IPART

Independent Pricing and Regulatory Tribunal
New South Wales

Prices for wholesale water and sewerage services

Sydney Water Corporation and Hunter Water Corporation

Supplementary Draft Report
Water

March 2017

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Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by 1 May 2017.

We would prefer to receive them electronically via our online submission form <www.ipart.nsw.gov.au/Home/Consumer_Information/Lodge_a_submission>.

You can also send comments by mail to:

Wholesale water pricing review
Independent Pricing and Regulatory Tribunal
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Contents

1 Executive Summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is currently reviewing 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 **Supplementary Draft Report** serves two purposes:

- to outline our draft regulatory framework for pricing wholesale services, and our decisions on the principles and approaches we would apply under this framework
- to explain how we have set prices for one element of this framework – ie, the accompanying system-wide Draft Determinations for specific services supplied by Sydney Water and Hunter Water.

This **Supplementary Draft Report** and accompanying Draft Determinations follow our earlier Draft Report and Determinations, which were released in November 2016.[3] We have extended our review until June 2017, and added the release of this Supplementary Draft Report and accompanying Draft Determinations as an extra step in our consultation process, in response to requests from stakeholders for a further round of consultation.[4]

We invite submissions on all our draft decisions, which we will consider before making our final decisions and releasing our Final Report and Final Determinations.

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 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.

4 At our December 2016 public hearing, Lendlease asked for a further round of consultation if IPART were to make significant changes following our November 2016 Draft Report. In submissions to our November 2016 Draft Report, both Sydney Water and Hunter Water supported IPART undertaking further consultation.

1.1 Overview of our draft decisions

The sections below provide an overview of our decisions in this report. We have maintained most of the decisions of our November 2016 Draft Report, with a few key exceptions.

1.1.1 We have maintained the regulatory framework

We have maintained the regulatory framework of our November 2016 Draft Report, which is comprised of:

- system-wide prices for new wholesale arrangements[5]
  - to apply for four years, from 1 July 2017 to 30 June 2021
- scheme-specific price reviews and determinations, and
- unregulated pricing agreements.

This report explains each of these elements of the regulatory framework, including our decisions on principles and approaches that we would likely apply in conducting scheme-specific price reviews, and how we have applied these to set draft system-wide wholesale prices that apply to specific services for new wholesale arrangements.

The regulatory framework means that:

- **For a new scheme**, 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.
- **For an existing scheme**, a wholesale customer or service provider may seek a scheme-specific determination by IPART, if they cannot reach agreement on price.

By setting system-wide prices for new schemes, we have reduced the need for potentially costly scheme-specific reviews, but have provided the option for parties to seek a scheme-specific review where the system-wide price determination does not reflect scheme-specific characteristics. In considering a request to undertake a scheme-specific review, we would consider the extent to which the determined system-wide prices are appropriate for the particular schemes.

Chapter 9 outlines our proposed process for considering applications for scheme-specific determinations and then conducting these determinations. We would consider conducting 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. Where wholesale service providers and customers have agreed on elements of pricing, this could enable us to undertake a more targeted review, which could therefore be shorter and less costly.

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

5 Our determined prices would not apply to existing services. Under our draft determinations, a wholesale service is an 'existing service' if before commencement of the determination (1 July 2017) Sydney Water or Hunter Water has commenced supplying the wholesale service to a wholesale customer.

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).[6] They do not relate to the bundled services that wholesale customers may wish to purchase. For example, 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 We have maintained retail-minus pricing for on-selling water and sewerage services, but this now includes recycled water plants

Retail minus reasonably efficient competitor cost prices for on-selling

We have maintained our decision that **retail minus**[7] **reasonably efficient competitor cost prices** should apply for water and sewerage services[8] 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. This is explained further in Chapter 5.
- Minuses 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 5.

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

As a significant change from our November 2016 Draft Report, we now consider **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.

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

7 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 this minus element usually 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).

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

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 retail prices. As explained in Chapter 5, 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 8). That is, if the recycled water scheme reduces or lowers 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 would 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.

As outlined below, we consider that non-residential retail prices should still apply 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 for new wholesale arrangements

We have set draft system-wide prices for on-selling services based on retail minus reasonably efficient competitor costs for **retail** and **reticulation** services. Retail and reticulation services are the most common services delivered by wholesale customers who undertake on-selling services.

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 minuses shown in Table 1.1, applied based on the number of end-use customers and kilometres of pipeline for the applicable service.

Since our November 2016 Draft Report and Determinations, we have refined our values of the retail and reticulation minuses, taking into account stakeholder submissions and the work of our consultants, Oakley Greenwood. Our revised minus values are generally higher than the values in our November 2016 Draft Report:

- for retail services, the main reasons for **higher minus values** are inclusion of management costs and taking a weighted average of the reasonably efficient competitor retail costs for the three different schemes (for which Oakley Greenwood provided cost estimates) rather than just the largest of the three schemes
- for reticulation services for water, the main reason for a **lower minus value** is adopting lifecycle operating costs, and
- for reticulation services for sewerage, the main reason for a **higher minus value** is the inclusion of sewerage pumping stations.

Table 1.1 compares our current decisions on the minuses to those in our November 2016 Draft Report. This shows that, with the exception of water reticulation, which has decreased marginally, the minuses are now larger, meaning lower wholesale prices.

Table 1.1 Draft reasonably efficient competitor cost minuses ($2016-17)

	November 2016 Draft Report	Supplementary Draft Report
Water		
Retail ($/customer/year)	69.60	129
Reticulation ($/kilometre/year)	4,227.91	3,945
Sewerage		
Retail ($/customer/year)	46.40	80
Reticulation ($/kilometre/year)	7,692.63	7,742

Note: The Determinations commence on 1 July 2017.

1.1.3 We have maintained non-residential pricing for drinking water top-up and waste from recycled water plants, where there is no on-selling

We consider 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[9] to on-sell (eg, retail) sewerage services; and/or
- purchases drinking water to top up its recycled water plant (rather than to on-sell the potable water).

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, 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.

For our system-wide determinations, the relevant non-residential charges from the 2016 Sydney Water and Hunter Water retail price determinations would apply until 30 June 2020, and the 2020-21 prices would be determined as part of the next retail price determinations (due for completion by mid-2020).

Tables 1.2 and 1.3 below show the prices that would apply for **drinking water top-up** services from Sydney Water and Hunter Water (respectively). These prices are included in IPART's 2016 final determinations of Sydney Water's and Hunter Water's retail prices.

9 Comprised of sewage transportation, treatment and disposal. If wholesale customers do not dispose of waste from a recycled water plant using Sydney Water's or Hunter Water's sewerage network, there is no wholesale sewerage service provided by Sydney Water or Hunter Water. Therefore, the prices in the Draft Determinations do not apply in this situation.

Table 1.2 Prices for drinking water top-up from Sydney Water ($2016-17)

	2017-18	2018-19	2019-20
Water usage charge($/kL)			
Water usage charge	2.00	2.00	2.00
SDP uplift	0.12	0.12	0.12
Meter connection charge($/meter)			
20mm	89.95	89.95	89.95
25mm	140.55	140.55	140.55
32mm	230.28	230.28	230.28
40mm	359.82	359.82	359.82
50mm	562.22	562.22	562.22
80mm	1,439.27	1,439.27	1,439.27
100mm/unmetered	2,248.86	2,248.86	2,248.86
150mm	5,059.94	5,059.94	5,059.94
200mm	8,995.44	8,995.44	8,995.44
Other meter sizes	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		

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.

In cases where a wholesale customer buys drinking water both to top up its recycled water scheme and to on-sell drinking water to end-use customers, our draft decision is that these services would be charged for separately and consistently with the pricing approach for each service.

In cases where the customer is supplied drinking water for both on-selling and top-up, and the top-up supply is not individually metered, our draft decision is that the non-residential retail service charge for drinking water top-up should be based on a **deemed** meter size of 100mm (as outlined in Table 1.2 and Table 1.3).

Table 1.3 Prices for drinking water top-up from Hunter Water ($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)			
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 /unmetered	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	$\frac{(\text{meter size})^2 \times 20\text{mm water supply service charge}}{400}$		

[a] If a wholesale customer only has a single 20mm meter they would receive a 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.

Tables 1.4 and 1.5 below show the prices that would apply for recycled water plant waste disposal services from Sydney Water and Hunter Water (respectively), where the wholesale customer is not on-selling these sewerage services. These are the prices as set out in the 2016 retail price determinations for Sydney Water and Hunter Water. Wholesale customers may also incur trade waste charges as set out in the prevailing Sydney Water and Hunter Water retail price determinations. These charges are listed in Appendix F.

Table 1.4 Sewerage charges for recycled water plant waste disposal services from Sydney Water ($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	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		
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.

Table 1.5 Sewerage charges for recycled water plant waste disposal services from Hunter Water ($2016-17)

	2017-18	2018-19	2019-20
Meter connection charge ($/meter)[a]			
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	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		
Deemed usage charge ($)			
Deemed usage charge	56.95	68.68	80.40
Sewerage usage charge ($/kL)			
Below discharge allowance[a]	0.00	0.00	0.00
Above discharge allowance[a]	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.

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 or non-residential 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 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
- 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, positive infrastructure facilitation costs (such as 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, which should be reflected in wholesale prices. In particular, we have explored the option of including typical or average negative facilitation costs (cost savings) associated with recycled water plants in the system-wide determinations (see Chapter 8).

Nevertheless, we have maintained our position of the November 2016 Draft Report 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 reach agreement under 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 Papers[10] 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 by 5 October 2015
- holding a separate public hearing on wholesale pricing in December 2015
- deciding to conduct a separate review of wholesale pricing and releasing a separate 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 December 2016, and
- releasing this Supplementary Draft Report and Draft Determinations and inviting stakeholders to make submissions.

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

We now invite stakeholders to make submissions on all issues in response to this Supplementary Draft Report and the Draft Determinations. These submissions are due by 1 May 2017. Information on how to make a submission can be found on page iii, at the front of this report.

We will consider all the information and views expressed in submissions and at the public hearing before finalising our decisions.

Table 1.6 sets out our indicative timetable for completing this review.

Table 1.6 Timetable for completing the review

Milestone	Date
Receive submissions to the Supplementary Draft Report and Draft Determinations	1 May 2017
Release Final Report and Final Determinations	June 2017

1.3 Structure of this report

The rest of this Supplementary Draft Report discusses our draft decisions in more detail:

- Chapter 2 explains the key context for the review, including the factors we have taken into account in making our decisions

10 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.

- Chapter 3 discusses the nature of the wholesale services and customers that have been included within the scope of this review
- Chapter 4 sets out how we would implement regulation of wholesale pricing, including the proposed regulatory framework
- Chapters 5 to 7 discuss our draft decisions on the pricing approach and prices 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 8 focuses on our draft decisions on facilitation costs
- Chapter 9 explains the draft process we would follow in conducting scheme-specific price reviews and determinations, and
- Chapter 10 sets out matters that we have considered in making our draft decisions, and that we are required to consider under the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act).

1.4 List of draft decisions

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

Nature of wholesale services and customers

1 For the purposes of this review, we consider a wholesale service is a service: 30

- purchased from Sydney Water or Hunter Water by a wholesale customer that is used (by the wholesale customer or another party that it supplies) to supply end-use customers under a retail supplier's licence under the WIC Act 30
- that is used by the WIC Act licensee to provide water and sewerage services which the relevant utility could provide to end-use customers 30
- that has the following characteristics: 31
  a. the service purchased is a monopoly service 31
  b. the service purchased is used to provide the WIC Act licensee's end–use customers with the same service or a close substitute to one provided by Sydney Water or Hunter Water 31
  c. the service is limited to that used to supply end-use customers with services that Sydney Water or Hunter Water could provide within the limits of their respective operating licences, and 31
  d. the service can include some transformed services where the wholesale customer provides water and sewerage services to end-use customers. 31

Approach to implementing wholesale prices for this review

2 We have decided to: 39

Pricing approach for on-selling drinking water and sewerage services

System-wide retail-minus prices for on-selling

Pricing approach for recycled water services

Facilitation costs

Scheme-specific reviews and unregulated pricing agreements

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 draft decisions.

This chapter also describes how we take issues such as 'liveability' and integrated water cycle management, 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.[11]

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 an appropriate approach to regulating prices for wholesale services is so that services are provided efficiently to all water and sewerage customers.

11 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 levels[12] 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

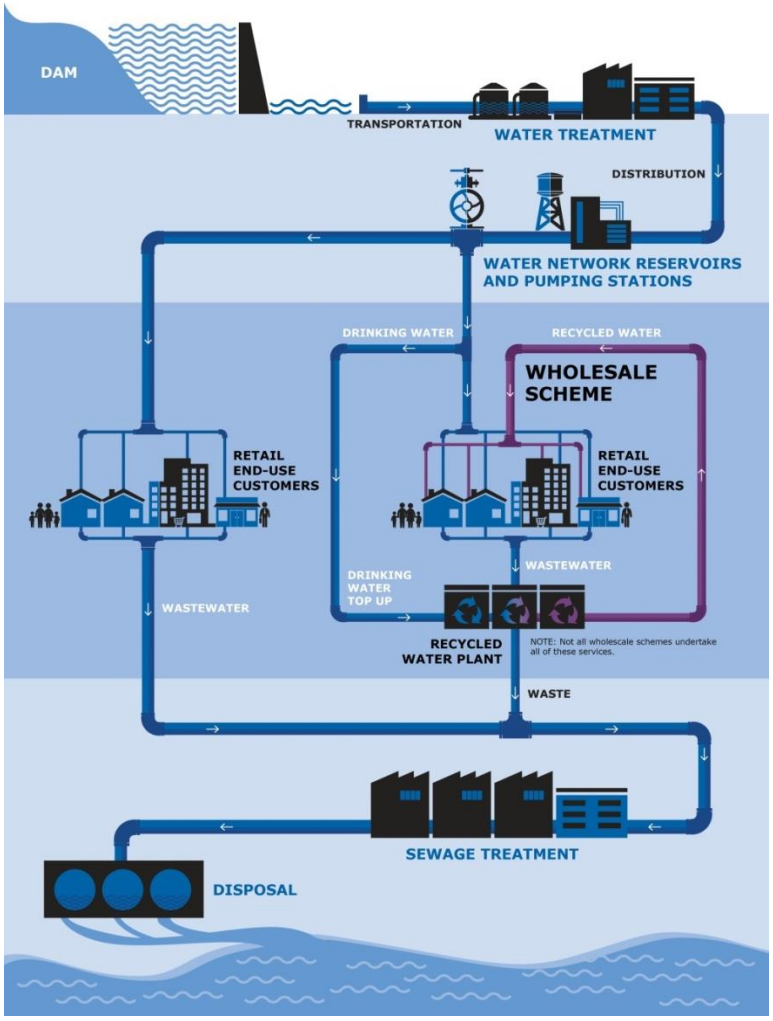
Currently, a number of *Water Industry Competition Act 2006* (NSW) (the WIC Act) licensees purchase services from either Sydney Water or Hunter Water in order to provide services to end-use customers. The services purchased by the wholesale customer from Sydney Water and/or Hunter Water and the services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

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

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

12 That match customers' willingness to pay.

Figure 2.1 Example of a wholesale scheme



Note: Not all wholesale 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 currently eleven 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 lots[13] in Sydney Water's areas of operations (this compares with Sydney Water's current residential customer base of about 1.9 million customers[14]), 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 240,000 customers[15]).

13 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.
14 Sydney Water Annual Report, 2014-15, p 8.
15 Hunter Water Annual Report, 2014-15, p 78.

Hunter Water also noted that WIC Act licensees may supply almost half of the projected greenfield dwellings growth in the Lower Hunter region.[16]

2.4 Factors we took into consideration

To arrive at our draft 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 requirements of the *Independent Pricing and Regulatory Tribunal Act 1992* (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 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 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).[17]

The IPART Act also requires us to have regard to a range of matters in making a determination.[18]

Chapter 10 summarises how we have had regard to each of the matters listed in section 15(1) of the IPART Act in making our draft decisions.

2.4.2 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-

16 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.

17 IPART Act, 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.

18 IPART Act, section 15.

specific factors.[19] 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 sewerage treatment works or in a lower cost sewerage 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 sewerage treatment catchment) pay less than the actual cost of supply.

The wholesale prices we determine must take into account retail postage stamp pricing. 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.

2.4.3 Developer charges set at zero

Under IPART's 2000 water and sewerage developer charges determination,[20] 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.[21]

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

19 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 – Final Repor*t, June 2016, pp 104 & 192).

20 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.

21 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.

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 approach to facilitation costs seeks to address this issue and create a level playing field in the context of the current policy framework for developer charges. This is discussed further in Chapter 8.

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.

2.4.4 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 integrated water cycle management (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

Several stakeholder submissions to our November 2016 Draft Report argued that wholesale prices should reflect the benefits associated with recycled water plants and IWCM. For instance:

- Flow Systems argued that the positive contribution of IWCM schemes to the State's water security, resilience, liveability and to infrastructure augmentation cost savings, must be recognised in the determination of system-wide prices.
- The City of Sydney said that the November 2016 Draft Report and Determination did not recognise the public benefits associated with recycled water such as enhanced security of supply, reduced potable water use and improved liveability from urban greening and urban cooling, in the context of climate change.
- The City of Sydney submitted that the City's draft Environmental Strategy and Action Plan for 2016-2021 sets a target of zero increase in potable water use across the City of Sydney local government area from the baseline year of 2006, to be achieved through efficiency and water recycling even as Sydney's population and economy grows.
- Lendlease argued that the objective of wholesale pricing should be to create a market in which efficient investment and innovation in integrated water management is encouraged, for the ultimate benefit of customers and the broader community.

Source: Flow Systems submission to IPART Draft Report, 12 December 2016, p 3; City of Sydney at Public Hearing, 28 November 2016 (p 40 of Transcript); City of Sydney submission to IPART Draft Report, 7 December 2016, p1; Lendlease submission to IPART Draft Report, December 2016, p 5.

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 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 Agency, Department of Primary Industry - 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.[22]

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

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.[23] This means that recycled water customers should pay prices that reflect the costs of the recycled water scheme. Under these Guidelines, the exceptions to this, however, 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 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.

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.

Facilitation costs and our consideration of the impact of wholesale customers' recycled water plants on wholesale service providers are discussed further in Chapter 8 and Chapter 10, respectively.

We also note that several stakeholders have argued that, in its pricing decisions, IPART should better recognise that the community wants more recycled water and IWCM. 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 – 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.

23 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, 63.

- 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.

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 operating licences for Hunter Water or Sydney Water nor their customer contracts currently 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 are currently undertaking a review of Hunter Water's operating licence, with the new operating licence scheduled to apply from 1 July 2017.[24]

[24] 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

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).

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

Some stakeholders have put the view that the current market is not 'perfect' due to other impediments to competition and market development. They argue that in this context, setting prices to facilitate efficient entry and competition may not achieve the desired objective.

Others consider an in-depth industry review should integrate the WIC Act, the Metropolitan Water Plan, City of Sydney's Sustainable Sydney 2030 Plan, integrated infrastructure planning and the contribution of recycled water to water security and investigate how to enable all market participants to deliver integrated water cycle management solutions.

Stakeholders that have supported a broader industry review include Flow Systems, Permeate Partners, Urban Development Institute of Australia, City of Sydney, Institute for Sustainable Futures, Green Building Council of Australia, Sydney Water, Hunter Water and the Water Services Association of Australia.

Source: Flow Systems submission to IPART Discussion Paper, May 2016, p 5; Permeate Partners submission to IPART Discussion Paper, May 2016, p 1; UDIA submission to IPART Discussion Paper, May 2016, p 3; City of Sydney submission to IPART Discussion Paper, May 2016, p 1 and submission to IPART Draft Report, p7, Institute of Sustainable Futures submission to IPART Discussion Paper, May 2016, pp 1-2; Green Building Council of Australia submission to IPART Discussion Paper, May 2016, p 2 and submission to IPART Draft Report, p 1; WSAA submission to IPART Discussion Paper, May 2016, p 18; Sydney Water submission to IPART Draft Report, December 2016, p 9 and IPART Public Hearing transcript, December 2016, p17; Hunter Water, IPART Public Hearing Transcript, December 2016, p22.

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.

However, 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. Our current review of wholesale prices and a broader industry review are not mutually exclusive. Rather, this wholesale pricing review is an important step to facilitating efficient entry and competition in the water market. This review, for example, will provide information to market participants about the cost of wholesale services and ensure that monopoly wholesale services are subject to the appropriate degree and form of price regulation.

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 full review of our approach to regulating Sydney Water's and Hunter Water'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*.[25]
- **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 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.[26]
  - Consider our approach to reviewing Sydney Water and Hunter Water's proposed growth expenditure in future retail price determinations.
  - Consider how developer charges revenue should be recovered in the absence of developer charges.

Additionally, the outcomes of any scheme-specific reviews of wholesale prices would inform future wholesale price reviews eg, by providing information about the cost impacts of recycled water plants on the provision of wholesale sewerage services.

25 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.

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

2.7 Our approach for making our draft 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 draft decisions:

- **The nature of wholesale water and sewerage services for the purpose of this review.** This step involved identifying the nature and characteristics of the services that are being supplied to wholesale customers.
- **Identifying the appropriate pricing approach for specific services.** This involved considering the nature of each service (or category of 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
  - scheme-specific wholesale prices, and
  - unregulated pricing agreements.

3 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 property owners[27]), with no specific reference to wholesale customers.[28] 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 – ie, to which services and customers the system-wide price determinations should apply.

In considering the nature of wholesale services as part of this review, we are not seeking to define the potential wholesale market, or 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.

The practical implication of our consideration of the nature of wholesale services and customers in this review is the identification of the services that we have decided to set system-wide prices for. The Draft Determinations that accompany this Supplementary Draft Report have separate pricing schedules for the four services for which we have set system-wide prices.

This chapter sets out how we have considered these issues for the purposes of this review. This includes a consideration of the conceptual nature of wholesale services, which has informed our decisions on the pricing approaches to apply to each of the four services.

3.1 Services to be considered in this review

Draft decision

1 For the purposes of this review, we consider a wholesale service is a service:

- purchased from Sydney Water or Hunter Water by a wholesale customer that is used (by the wholesale customer or another party that it supplies) to supply end-use customers under a retail supplier's licence under the WIC Act
- that is used by the WIC Act licensee to provide water and sewerage services which the relevant utility could provide to end-use customers

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

28 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.

– that has the following characteristics:

a. the service purchased is a monopoly service

b. the service purchased is used to provide the WIC Act licensee's end–use customers with the same service or a close substitute to one provided by Sydney Water or Hunter Water

c. the service is limited to that used to supply end-use customers with services that Sydney Water or Hunter Water could provide within the limits of their respective operating licences, and

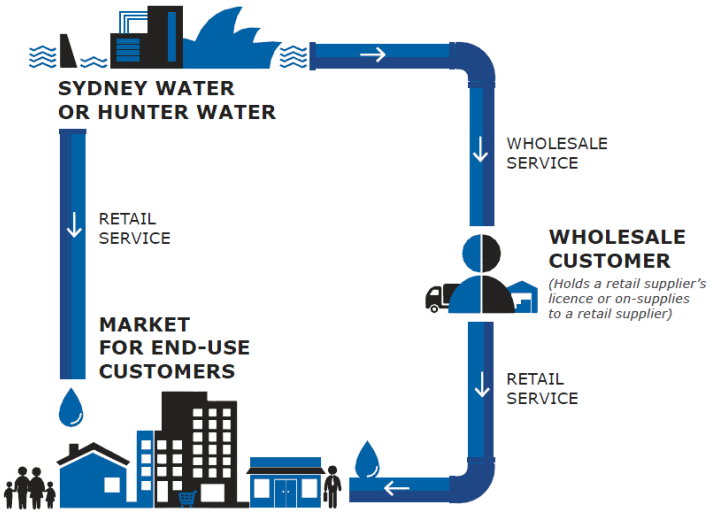
d. the service can include some transformed services where the wholesale customer provides water and sewerage services to end-use customers.

3.1.1 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 3.1 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 3.1 Features of a wholesale service



3.1.2 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 Draft Determinations of a 'wholesale customer' to an entity that is licensed under the WIC Act (or on-supplies services to a retail supplier for certain wholesale services included in the Draft 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.[29] 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.[30]

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.[31]

3.1.3 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.

3.2 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.[32] Therefore, for the purpose of this price review, a wholesale service must be a monopoly service sold by Sydney Water or Hunter Water.

3.3 The service is used to provide end-use customers with the same service or a close substitute to one provided by Sydney Water or Hunter Water

To be considered 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 ensures that they are competing, or could compete, in the same market.

29 WIC Act, s 5(1)(b).
30 WIC Act, s 5(3) and (4).
31 Amending WIC Act, ss5(1) (a) and 9.
32 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*.

In effect, this means wholesale services:

- are limited to those used to supply end-use customers with services that Sydney Water or Hunter Water could provide within the limits of their operating licences, and
- can include some transformed services (eg, a drinking water service to top up a recycled water scheme to provide recycled water).

3.3.1 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).[33]
- Area of operation – the operating licences limit the area within which the utilities can provide the services, generally defined as local government areas.[34]

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. This means that:

- services used to provide end-use customers with services that Sydney Water and Hunter Water are **not authorised** to provide (eg, bottled cola as shown in Figure 3.2) are **not** considered wholesale services, and
- services used to provide end-use customers **outside** Sydney Water's or Hunter Water's **area of operation** are **not** considered wholesale services (eg, it is not a wholesale service if end-use customers are outside of the area of operations as shown in Figure 3.3).

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

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

Figure 3.2 If Sydney Water and Hunter Water are not authorised to provide the end-uses it is not a wholesale service

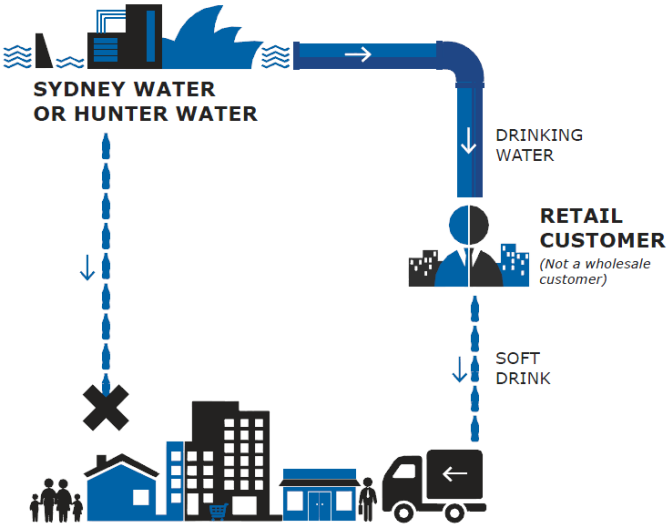
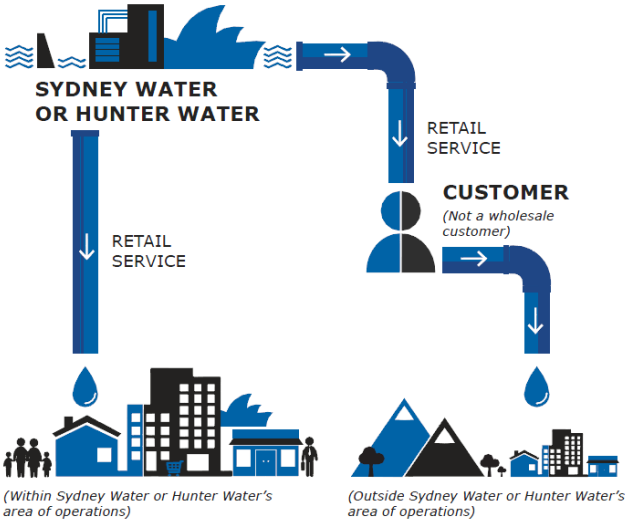


Figure 3.3 If end-use customers are outside of the area of operation it is not a wholesale service



3.3.2 The service provided to end-use customers may be a transformed service

The service purchased by the wholesale customer does not have to be the same as the service provided to end-use customers for it to be considered a wholesale service. This means that some 'transformed services' (eg, drinking water to top up a recycled water scheme) could be considered wholesale services.

3.4 Stakeholders views and our response

This section sets out stakeholders' views on this issue and our response.

Box 3.1 Stakeholders views on definition of wholesale services and customers

- Sydney Water raised concerns with the concept of transformed services and stated its preference was for wholesale prices to only be set for on-selling. It stated that IPART's draft decisions meant that there were effectively two types of wholesale services where:
  1. the new entrant on-sells an incumbent's water and/or sewerage service(s); and
  2. the incumbent's water and/or sewerage service(s) is used as an 'input' to a service sold to end-use customers.
  - Where the new entrant provides recycled water, the wholesale services it purchases to support the recycling plant are considered to fall into the second category. These include the services provided by the incumbent of drinking water top-up and/or recycled water plant waste disposal.
- Sydney Water did not agree with this distinction. Its view was that:
  - drinking water top-up is not a wholesale service, as the wholesale customer does not on-sell the water supplied by Sydney Water as drinking water
  - The existence of a recycled water plant in a development connected to Sydney Water's sewerage network does not change the nature of the wholesale service Sydney Water provides to the new entrant. With or without a recycled water plant, Sydney Water argues that it will be effectively providing the wholesale customer with an on-sold sewerage service.
- Sydney Water argued that the definition of on-supplying may not capture all potential servicing arrangements that fall within the definition of wholesale servicing and may also capture some unintended scenarios.
  - *Tankering* - Sydney Water argued that scenarios where recycled water plant waste is collected by a tankering service and transported to a private waste facility, which may be connected to Sydney Water's sewerage network, may be captured by the draft determinations. It stated that, in principle, it supported on-suppliers to Retail Suppliers being captured. However, it would be administratively complex to include tankering in the first wholesale determination. Its preference was to exclude tankering scenarios from the definition of wholesale customers or on-suppliers.
  - *In-building recycled water schemes* – Sydney Water stated that it was concerned that the current determination created a situation where there is a recycled water plant located within a single commercial or residential building and Sydney Water provides the retail water and sewerage services to that building - the property would be classified as both a retail customer (subject to the Retail determination) and an on-supplier (subject to the wholesale determination) and may switch between the two
- Hunter Water supported IPART's draft decisions on the definition of wholesale services.

Source: Sydney Water submission to IPART Draft Report, pp 10, 21-23; 31-32; Hunter Water submission to IPART Draft Report, p A.1.

In relation to the issues raised by Sydney Water, we have addressed these in the following way in the Draft Determinations:

- Classification of drinking water top-up as a wholesale service – our draft decision on the nature of wholesale services includes the provision of services by Hunter Water and Sydney Water to WIC Act licensees. This captures drinking water top-up. The Draft Determinations apply non-residential prices to this service. Therefore, whether the service is categorised as a wholesale service or not, this does not affect the pricing approach that would apply to these services.

- Impact of recycled water plants – the key factor that we have considered in relation to recycled water plants is whether they are being used for the purposes of on-selling sewerage services (ie, providing a retail sewerage service). This has informed our draft decisions on the pricing approach to apply to these services.
  - Where the wholesale customer is using the wholesale sewerage service (regardless of whether a recycled water plant is present) to provide retail sewerage services (ie, on-selling the wholesale sewerage service), our draft decision is to apply retail-minus pricing.
  - In cases where Sydney Water and Hunter Water are providing a waste disposal service for a recycled water plant that is being used to supply a recycled water service only (ie, the wholesale customer is not on-selling the sewerage service but sewer mining) , the draft determinations applies the non-residential prices.
- In-building recycled water schemes – the Draft Determinations classify the customers who receive the recycled water services as WICA licensees only rather than on-suppliers. This means the in-building recycled water plants scenario as outlined by Sydney Water (and referred to in Box 3.1 above) would not be captured by the Draft Determinations.
- Tankering – the Draft Determinations only include persons who supply services through a connection to Sydney Water's Water Infrastructure or Sewerage Infrastructure, or through a contract with Sydney Water/Hunter Water for the disposal of waste.

Finally, we note that this Supplementary Draft Report and accompanying Draft Determinations do not capture all potential supply scenarios. At this stage, it is unlikely this would be possible for a single determination (or set of determinations), and to attempt to do so would create determinations that are overly complex. Supply scenarios that do not match the draft system-wide determinations would be best addressed via scheme-specific reviews.

3.5 Services that system-wide prices have been set for

In this review, we have set draft system-wide prices for two categories of services:

1. O**n-selling services** relate to:
   a) The purchase of drinking water for the purpose of selling drinking water to end-use customers.
   b) The purchase of sewerage services for the purpose of selling sewerage services to end-use customers.
2. **Recycled water plant services** relate to**:**
   a) Drinking water top-up services – The purchase of drinking water for the purpose of topping-up a recycled water system in order to supply recycled water to end-use customers.
   b) Recycled water plant waste disposal – The purchase of a sewerage or trade waste service that involves disposal of waste from a recycled water plant that is used to supply only a recycled water service (ie, not used to supply a sewerage or trade waste service).

Each of the above services is separately defined in Schedule 5 of the Draft Determinations. The following chapters outline our draft decisions on the pricing approach for these services.

As outlined in section 3.1.3, for drinking water and sewerage on-selling services, we consider it important to include on-suppliers, along with WIC Act licensees, in the definition of wholesale customers. However, we do not consider it necessary to include on-suppliers for the recycled water plant services. This means that, for the purposes of the Draft Determinations:

- In relation to an **On-Selling Service**, 'wholesale customer' means
  - a Retail Supplier licensed under the WIC Act;
  - a Network Operator licensed 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).
- In relation to a **Recycled Water Plant Service**, 'wholesale customer' means
  - a Retail Supplier licensed under the WIC Act; or
  - a Network Operator licensed under the WIC Act.

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

Table 3.1 Services that are covered by the Wholesale Draft Determinations

On-Selling Water Services	On-Selling Sewerage Services	Drinking Water Top-Up Services	Recycled Water Plant Waste Disposal Services
Monopoly Service supplied by Sydney Water/Hunter Water	Monopoly Service supplied by Sydney Water/Hunter Water	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	a water supply service	a sewerage service or a trade waste service that involves disposal of waste from a Recycled Water Plant
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	supplied to a Retail Supplier or Network Operator licensed under the WIC Act	supplied to a Retail Supplier or Network Operator licensed under the WIC Act
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 a Retail Supplier to supply a **Recycled Water service** to Retail Customers	used by a Retail Supplier to supply **only a Recycled Water service** and NOT used at any time to supply a sewerage or 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 an "Existing Service"	NOT an "Existing Service"	NOT an "Existing Service"	NOT an "Existing Service"
NOT supplied under a "Negotiated Services Agreement"	NOT supplied under a "Negotiated Services Agreement"	NOT supplied under a "Negotiated Services Agreement"	NOT supplied under a "Negotiated Services Agreement"

4 Approach to implementing wholesale pricing approaches for this review

This chapter outlines our approach to regulating wholesale pricing. Our regulatory framework is comprised of three key elements:

- system-wide wholesale prices for specific services
- unregulated pricing agreements[35]
- scheme-specific price reviews and determinations.

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), as well as the durations of these determinations.

4.1 The regulatory framework

Draft decision

2 We have decided to:

- Determine system-wide wholesale prices for new wholesale schemes[36]
- Allow for wholesale customers and wholesale service providers to opt-out of IPART's Determinations and opt into unregulated pricing agreements, where there is mutual agreement to do so
- Consider requests to undertake price reviews and determinations for individual wholesale schemes (existing and new).[37]

We have decided to maintain the regulatory framework for wholesale pricing as outlined in our November 2016 Draft Report. This means:

- **For a new scheme**, 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
- **For an existing scheme**, a wholesale customer or service provider may seek a scheme-specific determination by IPART if they cannot reach agreement on price.

35 In the Draft Determinations, these are referred to as 'Negotiated Service Agreements'.

36 Under our Draft Determinations, a service is an 'existing service' if, before commencement of the determination (1 July 2017): Sydney Water or Hunter Water has commenced supplying the service to a wholesale customer (refer to section 1.2 of the Draft Determinations).

37 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.

Stakeholder views on the regulatory framework

In response to our November 2016 Draft Report, there was general agreement amongst stakeholders with the concept of system-wide wholesale prices (albeit with divergent views on the prices that should be in these system-wide determinations).

However, some stakeholders suggested it was unlikely wholesale service providers and customers would reach agreement under an unregulated pricing agreement, and expressed concern with the potential costs and time associated with scheme-specific determinations.

Over time, we expect that scheme-specific determinations would reveal information that reduces their cost and potentially 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).

Our decision to maintain the proposed regulatory framework

Our regulatory framework provides several options for wholesale service providers and customers.

Our decision to set system-wide prices for new schemes means we would reduce the need for potentially costly scheme-specific reviews, but would provide the option for parties to seek a review where the system-wide determination does not reflect scheme-specific characteristics. In addition, system-wide prices provide information to existing and potential market participants about prices, which can inform decisions about entry to the market.

Our decision that wholesale service providers and customers would be able to opt-out of IPART's Determinations by agreeing to an unregulated agreement is similar to the approach we took in our 2016 determinations of retail prices for Hunter Water and Sydney Water.

Under this framework:

- IPART's Final Report for this review and its system-wide determinations would provide existing wholesale service providers and customers with information on IPART's positions, which may assist either party if they consider there is a need to renegotiate their current agreements or consider seeking a scheme-specific determination by IPART.
- Wholesale service providers and wholesale customers for new schemes would be able to assess whether the system-wide prices in the determinations reflect the particular scheme characteristics and, if either party considers that they do not, they could seek a scheme-specific review. Alternatively, if both parties agree, they could opt out of regulated prices via an unregulated pricing agreement.

We would 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 would also expect the costs and initial uncertainty associated with scheme-specific reviews to decline, as more information comes to light (as a result of the outcomes of reviews) and stakeholders build on their experience to refine their processes for such reviews. The need for scheme-specific reviews may also decline, if

stakeholders choose to voluntarily apply or refer to the outcomes of earlier reviews in their unregulated pricing agreements.

Chapter 9 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.[38] We will work with Sydney Water and Hunter Water in relation to this issue in advance of the next retail price review.

4.2 Application of system-wide wholesale prices to new schemes

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

We have maintained our earlier draft decision that system-wide prices would apply to new wholesale arrangements only – ie, our determined prices would not apply to existing services. Under our draft determinations, a service is an 'existing service' if before commencement of the determination (1 July 2017) Sydney Water or Hunter Water has commenced supplying the service to a wholesale customer.

In reaching our decision, we were mindful of the following:

- Existing agreements have been accepted by both parties and were negotiated prior to our draft 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 would be able to seek a scheme-specific price review and determination from IPART. Our draft decisions provide information to parties to an existing agreement of our likely approach to a scheme-specific determination.

In response to our November 2016 Draft Report, submissions did not question the rationale of our decision to not apply our system-wide determinations to existing wholesale arrangements.

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

Both Sydney Water and Hunter Water supported the decision to not capture agreements negotiated prior to the determination of system-wide prices.[39] However, 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.[40] 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. [41]

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 determination. However, we recognise that existing schemes could be affected or captured in some way by the determinations based, for example, on the terms the existing agreement between both parties. In these cases, if either party considers the determinations do not reflect the characteristics of the wholesale servicing arrangement, they could apply for a scheme-specific review and determination, or enter into a new or amended unregulated pricing agreement.

4.3 Determination length of system-wide determinations

Draft decision

3 We have decided to adopt a determination period of four years, from 1 July 2017 to 30 June 2021, for the system-wide determinations.

The decision in our November 2016 Draft Report was to adopt a determination period of four years and four months, from 1 March 2017 to 30 June 2012, for the system-wide determinations.

Our decision now is to adopt a determination period of **four years** for these determinations, from **1 July 2017 to 30 June 2021**. This is broadly consistent with our decision in our November 2016 Draft Report, except we have pushed the start date back from 1 March 2017 to 1 July 2017, to reflect the delay to this review.

Stakeholder views and the reasons for our supplementary draft decision are outlined below.

Stakeholder views on the duration of the system-wide determinations

In response to our November 2016 Draft Report, 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 resourcing requirements for key stakeholders), which would be achieved under a four year wholesale price determination.[42]

39 Sydney Water submission to IPART Draft Report, p 2 and 37 and Hunter Water submission to IPART Draft Report, December 2016, p A.2.
40 Lendlease submission to IPART Draft Report, December 2016, p33 and Sydney Water submission to IPART Draft Report, December 2016, p 38.
41 Lendlease submission to IPART Draft Report, December 2016, p33-34.
42 Hunter Water submission to IPART Draft Report, December 2016, p A.1.

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 make necessary changes. 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.[43]

In earlier submissions, Central Coast Council supported a typical four-year determination period aligned to retail price reviews;[44] while Permeate Partners supported system-wide prices being subject to minor adjustments at each retail price review.[45]

However, in response to our November 2016 Draft Report, Lendlease argued that a determination period of four years does not provide certainty, as most wholesale servicing agreements are for a period of 10 years. 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. If the price reviews are not aligned, Lendlease states that IPART should consider the impact of retail price determinations on wholesale customers and competition.[46]

Four-year determination periods for 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 determination period longer than four years – which is the length of most retail price determinations.

We consider that a four year determination period strikes the 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 wholesale price determinations would lag the retail price determinations by one-year. Where wholesale prices for 2020-21 are set with reference to the next retail price determinations, IPART would consider any impacts of those retail reviews on wholesale prices.

43 Sydney Water submission to IPART Draft Report, December 2016, p 1.
44 Central Coast Council submission to IPART Discussion Paper, May 2016, p 2.
45 Permeate Partners submission to IPART Discussion Paper, May 2016, p 5.
46 Lendlease submission to IPART Draft Report, December 2016, p 33.

5 Pricing approach for on-selling drinking water and sewerage 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.

5.1 Summary of draft 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 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, however, **changed our draft decision on the disposal of waste from a recycled water plant**. Our initial draft decision was to apply a non-residential price to this service. However, we have reconsidered this pricing approach for situations where the wholesale customer on-sells sewerage services. We now consider **retail-minus prices** should apply 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, regardless of the operation of a recycled water plant, 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 means that, where a wholesale scheme supplies sewerage

services to end-use customers, the retail-minus prices 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. Therefore, the Draft Determinations include prices for water on-selling and sewerage on-selling based on the retail minus reasonably efficient competitor cost approach. These system-wide prices may not be appropriate for all on-selling scenarios. As outlined in Chapter 4, we decided to set system-wide prices to reduce the need for costly scheme-specific reviews. Where these system-wide prices do not 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 6 explains in detail our methodology and approach to calculating the system-wide prices that are included in the Draft Determinations for this review.

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

Draft Decision

4 We have decided to use a retail-minus 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 draft decision, we considered three possible alternative approaches for pricing wholesale water and sewerage services[47] purchased for the purpose of on-selling to end users:

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

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.

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

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.

Stakeholders' views on the application of retail-minus prices continue to be split along the following lines:

- Wholesale service providers (ie, Sydney Water and Hunter Water) and their industry group, Water Services Association of Australia (WSAA), are supportive of retail-minus pricing
  - Sydney Water stated that retail-minus pricing was the only appropriate pricing approach for on-selling of services within a postage stamp pricing environment, without changing the structure of retail and wholesale markets.[48]
  - Hunter Water stated that it considers retail-minus pricing would promote competition where it results in a reduction in the cost of supplying end users through time.[49]
  - WSAA stated that without a retail-minus approach, existing utilities would not retain sufficient revenue to service high cost areas and there would be incentives for high-cost inefficient investment in infrastructure which is not in the long-term interests of all water and sewerage customers.[50]
- Wholesale customers (Flow Systems and Lendlease), related industry groups (Urban Development Institute of Australia, Infrastructure Partners Australia, Green Building Council of Australia) and City of Sydney Council oppose retail-minus pricing.[51]
  - Flow Systems, Lendlease, UDIA, GBCA raised concerns about the retail-minus pricing approach not reflecting the positive benefits of innovative water sourcing and treatment solutions and that it may prevent entry into the water market.
  - Flow Systems and Lendlease argue that retail-minus prices should not apply to an operator of IWCM schemes and that non-residential retail prices should apply.

48 Sydney Water submission to IPART Draft Report, December 2016 p 2.
49 Hunter Water submission to IPART Draft Report, December 2016, p 2.
50 WSAA submission to IPART Draft Report, December 2016, p 3.
51 Lendlease stated that retail-minus pricing has a role in fostering resale-based competition - ie, competition for retail services only. City of Sydney argued that applying retail-minus prices for untreated sewage collected from households and discharges into Sydney Water's sewerage network without treatment in a recycled water plant has some merit in principle. Sources: Lendlease submission to IPART Draft Report, December 2016, p 5; City of Sydney submission to IPART Draft Report, December 2016, p 2; and Flow Systems submission to IPART Draft Report, December 2016, p 3.

In considering the issues raised by stakeholders, we note that the arguments against retail-minus pricing do not address directly our rationale for adopting the retail-minus price - ie, to ensure a level playing field and efficient entry under regulated retail water and sewerage prices.

In relation to stakeholders arguments for wholesale prices to take account of the positive benefits of IWCM. As outlined in Chapter 2 (and in more detail in Chapter 8), to the extent that IWCM schemes and/or 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.

5.2.1 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. In general, there are two ways the cost-of-service approach could be applied:

- on a scheme/location specific basis, or
- on a postage stamp price/geographically averaged basis.

A location based cost-of-service price would typically be:

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

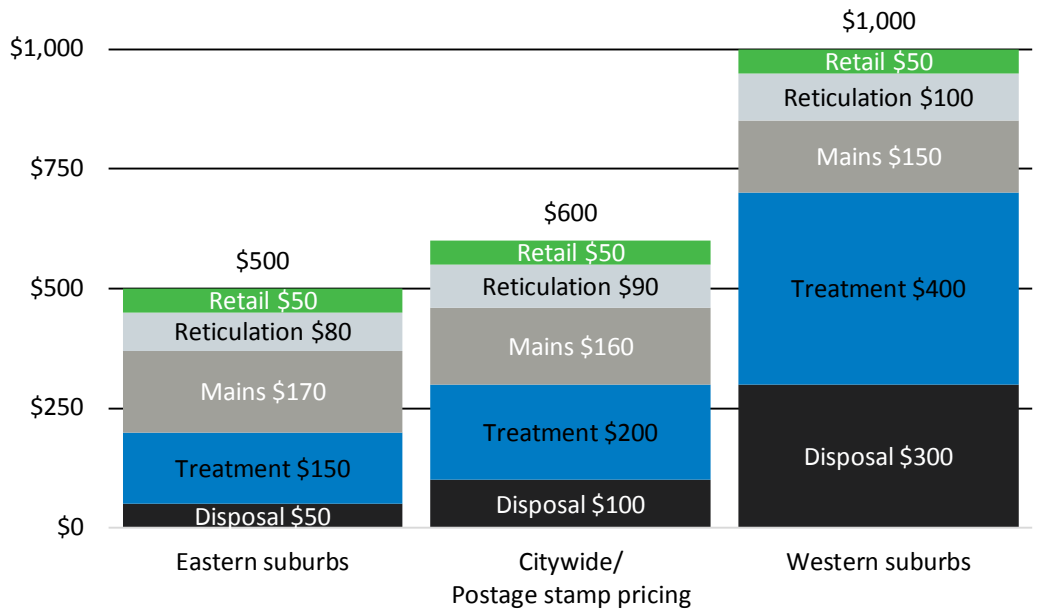
Under postage stamp retail pricing, Sydney Water and Hunter Water generally charge all their retail customers in their area of operations the same drinking water, sewerage and stormwater prices – regardless of differences in the cost of supplying different locations and other site-specific factors.[52]

Figure 5.1 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.

52 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 5.1 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 5.1 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 customer (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 customer 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 customer (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 in Figure 5.1 above)). This would block entry, even if the wholesale customer were 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.

5.2.2 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)[53]; 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 wholesale customers the **non-residential service charge** (based on meter size at connection) and wholesale customers were then able to charge individual houses and/or apartments Sydney Water's **residential service charges**, an arbitrage opportunity may exist (see Table 5.1).

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 5.1 The difference between non-residential and residential retail prices

		
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)*

Source: IPART analysis.

53 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.

5.3 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.

In this Supplementary Draft Report we have made different pricing decisions for wholesale customers that on-supply a sewerage service to end users and those that do not. Where a retail sewerage service is not being supplied to end users, our draft decision regarding the pricing approach is outlined in Chapter 7. Where the wholesale customer on-sells a sewerage service our draft decision is outlined below.

Draft decision

5 We have decided to apply a retail-minus price for the supply of sewerage services relating to waste from recycled water plants where the wholesale customer on-supplies sewerage services to end-use customers.

5.3.1 Reasons for our draft decision

In our November 2016 Draft Report we acknowledged that the wholesale service of waste disposal from a recycled water system could be viewed in two ways:

- Under the 'input of production' view, the wholesale customer is similar to any other non-residential customer that relies on waste disposal from Sydney Water or Hunter Water to sell a product to end-use customers (in this case recycled water). Taking this view suggests wholesale customers receiving this service should be treated similar to any other non-residential customer and levied a non-residential (retail) price.
- Under the 'on-selling' view, wholesale customers are using the wholesale service provider's network to provide sewerage services to end-use customers. Taking this view suggests wholesale customers receiving this service should be treated as competitors for end-use sewerage customers and levied a retail-minus price.

Our initial draft decision was to adopt the 'input' view and apply a non-residential price to all sewerage services relating to disposal of waste from recycled water plants. Stakeholders were divided on this draft decision (see **Box 5.1**).

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

Lendlease, Flow Systems and City of Sydney supported the non-residential price. For example, Lendlease stated that:

> ...where sewage is discharged from a recycled water plant, it is reasonable that, under some circumstances this should not be seen or treated differently to a discharge from any other industrial customer. Accordingly it is appropriate that the non-residential price be applied to this discharge as a price cap.

Flow Systems and Lendlease considered that, where wholesale customers supply a recycled water service, they should be charged the non-residential price for all wholesale services.

On the other hand, Sydney Water, Hunter Water and WSAA raised concerns about the draft decision. They put forward that a non-residential pricing approach is:

- inconsistent with postage stamp pricing because the wholesale customer uses the wholesale service provider's network to supply retail sewerage services to end users, and
- inconsistent with IPART's 2006 *Pricing arrangements for recycled water and sewer mining* (which apply to Sydney Water and Hunter Water) because it allows wholesale customers to cross-subsidise their recycled water business with sewerage service revenue.

Hunter Water and WSAA also noted a price that is too low could encourage inefficient entry or inefficient over-investment in recycled water plants.

Sydney Water and Hunter Water also contend that the recycled water waste disposal service they provide is similar regardless of whether there is a recycled water plant or not. Sydney Water submitted that recycled water plants (that have a connection to a wholesale service provider) are generally sized to meet average demand for recycled water, rather than being sized to deal with the total volume of sewage produced by end users.[a] Therefore, it is likely that a substantial portion of untreated sewage may enter its sewerage system all year round. It also noted that, even if the volume of flow that is discharged is reduced, the volume of solids or pollutants discharged from the recycling scheme is not materially different from untreated sewage. And, that, while actual discharges may vary, it must maintain capacity to deal with the maximum potential volume of discharge from a recycled water scheme.

Stakeholders also raised implementation issues with applying non-residential prices. In particular, Hunter Water, Sydney Water, City of Sydney and Flow Systems noted it would be difficult to clearly distinguish when the recycled water plant is being bypassed.

a Unless they are stand-alone schemes (eg, Bingara Gorge) without a connection to a public utility which would be sized to deal with the total volume of sewerage produced and would not purchase the wholesale sewerage service.

Sources: Lendlease submission to IPART Draft Report, December 2016, p 38-39; Flow Systems submission to IPART Draft Report, December 2016, p 6; Sydney Water submission to IPART Draft Report, December 2016, p 21-25; Hunter Water submission to IPART Draft Report, December 2016, p 11-15; WSAA submission to IPART Draft Report, December 2016, p 6-7; City of Sydney submission to IPART Draft Report, December 2016, p 3.

After carefully considering submissions to our November 2016 Draft Report, we have changed our draft pricing decision for the disposal of waste from a recycled water plant where a wholesale customer on-sells the sewerage service to end-use customers. In these cases, we have decided to apply a retail-minus price, similar to other on-selling services.

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.[54]

In our November 2016 Draft Report, part of our rationale for setting a non-residential price was to avoid creating an incentive for wholesale customers to undertake inefficient bypass of the wholesale service provider's network. 'Bypass' is where a wholesale customer can avoid the natural monopoly elements of the wholesale service provider's network. In some cases, bypass can be an efficient response to efficient prices, creating effective competition. However, bypass can also be a rational response to prices that are too high, which may lead to inefficient solutions to disposing of waste from recycled water plants. Where the costs of bypass are greater than the costs of discharging waste into the network, bypass is an inefficient servicing solution.

54 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.

(Refer 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).

Submissions to our November 2016 Draft Report raised the alternative risk of encouraging inefficient entry or inefficient over-investment in recycled water plants by setting non-residential prices for the reasons outlined above.

We consider the risk of encouraging inefficient over-investment in recycled water is more concerning than the potential risk of bypass, particularly because the former decision is more permanent. Recycled water plants involve considerable upfront investment and an expectation that these would return a profit over the life of the asset.

We support competition where it results in more efficient outcomes and do not favour a specific method of production, such as recycled water. Therefore, recycled water plants need to be funded by revenue from the service they provide to end users (recycled water), and should not be funded by retail sewerage service revenue.

We have considered whether the recycled water plant should be accounted for in the retail-minus price.

As we have amended our draft decision and applied a retail-minus price to this service, we have considered whether the recycled water plant leads to any additional avoided costs for the wholesale service provider that should be reflected in our system-wide determination, via an estimate of standard negative facilitation costs. To this end we sought advice from Oakley Greenwood.[55] Chapter 8 outlines our consideration of positive and negative facilitation costs – including potential cost savings from recycled water plants.

5.4 Reasonably efficient competitor cost is the most appropriate minus component

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

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

Draft Decision

6 We have decided to use the reasonably efficient competitor cost approach to 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.

5.4.1 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

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

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 sacrifices 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 regulated retail postage stamp 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 approach.

Sydney Water, Hunter Water and WSAA continue to argue against the use of the reasonably efficient competitor approach. They supported the minus being calculated on the basis of Sydney Water and Hunter Water's avoidable costs.

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. Both Lendlease and Flow Systems commented on the size of the minus values in the system-wide retail-minus prices and the extent to which they represent the costs a reasonably efficient competitor would incur.[56] Our responses to stakeholders'

[56] Lendlease submission to IPART Draft Report, December 2016, p 41; and Flow Systems submission to IPART Draft Report, December 2016, p 3.

comments regarding the size and the approach to calculating the minus value for the system-wide prices included in the Draft Determinations are outlined in Chapter 6.

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). As such, **we have decided to maintain our draft decision to apply the reasonably efficient competitor cost approach to calculating the minus component of retail-minus prices.** Box 5.2 provides a summary of the arguments stakeholders put forward in submissions to our November 2016 Draft Report against the use of the reasonably efficient competitor cost approach.

Box 5.2 Stakeholders views against the use of the reasonably efficient competitor cost approach to calculating the minus component

- Hunter Water argued that basing the minus components on estimates of the reasonably efficient costs for a smaller water utility would result in much higher minus components, which are two to three time higher than Hunter Water's efficient costs.
- Sydney Water and Hunter Water argued that the use of the reasonably efficient competitor cost approach would result in them under-recovering the costs of providing wholesale water and sewerage services. The under-recovery or revenue shortfall (ie, the difference between avoidable costs and reasonably efficient competitor costs) would need to be funded by their existing customer bases or by themselves.
- Sydney Water, Hunter Water and WSAA argued that the approach cross-subsidises new entrants and would lead to inefficient investment.
- WSAA argued that adopting a reasonably efficient competitor test in the retail-minus method would increase total costs faced by water and sewerage customers, with no guarantee of long-term benefits for consumers.
- WSAA argues that this approach should be seen as highly pro-competitive, which significantly favours entrants over competitors.

Source: Sydney Water submission to IPART Draft Report, December 2016, p 2, 16 and Appendix A; WSAA submission to IPART Draft Report, December 2016, p 3, 5 and 8; Hunter Water submission to IPART Draft Report, 7 December 2016, p ii, 4 and 17.

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.[57]

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.

The submissions from Sydney Water[58] and Hunter Water[59] noted the use of the reasonably efficient competitor cost approach to calculating the minus component leads to higher minus values that under alternative approaches such as the avoidable cost or 'as efficient competitor' cost approach. 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.

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 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.

57 Hunter Water submission to IPART Draft Report, December 2016, p5.
58 Sydney Water submission to IPART Draft Report, December 2016, piv.
59 Hunter Water submission to IPART Draft Report, December 2016, p 4.

6 System-wide retail-minus prices for on-selling

We have maintained our draft decision to set system-wide prices for on-selling water and sewerage services for new wholesale arrangements, using the retail minus reasonably efficient competitor cost approach. Therefore, the Draft Determinations provide 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).

These system-wide prices may not be appropriate for all on-selling scenarios. As outlined in Chapter 4, we decided to set system-wide prices to reduce the need for costly scheme-specific reviews. Where these system-wide prices do not reflect scheme-specific characteristics, wholesale customers and/or service providers can request IPART undertake a scheme-specific review or enter into an unregulated agreement.

The determination of the minus values on a system-wide basis has required a number of assumptions and judgements to be made. 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 for this review** to calculate the **system-wide** retail minus reasonably efficient competitor cost prices included in the Draft Determinations.

6.1 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
- 'minus' component.

The sections below explain the approach taken for the **system-wide** price determinations and the changes that we have made to the methodology and minus values compared to our November 2016 Draft Report and Determinations.

6.1.1 Calculating the retail component

The retail component of retail-minus prices is calculated by multiplying end-use customer numbers and volumes by the prevailing Sydney Water or Hunter Water regulated retail charges (per connection or customer for customer numbers, and per kL of water used or sewage discharged for volumes).

Draft Decision

7 We have decided the retail component of the retail minus reasonably efficient competitor cost prices would 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, and
- number of end-use customers being serviced by the wholesale customer
- the volume of water supplied to end-use customers.

8 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.

We have excluded trade waste administration charges from the retail component

We have excluded trade water administration charges from the retail component of retail-minus prices in the system-wide price determinations. 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).

Our November 2016 Draft Determinations excluded the charges associated with setting up trade waste agreements from the retail component of retail-minus prices. Where a wholesale customer on-sells a trade waste service, it would undertake the associated administration activities. If these charges were included in the retail component of retail-minus prices, they would need to be deducted back out as they relate to functions the wholesale customer provides (ie, they would be part of the REC minus). This is the rationale for excluding the administration charges from the retail component of retail-minus prices. 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).

We have included provision for Hunter Water's location-based water usage charges

The 'retail' component of the retail-minus pricing formula in our November 2016 Draft Determination for Hunter Water excluded the location based water usage charges that apply to customers located in specific zones within its area of operation who use over 50,000kL of water[60], as this was unlikely to be relevant over the determination period and could be covered as part of a scheme-specific review. In order to potentially avoid the need for a scheme-specific review, the retail component of the system-wide retail-minus prices for Hunter Water includes provision for location-based water usage charges, where applicable.

60 IPART, *Hunter Water Corporation*, *Maximum prices for wholesale water, sewerage and trade waste services from 1 March 2017, Water – Draft Determination*, November 2016, clause 3.1.

We have not included a true-up mechanism

Calculating the retail component of retail-minus prices would 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 would apply to schemes that may be under construction, Sydney Water stated that it was likely that it would need to **estimate** property numbers to charge during the billing period. It requested that IPART include in the Determination an adjustment mechanism to account for any over or under recovery during the billing period (due to changes in property numbers).

We have decided 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 would 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.

6.1.2 Calculating the reasonably efficient competitor cost

Draft Decision

9 We have decided to set 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%

10 We have decided to set system-wide minus values as shown in Table 6.1.

We have revised the system-wide minus values that were included in our November 2016 Draft Report. These revised values are set out below.

Table 6.1 Draft reasonably efficient competitor cost – annual minus ($2016-17)

	Annual 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 Draft Determinations provide for the 'retail' minus as a per property amount. In principle, 'properties' and 'customers' are similar concepts.

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.[61]

In response to stakeholder feedback to our November 2016 Draft Report, and our own further analysis, including that of our consultants Oakley Greenwood, we have largely maintained the approach we used in our November 2016 Draft Report with some adjustments (discussed below).[62,63]

We have set minus values based on the cost that a reasonably efficient competitor would incur in providing retail and reticulation services to end-use customers. No provision was made to account for recycled water plants as a recycled water plant is not a *necessary* component of on-selling a sewerage service.

However, several stakeholders suggested that IPART should or could develop average or typical estimates of negative facilitation costs (cost savings) associated with recycled water plants and integrated water cycle management.[64] For example, Hunter Water stated that IPART could set a 'notional negative facilitation amount' that approximates deferred or avoided costs in the water or sewerage system as a result of the recycled water scheme, and

61 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).

62 Oakley Greenwood's revised report – *Revised calculation of Reasonably Efficient Costs Report* – is available on our website www.ipart.nsw.gov.au

63 The minus values in our November 2016 Draft Report did not include water reservoirs (and pump stations) and sewerage pump stations for greenfield schemes

64 For example: Sydney Water submission to IPART Draft Report, December 2016, p iv; Hunter Water submission to IPART Draft Report, December 2016, p 15; Flow Systems submission to IPART Draft Report, December 2016, p 8.

that the size of this adjustment factor could be refined over time as more information becomes available.

Chapter 8 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 reasonably efficient competitor cost minuses for a wholesale customer on-selling both water and sewerage are shown in Table 6.2 below. Our revised minus values are generally higher than the values in our November 2016 Draft Report (which would result in lower wholesale prices):

- for retail services, the main reasons for higher minus values are inclusion of management costs and taking a weighted average of the reasonably efficient competitor retail costs for the three different schemes (for which Oakley Greenwood provided cost estimates), rather than using the retail costs of the largest of the three schemes
- for reticulation services for water, the main reason for a lower minus value is adopting lifecycle operating costs, and
- for reticulation services for sewerage, the main reason for a higher minus value is the inclusion of sewerage pumping stations.

Table 6.2 Reasonably efficient competitor cost minuses – annual minus ($2016-17)

	November 2016 Draft Report	Supplementary Draft Report
Retail		
Water and sewerage ($/customer/year)	116.00	209
Reticulation		
Water ($/kilometre/year)	4,227.91	3,945
Sewerage ($/kilometre/year)	7,692.63	7,742

Source: IPART analysis.

In Table 6.3 we 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 (as shown in Table 6.2) and then equally apportioned the remaining costs between water and sewerage. That is, the $129 per customer in Table 6.3 below 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 6.3 represents the reasonably efficient costs required to provide retail services for on-selling water, not the reasonably efficient costs of a *stand-alone* business providing only retail services for on-selling water.[65] Further, this approach also incentivises wholesale customers to provide both on-selling water and sewerage

65 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.

services, which we consider to be more efficient, as end-use customers would only need to deal with one service provider, rather than two.

Table 6.3 Reasonably efficient competitor cost minuses – annual minus ($2016-17)

	November 2016 Draft Report	Supplementary Draft Report
Water		
Retail ($/customer/year)	69.60	129
Reticulation ($/kilometre/year)	4,227.91	3,945
Sewerage		
Retail ($/customer/year)	46.40	80
Reticulation ($/kilometre/year)	7,692.63	7,742

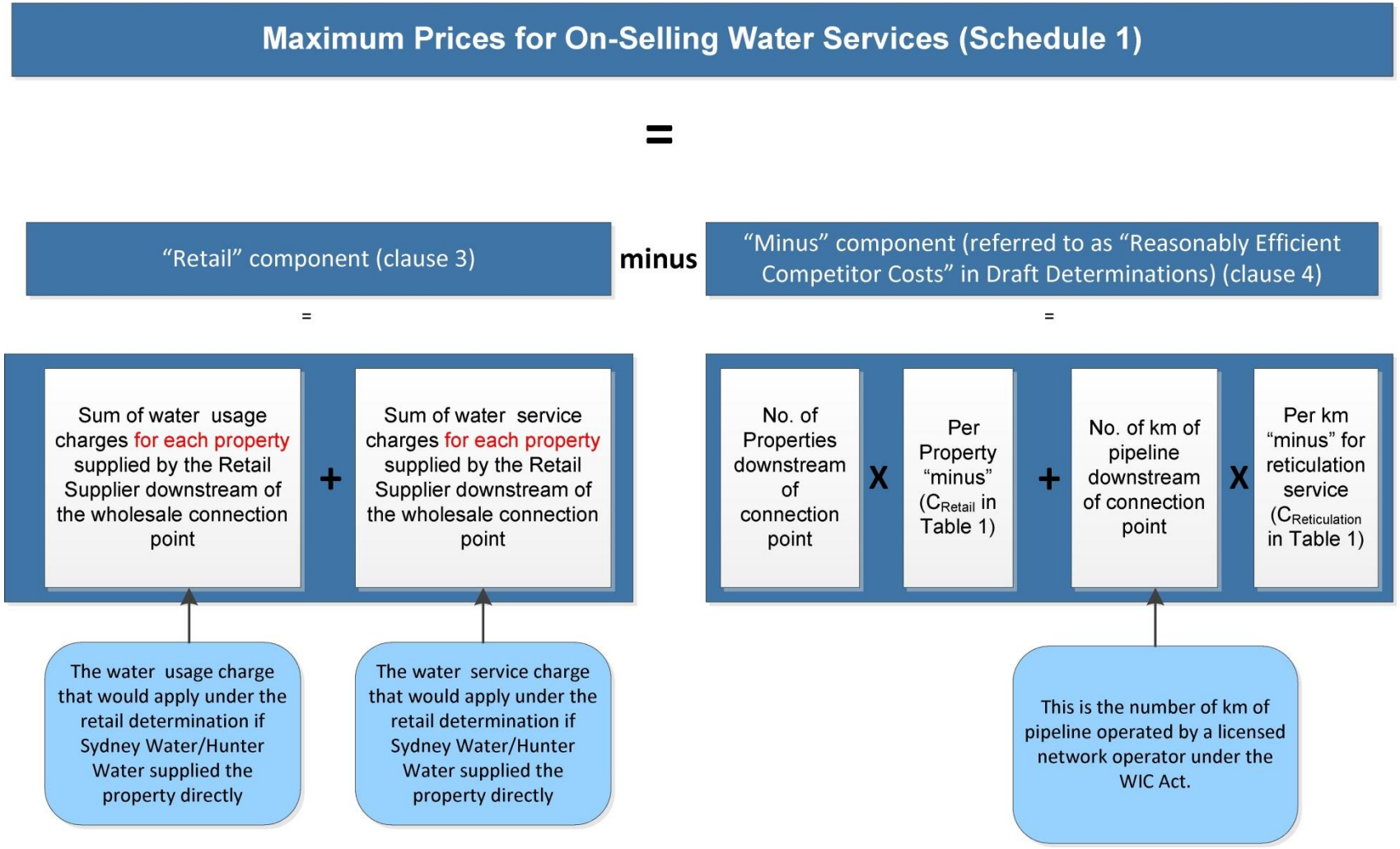
Note: The values above are in $2016-17, and so will differ from the Supplementary Draft Determination which is in $2017-18.

Source: IPART analysis.

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*, is available on IPART's website (www.ipart.nsw.gov.au), along with the model used by IPART to calculate the minus values.

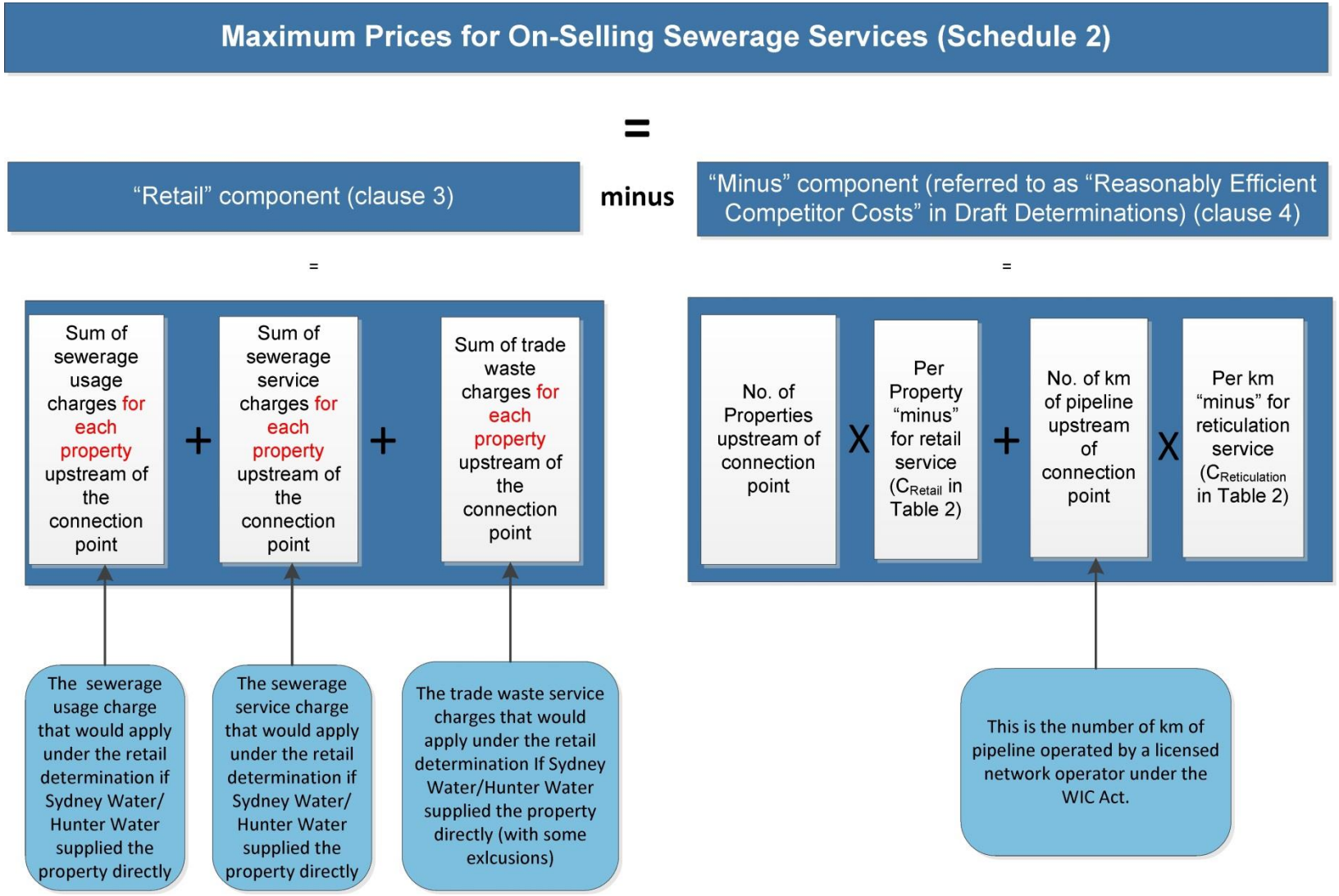
The Draft Determinations apply the retail minus reasonably efficient competitor cost methodology to on-selling water and sewerage services. Figure 6.1 and Figure 6.2 provide an overview of how the Draft Determinations apply this methodology.

Figure 6.1 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 Draft Determinations. This figure is a simplified outline of sections of the Draft Determinations, and is provided for explanatory purposes only

Figure 6.2 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 Draft Determinations. This figure is a simplified outline of sections of the Draft Determinations, and is provided for explanatory purposes only.

6.2 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.

6.2.1 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).

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 6.4 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 $2.5 million (over the 3-years from 2017-18 to 2019-20 in present value terms), which comprises about $2.1 million in usage revenue and about $0.4 million in residential water service charge revenue.

Under our draft decision, the total wholesale bill for this scenario would be $1.7 million over the same period – ie, the total minus for retail and reticulation services is about $0.8 million over the 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 $2.06 million, which comprises about $2.04 million in usage revenue and about $0.02 million in meter based water service charge revenue.

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 $1.8 million if it were set using non-residential retail prices. Under our supplementary draft decision, the margin would increase by about $0.3 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 Section 5.1).

We also provide indicative impacts for a small greenfield low density development and a large greenfield low density development in Table 6.5 and Table 6.6, respectively.

We provide further detail underpinning our impact analysis in Appendix G.

Table 6.4 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]	$2,325	$2,488
	Wholesale customers' bill: non-residential retail prices	$1,838	$2,061
	Wholesale customers' bill: IPART draft decision	**$1,579**	**$1,701**
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	$488	$387
	Under IPART's draft decision	$747	$747
	Change in margin	*+$259*	*+$359*

[a] The expected revenue has been calculated using prices from our 2016 retail price reviews.

Note: We have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year (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 6.5 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]	$2,870	$3061
	Wholesale customers' bill: non-residential retail prices	$2,399	$2,687
	Wholesale customers' bill: IPART draft decision	**$1,781**	**$1,973**
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	$470	$374
	Under IPART's draft decision	$1,089	$1,089
	Change in margin	*+$618*	*+$715*

[a] The expected revenue has been calculated using prices from our 2016 retail price reviews.

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 (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 6.6 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]	$14,519	$15,498
	Wholesale customers' bill: non-residential retail prices	$12,046	$13,528
	Wholesale customers' bill: IPART draft decision	**$9,075**	**$10,054**
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	$2,473	$1,969
	Under IPART's draft decision	$5,443	$5,443
	Change in margin	*+$2,970*	*+$3,474*

[a] The expected revenue has been calculated using prices from our 2016 retail price reviews.

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 (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.

6.2.2 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 6.7, 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 $3.3 million (over the 3-years from 2017-18 to 2019-20 in present value terms).[66] Under our draft prices, the wholesale bill for this scenario would be $2.8 million (for retail minus retail and reticulation contestable services), which is about $1.9 million higher than a wholesale bill of $0.9 million if it were to be set using non-residential retail 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.

For a wholesale customer of Hunter Water, the wholesale bill for the same scenario would be $2.5 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.

66 That is, the total bill in present value terms as at 1 July 2017 (for illustrative purposes only).

We also provide similar indicative impacts for a small greenfield low density development and a large greenfield low density development in Table 6.8 and Table 6.9, respectively.

Table 6.7 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]	$3,310	$2,984
	Wholesale customers' bill: non-residential retail prices	$894	$616
	Wholesale customers' bill: IPART draft decision	**$2,847**	**$2,521**
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	$2,416	$2,369
	Under IPART's draft decision	$463	$463
	Change in margin	*-$1,953*	*-$1,905*

[a] The expected revenue has been calculated using prices from our 2016 retail price reviews.

Note: We have applied simplified assumptions purely for illustrative purposes, eg, average end-use customer water consumption of 160kL per year (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 6.8 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]	$3,319	$3,585
	Wholesale customers' bill: non-residential retail prices	$1,213	$878
	Wholesale customers' bill: IPART draft decision	**$2,409**	**$2,674**
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	$2,106	$2,707
	Under IPART's draft decision	$911	$911
	Change in margin	*-$1,195*	*-$1,796*

[a] The expected revenue has been calculated using prices from our 2016 retail price reviews.

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 (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 6.9 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]	$16,596	$18,098
	Wholesale customers' bill: non-residential retail prices	$5,557	$3,546
	Wholesale customers' bill: IPART draft decision	**$12,043**	**$13,545**
	Margin (difference in expected revenue from end users and wholesale bills)		
	Under non-residential retail prices	$11,039	$14,553
	Under IPART's draft decision	$4,554	$4,554
	Change in margin	*-$6,486*	*-$9,999*

[a] The expected revenue has been calculated using prices from our 2016 retail price reviews.

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 (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.

7 Pricing approach for recycled water services

This chapter outlines our draft decisions for the following recycled water 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 most appropriate for these services. We took into account the nature of the services, particularly whether the wholesale service is on-sold to end users or used as an input to supply a different service to end users. We also had regard to stakeholders' comments in response to our November 2016 Draft Report.

The sections below summarise our draft decisions, discuss our analysis and considerations in more detail, and outline the likely impacts on stakeholders where possible.

7.1 Summary of draft decision on pricing 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).

Draft Decision

11 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 the drinking water supply.

We have maintained our draft decision, which would mean that customers purchasing drinking water to top up their recycled water schemes would get charged:

- a non-residential water service charge based on their connection size to either Sydney Water's or Hunter Water's network, and
- a drinking water usage charge at the same rate per kL as non-residential retail customers in Sydney Water's or Hunter Water's network.

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 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.[67] 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 or recycled water is sewage. 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.[68] 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.

Wholesale service providers and wholesale customers support non-residential prices

Flow Systems, Lendlease and City of Sydney supported applying the non-residential price to drinking water top-up.[69] Sydney Water does not believe that drinking water top-up should be classified as a wholesale service, but agreed with the pricing approach as it reflects the costs and capacity required in its network to provide this service.[70] Hunter Water also stated that it would accept non-residential prices, noting that its standard water usage charge makes up most of the bill for both residential and non-residential customers.[71]

Tables 7.1 and 7.2 below show the prices that would apply for drinking water top-up services from Sydney Water and Hunter Water (respectively).

67 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 that a recycled water scheme is being developed, potable water top-up is essential' (p 38). We acknowledge this comment, but note that it can be considered a minor input over the life of a scheme.

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

69 Lendlease submission to IPART Draft Report, December 2016, p 37; Flow Systems submission to IPART Draft Report, December 2016, p 6; City of Sydney submission to IPART Draft Report, December 2016, p 2.

70 Sydney Water submission to IPART Draft Report, December 2016, p 21.

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

Table 7.1 Prices for the supply of drinking water top-up from Sydney Water ($2016-17)

	2017-18	2018-19	2019-20
Water usage charge ($/kL)			
Water usage charge	2.00	2.00	2.00
SDP uplift	0.12	0.12	0.12
Meter connection charge ($/meter)			
20mm	89.95	89.95	89.95
25mm	140.55	140.55	140.55
32mm	230.28	230.28	230.28
40mm	359.82	359.82	359.82
50mm	562.22	562.22	562.22
80mm	1,439.27	1,439.27	1,439.27
100mm	2,248.86	2,248.86	2,248.86
150mm	5,059.94	5,059.94	5,059.94
200mm	8,995.44	8,995.44	8,995.44
Other meter sizes	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		

Note: Meter connection charges will be altered by the Sydney Desalination Plant (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.

Table 7.2 Prices for the supply of drinking water top-up from Hunter Water ($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)			
20mm	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	$\frac{(\text{meter size})^2 \times 20\text{mm water supply service charge}}{400}$		

Note: If a wholesale customer only has a single 20mm meter they would receive a lower water supply service 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.

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

As outlined above, 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 5), and
- the non-residential price for water for drinking water top-up (as outlined above).

Maintaining this draft decision would mean 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.

Draft Decision

12 We have decided that wholesale customers that purchase drinking water for the purpose of on-selling *and* drinking water top-up should be charged:

- 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.

13 We have decided that in cases where the connection to the recycled water system (drinking water top-up) 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.

In some cases, drinking water top-up may not be individually metered. In these cases, we have maintained our draft decision that the retail non-residential service charge for drinking water top-up should be based on a **deemed** meter size of 100mm.

Sydney Water noted that the November 2016 Draft Determination did not cover the situation where it supplies a drinking water top-up service to a recycled water plant located within a building to which Sydney Water also supplies retail drinking water.[72] We note that in this scenario, the deemed 100mm meter provision would not apply, as the wholesale customer is not receiving drinking water for **both** drinking water on-selling and drinking water top-up from Sydney Water. In situations where the wholesale customer is only receiving the drinking water top-up service, we have not deemed a meter as Sydney Water or Hunter Water would apply a charge based on the individual or common meter (or meters) servicing that customer according to their general practice for non-residential customers under the retail determinations.

Sydney Water and Hunter Water may avoid charging based on a deemed meter size by requiring customers to individually meter drinking water top-up for any new schemes. There may also be an incentive for customers to meter drinking water top-up where the

72 Sydney Water submission to IPART Draft Report, December 2016, p 55.

deemed meter size is greater than their drinking water connections to the recycled water system.

7.1.2 Stakeholder impacts of this pricing approach

We highlight below indicative bill impacts that would result from our draft decisions.

Drinking water for recycled water top-up only

Under our draft decisions, schemes that purchase drinking water purely to top up recycled water systems would pay retail non-residential prices. That is:

- a water usage price at the same rate per kL as other Sydney Water or Hunter Water retail customers, and
- a water service charge based on the applicable non-residential retail price for the metered connection of the recycled water system – this would be the same retail charge applicable to other Sydney Water or Hunter Water non-residential retail customers.

For example, if a new scheme purchased 20,000 kL of water per year to top up its recycled water system, and had a metered connection of 100mm to Sydney Water's network, then it would pay about $42,249 in 2017-18 to Sydney Water (in $2016-17). If it were connected to Hunter Water's network, it would pay about $46,374 in the same period to Hunter Water. These bills are based on our 2016 retail price determinations for Sydney Water and Hunter Water.

Drinking water for both on-selling to end-use customers and recycled water top-up

We present in tables below example bill impacts for three indicative wholesale schemes with simplified assumptions to highlight the general outcome under our draft decision for new schemes that undertake both on-selling drinking water and purchase drinking water to top up recycled water systems. It shows that under our draft decisions, the wholesale bill to customers would generally be lower than if the non-residential prices were applied. This is mainly driven by the on-selling water component of the bill, as previously explained in Chapter 5.

Table 7.3 below shows that for an inner city development (with 2,000 residential end-use customers), where drinking water is purchased from Hunter Water to both top up a recycled water system and on-sell to end users, the wholesale bill under our draft decisions would be about $1.0 million (over 2017-18 to 2019-20 in net present value terms). This comprises $0.91 million for on-selling water and $0.08 million for drinking water top up (including the deemed 100mm service charge). This compares to $1.4 million, over the same period, if we were to set prices based on non-residential retail prices.[73]

73 We have applied consistent assumptions in the amount of drinking water supplied (ie, total drinking water of 219,000 kL per year for both top-up and on-selling) when calculating the wholesale customer's bill under non-residential prices and IPART's draft decisions for the inner city development scheme. For the other schemes we have applied consistent assumptions but at different amounts to reflect the different number of end-use customers (see notes to each table for further information).

For a wholesale customer of Sydney Water, the bill for the same scenario would be $0.9 million (for retail minus retail and reticulation contestable services), which is lower than the wholesale bill of about $1.3 million if it were set using non-residential prices.

We also provide similar indicative impacts for a small greenfield low density development and a large greenfield low density development in Table 7.4 and Table 7.5, respectively.

Bills are higher when non-residential prices are levied for all drinking water than when bills are based on a combination of non-residential prices for drinking water top-up and retail-minus prices for on-sold drinking water. This is due to the subtraction of the 'minus' component, which represents the 'reasonably efficient cost' of supplying the contestable service.

Table 7.3 Drinking water top-up and 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)	Wholesale customers' bill: non-residential retail prices	$1,266	$1,417
	Wholesale customers' bill: IPART draft decision	**$943**	**$987**
	Comprises:		
	On-selling water	*$874*	*$910*
	Drinking water top-up (including 100mm service charge)	*$70*	*$77*
	Difference in bill (IPART draft less non-residential retail price)	-$322	-$431

Note: We have applied simplified assumptions purely for illustrative purposes. Eg, average end-use customer water consumptions of 160kL per year: of which 65% is drinking water and 10% is drinking water top-up – hence the wholesale service provider supplies 120kL per year, per end-use customer, to the wholesale customer. Each end-use customer receives its remaining water (40kL per year) as recycled water from the wholesale customer. The analysis above only includes the charges for the 120kL of water supplied by the wholesale service provider to the wholesale customer. And a 150mm meter and two 80mm meter connections to Sydney Water or Hunter Water (for the non-residential retail bill calculations). We have assumed 0.02km of reticulation for this inner high density development. The above analysis is also over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

Table 7.4 Drinking water top-up and 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)	Wholesale customers' bill: non-residential retail prices	$1,432	$1,599
	Wholesale customers' bill: IPART draft decision[a]	**$706**	**$763**
	Comprises:		
	On-selling water	*$592*	*$636*
	Drinking water top-up (including 100mm service charge)	*$114*	*$126*
	Difference in bill (IPART draft less non-residential retail price)	-$726	-$836

[a] The wholesale bills under our draft decisions are lower for this indicative scheme because we have assumed 30km of reticulation compared with the first indicative scheme of 0.02km - hence under retail minus 'retail and reticulation' we have lower prices in this scheme.

Note: We have applied simplified assumptions purely for illustrative purposes. Eg, average end-use customer water consumptions of 160kL per year: of which 65% is drinking water and 10% is drinking water top-up – hence the wholesale service provider supplies 120kL per year, per end-use customer, to the wholesale customer. Each end-use customer receives its remaining water (40kL per year) as recycled water from the wholesale customer. The analysis above only includes the charges for the 120kL of water supplied by the wholesale service provider to the wholesale customer. And a single 250mm meter connection to Sydney Water or Hunter Water (for the non-residential retail bill calculation). We have assumed 30km of reticulation for this small greenfield indicative scheme. The above analysis is also over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

Table 7.5 Drinking water top-up and 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)	Wholesale customers' bill: non-residential retail prices	$7,069	$7,929
	Wholesale customers' bill: IPART draft decision	**$3,545**	**$3,833**
	Comprises:		
	On-selling water	*$2,986*	*$3,205*
	Drinking water top-up (including 100mm service charge)	*$559*	*$627*
	Difference in bill (IPART draft less non-residential retail price)	-$3,523	-$4,096

Note: We have applied simplified assumptions purely for illustrative purposes. Eg, average end-use customer water consumptions of 160kL per year: of which 65% is drinking water and 10% is drinking water top-up – hence the wholesale service provider supplies 120kL per year, per end-use customer, to the wholesale customer. Each end-use customer receives its remaining water (40kL per year) as recycled water from the wholesale customer. The analysis above only includes the charges for the 120kL of water supplied by the wholesale service provider to the wholesale customer. And a single 350mm meter connection to Sydney Water or Hunter Water (for the non-residential retail bill calculation). We have assumed 150km of reticulation for this large greenfield indicative scheme. The above analysis is also over the period 2017-18 to 2019-20 for indicative purposes.

Source: IPART analysis.

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

As outlined in Chapter 5, where wholesale customers on-sell a wholesale sewerage service to end-use customers, we have decided to apply a retail-minus price 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-supply 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.

Draft decision

14 We have decided to apply non-residential retail prices 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.

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.[74]

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 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.

Tables 7.6 and 7.7 below show the prices that would apply for recycled water plant waste disposal services from Sydney Water and Hunter Water (respectively), where the wholesale customer does not have any end-use sewerage customers.

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.[75] Sydney Water and Hunter Water currently recover these charges for the transport, treatment and disposal of trade waste, and the corrosion costs of high strength wastes, as well as administering trade waste agreements and conducting inspections. IPART reviews these charges along with Sydney Water's and Hunter Water's other retail prices.[76]

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

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

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

Table 7.6 Wholesale sewerage charges for recycled water plant waste disposal services from Sydney Water ($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	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		
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.

Table 7.7 Wholesale sewerage charges for recycled water plant waste disposal services from Hunter Water ($2016-17)

	2017-18	2018-19	2019-20
Meter connection charge ($/meter)[a]			
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	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		
Deemed usage charge ($)			
Deemed usage charge	56.95	68.68	80.40
Sewerage usage charge ($/kL)			
Below discharge allowance[a]	0.00	0.00	0.00
Above discharge allowance[a]	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.

Under our draft decisions, schemes subject to our Determinations would face non-residential retail prices for the waste they discharge from their recycled water plants to Sydney Water's or Hunter Water's networks. We have not provided indicative bill impacts because of the potential variability in applicable trade waste charges (which can vary according to the strength of the discharges and the discharge location).

8 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 would mean reflecting the prudent and efficient net facilitation costs in wholesale prices.

For the purpose of this review, we have described facilitation costs as 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 allows the wholesale service provider to defer its next scheduled water supply or sewerage treatment augmentation.

Net facilitation costs would 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.

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

8.1 Summary of draft decisions on approach to facilitation costs

We have maintained the approach to facilitation costs outlined in our November 2016 Draft Report. This approach, its key elements, and our response to stakeholder submissions on facilitation costs are outlined below.

Draft Decision

15 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.

16 We have decided not to include facilitation costs in the draft system-wide wholesale prices but would consider them in scheme-specific determinations.

17 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.

8.2 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 should be additional to what the wholesale service provider would have otherwise incurred in the absence of servicing the wholesale customer.

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).

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

The sections below outline our draft 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).

8.3.1 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.

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.[77] 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

[77] 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).

- **charging or funding arrangements with developers** – 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.

As outlined in Chapter 2, 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 provides 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, our Discussion Paper and November 2016 Draft Report set out a methodology to allow facilitation costs 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:[78]

Facilitation costs=NPV[Augmentation costs less planned cross-subsidy of these costs]

This approach would mean that the infrastructure-related facilitation costs 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.

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.

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**.[79] 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.[80]

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

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

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

8.3.2 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.[81]

Sydney Water and Hunter Water have previously argued that provision of recycled water is unlikely to result in significant cost savings.[82]

However, other 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. 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.[83]

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 determination. Rather, they are best included in wholesale prices via a scheme-specific review. 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.

8.3.3 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).[84]

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.[85]

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

82 Sydney Water submission to IPART Discussion Paper, May 2016, p 11, Hunter Water submission to IPART Discussion Paper, May 2016, p 20.

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

84 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.

85 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.

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.

We have also maintained our decision that on-going administrative costs should not be added to wholesale prices, except where they are material:[86]

- Where our draft decisions on pricing approaches apply non-residential retail prices (ie, for services associated with drinking water top-up for recycled water schemes), 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 prudency 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.[87]

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.[88]

8.4 Facilitation costs would be considered in scheme-specific reviews of wholesale prices

We maintain our view that, at this stage, facilitation costs (negative and positive) are best included in wholesale prices via scheme-specific reviews. Our draft system-wide determinations, therefore, do not make provision for facilitation costs in prices.

In our November 2016 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.

86 We would assess the materiality of these costs on a case-by-case basis.
87 Hunter Water submission to IPART Draft Report, December 2016, p A.4.
88 Sydney Water submission to IPART Draft Report, December 2016, p 4.

In stakeholder submissions in response to our November 2016 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 and integrated water cycle management.[89]

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.[90]

> 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.[91]

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. Submissions from wholesale customers did not provide evidence of significant direct avoided costs to the wholesale service provider that should be factored into wholesale prices.

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). While Sydney Water and Hunter Water argued that the presence of a recycled water plant does not impact the nature of the sewerage service they provide, they conceded that there were potential avoided costs. Sydney Water stated:

> We acknowledge that the provision of recycled water could provide benefits to us in terms of lower costs. However, these will vary according to the location of the plant. A schedule of facilitation savings could be used in a retail-minus pricing approach to capture these types of operational benefits in a system-wide price. Alternatively, IPART could set scheme-specific prices for schemes with a recycled water plant. Due to the nature of entry allowed under the WIC Act, this would likely mean a scheme-specific review for every scheme. Broader benefits, such as potential deferral of system augmentation, would always need to be considered on a scheme-specific basis, at least until more experience and data is available to determine appropriate system-wide deductions.[92]

Similarly, Hunter Water suggested that if a retail-minus approach were adopted, it could include an additional 'treatment' minus to reflect the quality and quantity of discharges expected in practice or given various levels of transformation. It also suggested setting a 'notional negative facilitation amount' that approximates deferred or avoided costs in the water or sewerage systems because of a recycled water scheme. However, it noted that at present there is limited information to base this on, and that more reliable information may be available at the next price review.[93]

89 For example: Sydney Water submission to IPART Draft Report, December 2016, p iv; Hunter Water submission to IPART Draft Report, December 2016, p 15; Flow Systems submission to IPART Draft Report, December 2016, p 9.

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

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

92 Sydney Water submission to IPART Draft Report, December 2016, p iv.

93 Hunter Water submission to IPART Draft Report, December 2016, p 15.

Flow Systems proposed a 'water scarcity offset' and argued this was conceptually similar to a feed-in tariff for distributed energy generation.[94] Similar arguments were also put forward by Lendlease and City of Sydney.[95] Flow Systems noted that this would require IPART to consider the reasonable level of compensation payable to integrated water cycle management (IWCM) operators. And, that the offset should:

- seek to align incentives between IWCM consumers and non-IWCM consumers, reflecting recognition that purchases of recycled water by IWCM consumers have avoided water scarcity benefits for non-IWCM consumers
- also incorporate an allowance for the value obtained by installation of sewage treatment facilities (including redundancy) as part of the IWCM.

We understand that Flow Systems' argument is that an increase in IWCM would increase water security and reduce the need for the Sydney Desalination Plant to be turned on. We consider that the benefits of IWCM that Flow Systems is referring to can be reflected more directly by adjusting wholesale prices to reflect any negative facilitation costs.

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.[96] Oakley Greenwood also 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's report, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants*, is available on IPART's website: www.ipart.nsw.gov.au.

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
- 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.

Also, in relation to Flow Systems' suggested scarcity offset above, Oakley Greenwood noted that, while a recycled water plant would likely increase water security for a region, it is difficult to establish whether this results in avoided desalination costs, as many different potential scenarios would impact the valuation of these potential costs.[97]

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. We note that, over time as more recycled water schemes become operational, and more information on their impacts becomes available and can be

94 Flow Systems submission to IPART Draft Report, December 2016, p 8.
95 Lendlease submission to IPART Draft Report, December 2016, p 16; City of Sydney submission to IPART Draft Report, December 2016, pp 5-6.
96 Oakley Greenwood, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants*, March 2017.
97 Oakley Greenwood, *Cost drivers for wholesale sewerage services and cost impacts of recycled water plants*, March 2017, p 17.

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. Table 8.1 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.[98]

Our view is that stakeholder concern about information asymmetry between Sydney Water and Hunter Water and wholesale customers in relation to facilitation costs are 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).

98 Flow Systems submission to IPART Draft Report, December 2016, p 4; Lendlease submission to IPART Draft Report, December 2016, p 23; City of Sydney submission to IPART, p 5.

Table 8.1 Potential avoided costs to Sydney Water and Hunter Water from a wholesale customer's recycled water plant

Potential cost impacts	Factors that may influence the cost impact	'Typical' cost impact
Water supply costs		
Water treatment plant operational costs.	Nil - water treatment plants employ similar treatment technologies, and raw water can be transferred between locations to manage supply.	Pumping: estimated reduction of $0.04/kL of recycled water produced. Treatment: estimated reduction of $0.02/kL. Residual handling: estimated reduction of $0.005/kL to $0.01/kL.
Water network augmentation costs	Size and location of recycled water scheme.	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 permanent 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 permanent 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. ▼ 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 estimate due to there being no stated plans for supply augmentation.
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	Location, size, type and structure of recycled water scheme	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*, March 2017.

9 Scheme-specific reviews and unregulated pricing agreements

As Chapter 4 discussed, our Draft Determinations include system-wide prices for new wholesale schemes in relation to the services of on-selling, drinking water top-up for recycled water schemes, and recycled water plant waste disposal. However, these system-wide prices may not be appropriate if they do not reflect a particular scheme's characteristics. Therefore, we have also decided:

- to develop a process for a wholesale service provider or wholesale customer to request a scheme-specific price review and determination, and
- to allow the parties to opt out of the determined prices by entering into an unregulated pricing agreement.

This chapter discusses our draft decisions on the process we would use for scheme-specific reviews and determinations, and unregulated pricing agreements.[99]

9.1 Scheme-specific price reviews

We have decided to maintain our draft decisions regarding the process to review and determine scheme-specific prices.

Draft decision

18 We have decided to use the process in Box 9.1 to review and determine scheme-specific prices for wholesale water and/or sewerage services.

19 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 November 2016 Draft Report set out a process for initiating and conducting scheme-specific price reviews and determinations, which is outlined in Box 9.1 and discussed in the sections below.

IPART would use its best endeavours to complete a scheme-specific review within twelve months, and to meet the timeframes for the steps set out below.

The Tribunal or any future Tribunal may choose to modify this process or the methodology when it undertakes a scheme-specific review.

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

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

We note that any scheme-specific review would be undertaken subsequent to the completion of this review of wholesale prices. As such, 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.[100]

Our decisions in this review would serve as the starting point for determining prices in a scheme-specific review. We would also consider views put forward by stakeholders on whether they are appropriate for a particular scheme.

Box 9.1 Process for reviewing scheme-specific prices (and indicative timing)

1.	The wholesale customer or wholesale service provider writes to IPART to request a price review and determination for an existing or proposed wholesale water and/or sewerage scheme.	
2.	IPART considers the request and decides whether to undertake a review.	Within one month of receiving request.
3.	IPART initiates the review by requesting that the wholesale service provider submit a Wholesale Pricing Proposal by a specific date. This Proposal should be informed by consultation with the wholesale customer(s). IPART also advertises the price review in the relevant local newspaper.	
4.	On receipt of this Proposal, IPART prepares a summary and forms a preliminary view on the Proposal. IPART would then publish the Proposal and its preliminary view on the IPART website, and invite stakeholders to make written submissions – including wholesale customers. IPART holds a public hearing to discuss the Proposal and stakeholder submissions.	Two months after receipt of Pricing Proposal.
5.	IPART considers the Proposal and stakeholder comments, makes draft pricing decisions, and releases a draft report and determination for stakeholder comment.	Three months after submissions close.
6.	IPART considers submissions and makes final pricing decisions, and releases a final report and determination that sets out the maximum prices for each wholesale service supplied to the scheme.	Two months after submissions on Draft Report close.

We note the views of Flow Systems and Lendlease regarding the process for a scheme-specific review (Box 9.2). However, the IPART Act requires the Tribunal to hold a public hearing, to give notice of its pricing investigation in a newspaper circulating in New South Wales, 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.

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

Box 9.2 Stakeholders' views on the process for a scheme-specific review

- Sydney Water and Hunter Water stated that they broadly supported the process outlined in our November 2016 Draft Report for scheme-specific reviews. They provided comments on the process which included:
  - The party that requests the review should be responsible for describing how the parties have consulted, the areas of agreement and disagreement and providing a rationale why determined system-wide prices are not appropriate to the specific scheme.
  - IPART should take into account all the administration and resourcing costs for all parties before deciding whether to proceed with a review. Hunter Water and Sydney Water argue that the service provider should be able to recover the legal and administrative costs associated with reviewing and implementing scheme-specific prices.
  - Sydney Water noted that it would be difficult for Sydney Water to develop Reasonably Efficient Competitor costs. It proposed that they could submit their own costs and seek input from wholesale customers. IPART could then engage its own consultant and make any adjustment if it chooses to apply the Reasonably Efficient Competitor approach.
- Flow Systems and Lendlease argued that the process outlined for scheme-specific reviews was not suited to the commercial and confidential nature of scheme-specific negotiations for the following reasons:
  - wholesale customers competing with wholesale providers to service a particular development would be significantly disadvantaged if a lengthy scheme review was required to determine prices, as a developer's need for certainty and confidentiality in the bid process to compete for development rights may lead to the developer defaulting to wholesale providers for water and sewerage services
  - the publishing of the proposal and submission for stakeholder comment is inappropriate for the bi-lateral confidential commercial negotiations, which may still be taking shape when determining prices and may lead to the distribution of intellectual property and competitive information from wholesale customers to wholesale service providers
  - preparation of a wholesale pricing proposal by the wholesale service provider adds an extra layer of complexity on which the draft report gives limited guidance, and gives the wholesale customer limited control over the process.
- Lendlease argued that if the minus factors were more flexible (ie, covered a greater range of wholesale schemes by setting a menu of minus amounts) this could reduce the need for these scheme-specific determinations.

Source: Leadlease submission to IPART Draft Report, December 2016.p 31; Hunter Water submission to IPART Draft Report, December 2016, p 16, Sydney Water submission to IPART Draft Report, December 2016, p 36, Flow Systems submission to IPART Draft Report, December 2016, p 4.

IPART price reviews take account of issues such as confidentiality. This is done by allowing parties to identify confidential information in submissions and pricing proposals. In relation to the issues raised regarding the time required for a scheme-specific review, to the extent that the parties have reached agreement on some matters, the time required could be minimised where the scope of the review (based on the areas of disagreement) is narrow.

We support the view that the onus should be on the party requesting the review, rather than defaulting to the wholesale service provider, to demonstrate that they have sought to

negotiate and reach agreement and there is a sound reason for the review. This is reflected in the process for scheme-specific reviews outlined in more detail below.

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

IPART may issue guidance on the information that must 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.[101] 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. Although we would not expect to initiate a scheme-specific review as common practice, we may do so in certain circumstances – for example, if information provided by a third party gave us reason to believe the wholesale service provider was overcharging a wholesale customer.

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

The wholesale service provider would be required to submit a Wholesale Pricing Proposal within a specified timeframe.[102] The timeframe would depend on the complexity of the scheme, but indicatively could range from one to three months.

A key part of the development of the Wholesale Pricing Proposal would be consultation with the (existing or prospective) wholesale customer. As we note above, we would seek information from the party requesting the review regarding the extent to which consultation had occurred between the parties prior to the request being submitted. The Proposal would need to include information on the outcomes of the consultation and how these were incorporated into the Proposal. The purpose of this consultation would be to ensure the Proposal that is submitted to IPART clearly outlines the areas of agreement and disagreement between the service provider and the customer. This would help to identify the issues on which there is little agreement, which could inform IPART's approach to the review. A high quality pricing proposal that is based on meaningful consultation between the parties (ie, wholesale service provider and wholesale customer) would help to reduce the costs associated with the review and may reduce the timeframe for the review. It would

101 Under Section 11 of the IPART Act.

102 We would also send the wholesale service provider a Submission Information Pack that outlines what it should include in the Proposal and our timetable for the review.

also provide an opportunity for some initial negotiation between the parties before IPART is involved.

The benefits of meaningful engagement by both parties in the preparation of the Wholesale Pricing Proposal before it is submitted to IPART would be particularly important in relation to the consideration of net facilitation costs. To the extent that a service provider and wholesale customer agree on the proposed net facilitation costs, this would assist in reducing the cost and timeframe for a review.

In addition, the Proposal would also 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 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
- the wholesale service provider's relevant growth plans, and
- 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 they requested the review, as they would be required to charge the prices to be set as part of the review.

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

Once we received the Wholesale Pricing Proposal, we would conduct a review and make our decisions using a similar process to the one we use for Sydney Water and Hunter Water's retail price reviews. We would:

- Conduct public consultation by publishing the Proposal on our website and inviting submissions; advertising the price review in the relevant local paper and holding a public hearing.
- Assess the Proposal, including reviewing the wholesale service provider's proposed costs and prices, and considering the information provided in submissions from other stakeholders.
- Make draft decisions and release a draft report and determination, and invite stakeholder submissions.
- Consider stakeholder submissions before making our final decisions and releasing a final report and determination.

This review process would help to ensure transparency in the calculation of prices for wholesale services, as well as provide sufficient opportunities for the wholesale service provider, wholesale customer and other stakeholders to provide input.

We note that in determining maximum prices, we are required to give notice in a newspaper and hold a public hearing.[103] However, the level and nature of this consultation could be scaled to reflect the size of a scheme and/or the scope of the price review.

9.1.4 Timeframe for completing a review

The overall time to complete a scheme-specific review would depend on a range of factors including the complexity of the scheme and the issues to be considered. We expect that once a review is initiated, it would take a maximum of 12 months to complete. However, it could take less time, especially if the wholesale service provider is already servicing a similar scheme and the Wholesale Pricing Proposal reflects meaningful engagement from both the service provider and the wholesale customer, which enables the review to be appropriately targeted.

As noted earlier in relation to the issues raised regarding the time required to undertake a scheme-specific review, to the extent that the parties have reached agreement on some elements of pricing, the time associated with a review could be minimised where the scope of the review (based on the areas of disagreement) is narrow. In undertaking scheme-specific reviews, we would seek to minimise the costs and timeframes associated with a review.

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 well before the scheme becomes operational if scheme-specific regulated prices are to be determined before any wholesale services are supplied. Alternatively, they would need to reach a temporary pricing agreement to apply until the review is completed and prices determined.

9.1.5 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, taking account of views from stakeholders, as part of the review. It is expected that a proposed determination length would be included in the Wholesale Pricing Proposal, including whether the wholesale service provider and wholesale customer agree on this issue. In deciding on the length, we would consider, similar to our retail price determinations:

- 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.

[103] Under section 13(2) and section 21 of the IPART Act.

9.1.6 IPART would not set interim prices while a scheme-specific determination is made

Under our draft decision to set system-wide prices for some services, there would be a prevailing price determination that applies to new schemes.[104] This would effectively be the interim price for these schemes until a scheme-specific determination is in place. 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). We have decided to maintain our draft decision not to set interim prices while a scheme-specific determination is made.

Hunter Water agreed that setting interim prices is not necessary, as the system-wide prices are the default prices for new agreements.[105]

As discussed above, we expect the maximum length for a scheme-specific price review would be 12 months, and could be shorter. 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 being provided.

9.1.7 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 a price determination, particularly where there were significant price impacts.

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 draft decisions, as we can ensure the timeliness of a determination once the review is initiated.

In response to our November 2016 Draft Report, Hunter Water supported our draft decision not to apply a true-up mechanism as the maximum 12 month timeframe envisaged for a scheme-specific review would mean that the scheme-specific review would be completed before supply to a scheme commenced.[106]

9.2 Unregulated pricing agreements

Draft decision

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

104 Unless the parties had agreed to 'opt-out' and have an unregulated agreement.
105 Hunter Water submission to IPART Draft Report, p A.5.
106 Hunter Water submission to IPART Draft Report, December 2016, p A.5.

We have decided to maintain our draft decision in relation to unregulated pricing agreements.[107]

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.[108]

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).

As Chapter 4 outlined, in cases where there are existing agreements in place for services regulated under our system-wide Draft Determinations, these agreements would remain in place.

There is evidence to suggest that unregulated agreements can work. There are existing agreements between Sydney Water and/or Hunter Water and wholesale customers that set their prices (where they are not covered by the retail determination).

In response to our November 2016 Draft Report, stakeholders were in general agreement that it was unlikely that unregulated pricing agreement would be entered into.

Box 9.3 Stakeholders' views on unregulated pricing agreements

There was general agreement among stakeholders that it was unlikely that unregulated pricing agreements would be entered into.

- Sydney Water stated that while it supported unregulated agreements in theory, it could not envisage where it would be beneficial for both parties to deviate from determined prices.
- Lendlease stated that wholesale service providers have little incentive to support outcomes through an unregulated agreement which would not reflect their monopoly market position.
- Both Sydney Water and Hunter Water raised the issue of the requirements in relation to ring-fencing the costs and revenues (including reporting requirements) associated with these agreements. Sydney Water noted the administrative costs of possibly having to do this on an individual customer basis. Hunter Water sought more guidance on these requirements.
- Lendlease noted that under the retail price determinations, unregulated agreements were limited to water and sewerage services. It requested clarification of whether unregulated pricing agreements under the wholesale determinations would include trade waste services.

Source: Lendlease submission to IPART Draft Report, December 2016, p 32 and 34; Sydney Water submission to IPART Draft Report, December 2016, p 37; Hunter Water submission to IPART Draft Report, p A.5.

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

108 IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report,* June 2016, pp 44-48; and *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. This would avoid the costs associated with scheme-specific reviews.

The provision for unregulated agreements in the draft system-wide price determinations provide for the ability to opt-out of all the prices set in the system-wide determination.[109]

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.

[109] Refer to the definition of 'Negotiated Services Agreement' in schedule 5 of the Draft Determinations.

10 Implications of pricing decisions

This chapter outlines the implications of our pricing decisions on certain matters we must have regard to under section 15 of the IPART Act. These include:

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

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

We note that our draft 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 draft 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 directions[110] 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. 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.

110 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.

Cost of providing the services concerned

Our draft decisions would result in system-wide prices that reasonably reflect the costs of providing the services by Sydney Water and Hunter Water. Specifically, for:

- **On-selling water and sewerage services** - 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 retail service from the wholesale services purchased (further detail is provided in Chapter 5).
- **Drinking water top-up** – non-residential retail prices for drinking water supply are a reasonable proxy for the cost of supplying drinking water for the purposes of topping up the supply of water to recycled water plants (further detail is provided in Chapter 7).
- **Waste from recycled water plants** – non-residential retail sewerage prices (including trade waste charges) are a reasonable proxy for the cost of providing the sewerage services (further detail is provided in Chapter 7).

Protection of consumers from abuses of monopoly power

Sydney Water and Hunter Water are the monopoly suppliers of wholesale water and sewerage services in their areas of operation. Our decisions in this review regarding the approach to regulating wholesale prices, including setting system-wide prices, providing for scheme-specific price reviews and unregulated pricing agreements protects wholesale customers from potential abuses of monopoly power.

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. [111] Where the prices set in this review are the prevailing retail prices (ie, for the two recycled water plant services), the consideration of the appropriate rate of return is as per that outlined in the retail price reviews.

For the two on-selling services that retail-minus prices would 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 5, we would 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

111 Refer to 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, pp 16-17.

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

Need to promote competition

Our draft decisions would promote competition, 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, 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 5).

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.[112] Therefore, given the relatively small scale of current wholesale schemes compared with Sydney Water's and Hunter Water's broader customer base, our draft 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

As our draft prices are based 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 Environment Protection Authority (EPA) licence requirements.

Further information on our approach to considering environmental matters in price reviews (including this one) is outlined in Chapter 2. This chapter includes a section which explains our general approach to addressing environmental matters by allowing regulated entities to recover, through prices, the efficient costs of meeting environmental regulatory requirements.[113] It also outlines how our wholesale pricing framework can reflect the environmental benefits of recycled water schemes (in the form of avoided costs) through the allowance of negative facilitation costs.

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

112 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.

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

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.[114] 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 draft 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.

114 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

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 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 5, 6 and 7.
b) The protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standards of service	See Chapter 2 and 10.
c) The appropriate rate of return on public sector assets, including appropriate payment of dividends	See Chapter 10
d) The effect on general price inflation	See Chapter 10.
e) The need for greater efficiency in the supply of services	Through enhancing the potential for efficient entry and competition, our draft decisions would enhance efficiency in the supply of services over time. See Chapters 2 and 5.
f) The need to maintain ecologically sustainable development	See chapters 2 and 10.
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 draft 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 10.
j) Considerations of demand management and least cost planning	Demand management and least cost planning is optimised through efficient prices. Our draft decisions seek to set efficient system-wide prices for specific services. Parties can also seek scheme-specific reviews. See Chapter 5 to 9.
k) The social impact	Our draft decisions would not lead to material adverse social impacts. In reaching our draft decisions we had regard to the costs involved in Sydney Water and Hunter Water servicing wholesale customers, and our draft decisions would allow entry where it would benefit end users (and also Sydney Water's and Hunter Water's broader customer base) over time.
l) Standards of quality, reliability and safety of the services concerned	Our draft decisions would 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 Hunter Water and Sydney 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 outline the current 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 draft system-wide prices for the supply of water and sewerage services for on-selling and recycled water services. The purpose of this appendix is to provide an overview of the WIC Act 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 may involve the provision of services 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	End-use services supplied by licensed retailer[b]	Ultimate size of scheme (licences may not be granted for all of this)[c]
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)	▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Sewer mining ▼ Disposal of excess recycled water ▼ Disposal treatment plant waste	▼ 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)	▼ Drinking water supply through recycled water system	▼ 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)	▼ Drinking water supply through recycled water system ▼ Sewer mining ▼ Disposal treatment plant waste	▼ 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)	▼ Drinking water supply through recycled water system	▼ 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)	▼ Drinking water ▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Sewer mining ▼ Disposal treatment plant waste	▼ 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	End-use services supplied by licensed retailer[b]	Ultimate size of scheme (licences may not be granted for all of this)[c]
Darling Walk sewer mining scheme	Sydney (Sydney Water)	Veolia Water Solutions & Technologies (Australia) Pty Ltd (network operator's licence and retail supplier's licence)	▼ Drinking water supply through recycled water system ▼ Sewer mining ▼ Disposal treatment plant waste	▼ 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)	▼ Drinking water ▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Disposal of excess recycled water ▼ Disposal treatment plant waste	▼ 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)	▼ Non-potable water ▼ Drinking water supply through recycled water system ▼ Disposal treatment plant waste ▼ Supply of treated effluent	▼ 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)	▼ Drinking water supply through recycled water system ▼ Disposal of treatment plant waste	▼ 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)	▼ Drinking water ▼ Drinking water supply through recycled water system	▼ 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)	▼ Drinking Water ▼ Drinking water supply through recycled water system ▼ Disposal treatment plant ▼ Supply of treated effluent	▼ Drinking water supply ▼ Recycled water supply	One industrial customer

Scheme name	Location	Licensee(s)	Proposed services received from Hunter Water or Sydney Water	End-use services supplied by licensed retailer[b]	Ultimate size of scheme (licences may not be granted for all of this)[c]
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)	▼ Drinking water ▼ Drinking water supply through recycled water system ▼ Sewerage service ▼ Disposal of excess recycled water ▼ Disposal of treatment plant waste	▼ 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)	▼ Drinking water top-up of recycled water system	▼ Recycled water supply ▼ Sewerage services	943 residential lots
Wyee greenfield housing development	Lower Hunter (Hunter Water)	Wyee Water Pty Ltd (network operator's licence) Flow Systems Pty Ltd (retail supplier's licence)	▼ Drinking water ▼ Drinking water supply through recycled water system	▼ 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 Public version of the *Water Industry Competition Act 2006* licence application; http://www.ipart.nsw.gov.au/Home/Industries/Water/Private_Sector_Licensing_WICA/Licence_Holders

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 water[115] and short-run marginal cost for sewerage[116]). 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

115 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.

116 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.[117] 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 an inefficient barrier to competition.

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 (a 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 are 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 (a 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).

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.

117 OFWAT, *Future access pricing in the water sector, A discussion paper*, 2013, p 5.

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.[118]

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:

- the ECPR, and
- the equally efficient competitor test for margin squeeze.

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118 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.

D Calculating the 'retail' in retail-minus

We calculated retail charges for water on-selling and sewerage on-selling by calculating the sum of end-use customers retail charges based on the prevailing Sydney Water or Hunter Water determination (depending where the wholesale customer operates). We decided that retail-minus charges should be levied on the wholesale customer on an on-going basis.

The sections below include information needed to calculate the retail component of retail minus reasonably efficient competitor wholesale charges.

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	2018-19	2019-20
Water usage charge ($/kL)[a]			
Water usage charge	2.00	2.00	2.00
SDP uplift	0.12	0.12	0.12
Meter connection charge ($/meter)[b]			
20mm[c]	89.95	89.95	89.95
25mm	140.55	140.55	140.55
32mm	230.28	230.28	230.28
40mm	359.82	359.82	359.82
50mm	562.22	562.22	562.22
80mm	1,439.27	1,439.27	1,439.27
100mm	2,248.86	2,248.86	2,248.86
150mm	5,059.94	5,059.94	5,059.94
200mm	8,995.44	8,995.44	8,995.44
Other meter sizes	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		

[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.

Further detail on how to apply Sydney Water's retail charges is included in our determination of Sydney Water's prices, which is available on our website www.ipart.nsw.gov.au.

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.

$$\Delta\text{Water service charge}_t^{SDP} = \frac{\frac{\alpha_{t-1}-\varepsilon_{t-1}}{\mu_{t-1}}-\beta_{t-1}-(\gamma_{t-1}\times\sigma_{t-1})}{\rho_t}\times\frac{\pi^2}{400}\times\mu_t\times(1+\theta_t)$$

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
γ_t	n/a	$62.68	$62.88	$62.75
θ_t	n/a	0.059	0.059	0.059
μ_t	1	$1+\Delta CPI_1$	$1+\Delta CPI_2$	$1+\Delta CPI_3$
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 capture 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

$\Delta CPI_1 = \frac{CPI_{March2017}}{CPI_{March\ 2016}} - 1$ as defined in the determination

$\Delta CPI_2 = \frac{CPI_{March2018}}{CPI_{March\ 2016}} - 1$ as defined in the determination

$\Delta CPI_3 = \frac{CPI_{March2019}}{CPI_{March\ 2016}} - 1$ as defined in the determination

ρ_t = the number of 20mm equivalent customers in year t

We note that in any financial year, a 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	$1+\Delta CPI_1$	$1+\Delta CPI_2$	$1+\Delta CPI_3$
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

$\Delta CPI_1 = \frac{CPI_{March2017}}{CPI_{March\ 2016}} - 1$ as defined in the determination

$\Delta CPI_2 = \frac{CPI_{March2018}}{CPI_{March\ 2016}} - 1$ as defined in the determination

$\Delta CPI_3 = \frac{CPI_{March2019}}{CPI_{March\ 2016}} - 1$ 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 and a service charge. The retail component of water retail minus reasonably efficient competitor cost prices are to be calculated on the standard usage 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
- 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.

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)	$\frac{(\text{meter size})^2 \times 20\text{mm water supply service charge}}{400}$		

[a] 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.

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.

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.5, and its trade waste charges are shown in Appendix F.

Table D.5 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	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		
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.

Further detail on how to apply Sydney Water's retail charges is included in our determination of Sydney Water's prices, which is available on our website www.ipart.nsw.gov.au.

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.6, and its trade waste charges are shown in Appendix F.

Table D.6 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	$\frac{(\text{meter size})^2 \times 20\text{mm meter connection charge}}{400}$		
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. To do this for our November 2016 Draft Report and Determinations we engaged NERA Economic Consulting (with SIPA) to develop a methodology for calculating, and to calculate, system-wide or average prices using the retail minus reasonably efficient competitor's costs approach. NERA's calculation of reasonably efficient competitor costs (ie, their modelling exercise) was completed in August 2016. Our November 2016 Draft Report provides an overview of NERA's analysis.[119] NERA's Final Report is available on the IPART website www.ipart.nsw.gov.au.

In September and October 2016, we engaged Oakley Greenwood (working with Parsons Brinkerhoff) to provide engineering advice on benchmark unit rates for a reasonably efficient competitor's **retail** and **reticulation** costs. Oakley Greenwood's October 2016 Report (and accompanying spreadsheet) is available on the IPART website www.ipart.nsw.gov.au.

Stakeholders' submission to our November 2016 Draft Report commented on the minus values and the estimation of a reasonably efficient competitor's retail and reticulation costs. We engaged Oakley Greenwood to consider stakeholders' comments and to provide revised estimates of reasonably efficient competitor costs for providing retail and reticulation services. 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.

In the following sections we provide:

- further 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.

E.1.1 Calculating annual building block costs

To calculate the annual retail and reticulation building block costs, we used revised 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.[120] This information also incorporates updated cost estimates in response to stakeholder comments (see further below for discussion).

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119 IPART, *Prices for wholesale water and sewerage service, Sydney Water Corporation and Hunter Water Corporation*, Draft Report, November, 2016, Appendix E.

120 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 revised 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 considered stakeholder comments in response to our November 2016 Draft Report and provided us with: revised estimates of benchmark unit rates (including renewals); and revised 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
- 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.[121] 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.

121 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.

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 RAB[122] is the depreciated economic value of the assets the utility has built/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/purchase significantly cheaper assets than the incumbent, or
- accept a lower rate of return on their assets/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),[123] about four small, greenfield schemes (ie, similar to Scheme 2)[124], and one large greenfield scheme (ie, similar to Scheme 3).[125]

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

122 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.
123 Barangaroo, Discovery Point, Green Square and Central Park.
124 Box Hill, Cooranbong North, Pitt Town and Wyee Water.
125 Huntlee.

- 20% to Scheme 3 costs.

At the next review of wholesale water prices we would consider our use of thereasonably 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, including stakeholder comments, Oakley Greenwood's response to those comments and our own further analysis and discussion. In the subsequent section, we discuss the rationale for using 'customers' and 'kilometres' as cost drivers for our system-wide prices.

Return on assets

To generate a return on assets, we have maintained the draft decision included in our November 2016 Draft Report 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 a based on a benchmark firm, it is not the **actual** WACC of Sydney Water or Hunter Water.

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.

In their submissions on the November 2016 Draft Report, Flow Systems[126] and Lendlease[127] 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.

We have decided 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:

126 Flow Systems submission to IPART Draft Report, December 2016, p 11.
127 Lendlease submission to IPART Draft Report, December 2016, p 42.

- 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 5. 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.

Should there be separate WACCs for retail and reticulation services?

Our November 2016 Draft Report outlined that we consider that scale should not be a relevant factor in determining the WACC for retail-minus pricing. Entrants also differ from incumbents in scope. While Sydney Water and Hunter Water are diversified across most aspects of water service delivery, an entrant 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 Damodoran of the Stern School of Business at New York University, available at this URL:

http://www.stern.nyu.edu/~adamodar/pc/datasets/betas.xls

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.

Table E.1 Beta estimates 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.

Implementation of WACC

The determination period for the system-wide determination of prices would be 1 July 2017 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.

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.[128] When the assets have been fully depreciated, we also incorporated renewal costs as advised by Oakley Greenwood.

Operating expenditure

Retail

For retail services we have included management costs[129], costs associated with billing and call centre services, and meter reading costs[130] as advised by Oakley Greenwood.[131] In response to the November 2016 Draft Report, Sydney Water and Hunter Water indicated that Oakley Greenwood's estimates are 3 to 4 times higher than their own average costs (Sydney Water estimated $22 per customer and Hunter Water estimated $30 per customer).[132]

In response to stakeholder comments, Oakley Greenwood further 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

128 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 34-35 and accompanying spreadsheet.
129 These costs were not included in the minus values in our November 2016 Draft Report.
130 These costs were not included in the minus values in our November 2016 Draft Report.
131 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.
132 Sydney Water submission to IPART Draft Report, , December 2016, p 50; Hunter Water submission to IPART Draft Report, December 2016, p 7.

larger scheme (Scheme 3) it considered that it would be reasonable to have outsourced services.[133]

Further, Oakley Greenwood noted that it had omitted management costs in its previous report. It considered that 2 staff, including overheads, for Schemes 1 and 2, and 3 staff, including overheads, for Scheme 3 would be reasonable - staff would be required to manage contracts with third-party providers, monitor outputs, etc.[134]

We have accepted Oakley Greenwood's revised cost estimates for retail services as being reasonable and note that they are higher than the minuses in our November 2016 Draft Report, mainly due to the inclusion of management costs, and 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 would continue to observe how the market develops, and at each review, further examine the appropriateness of applying reasonable efficient competitor costs, at that time.

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.[135]

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, 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/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.

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133 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 19-20.

134 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 24-25.

135 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.

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 in response to our November 2016 Draft Report.

Tax depreciation

However, Sydney Water commented that in providing a tax allowance for gifted assets (ie, Assets Free of Charge – AFOC) IPART calculated the tax depreciation using the straight-line method.[136] It argued that this is inconsistent with its retail prices, where the tax allowance is based on tax depreciation using a diminishing value method (ie, accelerated depreciation). Therefore, it argued that there is a mismatch in the timing and magnitude of deductions incorporated in the applicable retail price and the reasonably efficient competitor cost. The impact of the difference would not be high in dollar terms, however, it was considered worth identifying and noting.

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.[137] 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. Therefore, for simplicity, we have maintained the use of straight-line depreciation for the tax allowance.

Assets free of charge

Sydney Water also noted that the AFOC figures used in its retail price building block are based on the average of the previous five years of actual AFOC, and not forecast, as used in the calculation of efficient competitor's costs. It noted that this would create a mismatch in terms of timing and magnitude for the tax on AFOC figures that are used in the retail price compared to the efficient competitor's cost calculations.[138]

Sydney Water commented that the impact in dollar terms may not be high but considered it was worth identifying and noting.

The system-wide minuses included in this report apply to new schemes,[139] 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

136 Sydney Water submission to IPART Draft Report, December 2016, p 17.
137 Hunter Water correspondence, 12 May 2016.
138 Sydney Water submission to IPART Draft Report, December 2016, p 17.
139 Refer to section 4.2 of this report for discussion on the application of the system-wide price determination.

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 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.[140]

In calculating the tax allowances, we also calculated tax depreciation using tax asset lives for each of the assets, and also carried forward any tax losses (this is consistent with our approach in our retail price reviews).[141]

Capital items

Meter costs

In our November 2016 Draft Report we used a benchmark estimate of $500 per meter, as advised by Oakley Greenwood, which included the cost of the actual meter itself and installation.[142] In response, Sydney Water and Hunter Water submitted that $500 per meter was unreasonably high and Hunter Water suggested that $250 per meter would be reasonable given that IPART's 2016 Determination set an application for a water service connection fee at $128 per meter (for all meter sizes) (a miscellaneous and ancillary charge).[143]

In response, Oakley Greenwood noted that Hunter Water's quoted $128 per meter does not include the actual costs of the meter itself, nor the installation costs. However, in considering the reasonableness of its benchmark cost estimate, Oakley Greenwood considered it would be more reasonable to assume that telemetry (remote reading) meters (at $200 per meter for supply)[144] 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

140 IPART, *Review of prices for Sydney Water Corporation – From 1 July to 30 June 2020 - Final Report*, June 2016, p 135.

141 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.

142 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, p 26.

143 Hunter Water submission to IPART Draft Report , December 2016, p 7; Sydney Water submission to IPART Draft Report, December 2016, p 50.

144 Based on Sydney Water's publicly available rate.

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.[145]

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 included in our November 2016 Draft Report, we treated meters as being gifted by developers, thus we only provided for a tax allowance for initial meter costs, but did include a return on and of capital once they were renewed. However, we have 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.[146]

Renewals (sewerage reticulation), pipes and construction sequencing

In response to our November 2016 Draft Report, Sydney Water raised the following issues:

- That all water pipes are assumed to be made from DICL steel. However, Sydney Water argued that, based on its experience, around two-thirds of water pipes are plastic.[147]

  In response, Oakley Greenwood noted that both steel and plastic pipes are commonly used in the construction of water mains. It indicated that plastic pipes are readily available in sizes up to DN375 (pipes with a diameter of 375mm) and have lower capital costs. As a result it has recommended the inclusion of plastic pipes up to DN375.[148]

- That an asset valuation approach will generally give lower sewerage costs, primarily due to construction sequencing, particularly in greenfield situations. It argued that sewerage mains are typically laid in the backyard of each lot prior to construction, not along the footpath. This means that there are generally less restoration costs and a more limited length of connection per property, compared to water.[149]

  In response, Oakley Greenwood argued that the location and/or alignment of sewer mains is typically dependant on the design and layout of the development. However, it does note that under its assumptions of locating the mains outside the property boundary, typically with the road verge (nature strip), the estimated capital expenditure (for both water and sewer) should be reduced by $12 per meter (based on previous experience), to exclude restoration costs.[150]

- That the reasonably efficient competitor's costs for sewerage are overstated as they include excavation and backfill as part of renewal costs. Sydney Water argued that modern practice is to re-line the pipes rather than excavating and replacing them.[151]

145 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 26-27.
146 The exception is for multi-unit meters for Sydney Water. Sydney Water submission to IPART Draft Report, December 2016, p 50.
147 Sydney Water submission to IPART Draft Report, December 2016, p 51.
148 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 32-33.
149 Sydney Water submission to IPART Draft Report, December 2016, p 51.
150 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, p 33.
151 Sydney Water submission to IPART Draft Report, December 2016, p 51.

In response, Oakley Greenwood clarified that its October 2016 report did not include renewal costs. Its March 2017 report includes a schedule of renewal costs for water and sewerage reticulation. Its renewals for sewerage reticulation is based on re-lining, which is generally cheaper than the original capital expenditure (the exception is for smaller sized pipes, which Oakley Greenwood indicated are not re-lined but replaced).[152]

We have accepted Oakley Greenwood's responses as being reasonable and have incorporated its updated cost estimates into our minus values.[153] 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.[154]

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.[155] In our November 2016 Draft Report, we did not include sewerage pumping station costs because we assumed that they were part of distribution infrastructure.

Oakley Greenwood has clarified 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/Hunter Water's mains. For Scheme 2, Oakley Greenwood assumed that 1 x sewerage pumping stations would be required, and for Scheme 3, assumed that 3 x 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.

However, for simplicity, in order to establish system-wide prices, we have decided to incorporate the costs of sewerage pumping stations.[156]

152 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 33-34 and accompanying spreadsheet.

153 Also, for reticulation, in its October 2016 report, Oakley Greenwood provided a range of values for valves – that 5% to 20% of the pipework expenditure is related to valves. Its March 2017 report included a point estimate of 14%, which we have used in our modelling (as part of providing a return on and of capital on renewals). Refer to page 35 of Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017

154 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 Oakely 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.

155 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 42&43.

156 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.

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.[157] We consider that these types of costs are better suited as facilitation costs (see Chapter 8).

E.1.2 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 time period of 50-years would also provide a relatively stable 'minus' values.

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,

[157] Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, pp 44-45 and accompanying spreadsheet.

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).[158]

E.1.3 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
- 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.[159] 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

158 The real pre-tax WACC we have used is 5.9%.

159 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.

developer, we do not consider there to be an incentive for a developer to inefficiently lay reticulation and gift it to a wholesale customer.

E.1.4 Other items

In this section we highlight other issues that stakeholders have raised and our responses.

Catch-up allowance for development risk

Flow Systems argued for a catch-up allowance in the minus.[160] It considered that IPART is implicitly assuming that there is no delay between incurring investment expenditure and generating revenue, which is valid for Sydney Water and Hunter Water because they are allowed to generate revenue from price changes once investments are deemed to be in the regulated capital base. It submitted that for unregulated service providers, such as Flow Systems, there can be lengthy delays between capital expenditure being incurred and the start of recovery of those costs.

City of Sydney also argued that wholesale customers were at a disadvantage in terms of providing recycled water.[161] This is because there is large upfront capital expenditure but revenue from the sale of recycled water is dependent on the timing of when end-use customers move in and start using the service. However, it argued that Sydney Water and Hunter Water can spread the capital expenditure across their larger customer bases.

We consider that in its arguments Flow Systems has combined the roles of 'developer' and 'private network operator' (PNO). In our wholesale pricing framework we are providing a PNO the reasonably efficient costs it would incur in maintaining and operating retail and reticulation services. Therefore, as mentioned previously, we treat capital investment in infrastructure assets as being gifted to the PNO, and thus provide a tax allowance, and operating and renewal costs for these assets. We do not provide a return on and of capital for AFOC. However, once assets are replaced, then we have incorporated them as capital expenditure, and thus have included a return on and of capital – both of these aspects are consistent with our approach in our retail price reviews.

In terms of costs associated with recycled water plants, we generally require Sydney Water and Hunter Water to ring-fence the costs from the wider water and sewerage business.[162] Hence, Sydney Water and Hunter Water face the same risks as wholesale customers – Sydney Water and Hunter Water are not able to recover the costs associated with recycled water plants from their wider water and sewerage customer base, unless they can demonstrate avoided water and sewerage costs.

Furthermore, in the event there are risks in terms of timing differences between costs and revenues, we consider this part of the risks of a wholesale customer doing business. Therefore our decision is to not include a catch-up allowance for development risk.

160 Flow Systems submission to IPART Draft Report, December 2016, p 12.
161 City of Sydney submission to IPART Draft Report, December 2016, p 3.
162 IPART, *Review of prices for Sydney Water Corporation – Final Report*, June 2016, p 219; IPART, *Review of prices for Hunter Water Corporation – Final Report*, June 2016, p 149.

Bad debts

Lendlease submitted that an allowance for bad debts due to non-payment of bills by customers should be included in the minuses. To support its argument, it referred to Ofwat's recent report, which noted that bad debt costs for water utilities in England are currently at 44% of total retail costs.[163]

We note that in England and Wales, bad debts due to unpaid water bills are a substantial problem. The primary source of bad debts is reported to be from tenants of rental properties who leave before settling their water bill, due to a combination of:

- water companies having no contracts with consumers as they supply water on a statutory basis,
- consumers not being obliged to inform their water company when they move in and out of a property, and
- water companies not being legally allowed to disconnect or restrict domestic customers' water supply if a bill is unpaid.[164]

We note that the situation is quite different for Sydney Water/Hunter Water as the owner/landlord of the property is directly billed for water – wholesale customers would similarly bill owners/landlords. Therefore, the level of bad debts that would be experienced by wholesale customers would be extremely low compared with England.

In our retail price reviews, we do not include a specific allowance for bad debts from customers for either Sydney Water or Hunter Water. We note that they have procedures in place to prevent bad debts, eg, payment plans for customers in financial hardship.[165]

In its response to stakeholder's comments, Oakley Greenwood has advised that it considers it appropriate to include an efficient allowance for bad debts – but considers that the beta in the WACC provides an allowance to the extent that the systematic risk faced by water utilities includes an impact on bad debt, hence no additional allowance is required.[166]

163 Lendlease submission to IPART Draft Report, December 2016, p 43.

164 House of Commons Library, Water bills- affordability and support for household customers, Briefing Paper – August 2016, pg 4.

165 https://www.hunterwater.com.au/Your-Account/Managing-Your-Account/Payment-Assistance/Payment-Assistance.aspx, accessed 7 February 2017. https://www.sydneywater.com.au/SW/accounts-billing/paying-your-bill/help-with-your-bill/index.htm, accessed 7 February 2017.

166 Oakley Greenwood, WSP Parsons Brinkerhoff, *Revised calculation of Reasonably Efficient Costs Report*, March 2017, p 24.

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_5. 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.

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.

Table F.3 Sydney Water's trade waste industrial agreement charges for Industrial Customers by risk index ($2016-17)

Risk level	Units	2016-17	2017-18	2018-19	2019-20
1	Per quarter	2,024.78	2,063.17	2,102.28	2,142.13
2	Per quarter	2,024.78	2,063.17	2,102.28	2,142.13
3	Per quarter	2,024.78	2,063.17	2,102.28	2,142.13
4	Per quarter	934.60	952.32	970.37	988.77
5	Per quarter	623.43	635.25	647.29	659.56
6	Per quarter	311.72	317.62	323.65	329.78
7	Per quarter	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.

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.

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.

Table F.6 Sydney Water's substance charges for Commercial Customers ($2016-17)

Activity	Units[a]	2016-17	2017-18	2018-19	2019-20
Low strength BOD food	Per kL	2.197	2.238	2.281	2.324
Higher strength BOD food	Per kL	3.610	3.678	3.748	3.819
Automotive	Per kL	0.716	0.730	0.744	0.758
Laundry	Per kL	0.448	0.456	0.465	0.474
Lithographic	Per kL	0.345	0.351	0.358	0.365
Photographic	Per kL	Nil	Nil	Nil	Nil
Equipment hire wash	Per kL	3.273	3.335	3.398	3.463
Ship to shore	Per kL	Nil	Nil	Nil	Nil
Miscellaneous	Per kL	Nil	Nil	Nil	Nil
Other	Per kL	Nil	Nil	Nil	Nil
Charge for low and high strength BOD food if pre-treatment is not maintained in accordance with requirements[b]	Per kL	11.272	11.485	11.703	11.925

a Per kL of trade waste discharged into the wastewater system (as determined by Sydney Water in accordance with its Trade Waste Policy).

b This charge applies if pre-treatment is not maintained in line with Sydney Water's Trade Waste Policy.

Note: 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.

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.

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.

Table F.9 Hunter Water's trade wastewater high strength charges for BOD/NFR ($ 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.

Table F.10 Hunter Water's trade waste high strength incentive charges (charged where the Load Limit is exceeded) ($ per kg, $2016-17)

Wastewater treatment catchment area	2016-17	2017-18	2018-19	2019-20
Belmont	4.04	4.04	4.04	4.04
Boulder Bay	5.48	5.48	5.48	5.48
Branxton	15.14	15.14	15.14	15.14
Burwood Beach	2.27	2.27	2.27	2.27
Cessnock	5.12	5.12	5.12	5.12
Clarence Town	43.31	43.31	43.31	43.31
Dora Creek	6.03	6.03	6.03	6.03
Dungog	9.53	9.53	9.53	9.53
Edgeworth	4.00	4.00	4.00	4.00
Farley	3.91	3.91	3.91	3.91
Karuah	43.40	43.40	43.40	43.40
Kearsley	8.19	8.19	8.19	8.19
Kurri Kurri	8.73	8.73	8.73	8.73
Morpeth	3.01	3.01	3.01	3.01
Paxton	24.00	24.00	24.00	24.00
Raymond Terrace	5.95	5.95	5.95	5.95
Shortland	4.59	4.59	4.59	4.59
Tanilba Bay	9.33	9.33	9.33	9.33
Toronto	4.91	4.91	4.91	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.

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]	[{$0.16x ($SO_4$/2000)}/kg]	[{$0.16x ($SO_4$/2000)}/kg]	[{$0.16x ($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 in Table 20 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.

G Stakeholder impact assumptions

In order to assess the impacts of different wholesale pricing approaches, we applied our draft 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.

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 draft pricing approaches.

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; 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), 400 multi-premise residential properties (with average water consumption of about 160 kL per year) and 100 non-residential properties (with average water consumption of 220 kL per year); 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), 1,500 multi-premise residential properties (with average water consumption of about 160 kL per year) and about 500 non-residential properties (with average water consumption of 220 kL per year); 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.

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.[167]

We acknowledge that a recycled scheme will likely impact on Hunter Water's revenue. However, our analysis is focused on wholesale customer bills. We have not done an assessment of the revenue impacts on Sydney Water or Hunter Water.

167 Hunter Water submission to IPART Draft Report, December 2016, p 6.

Glossary

2016 retail pricing reviews for Sydney Water and Hunter Water	Review of prices for Sydney Water Corporation from 1 July 2016 and Review of prices for Hunter Water Corporation 1 July 2016
ACCC	Australian Consumer and Competition Commission
Area of operations	For Sydney Water, means the area of operations referred to in section 10 of the Sydney Water Act. For Hunter Water, means the area of operations referred to in section 16 of the Hunter Water Act.
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.
Default price	The price that is to be charged for wholesale services when no scheme-specific price can be charged.
Depreciated replacement cost of assets	The cost of replacing an asset less depreciation.
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, *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. 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 *Water Industry Competition (General) Regulation 2008.*
Development Servicing Plans	Plans that include the calculation of developer charges and sufficient information to scrutinise the inputs to the calculation, as set out in in accordance with IPART, *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.
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 agencies	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	*Hunter Water Act 1991*
Incumbent utility	In this report, Sydney Water or Hunter Water, and not other established utilities (such as existing wholesale customers).
Infrastructure services	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: (i) does not include the storage of water behind a dam wall, and (ii) does not include: (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. As defined in the Dictionary to the WIC Act.
IPART	The Independent Pricing and Regulatory Tribunal of New South Wales

IPART Act	*Independent Pricing and Regulatory Tribunal Act 1992*
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	*Local Government Act 1993* (NSW)
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	*Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997*
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.
Services Sydney	Services Sydney Pty Limited
Standalone system	In this report, a scheme that is not connected in any way to a wholesale service provider or a wholesale customer.
Sydney Water	Sydney Water Corporation as established by the Sydney Water Act.
Sydney Water Act	*Sydney Water Act 1994*
Third-party access	Where the owner of infrastructure allows a third-party to transport its goods using that infrastructure, as set out in the WIC Act access regime.
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 customer	See discussion in Chapter 3.
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
Wholesale services	See discussion in Chapter 3.
WIC Act	*Water Industry Competition Act 2006*

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.