facilitation costs as part of a scheme-specific review.

6.3 Facilitation costs should reflect the status of developer charges, include costs and savings, and exclude initial transaction costs

The sections below outline our decisions on the relationship between facilitation costs and developer charges, the inclusion of negative facilitation costs (or cost savings), and the treatment of transaction costs (including administration costs).

6.3.1 The relationship between facilitation costs and developer charges

Facilitation costs for the upgrade or extension of the water or sewerage network to supply wholesale customers should reflect the status of water and sewerage developer charges.

⁸⁶ Flow Systems submission to Supplementary Draft Report, May 2017, pp 29-30; and Institute for Sustainable Futures submission to Supplementary Draft Report, May 2017, p 8.

⁸⁷ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p v.

This means that under current arrangements, facilitation costs should not relate to development that would otherwise be funded by Sydney Water's or Hunter Water's retail postage stamp prices.⁸⁸ This is explained below.

The implications of developer charges for facilitation costs

Since 2008, Sydney Water and Hunter Water have not funded their growth expenditure through regulated developer charges. They fund their growth through two means:

- ▼ **retail prices** – growth expenditure approved by IPART and included in their retail prices, and
- ▼ **charging or funding arrangements with developers** – such as, where developers fund the additional costs of servicing new development or construct the necessary water infrastructure and then gift it to Sydney Water or Hunter Water.

The ability of Sydney Water and Hunter Water to recover their additional system costs from their wider customer base through an uplift to postage stamp retail prices can provide them with a competitive advantage over other competing providers (such as wholesale customers).

We maintain our position throughout this review that, to remove this advantage and allow competition on a level playing field, it is necessary to extend an equivalent subsidy to wholesale customers. However, this needs to be done in a way that does not create incentives for wholesale customers to operate in high-cost fringe areas (which would ultimately increase the price for all water users).

To do this, we have set out a methodology to include a subsidy that relates to the wholesale service provider's own plan to service growth in the development area concerned, but reflects any timing differences between the incumbent and the wholesale customer:⁸⁹

$$\text{Facilitation costs} = \text{NPV}[\text{Augmentation costs less planned cross-subsidy of these costs}]$$

This approach will mean that the facilitation costs relating to the augmentation of a wholesale service provider's network included in the wholesale price would be:

- ▼ Zero if the augmentation would be triggered at the same time under the wholesale service provider's growth plans, because the wholesale service provider would have the ability to pay for it through an increase to the postage stamp price.
- ▼ Equal to the cost of the augmentation if the augmentation would never be triggered under the wholesale service provider's growth plans, because the wholesale service provider was not planning to augment its system for this development.

⁸⁸ Development that would otherwise be funded by Sydney Water or Hunter Water's retail postage stamp prices is generally referred to as 'in-sequence' ie, it is development that is identified in a wholesale provider's growth plans. 'Out-of-sequence' development refers to development not identified in a wholesale provider's growth plan. If development is 'in-sequence' then necessary growth expenditure (if deemed prudent and efficient) is included in the wholesale provider's capital expenditure and hence (the return on and of capital) is reflected in retail postage stamp prices (eg, see Sydney Water submission to IPART Discussion Paper, May 2016, p 54; Hunter Water submission to IPART Discussion Paper, May 2016, pp 15-17).

⁸⁹ IPART, *Prices for wholesale water and sewerage services – Sydney Water Corporation and Hunter Water Corporation - Discussion Paper*, April 2016, pp 35-38.

We note that facilitation costs may include costs, other than augmentation costs, and cost savings (eg, avoided costs due to a wholesale customer's recycled water plant).

Where a development is within the wholesale service provider's growth plans, but is not planned to be developed in the immediate future, the subsidy should be reduced to reflect the fact that a cost has been brought forward in time. As outlined in section 2.6, our future review of developer charges determinations provides an opportunity for us to consider our approach to reviewing Sydney Water's and Hunter Water's growth expenditure in our retail price reviews.

In response to our Discussion Paper, Sydney Water submitted that with zero developer charges, the facilitation cost relating to augmentations that are in-sequence would not need to be paid by a developer because it is currently paid for by the broader customer base (ie, all its water and sewerage customers). Hence, it considered that zero facilitation costs would be appropriate for **in-sequence development**.⁹⁰ Hunter Water submitted that it obliges all new developers to pay for any lead infrastructure to connect and extend network assets, where necessary, for new development. As such, it considered that there was no need to adjust wholesale prices through net facilitation costs to take account of these costs.⁹¹ We note that Hunter Water is currently reviewing its approach to the delivery and funding of water and sewerage infrastructure for urban growth in its area of operations.⁹²

In its submission to the Supplementary Draft Report, Flow Systems argued that there appears to be no legal basis for IPART to allow the recovery of the cost of complying with the directive on zero developer charges in regulated retail prices. Accordingly, the existence of the zero developer charges directive does not represent a sound reason to adopt a retail-minus approach.⁹³

In response, we note that we have not decided that retail-minus pricing is the appropriate approach for on-selling because of zero developer charges. Rather, as outlined above, zero developer charges are relevant to the consideration of net facilitation costs, and net facilitation costs should be added to the retail-minus price.

As noted in Chapter 4, we consider that retail-minus pricing (adjusted for net facilitation costs) is appropriate where the wholesale customer is purchasing a wholesale service (water or sewerage) to on-sell to water or sewerage customers because the wholesale provider (Sydney Water or Hunter Water) is constrained by regulated retail prices. Retail-minus pricing should create a margin for the new entrant (the minus) that reflects an estimate of the cost of the contestable services, adjusted for the value of net facilitation costs. This ensures the wholesale service provider and wholesale customer are competing on the basis of their respective costs of supplying the contestable services, rather than on the basis of an arbitrage opportunity or artificial margin created by virtue of the nature of regulated retail prices.

⁹⁰ Sydney Water submission to IPART Discussion Paper, May 2016, p 26.

⁹¹ Hunter Water submission to IPART Discussion Paper, May 2016, p i.

⁹² Hunter Water, Investing in Growth Infrastructure for the Lower Hunter, Consultation Paper, May 2017.

⁹³ Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 8.

6.3.2 Consideration of positive and negative costs

Throughout this review, we have recognised that the wholesale service provider could realise cost savings (or negative facilitation costs) as a result of the activities of the wholesale customer. We have noted, for example, a negative facilitation cost may arise if a wholesale customer produces recycled water that allows the wholesale service provider to defer its next scheduled water supply or sewerage treatment augmentation.⁹⁴

Some stakeholders have argued that recycled water schemes deliver benefits to water users through the deferral of water supply augmentation and more broadly to the community through, for example, enhancing the liveability of urban development.⁹⁵ Liveability was also an issue raised in our recent review of Sydney Water's prices. Our explanation of how we consider liveability and other environmental issues and their impacts in our price determinations is explained in Chapter 2 of this report and Chapter 2 of our Final Report on our 2016 Sydney Water retail price determination.⁹⁶

⁹⁴ IPART, *Prices for wholesale water and sewerage services – Sydney Water Corporation and Hunter Water Corporation - Discussion Paper*, April 2016, p 35.

⁹⁵ Flow Systems submission to IPART Supplementary Draft Report, May 2017, pp 5 and 8; and Lendlease submission to IPART Supplementary Draft Report, May 2017, p 9.

⁹⁶ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 34-41.

Box 6.1 Stakeholders' views on facilitation costs

Throughout this review, stakeholders have noted the potential impacts of facilitation costs, and how either positive or negative facilitation costs should be considered. For example, stakeholders have made varying arguments associated with the benefits of recycled water plants, and the extent to which negative facilitation costs may be applied. Stakeholder submissions on facilitation costs are outlined below:

- ▼ **Flow Systems** argued that the concept of facilitation costs is misconceived, as it is unlikely Sydney Water or Hunter water will seek to negotiate recognition of facilitation costs, as there is no incentive for the monopoly supplier to agree to facilitation costs. It also argued that IPART had limited the scope of negative facilitation costs for the most part to avoided augmentation costs. Negative facilitations costs also do not take into account pre-existing infrastructure installed by either Sydney Water or Hunter Water which is inefficient.
- ▼ **City of Sydney** noted that for scheme-specific reviews, the calculation of facilitation costs relies on provision of information from incumbent monopoly providers to calculate augmentation costs and savings, promoting monopoly power.
- ▼ **Hunter Water** noted it makes sense to assess the recovery of costs for private utility schemes where facilitation costs, both positive costs and cost savings, are likely to be material.
- ▼ **Sydney Water** agreed that facilitation costs can be both positive and negative and that any significant facilitation costs are best determined on a case-by-case basis. In principle, all facilitation costs should be included in wholesale prices.
- ▼ **Institute for Sustainable Futures** stated that the substantial deviations in both potable and wastewater demand of wholesale customers as compared to a standard residential customer are only considered via scheme-specific reviews of facilitation costs.

Sources: Flow Systems submission to IPART Supplementary Draft Report, May 2017, pp 33, 37-38; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 3; Hunter Water submission to IPART Supplementary Draft Report, May 2017, pp ii and 2; Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 20; The Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, pp 1 and 4.

In response to the Institute for Sustainable Futures' and Flow Systems' submissions, we note that, as part of a scheme-specific review, we would consider actual volumes of water supplied and wastewater discharged as part of our assessment of the impact of a recycled water plant on the wholesale service provider's efficient costs and hence the wholesale price.

For wholesale customers who provide only retail and reticulation services, it is appropriate to maintain the assumed average discharge factor.

For a wholesale customer who also operates a recycled water plant, there may be a reduction in wastewater volumes discharged to the wholesale service provider's network, which may result in a cost saving to the wholesale service provider. We agree with the Institute for Sustainable Futures' submission that this matter should be considered. The nature of the saving will vary considerably by the location and size of the recycled water plant and the location and type of the downstream wastewater treatment plant. Additionally, the impacts may vary both by scheme and also within the scheme over time (for example, as the end-use customers increase their use of recycled water over time). As such, IPART's view is that these cost savings are best addressed through a scheme-specific review rather than system-wide prices.

We sought advice from our consultant, Oakley Greenwood, on the impacts of wholesale customers' water recycling plants on Sydney Water's and Hunter Water's costs. This issue is discussed further below. Oakley Greenwood noted that an individual wholesale scheme with a recycled water plant may not be large enough to impact on upstream augmentations in their own right. However, there may be a cumulative effect of a number of wholesale schemes with recycled water plants, which could result in a reduction or deferral of the augmentation of a wholesale service provider's network.⁹⁷ We would consider the approach to this issue as part of undertaking a scheme-specific review.

We maintain our view that, in principle, negative facilitation costs should be reflected in wholesale prices. However, as outlined further below, we consider that, at this stage, these cost savings or benefits of wholesale customer's schemes to wholesale service providers, such as those associated with recycled water plants, can only be determined with a reasonable degree of accuracy on a scheme-by-scheme basis. Hence, as with other facilitation costs, they are not included in our system-wide determinations. Rather, these facilitation costs are best included in wholesale prices via unregulated agreement or a scheme-specific review and determination by IPART. Over time, if more information is revealed and tested through conducting scheme-specific reviews, we may be in a position to establish estimates of benchmark or 'typical' facilitation costs.

6.3.3 The treatment of transaction and on-going administrative costs

Sydney Water or Hunter Water may incur **initial transaction costs** in setting up a wholesale service agreement with a wholesale customer (eg, the legal and in-house resources spent preparing and finalising utility services agreements).⁹⁸

They may also incur **ongoing administrative costs** in servicing wholesale customers (eg, costs associated with issuing bills to the wholesale customer and responding to enquiries). In fact, other industries, such as gas, allow for the inclusion of certain administrative and/or transaction costs (such as meter readings) in prices.⁹⁹

Initial transaction and ongoing administrative costs excluded from wholesale prices

We have maintained our decision that each party (wholesale service provider and wholesale customer) should bear its own initial transaction costs – ie, these costs should be excluded from wholesale prices. This is to ensure there are incentives for prudent and efficient contracting processes between wholesale customers and wholesale service providers. In this context, we note that initial transaction costs per wholesale servicing arrangement would be expected to decline as the number of wholesale servicing arrangements in place increases and parties gain experience with this type of contracting.

⁹⁷ Oakley Greenwood, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants*, June 2017, p 42.

⁹⁸ Hunter Water submission to IPART Discussion Paper, May 2016, p 16. Sydney Water also discusses similar negotiation costs in its submission, Sydney Water submission to IPART Discussion Paper, May 2016, p 24.

⁹⁹ In the gas industry, transactions costs such as meter reading and associated data activities (including maintenance) maybe recovered from distribution pipeline tariffs through the 'Haulage Reference Service' charges under rule 94 (4)(b)(i) of the National Gas Rules.

We have also maintained our decision that on-going administrative costs should not be added to wholesale prices, except where they are material:¹⁰⁰

- ▼ Where our decisions on pricing approaches apply non-residential retail prices (ie, for drinking water top-up and the disposal of waste from recycled water plants that are not being used to on-sell sewerage services), on-going administrative costs would be incorporated in prices. Therefore, in these situations, additional charges should not be incorporated into the wholesale charges.
- ▼ Where wholesale customers are charged a retail-minus price, we would assess the prudence and efficiency of the proposed administrative costs before making any allowances. However, we expect these costs are unlikely to be material.

In response to our November 2016 Draft Report, Hunter Water noted that, by excluding initial transaction costs and administration costs for on-selling arrangements, IPART would be providing further support to wholesale customers. It also noted that it has already incurred significant legal costs in developing utility service agreements with wholesale customers.¹⁰¹

Sydney Water accepted the exclusion of initial transaction costs and ongoing, non-material, administration costs, for the first determination. It stated that, for simplicity, it is prepared to bear both initial transaction costs and on-going administration costs. However, it argued that IPART should revisit this decision at the next determination.¹⁰²

6.4 Facilitation costs will be considered in scheme-specific reviews of wholesale prices

We have maintained our draft decision that facilitation costs (negative and positive) are best included in wholesale prices via scheme-specific reviews.

In our March 2017 Supplementary Draft Report, we noted that facilitation costs (negative and positive) can vary significantly by scheme, and that therefore estimating system-wide facilitation costs that are sufficiently accurate to be reflected in a price determination is not possible. We also noted, however, that given Sydney Water's and Hunter Water's developer charges are set to zero by the Government, **positive** facilitation costs that relate to augmentation of the supply network should generally be zero where such costs are prudent and efficient and consistent with the wholesale service provider's 'business as usual' growth plans.

In stakeholder submissions in response to our November 2016 Draft Report and the March 2017 Supplementary Draft Report, our conclusion that facilitation costs can vary considerably between schemes was not contested.

However, several stakeholders suggested that IPART should develop average or typical estimates of negative facilitation costs (cost savings) associated with recycled water plants

¹⁰⁰ We would assess the materiality of these costs on a case-by-case basis.

¹⁰¹ Hunter Water submission to IPART Draft Report, December 2016, p A.4.

¹⁰² Sydney Water submission to IPART Draft Report, December 2016, pp 35-36.

and integrated water cycle management, or consider these costs as more information becomes available.¹⁰³

Flow Systems and Lendlease argued that wholesale prices for IWCM schemes should be capped at the non-residential price due to the public benefits they bring.¹⁰⁴

IPART cannot continue to ignore the public benefits of recycled water. Increased water security, downward pressure on water prices resulting from avoided upstream and downstream infrastructure augmentation, conservation of drinking water supplies, and enhanced liveability, have clear and measurable value to the State, to customers and the broader community.¹⁰⁵

Our approach to factoring in the benefits of recycled water in our pricing decisions is outlined in Chapter 2. We note that while there may be benefits from recycled water, they can accrue to different parties. As outlined by Flow Systems above, recycled water could benefit the State, customers or the broader community.

Where a recycled water plant creates avoided costs for Sydney Water and Hunter Water, these should be reflected in the wholesale price (eg, through negative facilitation costs). In submissions to the Supplementary Draft Report, both Sydney Water and Hunter Water agreed with the approach to reflecting facilitation costs in wholesale prices via a scheme-specific review.¹⁰⁶

In response to our November 2016 Draft Report, stakeholders raised a number of other issues in relation to facilitation costs including Flow Systems' suggestion of a 'water scarcity offset', with similar arguments from Lendlease and City of Sydney, and the need to consider the benefits of avoided or delayed costs of the Sydney Desalination Plant.¹⁰⁷ See section 8.4 of our March 2017 Supplementary Draft Report for the consideration of these issues.

6.4.1 Impacts of recycled water operation

To inform our Supplementary Draft Report, we engaged Oakley Greenwood to provide advice on the impacts of third parties' recycling schemes on Sydney Water's and Hunter Water's costs, including potential avoided costs.¹⁰⁸ Oakley Greenwood considered whether these impacts could be estimated on a system-wide basis in order to inform our decision on whether to include values for these impacts in our system-wide determinations.

Oakley Greenwood found that:

- ▼ a recycled water plant is likely to have cost impacts for wholesale service providers in relation to both upstream (water) and downstream (sewerage) services

¹⁰³ For example: Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 20; Hunter Water submission to IPART Supplementary Draft Report, May 2017, p 2; Flow Systems submission to IPART Supplementary Draft Report, May 2017, pp 36-39.

¹⁰⁴ Lendlease submission to IPART Draft Report, December 2016, p 35; Flow Systems submission to IPART Draft Report, December 2016, p 3.

¹⁰⁵ Flow Systems submission to IPART Draft Report, December 2016, p 3.

¹⁰⁶ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 4; and Hunter Water submission to IPART Supplementary Draft Report, May 2017, pp ii and 2.

¹⁰⁷ Flow Systems submission to IPART Draft Report, December 2016, pp 7-8; Lendlease submission to IPART Draft Report, December 2016, p 16; City of Sydney submission to IPART Draft Report, December 2016, pp 5-6.

¹⁰⁸ Oakley Greenwood, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants*, March 2017.

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- ▼ the magnitude and direction of these impacts is dependent on a number of factors, and
 - ▼ system-wide cost impacts can be derived for some elements, however there are potentially significant cost impacts that, at this stage, would require scheme-specific estimates.

Oakley Greenwood was engaged to look at the impacts of recycled water plants, not how these impacts should be recovered in wholesale prices. As per the discussion in section 6.2 above, the cost impacts identified by Oakley Greenwood should only be accounted for in facilitation costs to the extent they would not be reflected elsewhere in the charging arrangements.

In submissions to the Supplementary Draft Report, some stakeholders commented on Oakley Greenwood's findings, these comments are summarised in Box 6.2 below. We engaged Oakley Greenwood to consider stakeholders' comments and provide updated advice. Oakley Greenwood's revised report, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants* (June 2017), which considers and responds to stakeholder comments, is available on IPART's website: www.ipart.nsw.gov.au.

Box 6.2 Stakeholder comments on Oakley Greenwood report regarding cost impacts for recycled water plants

We engaged Oakley Greenwood to provide advice on the impacts of third parties' recycling schemes on Sydney Water's and Hunter Water's costs, including potential avoided costs. Stakeholders' responses to Oakley Greenwood's reports and findings include:

- ▼ **Sydney Water** suggested there are errors in Oakley Greenwood's report regarding the types of costs that may be considered as minuses or facilitation costs when the wholesale customer operates a recycled water plant. Sydney Water argued that suggested avoided costs associated with reduced potable water usage would be accounted for in reduced volumetric charges as part of the calculation of the retail-minus wholesale price. That is, inclusion of the suggested minuses / avoided costs would be double-counting.
- ▼ **Hunter Water** broadly agreed with Oakley Greenwood's conclusions that:
 - a recycled water plant is likely to have cost impacts for wholesale service providers in relation to both upstream (water) and downstream (sewerage) services
 - the magnitude and direction of these impacts is dependent on a number of factors, and
 - system-wide cost impacts can be derived for some elements, however there are potentially significant cost impacts that, at this stage, would require scheme-specific estimates.

Hunter Water stated that although the Oakley Greenwood report provides useful foundational material on the cost impacts of recycled water schemes for upstream and downstream services, it does not agree with all the underlying assumptions and analysis:

- The upstream potable water and downstream wastewater flows are reduced by the quantity of recycled water produced, however this is not appropriate when not all water is used.
 - Does not support using an estimate of zero for Hunter Water's long run marginal cost of bulk water supply.
 - Bulk water supply and water treatment plant cost estimates should be compared with short run marginal costs and may vary on a geographic basis.
 - It was not clear whether Oakley Greenwood considered the impacts of recycled water plants on peak capacity for water treatment.
 - Oakley Greenwood's report did not consider pressure sewerage systems.
 - Hunter Water was unable to verify the water treatment plant operational cost impacts provided by Oakley Greenwood.
- ▼ **Lendlease** commented on Oakley Greenwood's finding that a recycled water plant is likely to have cost impacts for wholesale service providers in relation to both upstream (water) and downstream (sewerage) services. It noted that when considering the analysis by Oakley Greenwood, it is apparent facilitation costs will apply to each customer operating a recycled water scheme under differing circumstances.
 - ▼ **Institute for Sustainable Futures** commented on a range of average cost savings identified in the Oakley Greenwood report and other average minus components, which it suggested could be used as interim estimates in prices.

Sources: Sydney Water submission to IPART Supplementary Draft Report, May 2017, pp v and 20; Hunter Water submission to IPART Supplementary Draft Report, May 2017, pp 2-3; Lendlease submission to IPART Supplementary Draft Report, May 2017, p 9; Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, p 5.

We have decided not to include adjustments to the system-wide prices to reflect negative facilitation costs (or avoided costs) of recycled water schemes in our first determinations of system-wide wholesale prices. As noted earlier in this report, we have excluded schemes with recycled water plants from the system-wide price determinations for on-selling. We note that, over time as more recycled water schemes become operational, and more information on their impacts becomes available and can be verified, we may be able to incorporate avoided costs from recycled water plants in future system-wide determinations.

We consider that a recycled water scheme should be assessed holistically as part of a scheme-specific review to identify all of the avoided costs to Sydney Water and Hunter Water. Oakley Greenwood's report outlines some factors that we could consider in assessing whether to include additional avoided costs in the wholesale price. This information could also be used by wholesale service providers and customers to inform negotiations of unregulated pricing agreements, or future proposals to scheme-specific reviews. Table 6.1 summarises Oakley Greenwood's findings.

Stakeholders, including Flow Systems, Lendlease and the City of Sydney, also expressed concern about the costs, time and information asymmetry associated with determining facilitation costs as part of a scheme-specific review.¹⁰⁹

Our view is that stakeholder concern about information asymmetry between Sydney Water and Hunter Water and wholesale customers in relation to facilitation costs is best addressed through the process of a scheme-specific review. During such a review, if necessary, IPART would require further information from Sydney Water or Water Hunter and/or wholesale customers and seek to verify this information - eg, via engaging engineering consultants (similar to the approach to expenditure reviews in a retail price review). If the issue of information asymmetry emerges as a significant problem, this could inform consideration of implementing a remedy as part of future reviews of Hunter Water's and Sydney Water's operating licence conditions.

We also note that the outcomes of one or more scheme-specific reviews may provide the basis for wholesale customers and service providers to negotiate, rather than requiring a scheme-specific review. They may also inform future system-wide determinations, to expand their applicability (eg, through inclusion of standard positive and/or negative facilitation costs).

¹⁰⁹ Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 39; Lendlease submission to IPART Supplementary Draft Report, May 2017, pp 11-12; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 3.

Table 6.1 Potential avoided costs to Sydney Water and Hunter Water from a wholesale customer's recycled water plant

Potential cost impacts	Site-specific factors that may influence the cost impact	'Typical' cost impact
Water supply costs		
Water treatment plant operational costs	Water treatment plants employ similar treatment technologies, and raw water can be transferred between locations to manage supply. However, need to account for distances for transfer/connection, electricity prices, pump and motor efficiency.	Pumping: estimated reduction of \$0.04/kL of recycled water consumed. Treatment: estimated reduction of \$0.02/kL of recycled water consumed. Residual handling: estimated reduction of \$0.005/kL to \$0.01/kL of recycled water consumed.
Water network augmentation costs	Size and location of recycled water scheme, as well as capacity of the network.	The wholesale service provider could incur costs if it has to bring forward network augmentation, cost savings if it can defer augmentation or no cost impact if it has spare capacity. The significantly variable nature of the potential impact does not lend itself to a system-wide approach.
Bulk water supply costs	Size of recycled water scheme and whether it leads to a sustainable reduction in potable water consumption.	The long-run marginal cost (LRMC) of water supply could be an effective proxy but there needs to be evidence of sustainable savings to potable water, capital information needs to be robust, and the estimate needs to be current. Recommend applying the LRMC to the volume of potable water displaced. <ul style="list-style-type: none"> ▼ For Sydney Water, a point estimate based on IPART's current LRMC 'best estimate' range of \$1.11/kL to \$1.30/kL. ▼ For Hunter Water, there is no current available estimate and no forecast supply augmentations. In the absence of an available estimate, Oakley Greenwood recommended developing a LRMC based on the best available information at the time, or by using a similar service provider as a proxy.
Sewerage supply costs		
Wastewater treatment plant operational costs	Type of wastewater treatment plant – primary or secondary/tertiary. Type, size and structure of recycled water plant (including its input source).	Given the different factors, it is generally not possible to provide estimates of system-wide cost impacts. Some indicative estimates are provided for pumping, residuals handling and aeration costs. These generally reflect a small or negligible change in costs.
Wastewater network augmentation costs	Spare capacity in the network, age and condition profile of infrastructure, expectation of future growth in demand and capital requirements.	Differences between catchment networks make it difficult to make system-wide estimates based on currently available information. Developing cost impacts may be possible in the future, however this will depend on the availability of robust information.
Wastewater treatment plant (or disposal) augmentation	Location, size and structure of recycled water scheme. Environmental discharge licences of the wastewater treatment plant.	The extent of different factors makes it difficult to establish a system-wide estimate.

Source: Oakley Greenwood, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants*, June 2017.

7 Scheme-specific reviews and unregulated pricing agreements

As outlined in Chapter 4, our wholesale price determinations include system-wide prices for the services of water and sewerage on-selling to apply to new wholesale schemes where no recycled water plant is present. Where these system-wide prices do not apply (ie, existing schemes or new schemes where a recycled water plant is present) or do not reflect a particular scheme's characteristics, our regulatory framework provides for prices to be set by IPART via a scheme-specific price review or for parties to enter into an unregulated pricing agreement.

This chapter discusses our decisions on the process we will use for scheme-specific price reviews and determinations, and unregulated pricing agreements.¹¹⁰

7.1 Scheme-specific price reviews

We have decided to streamline the process that was outlined in our Supplementary Draft Report to review and determine scheme-specific prices.

Decisions

- 12 We have decided to use the indicative process in Table 7.1 to review and determine scheme-specific prices for wholesale water and/or sewerage services.
- 13 We have decided not to set an interim price to apply while a scheme-specific review is being undertaken or apply a true-up mechanism to adjust for any differences between the price before and after a scheme-specific determination is made.

Our March 2017 Supplementary Draft Report set out a process for initiating and conducting scheme-specific price reviews and determinations. There were divergent views from stakeholders on the process. These are outlined in Box 7.1 below.

In light of this, we have revised the timeframe and process for scheme-specific reviews that was outlined in the Supplementary Draft Report. We have removed the step that involved IPART publishing its preliminary view on the pricing proposal and seeking stakeholders' views on this. In addition, we have reduced the overall time associated with a scheme-specific review to **four months**. Table 7.1 set outs an indicative process for a scheme-specific review within the four month period. Where necessary, we will work with parties to refine this process, including confirmation of the specific steps and timeframe for each step within the four month period.

Prior to a party seeking a scheme-specific review, we would expect that party to have sought to reach agreement on price with the other party, and that both parties would have sought to negotiate in good faith. Ideally, a scheme-specific review would therefore focus primarily

¹¹⁰ In the Determinations, these are referred to as 'Negotiated Services Agreements'.

on key areas that have not been resolved during negotiations. We would also expect both parties to provide their best available information to IPART in response to our information requests. We note that, where a submission contains confidential information, IPART would not publish this information and would otherwise keep that information confidential.

In the event that one or both parties request a scheme-specific review and they have not sought to negotiate and/or then fail to provide timely information, we would make the determination based on the provided information, supplemented by information assembled and analysed by IPART.

The IPART Act requires IPART to give notice of its pricing investigation in a newspaper circulating in New South Wales, to hold a public hearing, and to have regard to all of the matters listed in section 15 of the IPART Act whenever it determines a price for a service.¹¹¹

The process outlined in Table 7.1 also includes a step that involves IPART releasing a draft report and determination for stakeholder comment. Whilst this step is not a specific statutory requirement, we consider it is an important step in the review process.

Table 7.1 Process and timing for reviewing scheme-specific prices

Process step	Description	Statutory requirement
Prior to requesting a review	The wholesale customer and wholesale service provider would seek to negotiate a price (or prices) for an existing or proposed wholesale water and/or sewerage scheme.	
1.	If the wholesale customer and wholesale service provider are unable to agree on price, the wholesale customer or wholesale service provider writes to IPART to request a price review and determination, outlining the steps they have taken to negotiate with the other party.	
2.	IPART advises the wholesale customer and wholesale service provider of its decision to proceed with a scheme-specific review.	
3.	IPART advertises the price review in the relevant local newspaper.	✓
4.	IPART requests: <ul style="list-style-type: none"> ▼ the wholesale service provider submit a Wholesale Pricing Proposal by a specific date, and ▼ the wholesale customer submit its views on the Pricing Proposal by a specific date. 	
5.	IPART releases a draft report and determination for stakeholder comment.	
6.	IPART holds a public hearing.	✓
7.	IPART considers submissions and makes final pricing decisions, and releases a final report and determination that sets out the maximum prices (or methodology for determining maximum prices) for each wholesale service supplied to the scheme.	✓
Total timing for steps 1 to 7:		4 months

To reduce administrative costs associated with scheme-specific reviews and depending on the timing of requests, we may undertake reviews and determine prices for a number of schemes providing similar services at the same time.

¹¹¹ IPART Act, sections 13(2), 15 and 21.



We note that a scheme-specific review may be applied for from 1 July 2017. However, consistent with the commencement date of the system-wide price determinations, we would not make any scheme-specific price determinations for a commencement date prior to 1 January 2018.

Our aim in determining scheme-specific prices would be consistent with our objectives for this price review. That is, we would aim to set prices that allow new entry to the market for end-use water and sewerage services to occur where this is efficient over time, to promote competition for the benefit of consumers.¹¹²

Our decisions in this review, particularly in relation to the appropriate pricing approaches for particular services, would inform any future scheme-specific review. However, we would consider views put forward by stakeholders, as well as the matters listed in section 15 of the IPART Act.

The length of the determination period for each scheme-specific determination would be decided by IPART as part of each review, taking into account a number of factors including the views of stakeholders in each review.

Further information on our approach to scheme-specific reviews is outlined below.

¹¹² Each scheme-specific determination would be made having regard to the matters listed in section 15 of the IPART Act.

Box 7.1 Stakeholders' views on scheme-specific reviews

The following stakeholder submissions were made in relation to the scheme-specific review process detailed in the Supplementary Draft Report.

- ▼ **Hunter Water** supported the scheme-specific review process outlined in the Supplementary Draft Report, where the circumstances justify the additional time and effort.
- ▼ **Sydney Water** accepted the process for scheme-specific reviews outlined in the Supplementary Draft Report, noting that the time required to prepare a pricing proposal would likely take longer than one month given the wholesale service provider is required to consult with the wholesale customer and incorporate the results of this engagement into the pricing proposal.
- ▼ **City of Sydney** argued scheme-specific reviews would be lengthy and create uncertainty and risk, with the transaction costs of scheme-specific reviews too high. Investment decisions would be required to align with development timeframes and it may not be practical to wait for a scheme-specific determination.
- ▼ **Institute for Sustainable Futures** argued simple minimum pricing proxies could be used that would promote efficient investment, increase the predictability of the wholesale price and reduce the need for uncertain, costly and time consuming scheme-specific reviews.

It suggested scheme-specific reviews should only be triggered when there are localised avoided costs from delays of infrastructure augmentation, or there are substantial deviations from the simple proxy pricing (minus) components.

- ▼ **Lendlease** argued scheme-specific reviews will not work, citing:
 - public disclosure requirements will reveal confidential information and intellectual property to competitors
 - the wholesale service provider is a competitor
 - the timeframe is too long, and
 - prior negotiation will not speed up the process.
- ▼ **Flow Systems** argued scheme-specific reviews were risky and undesirable as they would involve negotiations with a monopoly service provider, followed by significant costs in relation to preparing and lodging a scheme-specific review request with IPART and a lengthy review process of up to 12 months.

Sources: Hunter Water submission to IPART Supplementary Draft Report, May 2017, p 7; Sydney Water submission to IPART Supplementary Draft Report, May 2017, pp 20-21; City of Sydney submission to IPART Supplementary Draft Report, May 2017, p 3; Institute for Sustainable Futures submission to IPART Supplementary Draft Report, May 2017, p 5; Lendlease submission to IPART Supplementary Draft Report, May 2017, pp 4 and 11-12; Flow Systems submission to IPART Supplementary Draft Report, May 2017, pp 4 and 39-40.

7.1.1 A scheme-specific review could be requested by any party

IPART may issue guidance on the information to be included in a request for a scheme-specific review (such as the parties involved, evidence of attempted negotiation between the parties, a description of the wholesale service and the reason(s) a scheme-specific review is being requested, including the areas of agreement or disagreement).

IPART would take such information, and other information such as administration costs of a scheme-specific review, into account when deciding whether:

- ▼ to proceed with a scheme-specific review
- ▼ to leave unchanged any existing, IPART-determined price that applies to the scheme, or

-
- ▼ to defer setting a price for that wholesale scheme until some later time.

IPART has a standing reference to investigate and make reports on the determination of pricing for such services under the IPART Act.¹¹³ Given this standing reference, IPART may also initiate a review without a request from either party, as the wholesale services concerned are 'government monopoly services' supplied by Sydney Water and Hunter Water. We would not expect to initiate a scheme-specific review except under exceptional circumstances.

7.1.2 Wholesale service provider would need to propose wholesale prices for the scheme

As a key step in a scheme-specific review, the wholesale service provider would be required to submit a Wholesale Pricing Proposal, which includes its proposed prices and the key information and methodologies relating to these prices.

The Wholesale Pricing Proposal should also include information on the extent to which negotiation has occurred between the wholesale service provider and the wholesale customer, outcomes of the negotiation and how this has informed or been reflected in the pricing proposal.

As outlined above, we would expect there has been a reasonable attempt to negotiate and reach agreement on price in advance of a scheme-specific review. This negotiation process should ensure the wholesale service provider is well placed to submit its Wholesale Pricing Proposal, and the wholesale customer is similarly well placed to respond to this proposal within the timeframe of the review. It should also help ensure the Wholesale Pricing Proposal is able to focus on key unresolved areas.

A high quality Wholesale Pricing Proposal that is based on meaningful negotiation between the parties would help to ensure the review process runs smoothly and is as targeted as possible, which would benefit all parties.

The Wholesale Pricing Proposal would need to include information on:

- ▼ the existing arrangements for the supply of the services concerned, and the prices charged for them (to the extent that there are any)
- ▼ the proposed prices, and the rationale and key assumptions behind them
- ▼ how the wholesale customer's input has been considered and how it has influenced the proposal
- ▼ the infrastructure and operating requirements to provide end users with retail services from the wholesale service provided
- ▼ the net facilitation costs the wholesale provider would incur in supplying the wholesale services concerned, considering both positive (costs) and negative (cost savings or avoided costs) facilitation costs
- ▼ the wholesale service provider's relevant growth plans, and

¹¹³ Under section 11 of the IPART Act.

- ▼ the proposed arrangements to transition from the existing to proposed prices (if applicable).

We consider the wholesale service provider should be responsible for the preparation of the Wholesale Pricing Proposal, regardless of whether it requested the review, as it has the information regarding the costs of providing the wholesale service(s) and would be required to charge the prices to be set as part of the review. IPART would seek views of the wholesale customer on the Wholesale Pricing Proposal, which will enable IPART to consider the views from both parties early in the review. This eliminates the need for IPART to release an Issues Paper.

7.1.3 IPART would conduct public consultation, and consider the Proposal and stakeholder submissions

Once we have received the Wholesale Pricing Proposal, we would conduct a review and make our decisions to determine the scheme-specific price to apply. We would make draft decisions and release a draft report and determination, and invite stakeholder submissions. We would consider stakeholder submissions before making our final decisions and releasing a final report and determination.

In determining maximum prices, we are required to give notice in a newspaper and hold a public hearing.¹¹⁴ The level and nature of this consultation would be scaled to reflect the size of a scheme and/or the scope of the scheme-specific price review. In designing the approach to undertaking consultation, we would be cognisant of managing confidential information.

7.1.4 Timeframe for completing a review

In response to stakeholder concern about the potential time (and hence cost and uncertainty) associated with scheme-specific reviews, we have reduced the time for a scheme-specific review to **four months**.

Prior to a scheme-specific review, we would expect both parties to negotiate and seek to reach agreement on price. At a minimum, this negotiation process would allow both parties to commence a scheme-specific review with a common understanding of the key areas that remain outstanding. This would allow the review to be as targeted and streamlined as possible, to the benefit of all parties. This pre-review negotiation process should also ensure that both parties are well equipped to comply with IPART's information requests during the review.

We note that this Final Report and the accompanying system-wide price Determinations can inform negotiations between wholesale service providers and wholesale customers and, if necessary, submissions to IPART scheme-specific reviews. This Final Report outlines IPART's current positions on the appropriate pricing approaches and methodologies to apply to wholesale services. In making scheme-specific price determinations, we would also

¹¹⁴ Under section 13(2) and section 21 of the IPART Act. If IPART is satisfied that it is desirable to do so, it may direct that a hearing or part of a hearing is to take place in private, or give directions prohibiting or restricting the publication of evidence given before the hearing or of matters contained in documents given to the Tribunal.

consider stakeholder submissions to each scheme-specific review and the matters listed in section 15 of the IPART Act, including customer impacts.

IPART does not backdate its determinations. Therefore, for new schemes, the wholesale service provider or wholesale customer would need to have requested a scheme-specific review before the scheme becomes operational if scheme-specific regulated prices are to be determined before any wholesale services are supplied. New wholesale schemes should have sufficiently long lead times that participants may seek a scheme-specific review in advance of a scheme becoming operational and the wholesale service(s) being provided. Alternatively, unless covered by the system-wide or retail determinations, they would need to reach a temporary pricing agreement with the wholesale service provider to apply until the review is completed and prices determined.

7.1.5 Period of a scheme-specific determination would be set as part of the review

The length of the period a scheme-specific determination would apply would be decided by IPART as part of each scheme-specific review; taking into account the views and information provided by stakeholders in each review.

We expect the wholesale service provider would propose a duration for the determination in its Wholesale Pricing Proposal. In deciding on the length of the determination period, we would consider a range of matters, including:

- ▼ the confidence we can place in the cost forecasts
- ▼ the risk of significant changes to the scheme
- ▼ the need for price flexibility and incentives to increase efficiency and encourage efficient entry, and
- ▼ the need for regulatory certainty and financial stability.

7.1.6 IPART would not set interim prices while a scheme-specific review is being undertaken

We have decided to maintain our draft decision to not set an interim price while a scheme-specific review is being undertaken.

In response to our Supplementary Draft Report, Sydney Water accepted IPART's decision to not set an interim price or true-up.¹¹⁵ In response to our Draft Report, Hunter Water maintained its position that setting interim prices and a true-up was not necessary.¹¹⁶

The regulatory framework provides flexibility for IPART to determine prices as necessary due to IPART's standing reference to determine prices and the ability for wholesale customers or service providers to request a scheme-specific review at any time.

For schemes subject to existing contractual arrangements that are seeking a scheme-specific review, their interim price would effectively be the existing price (as per the existing agreement, or unless otherwise agreed to through an unregulated agreement). In the case of

¹¹⁵ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 5.

¹¹⁶ Hunter Water submission to IPART Draft Report, December 2016, p A.5.

new schemes, a scheme-specific price review could be completed before the scheme was operational.

7.1.7 IPART would not apply a true-up mechanism

We have decided to maintain our draft decision not to apply a true-up mechanism. As we have maintained our draft decision not to set an interim price, there is no basis for the operation of a true-up mechanism. In addition, it could increase regulatory uncertainty for wholesale customers by compounding the impact of any price changes arising from a price determination.

Wholesale customers may find the true-up risk too high and be deterred from entering the market. Also, the concern that parties would strategically protract negotiations is not significant under our decisions, as we can ensure the timeliness of a determination once the review is initiated.

7.1.8 Matters IPART would consider in a scheme-specific review

Scheme-specific reviews may be complex or simple, dependent on the scheme characteristics, information provided by the parties and the level of agreement reached. In undertaking a scheme-specific review, IPART would consider the following matters (in addition to any other matters the Tribunal considers to be relevant to the review):

- ▼ the management of any information indicated as confidential
- ▼ any matters agreed between the parties (with a view to focusing on areas of disagreement or dispute)
- ▼ the extent to which both parties have provided the necessary information for the review
- ▼ the application of IPART's proposed approach of retail minus reasonably efficient competitor costs for on-selling services at a scheme-specific level
- ▼ positive and negative facilitation costs (including the potential benefits of recycled water in terms of reducing costs for the wholesale service provider)
- ▼ the regulatory period to apply to the scheme-specific price determination, and
- ▼ the need to ensure there is no double-counting between facilitation costs and other components of the wholesale charge (eg, the retail-minus element).

Where a party does not engage appropriately in the process (eg, withholding information or not engaging in a timely manner) IPART has a statutory power to require the information if it is needed to complete the review.

IPART would also consider all of the matters outlined in section 15 of the IPART Act, as a scheme-specific price determination would be made in the same way as other price determinations made under section 11 of the IPART Act.

7.2 Unregulated pricing agreements

Decision

- 14 We have decided to allow wholesale service providers and wholesale customers to opt-out of IPART's determined system-wide wholesale water and sewerage prices by voluntarily entering into unregulated pricing agreements.

We have decided to maintain our draft decision in relation to unregulated pricing agreements.¹¹⁷

In the 2016 retail price determinations for Sydney Water and Hunter Water, we allowed for unregulated pricing agreements with large customers where both parties agreed to 'opt-out' of the prices in the retail determinations. We restricted unregulated pricing agreements to large non-residential retail customers that have annualised water consumption greater than 7.3 ML.¹¹⁸

We consider it is reasonable to make the same option of unregulated pricing agreements available for our system-wide price determinations for this review. Wholesale customers are relatively large customers, and should be able to judge whether it is in their interest to enter an unregulated pricing agreement. We do not propose to limit the option of unregulated pricing agreements to customers with a certain annualised water consumption (ie, the option would be available to all customers that the determinations apply to).

There is evidence to suggest that unregulated agreements can work where there is effective regulatory support. There are existing agreements between Sydney Water and/or Hunter Water and wholesale customers that set their prices.

In response to our March 2017 Supplementary Draft Report, stakeholders continued to be in general agreement that it was unlikely that unregulated pricing agreements would be entered into.

Box 7.2 Stakeholders' views on unregulated pricing agreements

Stakeholder submissions regarding unregulated pricing agreements:

- ▼ **Sydney Water** did not support the ability to opt-out of wholesale prices for unregulated pricing agreements as it does not think they will work in practice. According to Sydney Water, if there is to be a regulated price for wholesale services, this price should be applied consistently to all wholesale customers.
- ▼ **Hunter Water** agreed with IPART's decision to allow for unregulated pricing agreements.
- ▼ **Flow Systems** mentioned it was unlikely to enter into an unregulated agreement with Sydney Water, and that it and other wholesale customers would be at a disadvantage when negotiating with Sydney Water.

Sources: Sydney Water submission to IPART Supplementary Draft Report, May 2017, pp 2 and 19; Hunter Water submission to IPART Draft Report, December 2016, p 2; Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 37.

¹¹⁷ In the Determinations, these are referred to as 'Negotiated Services Agreements'.

¹¹⁸ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 44-48; and IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 23-28.



We note stakeholders' views that unregulated pricing agreements may not be used. However, we consider that providing the option for parties to negotiate is consistent with the development of the market for the provision of water and sewerage services. This option provides the flexibility for parties to agree to pricing outcomes that reflect scheme-specific characteristics without having to request that IPART undertakes a scheme-specific review.

The provision for unregulated agreements in the system-wide price determinations provide for the ability to opt-out of all the prices set in the system-wide determinations.¹¹⁹

To ensure that the regulated cost base and regulated prices continue to reflect the efficient costs of providing regulated services in the future, IPART would require Sydney Water or Hunter Water to 'ring-fence' any changes in costs resulting from unregulated pricing agreements.

¹¹⁹ Refer to the definition of 'Negotiated Services Agreement' in schedule 3 of the Determinations.

8 System-wide prices for on-selling services

As outlined in Chapter 3, we have set system-wide prices for on-selling water and sewerage services for new wholesale schemes **where there is no recycled water plant**, using the retail minus reasonably efficient competitor cost approach. These prices would apply to new schemes where wholesale customers are on-selling water and sewerage services (including trade waste service) to retail customers **and no recycled water plant** was present.

We decided to set system-wide prices for on-selling services where no recycled water was present to avoid the need for scheme-specific reviews in the case of this particular scenario. We note that, given the current legislative and market environment, there may be few schemes where these prices would apply. However, as these system-wide prices have been subject to extensive investigation and consultation, we consider they represent reasonable estimates of ‘average’ or ‘typical’ minus values for reasonably efficient competitor costs of **retail** and **reticulation** functions. As such, they may inform negotiations between wholesale service providers and customers, which may reduce the need for scheme-specific reviews, and/or reduce the scope of issues to be considered in a scheme-specific review (thereby reducing the cost and time associated with a scheme-specific review). These prices could also be applied to new schemes where wholesale services are being received and a recycled water scheme is planned for the future (eg, in several years’ time), but not yet present.

The Final Determinations set out a methodology¹²⁰ for the calculation of retail minus reasonably efficient competitor cost prices for water on-selling and sewerage on-selling. The Determinations include values for the minus component of **retail** and **reticulation** functions (minus values).

The determination of the minus values on a system-wide basis has required a number of assumptions and judgements to be made, for the purposes of calculating ‘average’ or ‘typical’ costs. In future, as better, and more disaggregated, information is available regarding the costs of providing retail and wholesale water and sewerage services, the quality of the estimates used to calculate the minus values would likely improve.

This chapter explains the **methodology and approach that we used** to calculate the **system-wide** retail minus reasonably efficient competitor cost prices for on-selling water and sewerage services included in the Final Determinations.

8.1 Calculating system-wide retail minus reasonably efficient competitor cost prices

In order to apply retail minus reasonably efficient competitor cost prices, it is necessary to calculate the:

- ▼ ‘retail’ component, and

¹²⁰ Under section 13A of the IPART Act, IPART can determine a maximum price or set a methodology for fixing the maximum price (or a combination of a price and methodology).

- ▼ 'minus' component.

The sections below explain the approach taken for the **system-wide** price determinations.

8.1.1 Calculating the retail component

The retail component of retail-minus prices is calculated by multiplying water usage and end-use customer numbers by the prevailing Sydney Water or Hunter Water regulated retail charges. For information regarding the calculation of the retail component of retail-minus pricing, refer to Appendix D of this Report and the accompanying Determinations.

Decisions

- 15 We have decided the retail component of the retail minus reasonably efficient competitor cost prices will be based on the:
- retail prices for water, sewerage and trade waste services included in the prevailing Sydney Water or Hunter Water retail price determinations
 - number of end-use customers being serviced by the wholesale customer, and
 - the volume of water supplied to wholesale customers.
- 16 We have decided not to include an adjustment mechanism to account for any over or under recovery in relation to system-wide retail-minus prices.

Appendices D and F include details of the retail water, sewerage and trade waste charges included in the 2016 retail price determinations for Sydney Water and Hunter Water.

Treatment of trade waste administration charges

Our Supplementary Draft Determinations excluded the charges associated with setting up and monitoring trade waste agreements from the retail component of retail-minus prices. The prevailing retail price determinations include a range of trade waste charges covering the service of treating trade waste and administering trade waste services (eg, setting up agreements and undertaking inspections).

The rationale for these exclusions was that where a wholesale customer on-sells a trade waste service, it (rather than Sydney Water or Hunter Water) would incur the costs of establishing and administering trade waste agreements with end-use customers. If these charges were included in the retail component of retail-minus prices, they would need to be deducted from the minus component as they relate to functions the wholesale customer, rather than Sydney Water or Hunter Water, provides to end-use customers. Where Sydney Water and Hunter Water provide trade waste services to end-use customers, the retail determinations apply (regardless of whether these customers are also end-use customers of a wholesale customer for other services).

In response to our Supplementary Draft Report, Sydney Water noted that under the Supplementary Draft Determination, it would not be able to levy a charge to recover its costs of administering a trade waste agreement with a wholesale customer that on-sells sewerage services.¹²¹

¹²¹ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 22.

We consider it is reasonable that Sydney Water and Hunter Water should be able to recover their costs of establishing and monitoring their trade waste agreements with wholesale customers. Therefore, the Final Determinations provide for Sydney Water or Hunter Water to levy the relevant administration charges where they have a trade waste connection to a wholesale customer and the wholesale customer on-sells a trade waste service. However, the Determinations continue to exclude the trade waste administration charges from the retail component of retail-minus prices.

Meter to be used for the calculation of the retail component

In our Supplementary Draft Report and Determinations, the retail component of the system-wide retail-minus prices for Hunter Water included provision for Hunter Water's location-based water usage charges, where applicable. Location-based water usage charges apply to customers located in specific zones within Hunter Water's area of operation which use over 50,000kL of water.¹²² This changed the meter to be used for the measurement of water volumes (and hence the calculation of retail usage charges) from the wholesale connection point to end-use customer meters. For consistency, we applied this approach to both Sydney Water and Hunter Water.

In response to the Supplementary Draft Report and Determinations, Sydney Water and Hunter Water argued that the calculation of the retail usage component using end customer meters would not account for water supplied at the wholesale connection point that is lost in leakage throughout the wholesale customer's network.¹²³

- ▼ Hunter Water submitted that IPART's formulation:¹²⁴
 - results in Hunter Water bearing the costs for any leakage in between the wholesale customer meter and the end-use customer meters
 - removes an incentive for the wholesale customer to maintain an economic level of leakage within its water supply system, and
 - implicitly involves a cross subsidy from the wholesale service provider's retail customers for the wholesale customer's leakage.
- ▼ Sydney Water stated that its preference was to base the price on the reading at the wholesale customer meter, as the approach of basing this on end-use customer meters was:¹²⁵
 - administratively burdensome
 - provides no incentive for a wholesale customer to manage water wastage in their reticulation network, and
 - risks encouraging increased costs that are not covered by the wholesale price, which Sydney Water has no ability to control.

After considering the submissions from Sydney Water and Hunter Water, we have changed our decision in relation to the approach to calculation of the retail usage component of the system-wide retail-minus prices. We consider that:

¹²² IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report, June 2016*, pp 100 and 104.

¹²³ Sydney Water submission to IPART Supplementary Draft Report, May 2017, pp v, 13 and 24; and Hunter Water submission to IPART Supplementary Draft Report, May 2017, p A.1.

¹²⁴ Hunter Water submission to IPART Supplementary Draft Report, May 2017, p A.1

¹²⁵ Sydney Water submission to IPART Supplementary Draft Report, May 2017, pp v, 13 and 24.

- ▼ Wholesale customers should pay for all water that they take, including that lost between the wholesale customer meters and end-use customer meters, so they are incentivised to maintain their networks and respond to leaks efficiently.
 - This means that the retail component should be based on the water supplied at the wholesale connection point.
- ▼ For Hunter Water, the retail component of the retail-minus prices should provide for the situation where a wholesale customer on-sells water to an end-use customer where the location-based water usage charges apply.
 - This avoids the need to undertake a scheme-specific review where this situation applies.

We have amended the determinations accordingly so that:

- ▼ The retail usage component of the retail charges (of retail-minus) is based on water measured at the wholesale connection point.
- ▼ The Hunter Water Determination includes an additional component (referred to as Large Customer Adjustment in the Determination) to adjust retail prices (of retail-minus) where necessary to reflect Hunter Water's location-based usage charges.

We have not included an adjustment mechanism to account for uncertainty in end-use customer numbers

Calculating the retail component of retail-minus prices will require Sydney Water and Hunter Water to know the number of end-use customers that are being serviced by the wholesale customer. As the system-wide retail-minus prices may apply to schemes that may be under construction, it may be necessary to **estimate** property numbers to charge during the billing period. This raises the question of how to account for any over or under recovery during the billing period (due to changes in property numbers).¹²⁶

We have maintained our draft decision to not to include a true-up mechanism in the system-wide determinations, as we expect any such mechanism could be addressed via the contractual arrangements between the parties.

This will enable the parties to design a true-up mechanism that suits the specific circumstances. If, over time, this problem appears to be significant (based on experiences of schemes where retail-minus prices are implemented – eg, in terms of resulting in a large number of disputes), the inclusion of a true-up mechanism could be considered in future wholesale price reviews.

Sydney Water's submission to the Supplementary Draft Report stated that it accepted the draft decision, noting that if this became an area of significant dispute, it could be considered by IPART in future reviews.¹²⁷

¹²⁶ Sydney Water's submission to our November 2016 Draft Report included a request for a true-up mechanism to be included in the Determination. Source: Sydney Water submission to IPART Draft Report, December 2016, p 54.

¹²⁷ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 3.

8.1.2 Calculating the reasonably efficient competitor cost

Decisions

- 17 We have decided to set system-wide minus values:
- for water and sewerage retail and reticulation services
 - that are the same for Sydney Water and Hunter Water
 - that do not include any costs or costs savings associated with recycled water plants
 - that are based on ‘customers’ for retail services and ‘kilometres’ of pipe for reticulation services
 - adopting a modern engineering equivalent replacement asset value approach
 - adopting a weighted average of retail and reticulation costs based on the composition of existing schemes as weights
 - adopting the same building block method used in retail price reviews to establish the minuses, including carrying forward tax losses, and using tax asset lives to calculate tax depreciation
 - using straight-line depreciation when calculating tax depreciation, and
 - using an equivalent annuity of the annual building block costs over a 50-year period, applying a discount rate based on the prevailing Sydney Water and Hunter Water real pre-tax WACC of 5.9%.
- 18 We have decided to set system-wide minus values as shown in Table 8.1.

We have maintained the system-wide minus values that were included in our March 2017 Supplementary Draft Report. These values are set out below in Table 8.1.

Table 8.1 IPART decision on reasonably efficient competitor cost – annual minuses (\$2016-17)

	System-wide minus
Water	
Retail (\$/customer/year)	129
Reticulation (\$/kilometre/year)	3,945
Sewerage	
Retail (\$/customer/year)	80
Reticulation (\$/kilometre/year)	7,742

Note: The ‘retail’ minus has been calculated as a ‘per customer’ amount. In order to be consistent with the retail price determination, the 2017 Determinations provide for the value of the ‘retail’ minus as a per property amount. In principle, ‘properties’ and ‘customers’ are similar concepts.

The values in Table 8.1 are presented in ‘real’ \$2016-17 – ie, they exclude the effects of inflation over 2017-18 to 2020-21. We note that the minus values in our accompanying Determinations are in \$2017-18 – ie, the values outlined in Table 8.1 adjusted for one year of inflation.¹²⁸

¹²⁸ The Determinations then allow the values in \$2017-18 to be updated for inflation from 2018-19 onwards. We have applied 2.1% inflation to the \$2016-17 minus values to determine values in \$2017-18 (in the Determinations).

The methodology we decided to apply in determining retail minus reasonably efficient competitor cost prices calculates the reasonably efficient competitor cost by:

- ▼ calculating an entrant's annual building block costs for a new scheme using new assets at entry, replacement assets when these assets are fully depreciated and lifecycle operating expenditure
- ▼ calculating the net present value of the annual building block costs over the first 50-years following entry, and
- ▼ applying the annuitised average building block costs based on the primary cost drivers:
 - a **per customer** basis for **retail** functions, and
 - a **per kilometre** basis for **reticulation** functions.¹²⁹

We have maintained the approach we used in our March 2017 Supplementary Draft Report, however we are not applying these system-wide prices where there is a recycled water plant. Further detail, including consideration of stakeholder submissions, on the assumptions within the minus values is provided in Appendix E.

In submissions to the Supplementary Draft Report, a number of stakeholders supported system-wide prices that include estimates of negative facilitation costs (cost savings) associated with recycled water plants and integrated water cycle management.¹³⁰ Chapter 6 outlines our consideration of this issue and our finding that, at this stage, we do not have sufficiently reliable information to incorporate values for facilitation costs into our system-wide determinations of prices.

Our system-wide reasonably efficient competitor cost minuses for on-selling both water and sewerage, without a recycled water plant, are shown in Table 8.1 above.¹³¹

In Table 8.1 above we also show our minus values separated into retail water and retail sewerage services. To establish the retail water minus value of \$129 per customer, we took into consideration water meter related costs (eg, the return on and of capital for the actual meters, including installation costs and meter reading costs) from the combined water and sewerage costs of \$209 per customer and then equally apportioned the remaining costs between water and sewerage. That is, the \$129 per customer in Table 8.1 represents water meter related costs plus one-half of the remaining costs (management costs, billing and call centre costs, etc).

Therefore, \$129 per customer in Table 8.1 represents the reasonably efficient costs required to provide retail services for on-selling water, not the reasonably efficient costs of a *stand-*

¹²⁹ We calculated the annual building block costs for retail and reticulation, on a per customer and per kilometre basis directly, rather than as part of the last step in our process – this was done for modelling simplicity as it would result in identical values (we converted Oakley Greenwood's recommended costs for each scheme into costs per customer and per kilometre of reticulation for use in our annual building block costs).

¹³⁰ For example: Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 20; Hunter Water submission to IPART Supplementary Draft Report, May 2017, p 2; Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 38.

¹³¹ We have maintained the minus values as set out in the Supplementary Draft Report. These values are generally higher than those included in our November 2016 Draft Report. Chapter 6 of the Supplementary Draft Report provides an explanation of the differences in the draft minus values from the November 2016 Draft Report.

alone business providing only retail services for on-selling water.¹³² This approach incentivises wholesale customers to provide both on-selling water and sewerage services, which we consider to be more efficient, as end-use customers would only need to deal with one service provider, rather than two.

Further details of our approach to calculating the reasonably efficient competitor cost minuses is discussed in detail in Appendix E. The Oakley Greenwood report and accompanying spreadsheet, *Revised Calculation of Reasonably Efficient Competitor Costs Report* (March 2017), is available on IPART's website (www.ipart.nsw.gov.au), along with the model used by IPART to calculate the minus values.

The 2017 Determinations apply the retail minus reasonably efficient competitor cost methodology to on-selling water and sewerage services for new schemes where there is no recycled water plant. Figure 8.1 and 8.2 below provide an overview of how the Final Determinations apply this methodology.

8.2 Impact analysis

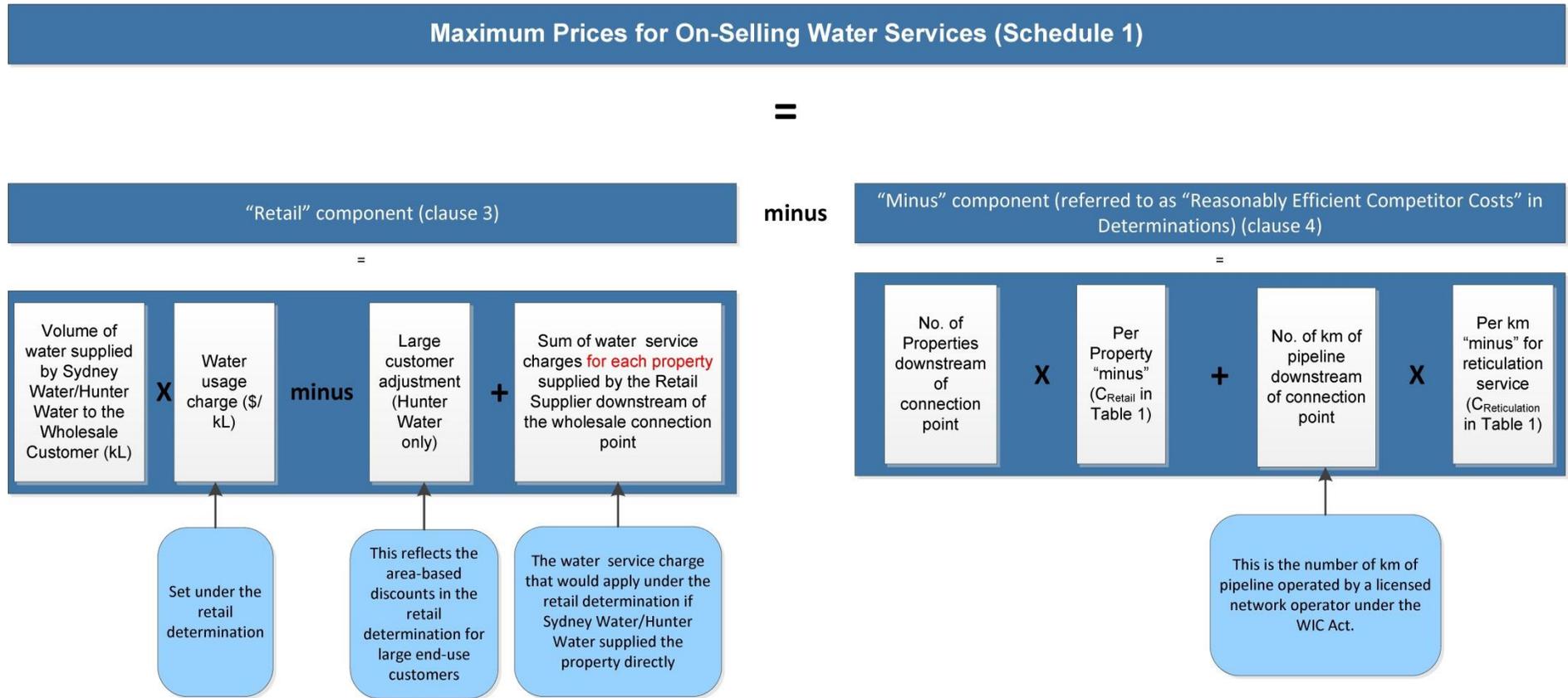
Appendix G provides an impact analysis of the difference between non-residential prices and the system-wide retail-minus prices for three indicative schemes.

The key results of the impact analysis for the three example schemes are:

- ▼ for water on-selling services, the system-wide retail-minus prices result in lower water revenues/bill impacts than the non-residential retail prices, for all three indicative schemes, for both Sydney Water and Hunter Water's areas
- ▼ for sewerage on-selling services, the system-wide retail-minus prices result in higher sewerage revenues/bill impacts than the non-residential retail prices, for all three indicative schemes, for both Sydney Water and Hunter Water's areas, and
- ▼ of the three indicative schemes, revenues/bill impacts for the inner city high density indicative scheme experience the largest percentage increase (for on-selling water services and on-selling sewerage services combined) for both Sydney Water and Hunter Water's areas.

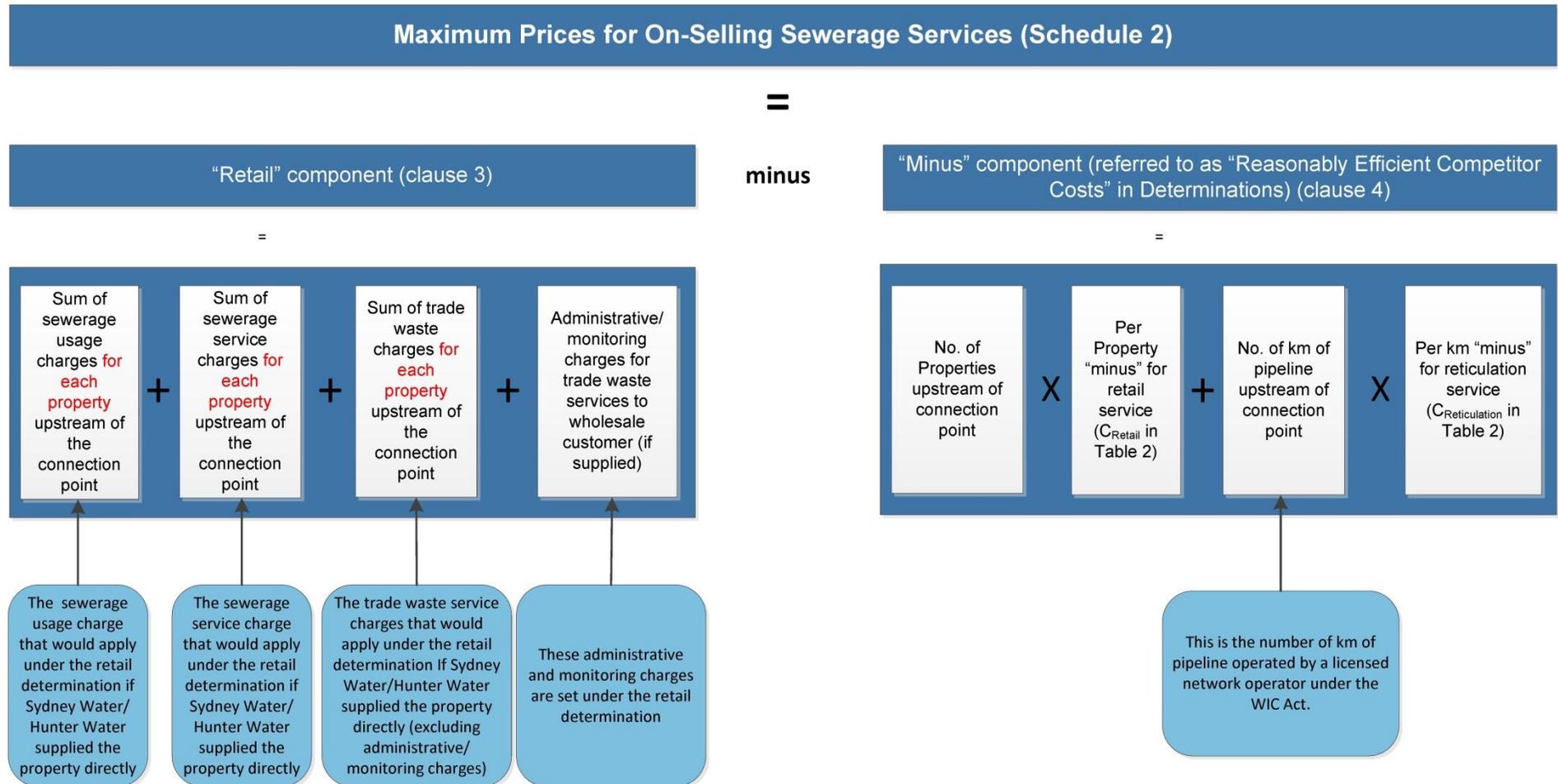
¹³² A wholesale customer could be undertaking retail services for on-selling water as part of a combined on-selling water and sewerage business, or as part of a business undertaking retail services for on-selling water for a number of wholesale schemes.

Figure 8.1 Maximum prices for On-Selling Water Services



Note: References to paragraph, table and schedule numbers in this figure refer to the paragraphs, tables or schedules in the Determinations. This figure is a simplified outline of sections of the Determinations, and is provided for explanatory purposes only.

Figure 8.2 Maximum prices for On-Selling Sewerage Services



Note: References to paragraph, table and schedule numbers in this figure refer to the paragraphs, tables or schedules in the Determinations. This figure is a simplified outline of sections of the Determinations, and is provided for explanatory purposes only.

9 Implications of pricing decisions

This chapter outlines how we have considered certain matters we must have regard to under section 15 of the IPART Act. These include the:

- ▼ cost of providing the services concerned
- ▼ protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standards of services
- ▼ appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government
- ▼ need to promote competition
- ▼ effect on general price inflation over the medium term
- ▼ implications for the environment
- ▼ social impact, and
- ▼ impact on the consolidated fund.

We discuss each of the above items below, and the remaining section 15 matters in Appendix A. We are satisfied that our Determinations achieve an appropriate balance between these matters.

We note that our wholesale prices are based on the prices we set in our 2016 retail price reviews for Sydney Water and Hunter Water. Therefore, they are not a completely new set of calculated prices, and so the matters we had regard to in those reviews also apply to our decisions in this review.

In addition to having regard to matters listed in section 15 of the IPART Act, we are required to comply with any section 16A directions¹³³ that apply to Sydney Water or Hunter Water.

Currently, there are no prevailing section 16A directions for Hunter Water. For Sydney Water, the costs that these directions require us to pass through in prices were included in the 2016 review of Sydney Water's retail prices, and if the directions continue to apply, these costs will continue to be included in future reviews of retail prices. The Final Report for the review of Sydney Water's retail prices sets out how we complied with these directions.¹³⁴ As set out in earlier chapters of this report, our determinations of system-wide prices are based, to varying extents, on the prevailing determinations of retail prices.

We also note that we must have regard to matters listed under section 15 of the IPART Act in any future scheme-specific review of wholesale prices.

¹³³ The Minister can direct IPART (with the Premier's approval) under section 16A of the IPART Act to include the efficient costs of complying with the specified requirement in Sydney Water's and Hunter Water's prices.

¹³⁴ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, Appendix B.

Cost of providing the services concerned

In conducting this review, we considered a number of pricing approaches that could be applied to particular services provided to wholesale customers. Our objective in doing so was to identify, for each service, an approach that reasonably reflected Sydney Water's and Hunter Water's costs of providing the wholesale services, while taking into account Sydney Water's and Hunter Water's regulated retail prices. Such an approach ensures that wholesale service providers and wholesale customers are competing on the basis of their respective costs of supplying contestable services.

In the case of on-selling water and sewerage services, we considered cost-of-service, non-residential retail prices and retail-minus pricing approaches, amongst others. As outlined in Chapter 4, we decided that the preferred pricing approach for wholesale water and sewerage services that are on-sold is retail minus reasonably efficient competitor costs.

Under Sydney Water's and Hunter Water's retail postage stamp prices, location-based cost of service pricing for wholesale services that are on-sold could lead to:

- ▼ Cherry-picking, where new entrants can enter the market or 'out-compete' the incumbent retail providers (wholesale suppliers) in low cost areas, not necessarily by virtue of lower costs or better services, but because of the difference between the cost of service wholesale price and regulated postage stamp retail prices.
- ▼ New entrants being at a disadvantage and not being able to enter the market in high cost areas, not necessarily because they have higher costs or lower levels of service than the incumbent retail providers, but because of the difference between the wholesale price and regulated postage stamp retail prices.

Cherry-picking increases Sydney Water's and Hunter Water's average cost by reducing the low cost customer base while leaving the high cost customer base unchanged. This would push up the postage stamp price as higher average costs need to be recovered from a smaller number of customers. In turn, this could lead to further cherry-picking. The regulated customers of Sydney Water and Hunter Water would be worse off having to pay higher water and sewerage prices than they would otherwise face.

Non-residential retail pricing for wholesale services that are on-sold could also create an arbitrage opportunity for wholesale customers that reflects the difference between the current regulated retail residential and non-residential price structures of Sydney Water and Hunter Water. If on-selling wholesale customers were charged the non-residential prices, they could then charge retail customers the residential charges, as currently charged by Sydney Water and Hunter Water. The potential to obtain this margin (ie, the difference between the residential and non-residential prices) could encourage wholesale customers to enter the market without providing any additional services or improving overall system efficiency (ie, without being as or more efficient than the wholesale service provider). Over time, this could increase the revenue Sydney Water and Hunter Water need to recover from their wider customer bases, which would increase prices to all their remaining retail customers, without any offsetting system-wide efficiency gains from the new entry.

In contrast to the above potential outcomes, retail-minus pricing creates a margin for the new entrant (the minus) that reflects an estimate of the costs of the contestable services. This ensures the wholesale service provider (incumbent) and wholesale customer (new entrant)

are competing for end-use customers on the basis of their respective costs of supplying the contestable services, rather than on the basis of a margin created by virtue of the nature of regulated retail prices. The retail-minus approach is based on the wholesale service provider's average costs of delivering the service to end-use customers, along the full length of the water and sewerage supply chains, less the costs of the services (or elements of the supply chain) that the wholesale customer (rather than the wholesale service provider) will supply (ie, the 'contestable' services or 'minus' values). These contestable services supplied by the wholesale customer usually include retail and some reticulation services.

Under the retail minus reasonably efficient competitor cost approach that we have adopted, the minus values are based on the costs that a reasonably efficient competitor would incur in delivering the retail and reticulation services to water and sewerage customers. This approach assists entry of wholesale customers, as it recognises that it would not likely be feasible for a wholesale customer to immediately replicate the scale economies available to Sydney Water or Hunter Water.

By allowing for a larger minus component through employing a reasonably efficient competitor costs approach, as opposed to other approaches such as equally efficient competitor costs, we have sought to encourage entry by reasonably efficient wholesale customers. The retail minus reasonably efficient competitor approach should ensure that reasonably efficient wholesale competitors can enter the market, while charging the regulated retail prices of Sydney Water or Hunter Water.

Our decision to adopt retail minus reasonably efficient competitor costs pricing for on-selling water and sewerage services will result in system-wide prices that reasonably reflect:

- ▼ the costs of providing the wholesale water and sewerage services by Sydney Water and Hunter Water, and
- ▼ the costs a reasonably efficient competitor would incur in delivering water and sewerage services from the wholesale connection point to end users.

Specifically, for on-selling water and sewerage services where there is no recycled water plant, the retail minus reasonably efficient competitor cost approach reflects the average costs of supplying a water or sewerage service to end-use customers, less the reasonably efficient costs of providing the service from the wholesale services purchased (further detail is provided in Chapter 4).

As we are not setting system-wide prices for on-selling services where there is a recycled water plant, IPART will consider the costs and prices of these services on a scheme-specific basis, as requested by either a wholesale customer or wholesale service provider. In doing so, we would consider the impacts a wholesale customer's recycled water plant has on a wholesale service provider's costs, and reflect this in prices (as discussed in Chapter 6). Further information on our approach to scheme-specific reviews is outlined in Chapter 7.

As outlined in Chapter 5, we consider non-residential retail water and sewerage charges are appropriate for drinking water top-up to recycled water schemes and waste disposal from recycled water schemes where there is no on-selling of wholesale services.

Protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services

As this review is occurring in the context of the relatively recent emergence of competition in the NSW water market, we are seeking to encourage entry into the market where it will ultimately deliver benefits to consumers.

As outlined in Chapter 2, a number of stakeholders have suggested that we defer this review until a broader review of the NSW water industry has occurred. In our view, this review should not be put on hold or delayed until a broader review occurs, as developing a regulatory framework for wholesale prices will assist potential market participants in deciding whether to enter the market.

New entry into the NSW water market will encourage competition with Sydney Water and Hunter Water, who are the monopoly suppliers of wholesale water and sewerage services in their areas of operation.

On this basis, our decisions in this review regarding the approach to regulating wholesale prices including:

- ▼ setting system-wide retail-minus prices for on-selling services in new schemes where there is no recycled water plant, and
- ▼ providing for scheme-specific price reviews and unregulated pricing agreements

protect wholesale customers from potential abuses of monopoly power, while ensuring that neither the incumbent monopoly service providers (ie, Sydney Water and Hunter Water) or wholesale customers are disadvantaged by the prevailing regulated retail pricing policies.

Appropriate rate of return

In determining retail prices for Sydney Water and Hunter Water in 2016, we considered the appropriate rate of return from prices. Our Final Reports for those reviews provide details of our consideration of this issue.¹³⁵

For the two on-selling services that retail-minus prices will apply, to the extent the minus component of retail-minus prices is greater than the costs that Sydney Water or Hunter Water actually avoid as a result of the wholesale customer supplying end use customers, this may reduce the actual rate of return relative to those outlined in the 2016 Sydney Water and Hunter Water retail price determinations. However, we would not expect any such reductions to be material over the upcoming determination period, given the relatively small scale of entry currently in the market.

Further, as outlined in Chapter 4, we will consider any difference between the costs that Sydney Water and Hunter Water avoid and the minus values, and the implications of any such differences, in the next review of their retail prices. This consideration would be based on the information provided to support the estimates of the size of the difference. Future

¹³⁵ Refer to IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 124-126; and IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 80.

reviews of wholesale prices will consider whether to transition to another approach to valuing the minus component, such as avoidable or 'as-efficient' competitor costs.

Need to promote competition

Our objective for this review was to establish an approach for regulating wholesale prices that allows new entry into the market for end-use water and sewerage services to occur where this is efficient, to promote competition for the benefit of end-use customers over time.

Our decisions will promote competition and efficient new entry, for example, by:

- ▼ setting maximum system-wide prices that Sydney Water and Hunter Water can charge for the provision of particular services to wholesale customers
- ▼ providing information to potential new entrants to the market to inform their decisions on entry
- ▼ providing flexibility for wholesale customers and wholesale service providers to enter into unregulated agreements where there is mutual agreement to do so, or for either party to request IPART to conduct a scheme-specific review, and
- ▼ adopting pricing approaches consistent with reasonably efficient new entry, in recognition that new entrants may not benefit from the scale economies of Sydney Water and Hunter Water initially (see Chapter 4).

Implications for general inflation

We note that our retail prices have a negligible effect on general inflation – about -0.006 percentage points for Sydney Water and about 0.01 percentage points for Hunter Water.¹³⁶ Therefore, given the relatively small scale of current wholesale schemes compared with Sydney Water's and Hunter Water's broader customer base, our decisions would not lead to a material impact on end-use retail prices, and hence they would also have a negligible effect on general inflation.

Implications for the environment

In determining Sydney Water's and Hunter Water's retail prices, IPART provides an allowance for Sydney Water and Hunter Water to recover their efficient costs of complying with their regulatory requirements, including those requirements relating to the Government's environmental or liveability objectives.¹³⁷

As the system-wide retail-minus prices are based, to some extent, on our 2016 retail prices, we do not consider that they will impact either Sydney Water or Hunter Water's ability to undertake their regulatory responsibilities, including complying with EPA licence requirements.

¹³⁶ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 237; IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 169-170.

¹³⁷ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 34-41.

We recognise that recycled water plants and IWCM can be a means of achieving a range of objectives, which are largely related to environmental protection and enhanced liveability through, for example, reducing the amount of water extracted from, and the amount of sewage discharged to, the natural environment.

Through provision of net facilitation costs (including cost savings), we also recognise that any cost savings to the wholesale services providers resulting from the recycled water plants (eg, reduced costs of compliance with EPA requirements) of wholesale customers should be reflected in wholesale prices. Inclusion of such cost savings in wholesale prices (as negative facilitation costs) would result in a lower wholesale price to be paid by wholesale customers, reflecting the benefit to Sydney Water or Hunter Water from the avoided or deferred cost.

However, we consider that the impacts of a wholesale customer's recycled water plant on a wholesale service provider's costs can only be estimated to a reasonable degree of accuracy on a scheme-by-scheme basis. Therefore, we would assess these impacts and reflect them in prices in scheme-specific reviews.

By not setting system-wide prices to apply to on-selling schemes with a recycled water plant, we have provided flexibility for entrants to agree an appropriate price, or have a scheme-specific price determined by IPART. This will enable the cost effective entry of recycled water services in the market, which can benefit the environment, water supply security and the sustainability of cities.

Further information on our approach to considering environmental matters in price reviews (including this one) is outlined in Chapter 2.

Social impact

By encouraging innovation, competition can deliver benefits to water and sewerage customers. Our objective in this review was to establish an approach to regulating wholesale prices that allowed new entry to the market for end-use water and sewerage services to occur where this will ultimately deliver benefits to customers. In sending efficient pricing signals, our decisions on the pricing approaches do not encourage inefficient entry as this would result in higher prices over time to end-use customers of wholesale service providers and wholesale customers.

The retail-minus pricing approach for on-selling water and sewerage services should ensure that a reasonably efficient wholesale customer can enter the market while charging the retail prices of Sydney Water and Hunter Water.

This means that our decisions should ensure that end-use customers will benefit from competition over time and do not face higher prices due to inefficient entry. Our consideration of the social impacts of our retail price decisions for Sydney Water and Hunter Water are outlined in the Final Reports for the 2016 retail price reviews.

Impact on the Consolidated Fund

Under section 16 of the IPART Act, if IPART determines to increase the maximum price for a government monopoly service or determines a methodology that would or might increase the maximum price for a government monopoly service, IPART is required to report on the

likely annual cost to the Consolidated Fund if prices are not increased to the maximum levels permitted. If this is the case, then the level of tax equivalent and dividends paid to the Consolidated Fund would fall. The extent of this fall would depend on Treasury's application of its financial distribution policy and how the change affects after-tax profit.

Our financial modelling in the 2016 retail price reviews was based on a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit.¹³⁸ Therefore, a \$1 decrease in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 49 cents in total, which is 70% of the decrease in after-tax profit of 70 cents.

Given that our decisions are based on our retail prices, we also expect a similar impact – ie, a \$1 decrease in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 49 cents in total, which is 70% of the decrease in after-tax profit of 70 cents.

However, given the relatively small scale of current wholesale schemes compared with Sydney Water's and Hunter Water's broader customer base, our decisions will not lead to a material impact on end-use retail prices, and hence they would also have a small effect on the Consolidated Fund.

¹³⁸ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 237; IPART, *Review of prices for Hunter Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 169.



Appendices

A Matters to be considered under section 15 of the IPART Act

In making determinations, IPART is required under section 15 of the IPART Act to have regard to the following matters (in addition to any other matters IPART considers relevant):

- a) the cost of providing the services concerned
- b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
- c) 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
- d) the effect on general price inflation over the medium term
- e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
- f) 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
- g) 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
- h) 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
- i) the need to promote competition in the supply of the services concerned
- j) considerations of demand management (including levels of demand) and least cost planning
- k) the social impact of the determinations and recommendations, and
- l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

IPART has also had regard to certain matters listed in section 14A(2) of the IPART Act. Where IPART has had regard to those matters, they are also matters covered by section 15(1) of the IPART Act, and the relevant sections of the report are listed in Table A.1 below.

Table A.1 Consideration of section 15 matters by IPART

Section 15(1)	Outline of IPART's assessment
a) The cost of providing the services	See Chapters 4, 5, 6, 8 and 9.
b) The protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standards of service	See Chapters 2 and 9.
c) The appropriate rate of return on public sector assets, including appropriate payment of dividends	See Chapter 9.
d) The effect on general price inflation	See Chapter 9.
e) The need for greater efficiency in the supply of services	Through enhancing the potential for reasonably efficient entry and competition, our decisions will enhance efficiency in the supply of services over time. See Chapters 2 and 4.
f) The need to maintain ecologically sustainable development	See Chapters 2 and 9.
g) The impact on borrowing, capital and dividend requirements	The impact on borrowing, capital and dividend requirements from our decisions would be negligible given the relatively small scale of entry compared with Sydney Water and Hunter Water's existing operations. However, if there is a material financial impact we would consider any necessary adjustments at either the next Sydney Water or Hunter Water price review.
h) 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	Our decisions are likely to have a negligible impact on any arrangements that Sydney Water and Hunter Water have entered into for the exercise of its functions by some other person or body.
i) Need to promote competition	See Chapters 2 and 9.
j) Considerations of demand management and least cost planning	Demand management and least cost planning is optimised through efficient prices. Our decisions seek to set efficient system-wide prices for specific services. Parties can also seek scheme-specific reviews. See Chapters 4 to 8.
k) The social impact	Our decisions will not lead to material adverse social impacts. In reaching our decisions we had regard to the costs involved in Sydney Water and Hunter Water servicing wholesale customers, and our decisions would allow entry where it would benefit end users (and also Sydney Water's and Hunter Water's broader customer base) over time. See Chapter 9.
l) Standards of quality, reliability and safety of the services concerned	Our decisions will not adversely affect the standards of quality, reliability and safety of the services concerned for both Sydney Water and Hunter Water. The operating licences for Sydney Water and Hunter Water set out the obligations on Sydney Water and Hunter Water to comply with quality and performance standards in relation to the services provided within their areas of operation.

B WIC Act licensed schemes

In this Appendix we provide an overview of WIC Act licensed schemes that may purchase services from either Sydney Water or Hunter Water. This information is shown in Table B.1 below and is based on publicly available WIC Act licence applications.

The contractual arrangements between the WIC Act licensees and either Sydney Water or Hunter Water are confidential, and so it is not possible to confirm which of the specified services in the licence application are being purchased.

In this review, we have set system-wide prices for the supply of water and sewerage services for on-selling for new schemes where there is no recycled water plant present. The purpose of this appendix is to provide an overview of schemes that may receive services from Sydney Water and Hunter Water, rather than being a list of schemes covered by the determinations. This means that the schemes listed below would involve the provision of services by Sydney Water and Hunter Water other than those we have set system-wide prices for.

Table B.1 Details of WIC Act licensed schemes that may receive services from Sydney Water or Hunter Water

Scheme name	Location	Licensee(s)	Proposed services received from Hunter Water or Sydney Water ^a	End-use services supplied by licensed retailer ^b	Ultimate size of scheme (licences may not be granted for all of this) ^a
Barangaroo South infill housing / commercial development	Sydney (Sydney Water)	Lend Lease Recycled Water (Barangaroo South) Pty Ltd (network operator's licence and retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Sewer mining ▼ Disposal of excess recycled water ▼ Disposal treatment plant waste 	<ul style="list-style-type: none"> ▼ Recycled water supply ▼ Sewerage services 	19 commercial, residential and hotel buildings at Barangaroo South, and future commercial and residential buildings of Barangaroo Central
Bingara Gorge greenfield housing development	Near Picton (Sydney Water)	Veolia Water Solutions & Technologies (Australia) Pty Ltd (network operator's licence and retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water supply through recycled water system 	<ul style="list-style-type: none"> ▼ Recycled water supply ▼ Sewerage services 	1,165 residential lots , a golf course, school and light commercial area
Bligh Street sewer mining scheme	Sydney (Sydney Water)	Aquacell Pty Ltd (network operator's licence and retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water supply through recycled water system ▼ Sewer mining ▼ Disposal treatment plant waste 	<ul style="list-style-type: none"> ▼ Recycled water supply 	One commercial building
Box Hill North greenfield housing development	Box Hill (Sydney Water)	Flow Systems Operations Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water supply through recycled water system 	<ul style="list-style-type: none"> ▼ Recycled water supply ▼ Sewerage services 	4,100 residential lots, a town centre, open space, a primary school and a multi-purpose community centre
Central Park infill housing / commercial development	Sydney (Sydney Water)	Central Park Water Factory Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water ▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Sewer mining ▼ Disposal treatment plant waste 	<ul style="list-style-type: none"> ▼ Drinking water supply ▼ Recycled water supply ▼ Sewerage services 	Approximately 2,000 residential apartments and around 100,000 square metres of commercial/retail space

Scheme name	Location	Licensee(s)	Proposed services received from Hunter Water or Sydney Water ^a	End-use services supplied by licensed retailer ^b	Ultimate size of scheme (licences may not be granted for all of this) ^a
Darling Walk sewer mining scheme	Sydney (Sydney Water)	Veolia Water Solutions & Technologies (Australia) Pty Ltd (network operator's licence and retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water supply through recycled water system ▼ Sewer mining ▼ Disposal treatment plant waste 	<ul style="list-style-type: none"> ▼ Recycled water supply 	One commercial building
Discovery Point infill housing / commercial development	Wolli Creek (Sydney Water)	Discovery Point Water Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water ▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Disposal of excess recycled water ▼ Disposal treatment plant waste 	<ul style="list-style-type: none"> ▼ Drinking water supply ▼ Recycled water supply ▼ Sewerage services 	1,500 residential apartments and other small commercial customers across 14 buildings
Fairfield – Rosehill recycled water scheme	Fairfield (Sydney Water)	Veolia Water Australia Pty Ltd (network operator's licence) SGSP Rosehill Network Pty Ltd (network operator's licence) AquaNet Sydney Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Non-potable water ▼ Drinking water supply through recycled water system ▼ Disposal treatment plant waste ▼ Supply of treated effluent 	<ul style="list-style-type: none"> ▼ Recycled water supply 	7 industrial customers (with expansion planned)
Green Square infill housing / commercial development	Green Square (Sydney Water)	Green Square Water Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water supply through recycled water system ▼ Disposal of treatment plant waste 	<ul style="list-style-type: none"> ▼ Recycled water supply 	6,800 people (could be expanded)
Huntlee greenfield housing development	Hunter Valley (Hunter Water)	Huntlee Water Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water ▼ Drinking water supply through recycled water system 	<ul style="list-style-type: none"> ▼ Drinking water supply ▼ Recycled water supply ▼ Sewerage services 	7,500 residential lots, 200 ha of municipal, retail and commercial precincts
Kooragang Industrial Water Scheme	Newcastle (Hunter Water)	SUEZ Water and Treatment Solutions Pty Ltd (network operator's licence and retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking Water ▼ Drinking water supply through recycled water system ▼ Disposal treatment plant ▼ Supply of treated effluent 	<ul style="list-style-type: none"> ▼ Drinking water supply ▼ Recycled water supply 	One industrial customer

Scheme name	Location	Licensee(s)	Proposed services received from Hunter Water or Sydney Water ^a	End-use services supplied by licensed retailer ^b	Ultimate size of scheme (licences may not be granted for all of this) ^a
North Cooranbong greenfield housing development	Lower Hunter (Hunter Water)	Cooranbong Water Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water ▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Disposal of excess recycled water ▼ Disposal of treatment plant waste 	<ul style="list-style-type: none"> ▼ Drinking water supply ▼ Recycled water supply ▼ Sewerage services 	2,104 residential lots, one primary school, retail precinct, landscaped areas, drainage, public open space and recreation areas.
Pitt Town greenfield housing development	Near Windsor (Sydney Water)	Pitt Town Water Factory Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water top-up of recycled water system 	<ul style="list-style-type: none"> ▼ Recycled water supply ▼ Sewerage services 	943 residential lots
Wye greenfield housing development	Lower Hunter (Hunter Water)	Wye Water Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	<ul style="list-style-type: none"> ▼ Drinking water ▼ Drinking water supply through recycled water system 	<ul style="list-style-type: none"> ▼ Drinking water supply ▼ Recycled water supply ▼ Sewerage services 	1,000 residential lots
Workplace 6 sewer mining scheme	Sydney (Sydney Water)	Sydney Water – no longer operating through WIC Act licensee			

^a Public version of the *Water Industry Competition Act 2006* licence application unless indicated otherwise; http://www.ipart.nsw.gov.au/Home/Industries/Water/Private_Sector_Licensing_WICA/Licence_Holders

^b Relevant retail supplier's licence.

C Overview of wholesale pricing approaches

This Appendix provides an overview of price setting approaches or methodologies that could potentially be applied to wholesale pricing. IPART has identified the following possible approaches for calculating wholesale prices:

- ▼ non-residential prices
- ▼ marginal cost pricing
- ▼ cost-of-service pricing
- ▼ efficient component pricing
- ▼ retail minus avoidable cost pricing, and
- ▼ efficient operator or competitor tests (including retail minus reasonably efficient competitor costs and retail minus equally efficient competitor costs).

C.1 Non-residential retail pricing

Non-residential prices are the prices that IPART sets for non-residential retail (ie, end-use) customers of Sydney Water and Hunter Water. Non-residential water and sewerage prices are based on:

- ▼ water usage
- ▼ meter connection size
- ▼ discharge factors, and
- ▼ discharge allowance.

Under non-residential prices, usage is charged at its marginal cost (long-run marginal cost for water¹³⁹ and short-run marginal cost for sewerage¹⁴⁰). Given that water utilities typically exhibit increasing returns to scale, the usage charges do not recover all of the utility's costs.

As a result, IPART includes a service charge to ensure Sydney Water and Hunter Water recover their total costs. For non-residential prices this is based on the water meter connection size and the estimated sewerage connection size, with charges set relative to non-residential customer capacity (eg, if one non-residential customer has a water or sewerage

¹³⁹ Sydney Water's water usage charge from 1 July 2016 was set with reference to the long-run marginal cost. It was set higher than the long-run marginal cost of water. IPART, *Review of prices for Sydney Water Corporation, From 1 July 2016 to 30 June 2020*, Final Report, June 2016, pp 288-298. In the 2016 review of Hunter Water's retail prices, its 2015-16 water usage charge from was held constant in real terms for the period 1 July 2016 to 30 June 2020. IPART, *Review of prices for Hunter Water Corporation, From 1 July 2016 to 30 June 2020*, Final Report, June 2016, pp 100-101.

¹⁴⁰ According to IPART's pricing principles as established in our 2012 *Review of Price Structures for Metropolitan Water Utilities*, the sewerage usage charge should be based on short-run marginal cost. However, in practice this has not been implemented for Sydney Water where the usage charge has been maintained in its transition to short-run marginal cost as we agreed to reconsider sewerage pricing before making our next Sydney Water Determination.

connection with twice the capacity of another non-residential customer, its service charge should be twice the amount of the other non-residential customer's service charge).

C.2 Marginal cost pricing

Marginal cost pricing would charge only for usage, at its marginal cost.

To implement a socially efficient allocation the price paid by the consumer of an additional unit of water or sewerage should be equal to the marginal cost of producing that unit.

Given that the supply of water and sewerage exhibit increasing returns to scale, a wide application of this would leave the firm with insufficient revenue to cover its costs, and in the long-run the firm would not be viable.

IPART currently applies this approach (implicitly) to a regulated utility's sales of drinking water top-up to its ring-fenced recycled water businesses. In our financial model, we deduct the value of drinking water top-up from the regulated utility's ring-fenced recycled water business (such as Rouse Hill and Thornton North) from target revenue at its market price (ie, long-run marginal cost based usage charge). However, no deduction is made for meter connection sizes. In our regulatory model, we consider that ring-fenced recycled water businesses are effectively separate businesses from those providing conventional water and sewerage services.

C.3 Cost-of-service pricing

Cost-of-service pricing refers to bottom up or cost plus pricing methods. These methods attempt to calculate the cost of providing a wholesale service to a wholesale customer. This approach creates cost-reflective prices.

However, cost-of-service prices will be higher in high cost areas and lower in low cost areas. This is incompatible with postage stamp pricing, whereby Sydney Water and Hunter Water charge the same retail price across their entire areas of operation, as it provides opportunities for inefficient cherry picking in low cost areas, and can deter efficient entry in high cost areas.

C.4 Efficient component pricing rule

Under the efficient component pricing rule (ECPR) or Baumol-Willig rule, access (or wholesale services) should be priced at:

$$\text{Access/wholesale price} = \text{incumbent's retail price} - \text{incumbent's avoided cost}$$

The avoided costs include not only the direct costs but also the opportunity costs. The ECPR is the foundation of 'retail-minus' approaches and is the same as the retail minus avoided cost approaches outlined in our Issues Papers and Discussion Paper.

The avoided costs are similar to the long-run incremental costs in that they can be considered the differences between total costs where a retail service is provided compared to total costs where only a wholesale service is provided.

The ECPR has been used in a number of contexts for wholesale and access pricing. A variant of the ECPR, retail minus avoided retail costs, has been used for wholesale telecommunications services in Australia.

C.4.1 Ofwat's ARROW costs were based on the ECPR

The Water Services Regulation Authority of England and Wales (Ofwat) operates an access regime. The governing legislation required that access prices be fixed in accordance with the 'costs principle'. This was implemented using the 'ARROW' costs or retail price minus costs that were avoidable, reducible or recoverable in some other way plus any costs of dealing with the access seeker.¹⁴¹ This is a variant of the ECPR.

The *Water Act 2014* (UK) included provisions to remove the costs principle from legislation. The costs principle has been cited as creating a barrier to competition, as the 'minus' component calculated using this principle was small, leading to a high wholesale price, compared to under a retail minus reasonably efficient competitor costs approach (which results in a larger minus component, and thus a lower wholesale price).

C.5 Retail minus avoidable costs

Retail minus avoidable cost is a variant of the ECPR. The underlying assumption of avoidable costs is that in the long-run there will be more avoided costs than immediately realised. Typically, an avoidable cost approach works on the assumption that once a service is contestable, the incumbent has an opportunity to never provide that service again. There are a number of ways to calculate avoidable costs.

C.5.1 Long-run incremental costs (pure approach)

The long-run incremental cost calculation of avoidable cost would estimate the incumbent's costs in two scenarios where:

1. the incumbent continues to provide the contestable service, and
2. the incumbent ceases to provide the contestable service.

The difference in the incumbent's costs in these two scenarios is the avoidable costs (assuming that the costs of not providing the service are less than the cost of providing the service). This approach is forward looking and does not consider the existing assets of the firm (ie, the sunk costs).

C.5.2 Average costs (simpler approach)

A simpler approach of calculating the avoidable cost is to estimate the average costs of the contestable service. This approach is relatively easy to calculate, and does not rely on estimates of future costs (including customer numbers).

¹⁴¹ OFWAT, *Future access pricing in the water sector, A discussion paper*, 2013, p 5.

This approach assumes that the average cost is similar to the marginal cost. This is typically not realistic in the water industry where increasing returns to scale are prevalent.

This approach would consider the existing assets of the firm (ie, sunk costs) as a proxy for what could be avoidable in the future. It would not include corporate overheads and common firm costs as they would continue to be incurred.

C.6 Efficient operator or competitor tests

The efficient competitor tests are a form of margin squeeze test. Efficient competitor tests assess whether an efficient competitor to a vertically integrated business could be charged a given wholesale price and deliver the same end product to consumers. Where an efficient competitor, based on the relevant benchmark, could not sustainably pay the wholesale price for the input and charge the vertically integrated business retail price a margin squeeze has occurred.

There are two common benchmarks used in efficient competitor tests:

- ▼ **Equally/as efficient operator** - this benchmark is based on the vertically integrated business's own operations between the wholesale service and the retail service. This benchmark sets the margin to allow businesses that are as, or more, efficient than the vertically integrated business to enter the market.
- ▼ **Reasonably efficient operator** - this benchmark is based on a business operating between the wholesale service and the retail service without the same access to economies of scale and scope as the vertically integrated business. This benchmark typically requires a higher margin to allow entry of efficient firms of a smaller scale.¹⁴²

The efficient competitor tests have typically been implemented on a long-run incremental costs basis. However, they could equally be implemented on a building block or average costs basis.

While these approaches are a test of whether a margin squeeze is occurring, they could be modified to create an approach to wholesale pricing - as outlined below.

C.6.1 Retail minus reasonably efficient competitor costs

The retail minus reasonably efficient competitor costs is a hybrid of two approaches:

- ▼ the ECPR, and
- ▼ the reasonably efficient competitor test for margin squeeze.

C.6.2 Retail minus equally efficient competitor costs

The retail minus equally efficient competitor costs is a hybrid of two approaches:

¹⁴² The reasonably efficient operator margin would not require a higher margin in all circumstances. In particular, where there are decreasing or constant returns to scale for a particular business or project. This may be the case for some sewerage services in inland catchments, where relatively small catchments are the most efficient option due to environmental regulations.

-
- ▼ the ECPR, and
 - ▼ the equally efficient competitor test for margin squeeze.

D Calculating the 'retail' in retail-minus

Chapter 8 outlines our decisions in relation to the system-wide retail-minus prices included in the Final Determinations accompanying this report. Retail charges for the retail component in retail-minus prices are based on the sum of end-use customers retail charges based on the prevailing Sydney Water or Hunter Water determination.

The sections below include information to be used to calculate the retail component of the retail minus reasonably efficient competitor cost prices.

D.1 Calculating retail component of retail minus reasonably efficient competitor wholesale charges for water on-selling

D.1.1 Sydney Water

Sydney Water's water charges are a two-part tariff with a uniform usage charge.

The retail component would be calculated as:

- ▼ the Sydney Water retail usage charge multiplied by all water taken by the wholesale customer at the wholesale connection point, plus
- ▼ the sum of the water supply service charges for end-use customers based on their meter connection to the wholesale customer and Sydney Water's water supply service charges. Every residential customer property within a mixed multi-premises is deemed to have a 20mm meter connection.

Sydney Water's retail charges for water services are shown below in Table D.1.

Table D.1 Sydney Water's retail charges for water services (\$2016-17)

	2017-18 to 2019-20
Water usage charge (\$/kL)^a	
Water usage charge	2.00
SDP uplift	0.12
Meter connection charge (\$/meter)^b	
20mm ^c	89.95
25mm	140.55
32mm	230.28
40mm	359.82
50mm	562.22
80mm	1,439.27
100mm	2,248.86
150mm	5,059.94
200mm	8,995.44
Other meter sizes	$(\text{meter size})^2 \times 20\text{mm meter connection charge}$
	400

a When the Sydney Desalination Plant (SDP) is operating this usage charge is the sum of the water usage charge and the SDP uplift.

b In 2017-18, 2018-19 and 2019-20 the meter connection charge will vary by the SDP service charge pass-through and the Shoalhaven transfer pass-through.

c This is the applicable service charge for residential properties.

Note: Meter connection charges will be altered by the SDP pass through in 2017-18, 2018-19 and 2019-20. Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, pp 16-17.

Below we outline how the following special property types are to be treated for calculating the retail component of water retail minus reasonably efficient competitor cost charges:

▼ Joint services:

- each residential joint service customer directly connected to the wholesale customer is to be treated as a single metered residential property
- each non-residential joint services customer (other than non-residential multi-premise joint water supply property) directly connected to the wholesale customer is to be treated as a single metered non-residential property
- each joint water service customer (other than non-residential multi-premise joint water supply property) that is not directly connected to the wholesale customer is to be treated as a property with a single 20mm meter connection, and
- non-residential multi-premise joint water supply properties (ie, where there are only multi-premise non-residential customers in the joint service arrangement) are to be treated together as a single metered non-residential customer.

▼ Dual occupancies:

- each dual occupancy serviced by more than one common meter or individually metered is to be treated as a single metered residential property, or
- where two dual occupancies on the same premises are serviced by one meter they are together to be treated as a single metered residential property.

- ▼ Individually metered properties within a multi-premises are to be treated as individually metered properties.
- ▼ Metered standpipes are to be treated as metered non-residential properties.
- ▼ Boarding houses:
 - with 10 rooms or fewer are to be treated as a single residential property, or
 - with more than 10 rooms are to be treated as a non-residential property.
- ▼ Unmetered properties are to be treated as a metered residential property with annual water usage of 180 kL.

Impact of the operation of the Sydney Desalination Plant on wholesale prices

When the Sydney Desalination Plant (SDP) is operating, Sydney Water’s usage charge is the sum of the water usage charge and the SDP uplift. This will increase the usage charge while SDP operates.

We also include a SDP pass-through to service charges. This pass-through recovers differences between SDP costs incurred and revenue from:

- ▼ SDP operating in different modes of operation over the 2016 determination period than the assumed water security shutdown mode factored in base operating costs
- ▼ new fixed charges resulting from our 2017 SDP price review, including adjustments to SDP’s fixed charges to reflect any changes in SDP’s efficient costs and the application of the energy and efficiency adjustment mechanisms
- ▼ network electricity costs, which are treated as a pass through in SDP’s determination, and
- ▼ any forecast error in our estimate of the water usage charge adjustment.

The SDP pass-through formula for the 2016 Sydney Water determination period is shown below, and the variables are shown in Table D.2.

$$\Delta \text{Water service charge}_t^{\text{SDP}} = \frac{\frac{\alpha_{t-1} - \varepsilon_{t-1}}{\mu_{t-1}} - \beta_{t-1} - (Y_{t-1} \times \sigma_{t-1})}{\rho_t} \times \frac{\Pi^2}{400} \times \mu_t \times (1 + \theta_t)$$

Table D.2 Variables in SDP service charge pass-through formula (\$2016-17)

Where t =	2016-17	2017-18	2018-19	2019-20
β_t	n/a	\$193,975,820	\$193,975,820	\$193,975,820
Y_t	n/a	\$62.68	\$62.88	\$62.75
θ_t	n/a	0.059	0.059	0.059
μ_t	1	$1 + \Delta \text{CPI}_1$	$1 + \Delta \text{CPI}_2$	$1 + \Delta \text{CPI}_3$
ρ_t	n/a	2,025,784	2,051,057	2,076,809

Note: β_t is based on the current SDP Determination for 2016-17. These costs do not include electricity network costs, which are passed through to Sydney Water. Electricity network costs are captured at a year lag through α_t . Avoided filtration costs, γ_t , are provided by Sydney Water. Customer Numbers, ρ_t , are calculated by IPART based on Sydney Water’s pricing proposal and our analysis.

Source: IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, pp 12-13.

Where:

- t = the current financial year
- α_t = total regulated payments from Sydney Water to SDP in year t, payments will be made in \$year t (ie, nominal)
- ε_t = total revenue recovered from the usage charge uplift in year t, revenue will be recovered in \$year t (ie, nominal)
- σ_t = total quantity of water (in ML) Sydney Water purchased from SDP in year t
- π = 20 for residential customers, properties within mixed-multi premises, boarding houses with 10 rooms or fewer and unmetered properties, and the size of all other customer's water meter (in mm)
- β_t = base SDP costs included in revenue requirement (ie, SDP costs in water security mode) in year t, these costs are in \$2016-17 (in the determination)
- γ_t = avoided water filtration costs per ML from SDP water production in year t, these costs are in \$2016-17 (in the determination)
- θ_t = Sydney Water's real pre-tax weighted average cost of capital in year t
- μ_t = the change in the CPI to be applied to the determination in year t
- $\Delta CPI_1 = \frac{CPI_{\text{March 2017}}}{CPI_{\text{March 2016}}} - 1$ as defined in the determination
- $\Delta CPI_2 = \frac{CPI_{\text{March 2018}}}{CPI_{\text{March 2016}}} - 1$ as defined in the determination
- $\Delta CPI_3 = \frac{CPI_{\text{March 2019}}}{CPI_{\text{March 2016}}} - 1$ as defined in the determination
- ρ_t = the number of 20mm equivalent customers in year t

We note that in any financial year, the 1 July price change will pass through the following for the previous financial year:

- ▼ approximately 10 months of SDP's actual costs, and
- ▼ Sydney Water's forecast of SDP's costs for approximately two months of the relevant period.

Impact of the operation of the Shoalhaven transfer system

In our 2016 Determination we included a cost pass-through mechanism to pass-through the costs incurred by operating the Shoalhaven transfer system. We set Sydney Water's revenue requirement on the basis that there would be no Shoalhaven transfers for the whole 2016 determination period to not double count these costs.

The Shoalhaven transfer cost pass-through formula for the 2016 determination period is shown below, and the variables are shown in Table D.3.

$$\Delta \text{Water service charge}_t^{\text{Shoalhaven}} = \frac{\omega_{t-1}}{\rho_t} \times \frac{\pi^2}{400} \times \frac{\mu_t}{\mu_{t-1}} \times (1 + \theta_t)$$

Table D.3 Variables in Shoalhaven transfer service charge pass-through formula

Where t =	2016-17	2017-18	2018-19	2019-20
θ_t	n/a	0.059	0.059	0.059
μ_t	1	$1 + \Delta \text{CPI}_1$	$1 + \Delta \text{CPI}_2$	$1 + \Delta \text{CPI}_3$
ρ_t	n/a	2,025,784	2,051,057	2,076,809

Note: Customer Numbers, ρ_t , are calculated by IPART based on Sydney Water's pricing proposal and our analysis.

Source: IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, pp 14-15.

Where:

t = the current financial year

ω_t = total WaterNSW Shoalhaven transfer costs from the pass-through mechanism, as defined by the WaterNSW determination, (see Chapter 8 of our Final Report for WaterNSW), in year t

π = 20 for residential customers, properties within mixed-multi premises, boarding houses with 10 rooms or fewer and unmetered properties, and the size of all other customer's water meter (in mm)

θ_t = Sydney Water's real pre-tax weighted average cost of capital in year t

μ_t = the change in the CPI to be applied to the determination in year t

$\Delta \text{CPI}_1 = \frac{\text{CPI}_{\text{March 2017}}}{\text{CPI}_{\text{March 2016}}} - 1$ as defined in the determination

$\Delta \text{CPI}_2 = \frac{\text{CPI}_{\text{March 2018}}}{\text{CPI}_{\text{March 2016}}} - 1$ as defined in the determination

$\Delta \text{CPI}_3 = \frac{\text{CPI}_{\text{March 2019}}}{\text{CPI}_{\text{March 2016}}} - 1$ as defined in the determination

ρ_t = the number of 20mm equivalent customers in year t

D.1.2 Hunter Water

Hunter Water's water charges are a two-part tariff, comprised of a water usage charge (noting that location-based water usage charges apply to customers located in specific supply zones which use over 50, 000kL of water per year¹⁴³) and a service charge. The retail component would be calculated as:

- ▼ the Hunter Water retail usage charge multiplied by all water taken by the wholesale customer at the wholesale connection point, plus

¹⁴³ Section 8.1.1 outlines how the Determinations accompanying this Final Report account for the location-based water usage charges.

- ▼ the sum of the water supply service charges for end-use customers supplied by the wholesale customer based on their meter connection to the wholesale customer and Hunter Water’s water supply service charges. In Hunter Water, a distinct water supply charge applies to:
 - metered residential properties
 - metered non-residential properties serviced by a single individual meter of 20mm
 - residential properties within a multi-premises serviced by one or more common meters, and
 - non-residential properties within a mixed multi premises serviced by one or more common meters.

Hunter Water’s retail charges for water services are shown below in Table D.4 and D.5.

Table D.4 Hunter Water’s retail charges for water services (\$2016-17)

	2017-18	2018-19	2019-20
Water usage charge (\$/kL)			
Water usage charge	2.25	2.25	2.25
Water supply service charge (\$/meter)			
Residential ^a	50.07	72.06	95.17
20mm ^a	54.97	75.43	95.17
25mm	85.88	117.85	148.71
32mm	140.72	193.10	243.64
40mm	219.86	301.71	380.69
50mm	343.54	471.43	594.82
80mm	879.45	1,206.85	1,522.74
100mm	1,374.13	1,885.70	2,379.28
150mm	3,091.81	4,242.83	5,353.39
200mm	5,496.54	7,542.80	9,517.14
Other meter sizes (\$/meter)	<u>(meter size)² × 20mm water supply service charge</u>		
	400		

If a wholesale customer only has a single 20mm meter they would receive the lower water supply service charge.

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, pp 12-13.

Below we outline how the following special property types are to be treated for the purpose of calculating the retail component of water retail minus reasonably efficient competitor cost charges:

- ▼ Joint services:
 - each non-residential joint service customer, in an entirely non-residential joint-service, is to be treated as a single non-residential property within a non-residential multi-premises
 - each residential joint service customer, in an entirely residential joint-service, is to be treated as a single residential property within a multi-premises, or
 - each joint service customer, in a mixed joint-service, is to be treated as a single residential property within a multi-premises.

- ▼ Dual occupancies:
 - each dual occupancy serviced by more than one common meter or individually metered is to be treated as a single metered residential property, or
 - where two dual occupancies on the same premises are serviced by one meter they are together to be treated as a single metered residential property.
- ▼ Individually metered properties within a multi-premises are to be treated as individually metered properties.
- ▼ Metered standpipes are to be treated as metered non-residential properties.
- ▼ Boarding houses:
 - with 10 rooms or fewer are to be treated as a single residential property, or
 - with more than 10 rooms are to be treated a non-residential property.
- ▼ Unmetered properties are to be treated as a metered residential property with annual water usage of 180 kL.

Table D.5 Water usage charge for Filtered Water consumption exceeding 50,000 kL in a period

Location	Date to 30 June 2017 (\$ per kL)
Dungog	1.81
Kurri Kurri	2.22
Lookout	2.10
Newcastle	2.05
Seaham-Hexham	1.86
South Wallsend	2.14
Tomago-Kooragang	1.81
All other locations	2.25

Source: IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, p 14.

D.2 Calculating retail component of retail minus reasonably efficient competitor wholesale charges for sewerage on-selling

Calculating retail sewerage charges requires the consideration of discharge factors and whether trade waste charges apply.

D.2.1 Sydney Water

Sydney Water’s sewerage charges are a two-part tariff with a uniform usage charge that applies to non-residential customers when their discharge exceeds the discharge allowance. Trade waste charges apply to non-residential customers that discharge high strength or corrosive waste or require certain services.

The retail component will be calculated as:

- ▼ the number of residential customers and non-residential customers (where common metered non-residential are counted as a single non-residential customer and each non-residential property within a mixed multi-premise property are counted as a single residential customer) multiplied by the deemed usage charge, plus
- ▼ the number of residential customers and non-residential properties within a mixed multi-premise property multiplied by the 20mm meter connection charge multiplied by a deemed 75% discharge factor, plus
- ▼ the sum of non-residential customer's (except non-residential properties within a mixed multi-premise property) meter connection charges based on their water meter connection to the wholesale customer multiplied by that customer's discharge factor, plus
- ▼ the sum of each non-residential customer's (except non-residential properties within a mixed multi premise property) chargeable sewage discharge (which, for each non-residential customer, is the greater of its water usage multiplied by its discharge factor minus the discharge allowance or zero) multiplied by the usage charge, plus
- ▼ the sum of any applicable trade waste charges.

Sydney Water's retail charges for sewerage services are shown below in Table D.6, and its trade waste charges are shown in Appendix F.

Table D.6 Sydney Water's retail charges for sewerage services (\$2016-17)

	2017-18	2018-19	2019-20
Meter connection charge (\$/meter)^a			
20mm	555.26	555.26	555.26
25mm	867.59	867.59	867.59
32mm	1,421.45	1,421.45	1,421.45
40mm	2,221.02	2,221.02	2,221.02
50mm	3,470.35	3,470.35	3,470.35
80mm	8,884.09	8,884.09	8,884.09
100mm	13,881.39	13,881.39	13,881.39
150mm	31,233.13	31,233.13	31,233.13
200mm	55,525.57	55,525.57	55,525.57
Other meter sizes	(meter size) ² × 20mm meter connection charge		
	400		
Deemed usage charge (\$)			
Deemed usage charge	167.15	167.15	167.15
Sewerage usage charge (\$/kL)			
Below discharge allowance	0.00	0.00	0.00
Above discharge allowance	1.11	1.11	1.11

^a Discharge factors will apply, which will reduce the meter connection charge.

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, pp 24-25.

The discharge allowance is:

- ▼ in 2016-17 – 0.685 kL per day
- ▼ in 2017-18 – 0.548 kL per day

- ▼ in 2018-19 – 0.411 kL per day, and
- ▼ in 2019-20 – 0.410 kL per day.

Below we outline how the following special property types are to be treated for calculating the retail component of sewerage retail minus reasonably efficient competitor cost charges:

- ▼ Joint services:
 - each residential joint service customer directly connected to the wholesale customer is to be treated as a single metered residential property
 - each non-residential joint services customer (other than a non-residential multi-premise joint supply property) directly connected to the wholesale customer is to be treated as a single metered non-residential property
 - each joint service customer (other than a non-residential multi-premise joint supply property) that is not directly connected to the wholesale customer is to be treated as a property with a single 20mm meter connection, and
 - non-residential multi-premise joint supply properties (ie, where there are only multi-premise non-residential customers in the joint service arrangement) are to be treated together as a single metered non-residential customer.
- ▼ Dual occupancies:
 - each dual occupancy serviced by more than one common meter or individually metered is to be treated as a single metered residential property, or
 - where two dual occupancies on the same premises are serviced by one meter they are together to be treated as a single metered residential property.
- ▼ Individually metered properties within a multi-premises are to be treated as individually metered properties.
- ▼ Boarding houses:
 - with 10 rooms or fewer are to be treated as a single residential property, or
 - with more than 10 rooms are to be treated as a non-residential property.

D.2.2 Hunter Water

Hunter Water's sewerage charges are a two-part tariff with a uniform usage charge that applies to non-residential customers when their discharge exceeds the discharge allowance. Trade waste charges apply to non-residential customers that discharge high strength or corrosive waste or require certain services.

The retail component would be calculated as:

- ▼ the number of residential customers and non-residential customers (where common metered non-residential customers are counted as a single non-residential customer and each non-residential property within a mixed multi premise property are counted as a single residential customer) multiplied by the environmental improvement charge, plus
- ▼ the number of residential properties within a multi-premises and non-residential properties within a mixed multi premises serviced by one or more common meters multiplied by the apartment meter connection charge multiplied by the deemed 75% discharge factor plus the deemed usage charge for apartments, plus

-
- ▼ the number of residential properties not within a multi-premises and metered non-residential properties serviced by a single individual 20mm meter multiplied by the house meter connection charge multiplied by the deemed 75% discharge factor plus the deemed usage charge for houses, plus
 - ▼ the number of remaining non-residential properties multiplied by the deemed usage charge for non-residential customers, plus
 - ▼ the sum of remaining non-residential customer's meter connection charges based on their water meter connection to the wholesale customer multiplied by that customer's discharge factor, plus
 - ▼ the sum of each non-residential customer's (except non-residential properties within a mixed multi premise property that are not individually metered) chargeable sewage discharge (which, for each non-residential customer, is the greater of its water usage multiplied by its discharge factor minus the discharge allowance or zero) multiplied by the usage charge, plus
 - ▼ the sum of any applicable trade waste charges.

Hunter Water's retail charges for sewerage services are shown below in Table D.7, and its trade waste charges are shown in Appendix F.

Table D.7 Hunter Water's retail charges for sewerage services (\$2016-17)

	2017-18	2018-19	2019-20
Meter connection charge (\$/meter)^a			
House meter connection charge	703.22	711.43	718.97
Apartment meter connection charge	544.99	569.14	593.15
20mm	956.59	841.05	718.97
25mm	1,494.66	1,314.14	1,123.39
32mm	2,448.86	2,153.10	1,840.55
40mm	3,826.34	3,364.21	2,875.87
50mm	5,978.67	5,256.59	4,493.55
80mm	15,305.38	13,456.85	11,503.47
100mm	23,914.65	21,026.33	17,974.17
150mm	53,807.97	47,309.26	40,441.88
200mm	95,658.60	84,105.34	71,896.66
Other meter sizes	$(\text{meter size})^2 \times 20\text{mm meter connection charge}$		
	400		
Deemed usage charge (\$nominal)			
House deemed usage charge	80.40	80.40	80.40
Apartment deemed usage charge	62.31	64.32	66.33
Non-residential deemed usage charge	56.95	68.68	80.40
Sewerage usage charge (\$nominal/kL)			
Below discharge allowance	0.00	0.00	0.00
Above discharge allowance	0.67	0.67	0.67
Environmental improvement charge (\$)			
Environmental improvement charge	38.87	38.87	38.87

^a Discharge factors will apply, which will reduce the meter connection charge.

Note: If a wholesale customer only has a single 20mm meter they would receive a lower meter connection charge. Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Hunter Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 – Determination*, June 2016, pp 24-27.

The discharge allowance is:

- ▼ in 2016-17 – 0.185 kL per day
- ▼ in 2017-18 – 0.233 kL per day
- ▼ in 2018-19 – 0.281 kL per day, and
- ▼ in 2019-20 – 0.328 kL per day.

Below we outline how the following special property types are to be treated for calculating the retail component of sewerage retail minus reasonably efficient competitor cost charges:

- ▼ Joint services:
 - each non-residential joint service customer, in an entirely non-residential joint-service, is to be treated as a single non-residential property within a non-residential multi-premises
 - each residential joint service customer, in an entirely residential joint-service, is to be treated as a single residential property within a multi-premises, or

-
- each joint service customer, in a mixed joint-service, is to be treated as a single residential property within a multi-premises.
 - ▼ Dual occupancies:
 - each dual occupancy serviced by more than one common meter or individually metered is to be treated as a single metered residential property, or
 - where two dual occupancies on the same premises are serviced by one meter they are together to be treated as a single metered residential property.
 - ▼ Individually metered properties within a multi-premises are to be treated as individually metered properties.
 - ▼ Boarding houses:
 - with 10 rooms or fewer are to be treated as a single residential property, or
 - with more than 10 rooms are to be treated as a non-residential property.

Further detail on how to apply Hunter Water's retail charges is included in our determination of Hunter Water's prices, which is available on our website www.ipart.nsw.gov.au.

E Calculating reasonably efficient competitor costs

To set retail minus reasonably efficient competitor cost prices for water and sewerage on-selling we needed to calculate the reasonably efficient competitor's costs. In the following sections we provide:

- ▼ detail on our **building block approach** in establishing the minuses for retail and reticulation, including our responses to stakeholder comments, and
- ▼ discussion on issues raised by stakeholders in response to the **inputs** into our building block approach.

We have maintained the minus values outlined in our March 2017 Supplementary Draft Report. These were based on advice from Oakley Greenwood (working with Parsons Brinkerhoff) on benchmark unit rates for a reasonably efficient competitor's **retail** and **reticulation** costs.

Refer to Appendix E of our March 2017 Supplementary Draft Report for details of the changes in the minus values from our November 2016 Draft Report and our responses to issues raised by stakeholders in submissions to our November 2016 report. Oakley Greenwood's March 2017 report (and accompanying spreadsheet), along with the model used to calculate the minus values, is available on the IPART website.

E.1 Calculating annual building block costs

To calculate the annual retail and reticulation building block costs, we used data provided by Oakley Greenwood on the costs of a reasonably efficient competitor - see Box E.1 for a general overview on the information provided. This data identifies the assets required, the asset lives and expenditure that an entrant would incur.¹⁴⁴

¹⁴⁴ We have also considered capital expenditure that would be required for new schemes (provided by Oakley Greenwood), and which would be provided by the developer of the scheme, for the purposes of calculating a tax allowance that would be payable by a wholesale customer when the assets are gifted to them (from the developer).

Box E.1 Oakley Greenwood and Parsons Brinkerhoff's cost estimates

We engaged Oakley Greenwood (working with Parsons Brinkerhoff) to provide engineering estimates of reasonably efficient competitor costs for retail and reticulation services for water and sewerage. Oakley Greenwood provided us with: estimates of benchmark unit rates (including renewals); and costs for three example schemes.

The three example schemes were:

- ▼ Scheme 1: Brownfield (infill) development 2,000 (20mm meter equivalent) end-use customers
- ▼ Scheme 2: Greenfield development 2,000 (20mm meter equivalent) end-use customers, and
- ▼ Scheme 3: Greenfield development 10,000 (20mm meter equivalent) end-use customers.

We provided Oakley Greenwood with the above three example schemes based on existing information on wholesale schemes, ie, they are the three types of typical schemes that we consider could potentially be expected for a new wholesale scheme, based on existing WICA licensee information (see Appendix B).

In order to provide reasonably efficient competitor costs for the three schemes, Oakley Greenwood made certain assumptions such as the layout of the scheme and topography etc.¹⁴⁵ It also assumed that a reasonably efficient competitor would be a completely new entrant that is not servicing any other region or providing any other services that may be related to water and sewerage services.

Retail costs

Oakley Greenwood estimated metering costs assuming that telemetry meters would be installed in greenfield sites and non-telemetry meters would be installed in brownfield sites, and sourced cost inputs available from Sydney Water and *Rawlinson's Australian Construction Handbook*.

Oakley Greenwood estimated the non-metering retailing costs mostly based on indicative costs to outsource retail functions. This reflects the high upfront capital costs of doing it in-house and the number of experienced outsource service providers in the market for these services (particularly for electricity). Oakley Greenwood also provided estimates on management costs (which would be required to manage contracts with service providers, including outputs).

Reticulation costs

Oakley Greenwood provided estimates of the asset lives, capital expenditure and operating expenditures of water and sewerage reticulation of different diameters, technologies and environments, including valves, water reservoirs, and water and sewerage pumping stations.

The figures were predominantly based on: the *NSW Reference Rates Manual - Valuation of water supply, sewerage and stormwater assets*, published by the Department of Primary Industries - Office of Water in 2014; the *Water Supply Code of Australia; 2013-14 Water Supply and Sewerage NSW Benchmarking Report* benchmarking cost data, published by the Department of Primary Industries; the *Sewerage Code of Australia*; and industry knowledge.

Source: Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017.

¹⁴⁵ As part of its assumptions, Oakley Greenwood assumed lead-in mains of certain sizes to each of the three schemes. Hunter Water raised concerns that a wholesale customer would not seek to own or operate this type of infrastructure and hence could not see why it would be appropriate to include the lead-in mains in the minus values (Hunter Water submission to IPART Draft Report, December 2016, p 7). However, Oakley Greenwood has clarified in its revised report that these lead-in mains were identified to provide context, and were not included as part of its reasonably efficient competitor cost estimates for each scheme.

E.1.1 Valuation approach

In our building block calculation, we included assets based on Oakley Greenwood's engineering advice on the typical retail and reticulation assets required by a reasonably efficient competitor to provide retail and reticulation functions (for the three example schemes). We valued these assets at the cost a new entrant would incur in building or acquiring these assets new. This valuation is known as the modern engineering equivalent replacement asset value (MEERA).

Valuing assets at their cost to a new entrant is consistent with seeking to enable new entry to the water and sewerage market where it is efficient.

We considered three valuation methods:

- ▼ MEERA
- ▼ Depreciated Optimised Replacement Cost (DORC), and
- ▼ Regulated Asset Base (RAB).

We consider DORC and RAB are more appropriate when considering the costs that an incumbent would **avoid**, and for avoiding static efficiency losses. That is, they are better suited to a retail minus avoidable cost (rather than a retail minus reasonably efficient competitor cost) approach.

The RAB¹⁴⁶ is the depreciated economic value of the assets the utility has built or purchased. A depreciated valuation may not send appropriate signals for entry (ie, an entrant would not immediately write down the assets it builds and purchases to match the incumbent's depreciated value). To compete with a depreciated valuation, entrants would need to:

- ▼ build or purchase significantly cheaper assets than the incumbent, or
- ▼ accept a lower rate of return on their assets or immediately write down asset values.

We have decided to maintain our draft approach. We also note that we received no stakeholder comments specifically opposing our overall MEERA approach.

In deriving our system-wide minuses, we considered the current mix of licensed WIC Act schemes (as shown in Appendix B). There are about four small, brownfield schemes (ie, similar to Scheme 1),¹⁴⁷ about four small, greenfield schemes (ie, similar to Scheme 2),¹⁴⁸ and one large greenfield scheme (ie, similar to Scheme 3).¹⁴⁹

In applying Oakley Greenwood's estimates of the costs of retail and reticulation services for schemes 1 to 3 to estimate reasonably efficient retail and reticulation costs, we used the following weighting:

- ▼ 40% to Scheme 1 costs
- ▼ 40% to Scheme 2 costs, and

¹⁴⁶ This analysis ignores complications from the line-in-the-sand valuation, which further depreciates the value of assets compared to their replacement cost and makes them difficult to identify.

¹⁴⁷ Barangaroo, Discovery Point, Green Square and Central Park.

¹⁴⁸ Box Hill, Cooranbong North, Pitt Town and Wye Water.

¹⁴⁹ Huntlee.

- ▼ 20% to Scheme 3 costs.

At the next review of wholesale water prices we would consider our use of the reasonably efficient competitor cost approach, including the weightings that we have applied to our indicative scheme costs to set system-wide prices.

To calculate the system-wide prices, we applied a building block approach to calculate the cost allowances for retail and reticulation services, on a per customer and per kilometre basis, respectively. The main components of the building block models are discussed in the sections below. In the subsequent section, we discuss the rationale for using ‘customers’ and ‘kilometres’ as cost drivers for our system-wide prices.

E.2 Return on assets

To generate a return on assets, we have maintained the draft decision to apply the same Weighted Average Cost of Capital (WACC) that we used in our June 2016 determinations for Sydney Water and Hunter Water’s retail prices (ie, a real post-tax WACC of 4.9%). That WACC reflects the efficient cost of capital for a **benchmark firm** operating in a competitive market and facing similar risks to the business that we are regulating. As this WACC is based on a benchmark firm, it is not the **actual** WACC of Sydney Water or Hunter Water.

E.2.1 Should the minus use a different WACC?

In forming this decision we considered whether we should use a different WACC in calculating the ‘reasonably efficient competitor costs’, noting that the wholesale customers are likely to have a smaller scale than the incumbent utilities ie, Sydney Water and Hunter Water. However, we decided that the issue of scale was better dealt with explicitly in considering the operating and capital expenditure in establishing the ‘reasonably efficient competitor costs’ rather than applying an additional uplift in the WACC.

Flow Systems¹⁵⁰ and Lendlease¹⁵¹ argued that the capital charge for the minus in a retail minus reasonably efficient competitor cost pricing framework should represent the WACC of the wholesale customer (or new entrant), rather than the WACC of the wholesale service provider. Flow Systems stated that incumbent wholesale service providers have a far lower cost of capital than do wholesale customers because the latter are subject to substantial market, investment, technology and regulatory risks. Flow Systems concluded that 15-25% would be a more realistic WACC for entrants than Sydney Water’s regulated WACC. In its submission to our Supplementary Draft Report, Flow Systems outlined a number of reasons why a wholesale customer will have a higher WACC than Sydney Water.¹⁵² Flow Systems argued that the inability of a wholesale customer to meet the WACC of Sydney Water is not an indication of inefficiency.

We have decided to maintain our draft decision to use the regulatory WACC used in the 2016 reviews of Sydney Water’s and Hunter Water’s retail prices to calculate the minus component for the following reasons:

¹⁵⁰ Flow Systems submission to IPART Draft Report, December 2016, p 11.

¹⁵¹ Lendlease submission to IPART Draft Report, December 2016, p 42.

¹⁵² Flow Systems submission to IPART Supplementary Draft Report, May 2017, p 32.

- ▼ The reason for encouraging entry is to drive efficiency through competitive tension, downward pressure on prices and innovation. An entrant that requires a 15-25% WACC would not represent an efficient replacement for an existing provider that only requires a 4.9% real post tax WACC.
- ▼ While innovation and dynamic efficiency are important, the application of a WACC that is higher than the regulated benchmark WACC for water utilities establishes a high investment cost to obtain these benefits. This cost would be paid either by end users through higher water bills or by Sydney Water's or Hunter Water's customers generally through an increase to postage stamp prices.
- ▼ Setting prices to wholesale customers that compensate for all risks they face as a business is inconsistent with regulatory practice, which holds that permitted rates of return to equity should only compensate investors for systematic (undiversifiable) risks. The reason for this practice is that an efficient entrant would eliminate through diversification the types of project-specific risk that Flow Systems and Lendlease refer to in their submissions. By including business-specific risks, this would overestimate the return a small scale entrant with efficient financing arrangements would require.

We note that the first two dot points above are arguments against the use of the reasonably efficient competitor cost approach as outlined in Chapter 4. The reasonably efficient competitor cost approach we have used provides some concession to new entrants and takes account of the entrant's lack of scale economies in costs of operation. We consider that it would invite inefficient entry if a higher WACC were used to calculate the minus.

E.2.2 Should there be separate WACCs for retail and reticulation services?

Our March 2017 Supplementary Draft Report outlined that we consider that scale should not be a relevant factor in determining the WACC for retail-minus pricing. Wholesale customers also differ from wholesale service providers in scope. While Sydney Water and Hunter Water are diversified across most aspects of water service delivery, a wholesale customer would likely be restricted in scope to retail, reticulation, water recycling, or some combination of these activities.

No listed firms operate exclusively in these functional layers of the water industry in Australia, making it difficult to assess whether the new entrant has a different level of systematic risk. Nevertheless, some insight can be gained by examining published beta values for particular industry sectors in the United States. We refer below in Table E.1 to data sampled to 5 January 2017 by Professor Damodaran of the Stern School of Business at New York University.¹⁵³

Table E.1 indicates that the unlevered beta for Utility (Water) is 0.47, corresponding to an equity beta of 0.65 which corresponds closely to our assumed beta for NSW water utilities. Similar unlevered betas are found for Real Estate (Development) 0.43 and Green & Renewable Energy 0.43, which have some similarities to WICA licensees. The equity beta for Real Estate (Development) is 0.68. Green & Renewable Energy has a higher equity beta 1.14 owing to a different level of gearing.

¹⁵³ Available at this URL: <http://www.stern.nyu.edu/~adamodar/pc/datasets/betas.xls>

Table E.1 Beta estimates for select US industries

Industry Name	Number of firms	Beta	Unlevered beta	Unlevered beta corrected for cash
Beverage (Soft)	36	0.91	0.74	0.78
Engineering/Construction	48	1.18	0.93	1.01
Environmental & Waste Services	89	0.85	0.62	0.63
Financial Svcs. (Non-bank & Insurance)	258	0.65	0.07	0.07
Green & Renewable Energy	25	1.14	0.43	0.47
Investments & Asset Management	156	0.90	0.57	0.68
Real Estate (Development)	18	0.68	0.43	0.47
Retail (Automotive)	25	0.91	0.62	0.63
Retail (Building Supply)	6	1.30	1.11	1.12
Retail (Distributors)	88	1.10	0.75	0.77
Retail (General)	19	1.05	0.80	0.82
Retail (Grocery and Food)	14	0.69	0.46	0.46
Retail (Online)	57	1.23	1.13	1.17
Retail (Special Lines)	108	1.02	0.73	0.76
Telecom (Wireless)	17	1.12	0.55	0.58
Telecom. Equipment	107	0.99	0.80	0.86
Telecom. Services	67	1.04	0.66	0.68
Utility (General)	18	0.38	0.25	0.25
Utility (Water)	22	0.65	0.47	0.47
Total Market	7330	1.00	0.62	0.65

Source: Home Page: <http://www.damodaran.com>

Data website: http://www.stern.nyu.edu/~adamodar/New_Home_Page/data.html

Companies in each industry: <http://www.stern.nyu.edu/~adamodar/pc/datasets/indname.xls>

Variable definitions: http://www.stern.nyu.edu/~adamodar/New_Home_Page/datafile/variable.htm

Other industries that may have similar risk profiles to a water retailing business, Telecom (Wireless) and Telecom Services, have unlevered betas of 0.55 and 0.66, respectively. Unlevered betas for a range of industries described as Retail range from 0.46 (Grocery and Food) to 1.13 (Online).

It is harder to identify proxies for a water reticulation business. Environmental & Waste Services have an unlevered beta of 0.62 (equity beta 0.85). Engineering/Construction has an unlevered beta of 0.93 (equity beta 1.18), but as the reticulation assets are usually gifted to the WICA licensee, the risk profile would be quite different.

Overall, this beta evidence is not conclusive. There is no clear evidence of a differential in betas between firms that are similar to the water retail or reticulation activities on one hand and an integrated water utility on the other.

The one feature of all segments of the water supply chain is that they provide an essential service. This feature applies to Retail (Grocery and Food) 0.46, Utility (General) 0.25, and Utility (Water) 0.47.

In the absence of a clear empirical basis to distinguish between the systematic risks faced by specialist water retailers or retailer-reticulators, and given the fact that they provide an essential service, we have decided to apply the regulated benchmark WACC used for water utilities for the retail-minus wholesale prices.

E.2.3 Implementation of WACC

The determination period for the system-wide determination of prices would be 1 January 2018 to 30 June 2021. This means that the wholesale prices in the determination would apply one year later than the current retail price determination period for Sydney Water and Hunter Water, which commenced on 1 July 2016. In the next review of retail prices for Sydney Water and Hunter Water, the regulatory WACC would be updated. This may mean that in 2020-21, the regulatory WACC used in the Sydney Water and Hunter Water retail price determinations may be different from the WACC that was used to determine the minus in this year. Nevertheless, we decided that the wholesale price in this last year should be the new retail price (calculated using an updated WACC) minus the same reasonably efficient cost that applied in the other three years of the wholesale price period.

E.3 Depreciation (return of assets)

To calculate an allowance for depreciation (return of assets), we applied the straight-line depreciation method (as we did in our 2016 Sydney Water and Hunter Water retail price reviews). This was calculated based on asset lives provided by Oakley Greenwood.¹⁵⁴ When the assets have been fully depreciated, we also incorporated renewal costs as advised by Oakley Greenwood.

E.4 Operating expenditure

E.4.1 Retail

For retail services we have included management costs, costs associated with billing and call centre services, and meter reading costs¹⁵⁵ as advised by Oakley Greenwood.¹⁵⁶ In its March 2017 report, Oakley Greenwood examined the assumptions underpinning its cost estimates. It considered that the estimates provided in its previous report for retail services were reasonable, with the exception of call centre costs. It advised that such costs could be met within management costs (see below) for smaller schemes, such as Schemes 1 and 2, and thus only included initial set-up costs, but for a larger scheme (Scheme 3) it considered that it would be reasonable to have outsourced services.¹⁵⁷

Further, Oakley Greenwood estimates included management costs. It considered that 2 staff, including overheads, for Schemes 1 and 2, and 3 staff, including overheads, for Scheme

¹⁵⁴ Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 34-35 and accompanying spreadsheet.

¹⁵⁵ These costs were not included in the minus values in our November 2016 Draft Report.

¹⁵⁶ Detailed information on cost estimates can be found in Oakley Greenwood's report, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, and accompanying spreadsheet.

¹⁵⁷ Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 19-20.

3 would be reasonable - staff would be required to manage contracts with third-party providers, monitor outputs, etc.¹⁵⁸

Sydney Water has submitted that the reasonably efficient competitor cost minuses for back office and billing services are extremely high, questioning the need for such an allowance given the majority of WIC Act licensees are subsidiaries of large, well-established and well-resourced existing companies.¹⁵⁹

The system-wide minus values are based on three example schemes serviced by a reasonably efficient competitor. In establishing these values Oakley Greenwood has assumed that the reasonably efficient competitor would be a completely new entrant that is not servicing any other region or providing other services that may be related to water and sewerage services. Therefore we are maintaining the system-wide minus values that were included in our March 2017 Supplementary Draft Report, noting the allowance is higher than the costs incurred by Sydney Water and Hunter Water, in order to take into account that a new entrant may be completely new to the water industry and be a small company without the economies of scale of Sydney Water and Hunter Water.

We have accepted Oakley Greenwood's March 2017 cost estimates for retail services as being reasonable and note that they are higher than Sydney Water and Hunter Water's costs. We consider this appropriate given that our approach is to apply reasonably efficient competitor costs, rather than an 'as efficient' or avoidable costs, to calculating the minus values. However, we will continue to observe how the market develops, and at each review, further examine the appropriateness of applying reasonable efficient competitor costs, at that time.

E.4.2 Reticulation

For reticulation services, we considered that operating expenditure should match the age of the assets being operated - in general, as assets age they become more expensive to operate. Our approach (ie, matching asset age to its operating expenditure) is broadly consistent with our approach in retail price reviews.¹⁶⁰

E.5 Tax allowance

In our tax allowance we have included the tax liability created by assets that are typically gifted to a water utility.

Sydney Water and Hunter Water both require developers to build reticulation infrastructure. These assets are gifted to Sydney Water and Hunter Water free of charge. These assets free of charge (AFOC) create a tax liability to Sydney Water and Hunter Water,

¹⁵⁸ Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 24-25.

¹⁵⁹ Sydney Water submission to IPART Supplementary Draft Report, May 2017, pp 14-15.

¹⁶⁰ Our approach uses an initial MEERA valuation of retail and reticulation assets and annual estimates of building block costs, and thus the operating expenditures increase as the assets age, reflecting the assets' life cycle operating costs.

We note that the minus values included in our November 2016 Draft Report include a constant average operating cost each year. For this Supplementary Draft Report, we obtained lifecycle costs from Oakley Greenwood – this has the effect of reducing our minuses for the reticulation (new assets generally require less operating expenditure in the earlier years). Refer to p 28 of the Oakley Greenwood report, *Revised calculation of Reasonably Efficient Costs Report*, March 2017.

which is reflected in their prices. The AFOC does not get added to Sydney Water or Hunter Water's RABs (ie, we do not provide a return on or a depreciation allowance for AFOC).

We consider that reticulation infrastructure should be treated symmetrically for Sydney Water and Hunter Water, and the reasonably efficient competitor cost margin (ie, it should be treated as AFOC). This also reflects that wholesale customers are also typically gifted reticulation infrastructure.

Therefore, we have excluded the value of reticulation assets when calculating a return on assets and depreciation allowance for a reasonably efficient competitor (until the assets are replaced), but provided an allowance for the tax liability of these gifted assets. We note that stakeholders did not comment on this general approach.

E.5.1 Tax depreciation

We have maintained the use of straight-line depreciation for the tax allowance. No stakeholders commented on this issue in submissions to the Supplementary Draft Report.

We note that not all utilities use accelerated depreciation, eg, in the Hunter Water 2016 retail price review, Hunter Water advised that it uses straight-line depreciation.¹⁶¹ Therefore, there is consistency in retail prices and reasonably efficient competitor's costs for Hunter Water.

We also note that the ATO does not specify use of a particular approach, nor does it favour one approach over the other. It just requires that if a particular approach has been selected for a particular asset, then the approach is maintained for the life of that particular asset – this also implies that a business can apply different approaches.

It is therefore not possible to be certain which method a reasonably efficient competitor would use.

E.5.2 Assets free of charge

The system-wide minuses included in this report apply to new schemes,¹⁶² and are based on an engineering approach to reflect the costs of a reasonably efficient competitor. Therefore, we are estimating the amount of infrastructure a new scheme would need, which will become gifted assets (AFOC) to the wholesale customer. Oakley Greenwood provided estimates of typical infrastructure for three different schemes, which we have used to determine a system-wide average for AFOC that a wholesale customer might receive.

We consider our approach would better reflect the reasonably efficient costs of a new scheme, rather than forming an estimate of AFOC based on a historical average such as examining historical (or existing) schemes (which may also be using older technology).

We note that in Sydney Water's retail price determination a historical average of AFOC was used. However, our aim was to reflect an estimate of forecast AFOC in its tax allowance for inclusion into its retail prices. That is, in both the 'minuses' and 'Sydney Water's retail

¹⁶¹ Hunter Water correspondence, 12 May 2016.

¹⁶² Refer to Chapter 4 for discussion on the application of the system-wide price determinations.

prices' we are aiming to estimate forecast AFOC. We used an historical average for Sydney Water's retail prices because we found it difficult to reconcile the modest projected growth rate in the number of households over the 2016 determination period with the 22% increase in its AFOC forecasts.¹⁶³

In calculating the tax allowances, we also calculated tax depreciation using tax asset lives for each of the assets, and carried forward any tax losses (this is consistent with our approach in our retail price reviews).¹⁶⁴

E.6 Capital items

E.6.1 Meter costs

In its March 2017 report Oakley Greenwood considered it would be more reasonable to assume that telemetry (remote reading) meters (at \$200 per meter for supply)¹⁶⁵ would be installed in greenfield sites, whereas non-telemetry meters (at \$70 per meter for supply) would be installed in brownfield sites. It also assumed, based on its experience, that two hours labour would be reasonable for installation time, thus recommending \$450 per meter for greenfield sites and \$320 per meter for brownfield sites. It also noted that the *Rawlinson's Australian Construction Handbook* quotes a meter cost of \$450 per meter (for the actual cost and installation) in the Melbourne region.¹⁶⁶

In response to our March 2017 Supplementary Draft Report, Hunter Water submitted that Oakley Greenwood's cost estimates for meter supply and installation were too high as they include activities which Hunter Water would not undertake.¹⁶⁷ In its submission to the Supplementary Draft Report, Sydney Water stated that the assumptions used in the reasonably efficient competitor cost calculations were largely robust, but proposed some changes to improve the estimates to align with standard industry practice. This included commenting that the meter installation costs were high, making the same points as Hunter Water that there are additional installations included that may be standard practice in Melbourne but are not undertaken in Sydney, also noting Sydney Water only takes 15 minutes to install the meter only.¹⁶⁸ The minus values include installation of pipework and connection by a plumber of \$250 per meter installation. The installation of pipework does not form part of Hunter Water's responsibilities in the meter supply and installation process as Hunter Water is only responsible for connecting the meter.

Oakley Greenwood made provision for some telemetry meters to be used in the indicative schemes used for the minus values. In response to submissions on the November 2016 Draft Report, Oakley Greenwood changed its assumptions to only have telemetry meters in the greenfield schemes and non-telemetry meters, and thereby meter reading costs, for the

¹⁶³ IPART, *Review of prices for Sydney Water Corporation – From 1 July to 30 June 2020 - Final Report*, June 2016, p 135.

¹⁶⁴ By carrying forward the tax losses we have assumed that a new wholesale scheme will be provided by a stand-alone wholesale customer not providing any other water or sewerage services. This is consistent with Oakley Greenwood's assumptions in developing its reasonably efficient competitor costs.

¹⁶⁵ Based on Sydney Water's publicly available rate.

¹⁶⁶ Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 26-27.

¹⁶⁷ Hunter Water submission to IPART Supplementary Draft Report, May 2017, p 6.

¹⁶⁸ Sydney Water submission to IPART Supplementary Draft Report, May 2017, pp iv-14.

example brownfield scheme.¹⁶⁹ This change was made by Oakley Greenwood in considering the reasonableness of its metering assumptions based on submissions and decided that installing telemetry meters would be more applicable in only greenfield sites where the benefits of telemetry are more likely to be realised. Hunter Water's submission also advised that Hunter Water's current practice is not to use any telemetry meters in its network, apart from a few large industrial customers.¹⁷⁰ Sydney Water also suggested telemetry meters should not be included in the reasonably efficient competitor cost minuses noting Sydney Water does not install these types of meters because the additional capital costs of the meters are not outweighed by the savings in operational costs.¹⁷¹

We note Hunter Water's submission that Oakley Greenwood's estimate of meter installation included the cost of supply of the meter, pipework and connection. In adopting the reasonably efficient competitor cost approach, we have focussed on what a reasonably efficient competitor cost would do in providing a retail and reticulation service. We note that if a reasonably efficient competitor cost enters the market, this work would need to be undertaken, while there is uncertainty about who would do the work and how this would be funded, given the transitional nature of the reasonably efficient competitor cost approach we have included provision for these costs in the minus estimates.

We acknowledge that Hunter Water and Sydney Water does not use telemetry meters. However, the reasonably efficient competitor cost estimate is based on what a competitor would likely do and engineering judgement. The costs of telemetry meters were included for two of the three indicative schemes used in the calculation of the reasonably efficient competitor cost minus values. This decision is related to the assumption that a reasonably efficient competitor would not have the economies of scale similar to Hunter Water and therefore may outsource, or in this case use technology, to avoid the high costs of establishing in-house services. In brownfield schemes such as example scheme 1, meters are closer together and therefore meter reading services in a close proximity are likely to provide the reasonably efficient competitor with efficiencies in meter reading as compared to in greenfield schemes which would have more dispersed meters, where the reasonably efficient competitor may choose telemetry meters, using this innovative technology to avoid meter reading costs. This is similar to assumptions made regarding non-metering retail costs such as billing and call centres where Oakley Greenwood assumed a range of services would be outsourced for the example schemes (i.e. call centre costs outsourced for scheme 3, billing costs outsourced for all three schemes). For the example schemes using telemetry meters, the meter reading data is assumed to be stored with the outsourced billing service provider, while for the brownfield scheme meter reading costs have been included as an in-house cost.

For scheme 1 non-telemetry meters are used at a cost of \$320 each, while the telemetry meters used in schemes 2 and 3 are at a cost of \$450 per meter. The reasonably efficient competitor cost minuses use a weighting of the different types of schemes with 60 per cent weighting to greenfield schemes. This means the minus values therefore include different types of meters which may be reasonable choices for a reasonably efficient competitor. The system-wide prices are to provide a 'typical' or average cost of retail and reticulation activities and therefore these include a mix of metering technologies.

¹⁶⁹ Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, p 27.

¹⁷⁰ Hunter Water submission to IPART Supplementary Draft Report, May 2017, p 6.

¹⁷¹ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 14.

We note that the purpose of the system-wide minuses is to be 'average' or typical values. By basing the system-wide minus values on the costs associated with three difference schemes, with difference servicing solutions including a mix of metering technology, we consider this provides a reasonable basis for developing 'average' or typical values given our decision to apply reasonably efficient competitor costs, rather than an 'as efficient' or avoidable costs, to calculating the minus values. We will continue to observe how the market develops, and at each review, further examine the appropriateness of applying reasonable efficient competitor costs, at that time.

In a scheme-specific review we would consider the specific technology and servicing solutions relevant to each specific case. We have accepted Oakley Greenwood's recommendation as being reasonable, based on publicly available data and its experience.

Further, in the calculation of the minus values we have maintained the approach for the Supplementary Draft Report and decided to include the cost of meters as capital expenditure, rather than initially as gifted assets because this is the most common approach across Sydney Water and Hunter Water.¹⁷²

E.6.2 Renewals (sewerage reticulation), pipes and construction sequencing

For water and sewerage reticulation renewals, we took Oakley Greenwood's schedule of unit rates and built up renewals costs for water and sewerage reticulation for each of the three schemes (according to Oakley Greenwood's assumed kilometres and type of reticulation pipe for each scheme). We then took a weighted average across the three schemes according to the weights previously described (ie, 40% for scheme 1, 40% for scheme 2 and 20% for scheme 3) and incorporated it into our modelling.¹⁷³

E.6.3 Sewerage pump stations

In making certain assumptions about Schemes 1, 2 and 3, Oakley Greenwood advised that to deliver sewerage services to Scheme 2 and 3 (ie greenfield schemes), a wholesale customer may need to build sewerage pump stations in the provision of sewerage services to end-use customers.¹⁷⁴

Oakley Greenwood advised that these sewerage pumping station costs may be required to minimise the installation depth of sewer gravity mains and potentially reduce the difficulty in identifying tie-in point(s) to Sydney Water's or Hunter Water's mains. For Scheme 2, Oakley Greenwood assumed that a single sewerage pumping station would be required, and for Scheme 3, assumed that three sewerage pumping stations may be required depending on the layout of the schemes and their topography. Oakley Greenwood advised, that given the assumptions it made about the brownfield scheme, eg layout, land size etc, sewerage pump stations are unlikely to be required.

¹⁷² The exception is for multi-unit meters for Sydney Water. Sydney Water submission to IPART Draft Report, December 2016, p 50.

¹⁷³ Given that our annuity period is over 50-years for our minus estimates, we have included renewals for valves (water reticulation) which have an asset life of 30-years as advised by Oakley Greenwood. For the pipes, given that Oakley Greenwood have advised an asset life of 100-years (ie, greater than our annuity period of 50-years), renewals for these assets have not been incorporated into our minus estimates.

¹⁷⁴ Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 42-43.

Sydney Water has raised issue with the inclusion of large infrastructure being included in the sewerage system-wide minus values, stating that these high values will create an incentive for new entrants to cherry-pick low cost areas.¹⁷⁵

We have decided to maintain the approach is our Supplementary Draft Report to incorporate the costs of sewerage pumping stations.¹⁷⁶ The system-wide minus values are based on three example schemes serviced by a reasonably efficient competitor and include a range of servicing technologies. Sewerage pumping station infrastructure was included in the minuses for the example greenfield schemes 2 and 3. Oakley Greenwood's advice is that a sewer pumping station would minimise the installation depth of the sewer gravity main and therefore also the difficulty in identifying tie-in point(s) to the downstream sewer mains (the wholesale service provider's network).

To the extent that the system-wide prices do not reflect individual scheme characteristics, IPART can be requested to undertake a scheme-specific review.

E.6.4 Water reservoirs and pump stations

In its advice, Oakley Greenwood advised that to provide potable water to greenfield schemes, an incumbent (Sydney Water or Hunter Water) may need to undertake capital expenditure for water reservoirs and pump stations as it cannot be certain whether its existing network can service the new schemes. Oakley Greenwood also provided advice on potential costs.¹⁷⁷ We consider that these types of costs are better suited as facilitation costs (see Chapter 6).

E.7 Calculating the annuitized average cost

In our modelling, we calculate annual reasonably efficient competitor costs for water and sewerage **retail** and **reticulation** functions.

Using an incremental cost approach best reflects an entrant's cost. Additionally, applying the incremental cost approach through a building block model allows consistency between how we calculate the retail and the minus (ie, they are both building block calculations).

To reflect the long-run incremental costs, our draft decision was to calculate a present value equivalent of these costs over a 50-year period. We did not receive any stakeholder submissions on this issue.

We have therefore decided to maintain this draft decision. It would incorporate renewals information eg, valves (used in pipes) have an asset life of 30-years and a period of 50-years would also provide a relatively stable 'minus' values.

¹⁷⁵ Sydney Water submission to IPART Supplementary Draft Report, May 2017, p 15.

¹⁷⁶ We have treated them as part of the reticulation infrastructure and thus provided a tax allowance initially and then a return on and of capital once they are renewed.

¹⁷⁷ Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 44-45 and accompanying spreadsheet.

E.8 Annuity calculation

A utility's cost will change each year under a building block approach, because:

- ▼ existing assets will depreciate and therefore generate a lower absolute return on assets (ie, the rate of return will be the same but the base will be smaller so the total return will be less)
- ▼ new assets will be added and require a rate of return, and
- ▼ operating expenditure will reflect the age of assets.

As such, it is unlikely there is a steady state long-run cost; although those costs may be relatively predictable for a benchmark utility (where asset ages and a replacement schedule is known).

We have decided to use an annuity that is equivalent in present value terms to the estimated lifecycle costs (operating, capital and tax related) – ie, the costs for each year of an asset's life. This will create a minus that will cover the benchmark costs over the annuity period.

To calculate the annuity we decided to apply a consistent discount rate to the WACC used for the return on assets. This is the real pre-tax WACC equivalent to the real post-tax WACC applied to Sydney Water and Hunter Water in our 2016 price determinations (ie, 4.9%). We use the pre-tax WACC as the cash flows being discounted include a tax allowance (ie, they are pre-tax adjusted cash flows).¹⁷⁸

E.9 Applying minuses by cost drivers

We have applied the minus based on the function's cost drivers. Based on the information we have available, we consider that the appropriate cost drivers are:

- ▼ number of customers for **retail** operating expenditure and capital costs, and
- ▼ kilometres of reticulation for **reticulation** operating expenditure and capital costs.

This approach best reflects the reasonably efficient costs of different functions.

There are a number of other factors that will drive costs, such as topography. We note that customer numbers and network length are not perfectly correlated with costs, however we consider it is the best available variable. In using the variables most correlated to expenditures we make system-wide prices more reliable and reduce inefficient cherry picking opportunities.

In particular, it ensures that the minus for retail and reticulation services is independent of water usage, which we do not consider to be a strong driver of these costs. Our water usage charge (the largest component of most customers' bills) is based on the long-run marginal cost (LRMC) principle. The main drivers of LRMC for water are:

- ▼ supply augmentation
- ▼ water filtration augmentation and operating expenditure, and

¹⁷⁸ The real pre-tax WACC we have used is 5.9%.

-
- ▼ other operating expenditure driven by usage, such as pumping.

We consider that retail and reticulation do not have a significant impact on the LRMC. Therefore, applying a discount to the usage charge to cover retail and reticulation costs may create an incentive to use an inefficiently large quantity of water or not to provide recycled water to end users (as it reduces demand for drinking water).

In response to our November 2016 Draft Report, stakeholders commented that use of kilometres as the cost driver for reticulation may potentially provide a perverse incentive where reticulation is inefficiently laid in order to obtain a greater minus.¹⁷⁹ We do not consider there to be a strong incentive for this to occur. This is because in establishing the minus for reticulation we have treated reticulation assets as assets that will be gifted to wholesale customers by developers, ie, which is the case for Sydney Water and Hunter Water. Therefore, in our minuses, we only provide for a tax allowance for the initial gifted assets and also provide for annual maintenance costs – however, once assets are renewed we provide for a return on and of capital for the capital expenditure that is required to be undertaken. Thus, we do not consider that considerable upfront capital expenditure would be undertaken to inefficiently lay reticulation in order to obtain a tax allowance and ongoing maintenance costs of much smaller value. Also where the wholesale customer is also not the developer, we do not consider there to be an incentive for a developer to inefficiently lay reticulation and gift it to a wholesale customer.

¹⁷⁹ Public hearing, Wholesale pricing for Sydney Water and Hunter Water, November 2016, p 32. Flow Systems submission to IPART Draft Report, December 2016, pp 3 and 10; and Sydney Water submission to IPART Draft Report, December 2016, p 16.

F Trade waste prices

The maximum charge that Sydney Water may levy for each trade waste service is in Table F.1 to Table F.7.

Table F.1 Sydney Water's pollutant charges for Industrial Customers (\$2016-17)

Pollutant ^a	Units	Acceptance standard (mg/L) ^b	Domestic equivalent	2016-17	2017-18	2018-19	2019-20
BOD – primary WWTPs	Per kg of mass above domestic strength	See note 1	230	0.285 + [0.123 x (BOD mg/L /600]	0.290 + [0.125 x (BOD mg/L /600]	0.296 + [0.128 x (BOD mg/L /600]	0.301 + [0.130 x (BOD mg/L /600]
BOD – secondary and tertiary WWTPs	Per kg of mass above domestic strength	See note 1	230	1.851 + [0.123 x (BOD mg/L /600]	1.886 + [0.125 x (BOD mg/L /600]	1.922 + [0.128 x (BOD mg/L /600]	1.958 + [0.130 x (BOD mg/L /600]
Suspended solids - primary WWTPs	Per kg of mass above domestic strength	600	200	0.517	0.527	0.537	0.547
Suspended solids - secondary and tertiary WWTPs	Per kg of mass above domestic strength	600	200	1.498	1.526	1.555	1.585
Grease - primary WWTPs	Per kg of mass above domestic strength	110	50	0.467	0.475	0.484	0.494
Grease – secondary and tertiary WWTPs	Per kg of mass above domestic strength	200	50	1.431	1.458	1.485	1.514
Nitrogen ^c - secondary/tertiary inland WWTP	Per kg of mass above domestic strength	150	50	1.697	1.729	1.762	1.795
Phosphorous ^c - secondary/tertiary inland WWTP	Per kg of mass above domestic strength	50	10	6.085	6.200	6.318	6.438

^a The charges for all other pollutants (including ammonia, sulphate (SO₄), total dissolved solids and non-domestic pollutants) are nil.

^b The mass of any substance discharged at a concentration which exceeds the nominated acceptance standard (as determined under the Trade Waste Policy) will be charged at double the rate for the mass in excess of the domestic equivalent. Concentration is determined by daily composite sampling by either the customer or Sydney Water.

^c Nitrogen and phosphorus limits do not apply where a wastewater treatment plant (to which the customer's wastewater system is connected) discharges directly to the ocean.

Note: BOD acceptance standards will be set only for wastewater systems declared as being affected by accelerated odour and corrosion. Where a customer is committed to and complying with an effluent improvement program, the customer will not incur doubling of the BOD charging rate. The oxygen demand of effluent is specified in terms of BOD. Acceptance standards for BOD are to be determined by the transportation and treatment capacity of the receiving system and the end-use of sewage treatment products. Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Sydney Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 40.

Table F.2 Sydney Water's corrosive substance charges for Industrial Customers – corrosion impacted catchment (\$2016-17)

Pollutant	Units	2016-17	2017-18	2018-19	2019-20
pH	Per ML of wastewater of pH <7.0 ^a	64.468	65.691	66.936	68.205
Temperature	Per ML of wastewater with temperature >25°C ^b	7.138	7.273	7.411	7.551

a The charge is applied for each pH1 by which the pH per ML of wastewater is less than pH7, eg, if the pH per ML is pH5 then the charge will be multiplied by 2. Where the pH is a number that includes a decimal number then, for charging purposes, the pH will be rounded up where the decimal number is 0.5 or more and rounded down where the decimal number is less than 0.5, eg, a pH6.5 will be rounded up to pH7 and a pH6.3 will be rounded down to pH6.

b The charge is applied for each 1°C by which the temperature per ML of wastewater is greater than 25°C, eg, if the temperature per ML is 27°C then the charge will be multiplied by 2. Where the temperature is a number that includes a decimal number then, for charging purposes, the temperature will be rounded up where the decimal number is more than 0.5 and rounded down where the decimal number is 0.5 or less, eg, a temperature of 25.7°C will be rounded up to 26°C and a temperature of 25.5°C will be rounded down to 25°C.

Note: Where Sydney Water declares a wastewater system to be affected by accelerated odour and corrosion, the temperature and pH charge will only apply if the customer is not committed to or not complying with an effluent improvement program. Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, Sydney Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016, Water – Determination, June 2016, p 41.

Table F.3 Sydney Water's trade waste industrial agreement charges for Industrial Customers by risk index per quarter (\$2016-17)

Risk level	2016-17	2017-18	2018-19	2019-20
1	2,024.78	2,063.17	2,102.28	2,142.13
2	2,024.78	2,063.17	2,102.28	2,142.13
3	2,024.78	2,063.17	2,102.28	2,142.13
4	934.60	952.32	970.37	988.77
5	623.43	635.25	647.29	659.56
6	311.72	317.62	323.65	329.78
7	155.86	158.81	161.82	164.89

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, Sydney Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016, Water – Determination, June 2016, p 42.

Table F.4 Sydney Water's commercial agreement charges for Commercial Customers (\$/quarter, \$2016-17)

Charge	Units	2016-17	2017-18	2018-19	2019-20
Commercial agreement charges for Commercial Customers – first process	Per first process	36.57	37.26	37.97	38.69
Commercial agreement charges for Commercial Customers – each additional process	Per each additional process	12.55	12.79	13.03	13.28

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, Sydney Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016, Water – Determination, June 2016, p 42.

Table F.5 Sydney Water's wastesafe charges for Commercial Customers (\$2016-17)

Service	Units	2016-17	2017-18	2018-19	2019-20
Fixed \$/ liquid waste trap charge	Per liquid waste trap	26.01	26.50	27.01	27.52
Missed service (pump-out) inspection charge for liquid waste traps – 2 kL or less	Per event	286.71	292.14	297.68	303.32
Missed service (pump-out) inspection charge for liquid waste traps – more than 2 kL	Per event	573.42	584.29	595.37	606.65

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Sydney Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 43.

Table F.6 Sydney Water's substance charges for Commercial Customers per kL (\$2016-17)

Activity	2016-17	2017-18	2018-19	2019-20
Low strength BOD food	2.197	2.238	2.281	2.324
Higher strength BOD food	3.610	3.678	3.748	3.819
Automotive	0.716	0.730	0.744	0.758
Laundry	0.448	0.456	0.465	0.474
Lithographic	0.345	0.351	0.358	0.365
Photographic	Nil	Nil	Nil	Nil
Equipment hire wash	3.273	3.335	3.398	3.463
Ship to shore	Nil	Nil	Nil	Nil
Miscellaneous	Nil	Nil	Nil	Nil
Other	Nil	Nil	Nil	Nil
Charge for low and high strength BOD food if pre-treatment is not maintained in accordance with requirements ^a	11.272	11.485	11.703	11.925

^a This charge applies if pre-treatment is not maintained in line with Sydney Water's Trade Waste Policy.

Note: Per kL of trade waste discharged into the wastewater system (as determined by Sydney Water in accordance with its Trade Waste Policy).

Shopping centres with centralised pre-treatment (DAF, biological treatment) will be managed as industrial customers (Risk Index 6) and receive site-specific substance charges. Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Sydney Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 44.

Table F.7 Sydney Water's trade waste ancillary charges (\$2016-17)

Service	Units	2016-17	2017-18	2018-19	2019-20
Additional inspection charge	Per inspection	194.96	198.66	202.42	206.26
Trade waste application fee for Industrial Customers – standard	Per application	470.62	479.55	488.64	497.90
Trade waste application fee for Industrial Customers – non-standard	Per hour	144.17	146.90	149.69	152.52
Trade waste application fee for Industrial Customers - variation	Per application	565.83	576.56	587.49	598.63
Sale of trade waste data	Per hour	140.49	143.16	145.87	148.64

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Sydney Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 45.

The maximum charge that Hunter Water may levy for each trade waste service is in Table F.8 to Table F.11.

Table F.8 Hunter Water's trade wastewater agreement and inspection fees (\$2016-17)

Charge	2016-17	2017-18	2018-19	2019-20
Minor Agreement				
Annual Trade Wastewater Agreement fee				
Annual Trade Wastewater Agreement fee	113.01	113.01	113.01	113.01
Administrative and inspection fees				
Establish Minor Agreement (new agreements)	138.20	138.20	138.20	138.20
Inspection fee	120.11	120.11	120.11	120.11
Existing renew / reissue	102.07	102.07	102.07	102.07
Variation to Minor Agreement fee	108.76	108.76	108.76	108.76
Moderate Agreement				
Annual Trade Wastewater Agreement fee				
Annual Trade Wastewater Agreement fee	826.13	826.13	826.13	826.13
Administrative and inspection fees				
Establish Moderate Agreement (new agreements)	490.97	490.97	490.97	490.97
Inspection fee	120.11	120.11	120.11	120.11
Existing renew / reissue	276.60	276.60	276.60	276.60
Variation to Moderate Agreement fee	108.76	108.76	108.76	108.76
Major Agreement				
Annual Trade Wastewater Agreement fee				
Annual Trade Wastewater Agreement fee	460.08	460.08	460.08	460.08
Administrative and inspection fees				
Establish Major Agreement (new agreements)	555.94	555.94	555.94	555.94
Inspection fee	120.11	120.11	120.11	120.11
Existing renew / reissue	393.21	393.21	393.21	393.21
Variation to Major Agreement fee	108.76	108.76	108.76	108.76
Tanker Agreement				
Tanker Agreement fees				
Establish Tanker Agreement	212.16	212.16	212.16	212.16
Variation to Tanker Agreement fee	108.76	108.76	108.76	108.76
Renew Tanker Agreement	135.41	135.41	135.41	135.41
Administrative fees				
Delivery processing fee (per delivery docket)	4.18	4.18	4.18	4.18

Note: For existing Minor Agreement, the cost of one inspection every 5 years is covered by the Annual Trade Wastewater Agreement fee. For existing Moderate Agreements the cost of one inspection every year is covered by the Annual Trade Wastewater Agreement fee. Additional inspections, if necessary, are charged an inspection fee for each inspection. The Annual Trade Wastewater Agreement fee also includes high-strength charges for the average discharge quality of Minor Agreement Customers and Moderate Agreement Customers. Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Hunter Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 37.

Table F.9 Hunter Water's trade waste high strength charges (\$ per kg, \$2016-17)

Wastewater treatment catchment area	2016-17	2017-18	2018-19	2019-20
Belmont	1.36	1.36	1.36	1.36
Boulder Bay	1.82	1.82	1.82	1.82
Branxton	5.05	5.05	5.05	5.05
Burwood Beach	0.76	0.76	0.76	0.76
Cessnock	1.70	1.70	1.70	1.70
Clarence Town	14.44	14.44	14.44	14.44
Dora Creek	2.01	2.01	2.01	2.01
Dungog	3.17	3.17	3.17	3.17
Edgeworth	1.33	1.33	1.33	1.33
Farley	1.30	1.30	1.30	1.30
Karuah	14.47	14.47	14.47	14.47
Kearsley	2.72	2.72	2.72	2.72
Kurri Kurri	2.92	2.92	2.92	2.92
Morpeth	1.00	1.00	1.00	1.00
Paxton	8.00	8.00	8.00	8.00
Raymond Terrace	1.99	1.99	1.99	1.99
Shortland	1.53	1.53	1.53	1.53
Tanilba Bay	3.11	3.11	3.11	3.11
Toronto	1.64	1.64	1.64	1.64

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Hunter Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 38.

Table F.10 Hunter Water’s trade waste high strength incentive charges (charged where the Load Limit is exceeded) (\$ per kg, \$2016-17 to 2019-20)

Wastewater treatment catchment area	
Belmont	4.04
Boulder Bay	5.48
Branxton	15.14
Burwood Beach	2.27
Cessnock	5.12
Clarence Town	43.31
Dora Creek	6.03
Dungog	9.53
Edgeworth	4.00
Farley	3.91
Karuah	43.40
Kearsley	8.19
Kurri Kurri	8.73
Morpeth	3.01
Paxton	24.00
Raymond Terrace	5.95
Shortland	4.59
Tanilba Bay	9.33
Toronto	4.91

Note: These charges apply to trade waste discharged that is in excess of any Load Limit. Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Hunter Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 39.

Table F.11 Hunter Water's trade waste pollutant charges (\$ per kg or \$ per kL – as specified, \$2016-17)

Charge	2016-17	2017-18	2018-19	2019-20
Pollutant charges – Major Agreement Customers and Tanker Agreement Customers				
Heavy Metal – Burwood Beach Wastewater Treatment Works Catchment (\$ per kg)	23.70	23.70	23.70	23.70
Heavy Metal – All other catchments (\$ per kg)	39.09	39.09	39.09	39.09
Phosphorus (concentrations >11 mg/L) (\$ per kg)	2.74	2.74	2.74	2.74
Sulphate (\$ per kg) ^a	[\$0.16x (SO ₄ /2000)]/kg			
Pollutant charges – Tanker Agreement Customers only				
Portable Toilet Effluent (\$ per kL)	13.86	13.86	13.86	13.86
Septic Waste (\$ per kL)	5.46	5.46	5.46	5.46
High Strength Waste volume charge (\$ per kL) ^b	3.53	3.53	3.53	3.53

^a Based on the acceptance standard of 2000 milligrams per litre.

^b Tankered high strength waste is also charged a load charge. The load charge is the high strength charge on p 38, Table 20 of Hunter Water's retail price Determination for the relevant wastewater treatment catchment area to which the waste is delivered.

Note: Prices for 2020-21 are expected to be determined in June 2020.

Source: IPART, *Hunter Water Corporation – Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Water – Determination, June 2016, p 40.

G Impact analysis

In order to assess the impacts of different wholesale pricing approaches, we applied our decisions to three indicative wholesale schemes to provide potential bill impacts. The three indicative schemes are based on simplified assumptions and do not represent any specific scheme.

In our impact analysis, we are not aiming to undertake a financial viability assessment of a wholesale scheme under our draft decisions. In order to do this we would need to understand all the costs and revenues associated with a scheme. We would also need to make assumptions about how a wholesale customer operating a scheme would respond to changes in the wholesale prices (eg, would a cost increase be absorbed or passed on to end-use customers). This would be a commercial decision that a wholesale customer would make. In addition, we have not done an assessment of the revenue impacts on Sydney Water or Hunter Water.

Rather, we are aiming to provide an indication of the revenue implications eg, the difference between:

- ▼ the expected revenue that wholesale customers could receive from end-use customers (if, for example, IPART's 2016 non-residential retail prices were applied), and
- ▼ the bill that wholesale customers could receive from either Sydney Water or Hunter Water under our pricing approaches.

Consistent with our decision not to set system-wide prices where there is a recycled water plant, all three indicative schemes do not involve a recycled water plant.

We highlight below the main assumptions underpinning our three indicative schemes.

- ▼ Indicative scheme 1: Inner city high density development (at full capacity)
 - We have assumed 2,000 multi-premise residential properties only with average water consumption of 160 kL per year for each multi-premise for Sydney Water and 150kL per year for Hunter Water; a 150mm and two 80mm meter size wholesale connections to either Sydney Water or Hunter Water's network; 0.02km of reticulation for both water and sewerage; and a 75% discharge factor for residential customers and a 78% discharge factor for non-residential customers.
- ▼ Indicative scheme 2: Small greenfield low density development (at full capacity)
 - We have assumed about 1,500 free-standing residential properties (with average water consumption of about 220 kL per year for each home in Sydney Water's area and 185 kL per year for each home in Hunter Water's area), 400 multi-premise residential properties (with average water consumption of about 160 kL per year for Sydney Water and 150kL per year for Hunter Water) and 100 non-residential properties (with average water consumption of 220 kL per year in Sydney Water's area and 185 kL per year in Hunter Water's area); a single 250mm size wholesale connection to either Sydney Water or Hunter Water's network; 30km of reticulation

for water and 20km of reticulation for sewerage; and a 75% discharge factor for residential customers and a 78% discharge factor for non-residential customers.

- ▼ Indicative scheme 3: Large greenfield low density development (at full capacity)
 - We have assumed 8,000 free-standing residential properties (with average water consumption of about 220 kL per year for each home in Sydney Water's area and 185 kL per year for each home in Hunter Water's area), 1,500 multi-premise residential properties (with average water consumption of about 160 kL per year for Sydney Water and 150kL per year for Hunter Water) and about 500 non-residential properties (with average water consumption of 220 kL per year in Sydney Water's area and 185 kL per year in Hunter Water's area); a single 350mm size wholesale connection to either Sydney Water or Hunter Water's network; 150km of reticulation for water and 100km of reticulation for sewerage; and a 75% discharge factor for residential customers and a 78% discharge factor for non-residential customers.

Detailed analysis is shown in the tables below, comparing the system-wide retail-minus wholesale prices to non-residential prices. The key results of the impact analysis for the three example schemes are:

- ▼ for water on-selling services, the system-wide retail-minus prices result in lower water revenues/bill impacts than the non-residential retail prices, for all three indicative schemes, for both Sydney Water and Hunter Water's areas
- ▼ for sewerage on-selling services, the system-wide retail-minus prices result in higher sewerage revenues/bill impacts than the non-residential retail prices, for all three indicative schemes, for both Sydney Water and Hunter Water's areas, and
- ▼ of the three indicative schemes, revenues/bill impacts for the inner city high density indicative scheme experience the largest percentage increase (for on-selling water services and on-selling sewerage services combined) for both Sydney Water and Hunter Water's areas.

We sought information from current wholesale customers to inform our impact analysis. The information that we received has been incorporated in the above assumptions.

In response to our November 2016 Draft Report, Hunter Water re-calculated the minus components after reducing the volume of drinking water sold in each of three worked examples assuming that a recycled water scheme would replace 40 per cent of residential drinking water use. Hunter Water estimates that IPART's minus allowances would result in a nearly 40 per cent reduction in Hunter Water's revenues in the greenfield examples.¹⁸⁰

We acknowledge that a recycled scheme will likely impact on Hunter Water's revenue. However, our analysis is focused on wholesale customer bills. Consistent with our decision not to set system-wide wholesale prices where there is a recycled water plant, these impacts therefore do not assess involvement of a recycled water plant.

In response to our March 2017 Supplementary Draft Report, Hunter Water raised the water usage assumptions used in the impact analysis were not consistent with the water usage assumptions that were used in Hunter Water's retail determination. We have revised the

¹⁸⁰ Hunter Water submission to IPART Draft Report, December 2016, p 6.

impact analysis to be consistent with the assumption for water usage in Hunter Water's area, noting this is lower than used in Sydney Water's area.¹⁸¹

G.1 Stakeholder impacts of this pricing approach

In this section we outline indicative bill impacts of our draft pricing decisions for on-selling water and sewerage services.

The analysis included in our November 2016 Draft Report compared customer bills over 2016-17 to 2019-20, a four year period. Given our draft decision that the system-wide determination would apply from 1 July 2017, 2016-17 prices are no longer relevant. Therefore, the period for the analysis below commences in 2017-18 (ie, the first year of the system-wide determination). IPART's 2016 retail price determinations for Sydney Water and Hunter Water set prices until 2019-20. As wholesale prices are a function of the retail prices, our analysis ends in the same year as the retail price determination period. Consequently, our analysis in this chapter is over 2017-18 to 2019-20, a three year period – rather than the four year period of the system-wide determinations.

In a future retail price review, we expect to determine water retail prices for 2020-21 onwards. The system-wide prices that would apply in 2020-21 would comprise the retail prices for that year (to be determined in a future review) and the minus factors in the Final Determination of system-wide prices for on-selling.

We consider that using a multi-year period to assess bill impacts is better than a single year analysis, as wholesale customer's investment period is typically over many years.

Further, for on-selling sewerage, we have changed the assumption regarding the discharge factor to apply in the calculation of the bill under non-residential retail prices. The analysis contained in our November 2016 Draft Report used a discharge factor of 35%. In the analysis below, we have assumed a discharge factor of 78% as this is the default discharge factor used by Sydney Water for its non-residential customers.

For these reasons, direct comparison of the analysis in our November 2016 Draft Report and the analysis below is difficult.

G.1.1 On-selling water services

The tables below show bill impacts for three indicative wholesale schemes, with simplified assumptions to highlight the general outcome under our draft prices for on-selling water services.

Under our draft decision to set wholesale charges for on-selling water services using a retail-minus approach, the impact on wholesale customers' bills depends on the specific characteristics of the scheme (ie, the numbers of customers and length of reticulation network).

¹⁸¹ Hunter Water submission to IPART Supplementary Draft Report, May 2016, p 4.

For the indicative schemes we outline below, our draft prices for **on-selling water** would result in a lower bill than if the price were set at the wholesale service provider's non-residential retail prices.

In Table G.1 below, for an inner city development (with 2,000 residential end-use customers), the total expected revenue from end-use customers for water services based on IPART's 2016 retail determination for Hunter Water would be around \$2.4 million (over the 3-years from 2017-18 to 2019-20 in present value terms).

Under our system-wide price decision, the total wholesale bill for this scenario would be \$1.6 million over the same period. This is lower than if the wholesale bill was set using non-residential retail prices. The wholesale bill under non-residential prices would be about \$2 million.

For a wholesale customer of Sydney Water, the wholesale bill under our draft decision would be \$1.6 million (for retail-minus retail and reticulation contestable services), which is lower than a wholesale bill of around \$1.9 million if it were set using non-residential retail prices. Under our supplementary draft decision, the margin would increase by about \$0.25 million.

The difference between the expected revenue from end users and the wholesale bill would be the same regardless of whether the wholesale service is provided by Sydney Water or Hunter Water – for this indicative scheme, it is about \$0.7 million. This is because we have applied the same reasonably efficient competitor costs to both Sydney Water and Hunter Water for the 'minus' component (see Chapter 4).

We also provide indicative impacts for a small greenfield low density development and a large greenfield low density development in Table G.2 and Table G.3 respectively.

Table G.1 On-selling water: retail & reticulation contestable services - Indicative revenue/bill impacts over 2017-18 to 2019-20 (NPV \$'000s, \$2017-18) – Inner city high density development

Indicative scheme	Revenue/bill impact	Wholesale provider Sydney Water	Wholesale provider Hunter Water
Inner city high density development (2,000 end-use customers)	Expected revenue from end users ^a	\$2,374	\$2,369
	Wholesale customers' bill: non-residential retail prices	\$1,876	\$1,973
	Wholesale customers' bill: IPART decision	\$1,627	\$1,622
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	\$498	\$395
	Under IPART's decision	\$747	\$747
	<i>Change in margin</i>	<i>+\$249</i>	<i>+\$352</i>

^a Revenue and bill estimates are based on IPART's 2016 retail price determinations.

Note: We have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year in Sydney and 150kL per year in the Hunter (reflecting apartment consumption only), and a 150mm meter and two 80mm meter connections to Sydney Water or Hunter Water (for the non-residential retail prices). We have also assumed 0.02km of reticulation. The above analysis is also done over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

Table G.2 On-selling water: retail & reticulation contestable services - Indicative revenue/bill impacts over 2017-18 to 2019-20 (NPV \$'000s, \$2017-18) – Small greenfield low density development

Indicative scheme	Revenue/bill impact	Wholesale provider Sydney Water	Wholesale provider Hunter Water
Small greenfield low density development (2,000 end-use customers)	Expected revenue from end users ^a	\$2,930	\$2,735
	Wholesale customers' bill: non-residential retail prices	\$2,450	\$2,353
	Wholesale customers' bill: IPART decision	\$1,840	\$1,645
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	\$480	\$382
	Under IPART's decision	\$1,090	\$1,090
	<i>Change in margin</i>	<i>+\$610</i>	<i>+\$708</i>

^a Revenue and bill estimates are based on IPART's 2016 retail price determinations.

Note: We have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year to 220kL per year in Sydney and 150kL per year to 185kL per year in the Hunter (reflecting a mix of apartment, stand-alone house and non-residential consumption), and a single 250mm meter connection to Sydney Water or Hunter Water. We have assumed 30km of reticulation. The above analysis is also done over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

Table G.3 On-selling water: retail & reticulation contestable services - Indicative revenue/bill impacts over 2017-18 to 2019-20 (NPV \$'000s, \$2017-18) – Large greenfield low density development

Indicative scheme	Revenue/bill impact	Wholesale provider Sydney Water	Wholesale provider Hunter Water
Large greenfield low density development (10,000 end-use customers)	Expected revenue from end users ^a	\$14,824	\$13,787
	Wholesale customers' bill: non-residential retail prices	\$12,299	\$11,777
	Wholesale customers' bill: IPART decision	\$9,375	\$8,338
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	\$2,525	\$2,011
	Under IPART's decision	\$5,449	\$5,449
	<i>Change in margin</i>	<i>+\$2,924</i>	<i>+\$3,438</i>

^a Revenue and bill estimates are based on IPART's 2016 retail price determinations.

Note: We have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year to 220kL per year in Sydney and 150kL per year to 185kL per year in the Hunter (reflecting a mix of apartment, stand-alone house and non-residential consumption), and a single 350mm meter connection to Sydney Water or Hunter Water. We have assumed 150km of reticulation. The above analysis is also done over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

G.1.2 On-selling sewerage services

The tables below show example bill impacts for three indicative wholesale schemes, with simplified assumptions, to highlight the general outcome under our draft prices for on-selling sewerage services.

For the indicative schemes we outline below, our draft decisions on prices for **on-selling sewerage services** result in a higher bill for wholesale customers than if they were subject to Sydney Water and Hunter Water's retail non-residential prices.

In Table G.4, for an inner city development (with 2,000 residential end-use customers), the total revenue from end-use customers for sewerage services based on IPART's 2016 retail determination for Sydney Water would be around \$3.4 million (over the 3-years from 2017-18 to 2019-20 in present value terms).¹⁸² Under our system-wide prices, the wholesale bill for this scenario would be \$2.9 million (for retail-minus retail and reticulation contestable services), which is about \$2 million higher than a wholesale bill of \$0.9 million if it were to be set using non-residential retail prices. Under our final decision, it also means that the difference between the expected revenue from end users and wholesale bills is about \$0.5 million, which is lower than the difference of \$2.5 million if non-residential prices were applied.

For a wholesale customer of Hunter Water, the wholesale bill for the same scenario would be around \$2.6 million, which is higher than a wholesale bill of \$0.6 million if it were to be set using non-residential prices. Under our draft decision, it also means that the difference between the expected revenue from end users and wholesale bills is about \$0.5 million, which is lower than the difference of \$2.4 million if non-residential prices were applied.

We also provide similar indicative impacts for a small greenfield low density development and a large greenfield low density development in Table G.5 and Table G.6, respectively.

¹⁸² That is, the total bill in present value terms as at 1 July 2017 (for illustrative purposes only).

Table G.4 On-selling sewerage: retail & reticulation contestable services - Indicative revenue/bill impacts over 2017-18 to 2019-20 (NPV \$'000s, \$2017-18) – Inner city high density development

Indicative scheme	Revenue/bill impact	Wholesale provider Sydney Water	Wholesale provider Hunter Water
Inner city high density development (2,000 end-use customers)	Expected revenue from end users ^a	\$3,380	\$3,049
	Wholesale customers' bill: non-residential retail prices	\$913	\$602
	Wholesale customers' bill: IPART decision	\$2,916	\$2,585
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	\$2,467	\$2,446
	Under IPART's decision	\$464	\$464
	<i>Change in margin</i>	<i>-\$2,003</i>	<i>-\$1,982</i>

^a Revenue and bill estimates are based on IPART's 2016 retail price determinations.

Note: We have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year in Sydney Water and 150kL per year in the Hunter (reflecting apartment consumption only), and a 150mm meter and two 80mm meter connections to Sydney Water or Hunter Water. We have also assumed 0.02km of reticulation. We have also assumed a discharge factor of 75% for residential properties and 78% for non-residential properties. The above analysis is also done over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

Table G.5 On-selling sewerage: retail & reticulation contestable services - Indicative revenue/bill impacts over 2017-18 to 2019-20 (NPV \$'000s, \$2017-18) – Small greenfield low density development

Indicative scheme	Revenue/bill impact	Wholesale provider Sydney Water	Wholesale provider Hunter Water
Small greenfield low density development (2,000 end-use customers)	Expected revenue from end users ^a	\$3,389	\$3,657
	Wholesale customers' bill: non-residential retail prices	\$1,239	\$813
	Wholesale customers' bill: IPART decision	\$2,477	\$2,745
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	\$2,150	\$2,844
	Under IPART's decision	\$912	\$912
	<i>Change in margin</i>	<i>-\$1,239</i>	<i>-\$1,932</i>

^a Revenue and bill estimates are based on IPART's 2016 retail price determinations.

Note: We have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year to 220kL per year in Sydney and 150kL per year to 185kL per year in the Hunter (reflecting a mix of apartment, stand-alone house and non-residential consumption), and a single 250mm meter connection to Sydney Water or Hunter Water. We have assumed 20km of reticulation. We have also assumed a discharge factor of 75% for residential properties and 78% for non-residential properties. The above analysis is also done over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

Table G.6 On-selling sewerage: retail & reticulation contestable services - Indicative revenue/bill impacts over 2017-18 to 2019-20 (NPV \$'000s, \$2017-18) – Large greenfield low density development

Indicative scheme	Revenue/bill impact	Wholesale provider Sydney Water	Wholesale provider Hunter Water
Large greenfield low density development (10,000 end-use customers)	Expected revenue from end users ^a	\$16,945	\$18,462
	Wholesale customers' bill: non-residential retail prices	\$5,674	\$3,185
	Wholesale customers' bill: IPART decision	\$12,387	\$13,904
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	\$11,271	\$15,277
	Under IPART's decision	\$4,558	\$4,558
	<i>Change in margin</i>	<i>-\$6,713</i>	<i>-\$10,719</i>

^a Revenue and bill estimates are based on IPART's 2016 retail price determinations.

Note: e have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year to 220kL per year in Sydney and 150kL per year to 185kL per year in the Hunter (reflecting a mix of apartment, stand-alone house and non-residential consumption), and a single 350mm meter connection to Sydney Water or Hunter Water. We have assumed 100km of reticulation. We have also assumed a discharge factor of 75% for residential properties and 78% for non-residential properties. The above analysis is also done over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

Glossary

Area of operations	<p>For Sydney Water, means the area of operations referred to in section 10 of the Sydney Water Act.</p> <p>For Hunter Water, means the area of operations referred to in section 16 of the Hunter Water Act.</p>
Augmentation	The upgrade or construction of a water supply or sewerage service asset to increase system capacity.
Augmentation costs	The costs associated with an augmentation.
Contestable service(s)	The service the wholesale customer is providing (or seeking to provide) to retail customers 'upstream' or 'downstream' of the wholesale services it has purchased from the incumbent utility. That is, the service between the wholesale connection point and the end-use (retail) customers.
Cost-of-service pricing	The setting of wholesale prices to reflect the actual costs of providing a particular good or service to a particular customer.
Depreciation	The reduction in value of an asset over a period. Value may reduce through wear and tear or obsolescence. Depreciation charges are recognised as a cost of doing business. They permit the investor to recover the principal value of the investment over time.
Determination period	Price limits (maximum prices) set by IPART for a given period.

Developer charge	Upfront charges from utilities paid by developers to recover part of the infrastructure costs incurred in servicing new developments. They can be charged as developer charges by Sydney Water and Hunter Water in accordance with IPART, <i>Sydney Water Corporation, Hunter Water Corporation, Gosford City Council, Wyong Shire Council, Developer Charges from 1 October 2000, Determination no 9, 2000, and, IPART, Recycled Water Developer Charges, Determination no 8, 2006</i> . They can be charged by WIC licensees as relevant costs related to the grant of certificate of compliance under Part 3A, Division 3, Section 24AE of the <i>Water Industry Competition (General) Regulation 2008</i> .
DORC	Depreciated optimised replacement cost
Dynamic efficiency	A situation where investment decisions lead to optimal levels and types of output over the long term.
Efficient entry	Participation of new firms in a market that leads to prices reflecting least cost supply and dynamic efficiency.
End users	Retail residential and non-residential customers that purchase water supply and/or sewerage services for purposes other than on-supply.
Facilitation costs	The additional costs incurred (positive facilitation costs) or saved (negative facilitation costs) by a wholesale service provider to supply a wholesale customer.
Government agency	Any public or local authority which supplies services to the public or any part of the public, and includes a government department, state owned corporation, water supply authority or public utility undertaking which supplies such services, as defined in Section 3 of the IPART Act.
Government monopoly services	A service supplied by a government agency and declared by the regulations or the Minister to be a government monopoly service, as defined in Section 4 of the IPART Act.
Hunter Water	Hunter Water Corporation as established by the Hunter Water Act.

Hunter Water Act	<i>Hunter Water Act 1991</i>
Incumbent utility	In this report, Sydney Water or Hunter Water, and not other established utilities (such as existing wholesale customers).
Infrastructure services	<p>The storage, conveyance or reticulation of water or sewerage 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 sewerage is stored, conveyed or reticulated, but:</p> <p>(i) does not include the storage of water behind a dam wall, and</p> <p>(ii) does not include:</p> <ul style="list-style-type: none"> (a) the filtering, treating or processing of water or sewerage, or (b) the use of a production process, or (c) the use of intellectual property, or (d) 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 sewerage. <p>As defined in the Dictionary to the WIC Act.</p>
IPART	The Independent Pricing and Regulatory Tribunal of New South Wales
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act 1992</i>
Level playing field	In this report, a situation where Sydney Water, Hunter Water, and other low-cost utilities have an equal chance of succeeding.
Line-in-the-sand valuation	The valuation of the regulatory asset bases for Sydney Water and Hunter Water based on prevailing prices in 2000.
Local Government Act	<i>Local Government Act 1993 (NSW)</i>
Marginal cost	The additional cost of producing an extra unit of a good or service.

MEERA	Modern engineering equivalent replacement asset value
Methodology	A determined method for Wholesale Service Providers to fix the maximum price of a product or service.
Minus component	In a retail-minus charge, the part of the charge that is subtracted from the retail-revenue. In our preferred methodology this is based on reasonably efficient competitor costs.
Monopoly power	The power to set prices above cost without risk of losing market share.
Monopoly supplier	The only supplier to a market.
Net facilitation costs	The additional costs incurred by a wholesale service provider to supply services to a wholesale customer less any cost savings to the wholesale service provider as a result of the wholesale customer's activities.
New entrant	In this report, a wholesale customer of an incumbent supplier.
Non-residential charge	The charges applied under the prevailing Sydney Water and Hunter Water Retail Price Determinations to non-residential customers.
NPV	Net present value
NSW	New South Wales
Order	<i>Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997</i>
Operating licence	The prevailing operating licences that apply for Sydney Water and Hunter Water.
Postage stamp pricing policy	The Government policy that requires Sydney Water and Hunter Water to charge most customers in their area of operations the same ongoing water and sewerage prices – regardless of differences in the cost to supply them due to their location and other site-specific factors.
Price cap	A determined fixed maximum price.

Productive efficiency	A situation where an organisation's output is maximised for a given cost or that cost is minimised for a given output.
Reasonably efficient competitor	A benchmark firm that is efficient given its scale, but may lack some scale economies enjoyed by the incumbent utility in servicing retail customers. This approach recognises that it may be unrealistic for a new entrant to immediately achieve scale economies.
Recycled water	Water that has been treated to enable its use for certain industrial, commercial and/or household applications, but is not intended to meet the standards for drinking water required by the National Health and Medical Research Council's Australian Drinking Water Guidelines.
Regulatory asset base (RAB)	The assets on which regulated firms like Sydney Water and Hunter Water are permitted to earn a return on and of capital in their regulated prices.
Retail component	In a retail-minus charge, the retail revenue that the wholesale service provider would generate from those customers, if it were their retail service provider.
Retail Service Provider	The utility that provides water supply and/or sewerage services to end users.
Retail services	Water supply and/or sewerage services to end users.
Retail-minus	An approach to price setting where the wholesale price is based on the end user or retail price corresponding to the retail services, with a discount (or minus).
Return on assets	The earnings before interest and taxation generated by a business's assets.
Scheme-specific	Tailored to an individual scheme based on its individual characteristics.
Sydney Water	Sydney Water Corporation as established by the Sydney Water Act.
Sydney Water Act	<i>Sydney Water Act 1994</i>

Trade waste charges	Charges applied to trade waste in the prevailing Sydney Water and Hunter Water Determinations.
Unregulated agreements	Private agreements between Wholesale Service Providers and Wholesale Customers outside of our Determination of wholesale prices.
Wholesale connection point	The point where a wholesale service is received by a wholesale customer. For the purpose of calculating reasonably efficient competitor costs, it excludes any infrastructure built to connect a development to the wholesale service provider's network.
Wholesale scheme	The system operated by a wholesale customer that supplies retail services to end users.
Wholesale service provider	Sydney Water and/or Hunter Water
WIC Act	<i>Water Industry Competition Act 2006</i>
WIC Act access regime	The access regime included in Part 3 of the WIC Act.
Wider customer base	Sydney Water's and Hunter Water's retail customers.