

# **Review of prices for WaterNSW**

From 1 July 2016 to 30 June 2020

**Water — Draft Report**  
March 2016



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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 18 April 2016.**

We would prefer to receive them electronically via our online submission form <[www.ipart.nsw.gov.au/Home/Consumer\\_Information/Lodge\\_a\\_submission](http://www.ipart.nsw.gov.au/Home/Consumer_Information/Lodge_a_submission)>.

You can also send comments by mail to:

**WaterNSW Price Review 2016**

Independent Pricing and Regulatory Tribunal

PO Box K35,

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Late submissions may not be accepted at the discretion of the Tribunal. Our normal practice is to make submissions publicly available on our website <[www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au)> as soon as possible after the closing date for submissions. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed on the previous page.

We may choose not to publish a submission—for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. IPART will then make every effort to protect that information, but it could be disclosed under the *Government Information (Public Access) Act 2009* (NSW) or the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW), or where otherwise required by law.

If you would like further information on making a submission, IPART's submission policy is available on our website.



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# 1 Executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is determining the maximum prices WaterNSW<sup>1</sup> can charge its customers for its bulk water, raw water and unfiltered water services in the Greater Sydney area.<sup>2</sup>

WaterNSW is the main supplier of bulk water in the Sydney region. It manages and protects Sydney's drinking water catchments and catchment infrastructure. It supplies bulk water to Sydney Water<sup>3</sup> and to three local councils (Wingecaribee Shire Council, Shoalhaven City Council and Goulburn Mulwaree Council), and raw water or unfiltered water to around 60 smaller customers.

This Draft Report sets out our draft decisions on WaterNSW's maximum prices over the 4-year period from 1 July 2016 to 30 June 2020 (the 2016 determination period) and how these would affect WaterNSW's customers. It also explains how we reached these draft decisions and how our draft prices compare to WaterNSW's proposed prices.

We invite submissions from all interested parties, which we will consider before finalising our decisions and our report in June 2016. The new charges are expected to apply from 1 July 2016.

## Merger of Sydney Catchment Authority and State Water

On 1 January 2015, the NSW Government formed WaterNSW under the *Water NSW Act 2014* (the *Water NSW Act*), through the merger of the Sydney Catchment Authority (SCA) and State Water Corporation (State Water). For this review, we have set WaterNSW's draft prices for its **Greater Sydney** (formerly SCA) operations separately from its **Rural** (formerly State Water) prices. We will review the prices for WaterNSW's Rural services in 2016-17, for new prices to apply from 1 July 2017.

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<sup>1</sup> This review is concerned with determining prices for the former Sydney Catchment Authority (SCA), which is now known as **WaterNSW for the Greater Sydney area**.

<sup>2</sup> This review is conducted under section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act).

<sup>3</sup> Sydney Water accounts for about 99% of WaterNSW's bulk water sales and revenue.

## 1.2 Our draft prices would result in no increases to bills

Under our draft decisions, WaterNSW's prices would decline compared to current prices (with the exception of raw and unfiltered water prices to its smaller customers, which would increase in line with inflation). This reflects lower costs – driven by efficiency gains and a lower cost of capital.

In its June 2015 submission, WaterNSW proposed lower prices than current levels. Its proposed annual revenue requirement in 2019-20 was around 3% lower compared to that of 2015-16, which reflected lower operating costs from efficiency reforms undertaken as part of the merger and a lower expected return on capital.<sup>4</sup>

In response to our Issues Paper, WaterNSW proposed additional efficiency gains of \$25.2 million resulting from its corporate restructure. We have made a decision to further reduce WaterNSW's operation expenditure by \$2.8 million.<sup>5</sup>

We have also set WaterNSW's forecast prudent and efficient level of capital expenditure for the 2016 determination period at \$233.1 million, which is 37.5% lower than WaterNSW's original proposal. The major adjustment to WaterNSW's capital expenditure was the removal of the Shoalhaven transfers project (\$131.1 million) from the 4-year determination period.

Under our draft decisions:

- ▼ prices to **Sydney Water** would be lower than they were at the end of 2015-16 (the 2012 determination period)
- ▼ we have changed the structure of prices to the **three Councils** to an 80:20 fixed to volumetric charge ratio, and their bills should decrease (for the same usage) compared to the last year of the 2012 determination period
- ▼ prices to WaterNSW's **smaller customers** would be the same in real terms as over the 2012 determination period - ie, they would only increase by the change in inflation over 2016-17 to 2019-20.

These prices are discussed further below. Note that all dollar figures quoted in this report are in \$2015-16, unless stated otherwise.

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<sup>4</sup> WaterNSW pricing proposal to IPART, June 2015, p 7.

<sup>5</sup> WaterNSW submission to IPART, October 2015, p 2.

### 1.2.1 Prices for Sydney Water

Sydney Water accounts for about 99% of WaterNSW's bulk water sales and revenue<sup>6</sup>. Its prices recover costs on an 80:20 fixed to volumetric charge ratio.

Our pricing decision at the 2012 Determination ensured that WaterNSW received sufficient revenue to recover its costs, regardless of the Sydney Desalination Plant's (SDP's) operating regime. We based WaterNSW's bulk water prices to Sydney Water on a SDP related volumetric charge schedule, tied to specific modes of operation. Under this schedule, WaterNSW would levy Sydney Water a lower volumetric charge when SDP was not supplying water to Sydney Water, and a proportionally higher volumetric charge when SDP was supplying water to Sydney Water.

In the 2016 Determination, we have adapted this formula-based approach to calculating the volumetric charge to Sydney Water to reflect all possible modes of operation of the SDP.

Our draft prices for Sydney Water are lower than those at the end of the 2012 determination period and lower than those proposed by WaterNSW. This would have a downward impact on the bills of Sydney Water's customers over the 2016 determination period.

Our draft WaterNSW prices to Sydney Water are presented in Table 1.1 and are compared to current prices.

**Table 1.1 Draft maximum prices to Sydney Water for 2016-20 (\$2015-16) – excluding inflation**

Prices	2015-16	2016-17	2017-18	2018-19	2019-20
Fixed charge (\$million p.a.)	170.05	154.12	156.11	159.62	161.23
Volumetric charge (\$/ML)- SDP volume zero	85.81	72.41	72.35	73.36	73.27

#### Pricing impacts

Our draft prices for WaterNSW's bulk water supply to Sydney Water would reduce the bills of Sydney Water's customers in real terms. In 2016-17, a typical Sydney Water residential customer's bill would decrease by \$98.14 or 8.4% compared to 2015-16.<sup>7</sup> The contribution of lower WaterNSW bulk water costs to this decrease is about \$8.45, which is around 8.6%.

<sup>6</sup> IPART calculations.

<sup>7</sup> Typical is a Sydney Water residential customer who uses 200 kL per year of water and has a 20mm meter.

Including the effects of forecast inflation, the typical Sydney Water residential customer would pay an extra \$1.10 in WaterNSW bulk water costs in 2019-20 compared to current bills. The price paid by a typical residential customer for WaterNSW bulk water (as part of their Sydney Water bill) would increase by 1% between 2015-16 and 2019-20.

### 1.2.2 Prices to the Councils

Although we have changed the structure of WaterNSW's prices to the Councils, our draft prices should result in lower bills for these customers.

We have accepted WaterNSW's proposal to change the Councils' fixed to usage pricing ratio from 25:75 to 80:20. WaterNSW consulted the Councils about the new ratio and its proposed prices. WaterNSW forecast that its proposed prices would lead to lower bills and consequently the Councils agreed<sup>8</sup> to the changes. Our draft prices (Table 1.2) are higher than those proposed by WaterNSW,<sup>9</sup> but should still result in lower bills over the 2016 determination period when compared to 2015-16.

**Table 1.2 Draft maximum prices to the Councils 2016-20 (\$2015-16) - excluding inflation**

Customer	2015-16	2016-17	2017-18	2018-19	2019-20
Fixed charge to Wingecarribee Shire Council (\$ p.a)	277,419	1,021,220	1,021,220	1,021,220	1,021,220
Fixed charge to Shoalhaven City Council (\$ p.a)	7,206	19,148	19,148	19,148	19,148
Fixed charge to Goulburn Mulwaree (\$ p.a)	21,617	22,977	22,977	22,977	22,977
Volumetric charge to local councils (\$/ML)	216.17	53.19	53.19	53.19	53.19

### 1.2.3 Prices to raw water and unfiltered water customers

We have accepted WaterNSW's proposal to maintain prices for small raw water and unfiltered water customers in real terms over the determination period. WaterNSW calculated that the total revenue requirement from these small customers is \$0.3 million per annum.<sup>10</sup>

<sup>8</sup> Transcript IPART Public Hearing, 10 November 2015, p 20.

<sup>9</sup> We made some amendments to better align WaterNSW's pricing with our pricing principles (ie, we included a tax allowance building block, a WACC of 4.8% and made amendments to depreciation and inflation inputs to ensure consistency between Sydney Water and Council customers).

<sup>10</sup> WaterNSW pricing proposal to IPART, June 2015, p 60.

Our draft decision on WaterNSW's prices to its smaller customers is presented in Table 1.3 and compared to current prices.

**Table 1.3 Draft maximum prices to raw and unfiltered customers for the 2016 Determination (\$2015-16) - excluding inflation**

	2015-16	2016-17	2017-18	2018-19	2019-20
<b>Raw water customers</b>					
Fixed charge to raw water customers (\$ pa)	-	-	-	-	-
Volumetric charge to raw water customers (\$/ML)	680.0	680.0	680.0	680.0	680.0
<b>Unfiltered water customers</b>					
Fixed charge to unfiltered water customers -for 20 mm meter (\$ pa) <sup>a</sup>	104.0	104.0	104.0	104.0	104.0
Volumetric charge to unfiltered water customers (c/kL)	118.0	118.0	118.0	118.0	118.0

a This charge is for customers with 20mm meters, customers with larger meters will face proportionately higher charges based on the relative size of their meter.

### 1.3 Our draft prices would better reflect actual costs

As part of our investigation into WaterNSW's costs, we have examined and made decisions on three mechanisms designed to provide a better base on which to determine prices. These include:

- ▼ A cost pass-through that takes account of costs arising from pumping water from the Shoalhaven.
- ▼ A payment to provide incentives for WaterNSW to provide bulk water of a higher standard to Sydney Water (and thus potentially reduce Sydney Water's treatment costs).
- ▼ An efficiency carryover mechanism (ECM) to ensure WaterNSW has equal incentives to pursue efficiency gains at any time throughout the determination period.

#### 1.3.1 Pass-through mechanism for Shoalhaven transfers

WaterNSW incurs additional costs if it is transferring water from the Shoalhaven system in time of low water availability. Our draft decision is to introduce a mechanism to pass through WaterNSW's costs of bulk water transfers from the Shoalhaven to the volumetric charge to Sydney Water. The change in the volumetric charge will send a signal to Sydney Water about the costs of bulk water supply in times of increased water scarcity, as Shoalhaven transfers relate to dam levels. The pass-through mechanism also recognises the uncertainty associated with forecasting these costs.

The pass-through mechanism would result in prices that are more reflective of the efficient costs of transferring water from the Shoalhaven system to Sydney's main water supply.

### 1.3.2 Annual Water Quality Incentive Payment

The Annual Water Quality Incentive Payment (AWQIP) scheme is contained in the current Raw Water Supply Agreement (RWSA)<sup>11</sup> between WaterNSW and Sydney Water. The AWQIP scheme sets out the conditions under which Sydney Water would provide an incentive payment to WaterNSW for a higher quality of raw water delivered to the Prospect Water Filtration Plant.

IPART supports the rationale behind the AWQIP scheme. We have decided to defer regulating prices associated with the AWQIP scheme between WaterNSW and Sydney Water.

This decision would **allow** WaterNSW and Sydney Water to negotiate implementation of the scheme during the 2016 determination period. We consider the AWQIP scheme to be important and encourage WaterNSW and Sydney Water to investigate whether the scheme's adoption over the 2016 determination period could lead to cost savings.

### 1.3.3 An efficiency carryover mechanism for WaterNSW

We intend to implement an efficiency carryover mechanism (ECM) at WaterNSW's 2020 price review. This approach would remove the incentive for WaterNSW to delay permanent cost savings, which means customers could benefit, through lower prices, sooner. This mechanism would:

- ▼ apply to controllable operating expenditure from 2015-16 to 2018-19
- ▼ ensure the business is able to retain permanent cost reductions for four years before they are passed on to customers through lower prices, regardless of when these cost reductions are made within the determination period
- ▼ maintain the existing incentive for the business to control costs, and
- ▼ maintain the existing incentive for the business to manage temporary fluctuations in expenditure.

Our expectation is that by removing the incentive to delay savings and providing a tool for WaterNSW to demonstrate its performance over the regulatory period, the ECM would improve the amount and quality of information available to us at the next round of expenditure reviews. This is consistent with our draft decisions to introduce an ECM for Sydney Water and Hunter Water.

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<sup>11</sup> The RWSA establishes the arrangements by which WaterNSW supplies bulk water to Sydney Water. It came into effect in October 2013.

## 1.4 IPART's review process

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

- ▼ inviting WaterNSW to make a pricing proposal in June 2015 detailing its proposed prices and forecast capital and operating expenditure necessary to maintain service levels and respond to regulatory demands
- ▼ releasing an Issues Paper in September 2015 to respond to WaterNSW's pricing proposal and assist stakeholders identify and to understand the key issues under review
- ▼ inviting stakeholders to make submissions on the Issues Paper and WaterNSW's proposal by October 2015<sup>12</sup>
- ▼ holding a public hearing in November 2015 to discuss a wide range of issues raised by WaterNSW and other stakeholders
- ▼ engaging an independent consultant, Aither, to review WaterNSW's capital expenditure, asset planning and operating expenditure proposals,<sup>13</sup> and
- ▼ releasing this Draft Report and Draft Determination and inviting stakeholders to make submissions in response to the drafts.

Our Issues Paper, stakeholder submissions, the transcript from the public hearing, and consultant's report are available on our website ([www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au)).

Stakeholders are able to make submissions to this Draft Report. Stakeholders can also comment on our consultant report published on our website, as part of their submission to our Draft Report.

The process and due date for making submissions is outlined on page iii of this Draft Report.

We will consider all submissions received on the Draft Report prior to releasing the Final Report and Determination in June 2016. The indicative timetable for this review is outlined in Table 1.4 below.

<sup>12</sup> A total of four written submissions were received from interested parties.

<sup>13</sup> Aither's final report was received in December 2015 and published on our website in February 2016.

**Table 1.4 Indicative review timetable**

<b>Task</b>	<b>Timeframe</b>
Received pricing proposal from WaterNSW	30 June 2015
Released Issues Paper	7 September 2015
Received submissions to the Issues Paper and to WaterNSW's pricing proposal	5 October 2015
Held Public Hearing	10 November 2015
Released Draft Report and Draft Determination	22 March 2016
Receive submissions to the Draft Report	18 April 2016
Release Final Report and Determination	Mid-June 2016

**Note:** These dates are indicative and are subject to change.

## 1.5 Structure of this Draft Report

The rest of this Draft Report provides more information about our draft decisions, and WaterNSW's pricing proposal:

- ▼ Chapters 2 to 8 discuss the issues related to the steps in our approach for setting water prices:
  - Chapter 2 covers the length of the determination period and WaterNSW's notional annual revenue requirement
  - Chapters 3 to 5 focus on the key inputs for applying this approach, including the allowance for operating expenditure, prudent and efficient capital expenditure, and the allowances for a return on capital, regulatory depreciation and tax
  - Chapter 6 covers forecast sales volumes and customer numbers
  - Chapter 7 explains the draft decisions on incentive schemes and form of regulation
  - Chapter 8 explains the draft decisions on price structures and sets out price levels
- ▼ Chapter 9 assesses the implications of our draft pricing decisions on customers (Sydney Water and Councils) general inflation and the environment.



## 1.6 List of decisions

Our draft decisions are outlined in the chapters of this Draft Report. For convenience, they are also listed below. We invite comments on any or all of these draft decisions or any other matter relevant to our review.

- 1 IPART has decided to adopt a 4-year determination period from 1 July 2016 to 30 June 2020. 12
- 2 IPART has decided to: 15
  - set WaterNSW's notional revenue requirement (\$801.2 million) and target revenue from water prices (\$795.2million) over the 2016 determination period as shown in Table 2.1. 15
- 3 IPART has decided to set the efficient level of WaterNSW's operating expenditure for the 2016 determination period as shown in Table 3.1. 20
- 4 IPART's draft decision is to accept WaterNSW's revised past capital expenditure as prudent and efficient and include \$93.5 million in the starting RAB for the 2016 Determination as shown in Table 4.1. 27
- 5 IPART has decided to set WaterNSW's forecast prudent and efficient level of capital expenditure for the 2016 Determination period at \$233.1 million, as shown in Table 4.3. 30
- 6 IPART has established 10 output measures for the 2016 determination period. We require WaterNSW to monitor and report annually on progress against the output measures described in Table 4.6 throughout the 2016 determination period. 34
- 7 IPART has set WaterNSW's opening Regulatory Asset Base (RAB) for its Greater Sydney operations at the commencement of the determination period (1 July 2016) at \$1,498 million (see Table 5.1). 38
- 8 IPART has decided to: 41
  - Deduct the regulatory value of actual and forecast asset disposals from the RAB, where the regulatory value is determined as: 41
    - For significant sales of assets purchased before the RAB line-in-the-sand: Asset sales revenue x RAB/DRC at the time the RAB was established. 41
    - For significant sales of assets purchased post RAB line-in-the-sand: purchase price + capital expenditure – depreciation + indexation. 41
    - For significant asset write-offs: Determined on a case-by-case basis. 41
    - For non-significant write-offs: Zero unless determined by exception on a case-by-case basis. 41

o For non-significant asset sales: Receipts from asset sales.	41
9 IPART has accepted WaterNSW's forecast asset disposals of \$2.1 million per annum and treated them as non-significant, resulting in 100% of the receipts of sale being deducted from the RAB.	41
10 IPART has decided:	43
– to apply a real post-tax WACC of 4.8% to calculate the return on WaterNSW's assets, and	43
– set an allowance for return on capital of \$296.4 million over the 2016 determination period as shown in Table 5.5.	43
11 IPART has decided to use:	45
– a straight-line depreciation method for the 2016 determination period, and	45
– an average asset life of 60 years for new and existing assets.	45
12 IPART has made a draft decision to set WaterNSW's allowance for regulatory depreciation at \$105.8 million over the 2016 determination period (Table 5.6).	45
13 IPART has decided to adopt the regulatory tax allowance of \$22.9 million shown in Table 5.7.	47
14 IPART's draft decision is to adopt the customer numbers as proposed by WaterNSW for the purpose of calculating draft prices (Table 6.1).	49
15 IPART's draft decision is to:	50
– Increase WaterNSW's forecast water sales to Sydney Water by 1.1% or around 23,000 ML over the determination period (Table 6.2).	50
– Adopt the forecast water sales for councils and raw and unfiltered water customers proposed by WaterNSW, for the purpose of calculating draft prices (Table 6.2).	50
16 IPART has decided to defer regulating prices associated with the proposed Annual Water Quality Incentive Payment (AWQIP) scheme:	57
– this allows WaterNSW and Sydney Water to implement the AWQIP scheme during the 2016 determination period, if both parties can reach agreement on the scheme.	57
17 IPART has decided to establish an efficiency carryover mechanism and intend to apply it at WaterNSW's 2020 price review. This mechanism:	59
– applies to controllable operating expenditure from 2015-16 to 2018-19	59
– ensures the business is able to retain permanent cost reductions for four years before they are passed on to customers through lower prices, and	59

– allows the business to retain temporary over and under spends.	59
18 IPART has decided to maintain the structure of prices to Sydney Water, which achieves an 80:20 split in forecast revenue between fixed and volumetric charges.	66
19 IPART has decided to:	67
– adopt a cost formula to determine the efficient costs of Shoalhaven transfers, defined in Box 8.2, and	67
– introduce a mechanism to pass-through WaterNSW's costs of Shoalhaven transfers through its volumetric charge to Sydney Water.	67
20 IPART has decided to:	70
– set WaterNSW's maximum fixed charge to Sydney Water over the 2016 determination period as listed in Table 8.1, and	70
– adopt a formula based approach to calculating the volumetric charge to large customers, ie, Sydney Water, (defined in Box 8.3) to reflect all possible modes of operation of the Sydney Desalination Plant.	70
21 IPART has decided to adopt a 80:20 fixed to volumetric charge ratio for its Council customers.	74
22 IPART has decided not to introduce a pass-through mechanism for Shoalhaven transfers to local councils.	75
23 IPART has decided to set WaterNSW's draft maximum prices to local councils for its water supply services over the 2016 determination period as listed in Table 8.5.	75
24 IPART has decided to set WaterNSW's draft maximum prices to raw and unfiltered water customers for its water supply services over the 2016 determination period at current levels, as listed in Table 8.8.	77

## 2 Length of determination and revenue requirement

The first steps in our approach for determining prices is to decide on the length of the determination period and the approach for calculating WaterNSW's revenue requirement over the 2016 determination period. This chapter outlines our draft decisions on each of these issues.

### 2.1 Length of determination

Draft decision

- 1 IPART has decided to adopt a 4-year determination period from 1 July 2016 to 30 June 2020.

#### Reasons for our decision

We have accepted WaterNSW's proposal for a 4-year determination period from 1 July 2016 to 30 June 2020. In making our draft decision we considered the following issues:

- ▼ **The confidence we can place in the utility's forecasts.** We consider a 4-year determination gives sufficient confidence in our forecasts of capital and operating expenditure. We have less confidence in detailed expenditure forecasts beyond June 2020.
- ▼ **The risk of structural changes in the industry.** A 4-year determination period balances the risk of structural change in the industry. We consider that further structural change is unlikely in the next four years.
- ▼ **The need for price flexibility and incentives to increase efficiency.** We consider that a 4-year determination provides sufficient incentives to achieve efficiencies, while allowing for a timely reset of prices.
- ▼ **The need for regulatory certainty and financial stability.** A 4-year determination generally provides sufficient regulatory certainty, while balancing financial stability.

WaterNSW proposed a 4-year determination period from 1 July 2016 to 30 June 2020. In its submission, WaterNSW:

- ▼ stated that a 4-year determination period provides “the right balance between providing a stable and certain operating environment while allowing sufficient flexibility to respond to changes in the water industry”, and
- ▼ asked that its determination period remain aligned with Sydney Water’s to minimise regulatory uncertainty for both utilities.<sup>14</sup>

We have also decided to set a 4-year determination period for Sydney Water. It is useful to align Sydney Water’s and WaterNSW’s price reviews, as WaterNSW’s prices are a significant operating expenditure input into Sydney Water’s prices (around 8.3%).<sup>15</sup>

No other stakeholder provided comment on the length of the determination period.

## 2.2 Approach for calculating notional revenue requirement

The notional revenue requirement (NRR) represents our view of the total efficient costs of providing WaterNSW’s regulated services in each year of the determination period. In general, we set prices to recover this amount of revenue.

As in previous reviews, we used a ‘building block’ method to calculate WaterNSW’s notional revenue requirement (NRR). This method involves determining an allowance for each year of the determination period, including:

- ▼ **Operating expenditure.** This represents our estimate of the efficient level of WaterNSW’s forecast operating, maintenance and administration costs (Chapter 3).
- ▼ **A return on the assets** WaterNSW uses to provide its services. This amount represents our assessment of the opportunity cost of the capital invested in WaterNSW, and ensures that it can continue to make efficient capital investments in the future. To calculate this amount, we need to decide on the efficient and prudent levels of WaterNSW’s past and forecast capital expenditure, the value of WaterNSW’s regulatory asset base (RAB), and the appropriate weighted average cost of capital, the WACC (see Chapters 4 and 5).
- ▼ **A return of those assets (regulatory depreciation).** This allowance recognises that through the provision of services to customers, a utility’s capital infrastructure will wear out over time, and therefore revenue is required to recover the cost of maintaining the RAB. To calculate this allowance, we need to decide on the appropriate asset lives and depreciation method (Chapter 5).

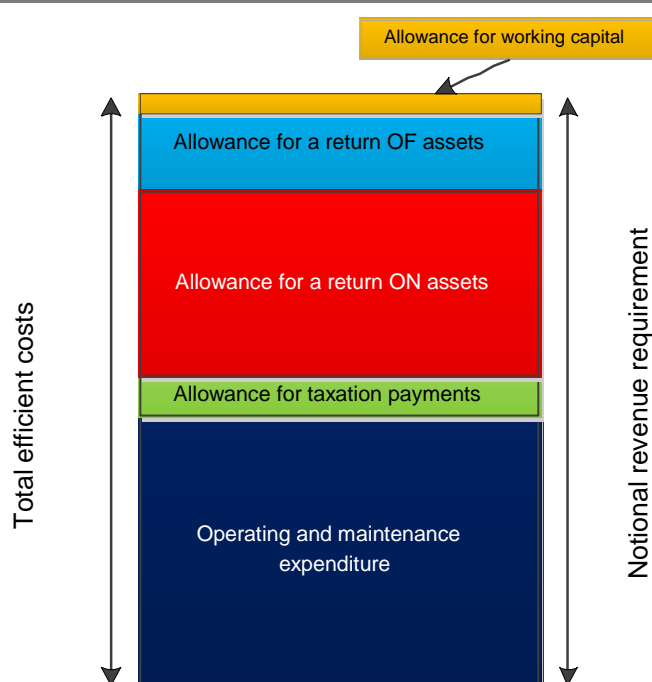
<sup>14</sup> WaterNSW’s pricing proposal to IPART, June 2015, p 46.

<sup>15</sup> IPART calculations.

- ▼ An **allowance for meeting tax obligations**. We use a real post-tax WACC to calculate the allowances for a return on assets and regulatory depreciation, and calculate the allowance for tax as a separate cost block. We consider this method accurately estimates the tax liability for a comparable commercial business (Chapter 5).
- ▼ An **allowance for working capital**. This represents the holding cost of net current assets (Chapter 5).

The sum of these allowances is the notional revenue requirement (Figure 2.1).

**Figure 2.1 Building block approach to calculating NRR**



Once we calculated WaterNSW's NRR, we decided on the approach we would use to convert this amount into prices. This involved deciding on the **target revenue from water prices** for each year – that is, the actual revenue we expect WaterNSW to generate from prices for that year. To make this decision, we considered a range of factors, including:

- ▼ the implications of the notional revenue requirement on price levels, and the rate and way in which they would change, and
- ▼ the impact of our decisions on WaterNSW and its customers.

The section below summarises the impact of our draft decisions on WaterNSW's revenue requirements.

### 2.3 WaterNSW's revenue requirement

Draft decision

2 IPART has decided to:

- set WaterNSW's notional revenue requirement (\$801.2 million) and target revenue from water prices (\$795.2million) over the 2016 determination period as shown in Table 2.1.

The revenue components of WaterNSW's total target revenue to be recovered from IPART determined water prices are set out in Table 2.1.

**Table 2.1 Draft revenue requirement building blocks (\$ millions, \$2015-16)**

Building blocks	2016-17	2017-18	2018-19	2019-20	Total
Operating expenditure	94.5	92.7	93.8	92.6	373.7
Return on RAB	71.6	73.5	75.1	76.0	296.4
Regulatory depreciation	25.0	26.0	27.0	27.8	105.8
Return on working capital	0.6	0.5	0.6	0.7	2.4
Tax allowance	4.4	5.3	6.3	7.0	22.9
<b>Notional revenue requirement</b>	<b>196.1</b>	<b>198.1</b>	<b>202.9</b>	<b>204.1</b>	<b>801.2</b>
<b>Target revenue</b>	<b>196.1</b>	<b>198.1</b>	<b>202.9</b>	<b>204.1</b>	<b>801.2</b>
Less Non-regulated revenue	1.8	1.4	1.8	1.0	6.0
<b>Target revenue from water prices</b>	<b>194.2</b>	<b>196.7</b>	<b>201.1</b>	<b>203.1</b>	<b>795.2</b>
Rate of return <sup>a</sup>	4.8%	4.8%	4.8%	4.8%	4.8%

<sup>a</sup> Effective real post-tax rate of return.

**Note:** Totals may not add due to rounding.

**Source:** IPART calculations.

The revenue recovered from water prices is slightly lower than the NRR and target revenue. Target revenue is the same as NRR as we have made no adjustments to decrease the impact of our prices on users.

WaterNSW's revenue for its Greater Sydney business is predominantly raised through water prices, however, it also generates some revenue through other charges.<sup>16</sup> When we set prices, we first deduct the revenue generated from these other sources, and then set water prices for its major services to raise the remaining amount of revenue. Our draft prices recover this revenue for each year.

<sup>16</sup> WaterNSW receives non-regulated revenue by hiring out its conference facilities.

### 2.3.1 Reasons for our draft decision

#### Comparison with WaterNSW's proposal

The draft NRR is \$801.2 million over the 2016 determination period, which is \$20.6 million or 2.5% lower than WaterNSW's proposed revenue requirement of \$821.8 million.<sup>17</sup> Figure 3.2 and Table 3.2 compare our findings on draft NRR with WaterNSW's proposal.

**Table 2.2 IPART draft and WaterNSW proposed NRR (\$ millions, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
IPART draft decision	196.1	198.1	202.9	204.1	<b>801.2</b>
WaterNSW proposed <sup>a</sup>	201.5	202.9	206.7	210.7	<b>821.8</b>
Difference (\$)	-5.4	-4.8	-3.8	-6.6	<b>-20.5</b>
Difference (%)	-2.7%	-2.4%	-1.8%	-3.1%	<b>-2.5%</b>

<sup>a</sup> The total NRR 821.8 includes WaterNSW's non-regulated income because we calculate NRR inclusive of non-regulated income and other adjustments.

Note: WaterNSW calculated their revenue requirement using a return on the RAB of 4.6% as reported WaterNSW's pricing proposal to IPART, June 2015, p 47. Totals may not add due to rounding.

Source: IPART calculations and WaterNSW pricing proposal, June 2015, p 47.

Table 3.3 compares each building block element of our findings on NRR with WaterNSW's proposal. The main reasons for the differences are our draft decisions resulting in:

- ▼ **Lower operating expenditure (-\$32.0 million)** due to:
  - WaterNSW's revised operating expenditure forecasts, which were \$20.7 million lower than its original forecasts as a result of efficiency savings of \$25.2 million arising from its corporate restructure, offset by \$4.5 million in additional costs for Portfolio Risk Assessment (PRA) of WaterNSW's storages.
  - Aither's \$2.8 million reduction to WaterNSW's revised operating expenditure forecasts, relating to reductions in staff and PRA costs, offset by an increase in the allocation of corporate costs to the WaterNSW Greater Sydney business (from the WaterNSW Rural business).
  - Our removal of \$8.5 million of forecast Shoalhaven Transfer costs from WaterNSW's cost base, to reflect our decision to introduce a pass-through mechanism for these costs in the determination.
- ▼ **Lower return of capital or regulatory depreciation (-\$1.4 million)** – which is a flow on effect of our decision to lower capital expenditure, both past and forecast, for the 2016 determination period. In turn, a lower allowance for capital expenditure lowers the RAB and the return of capital.

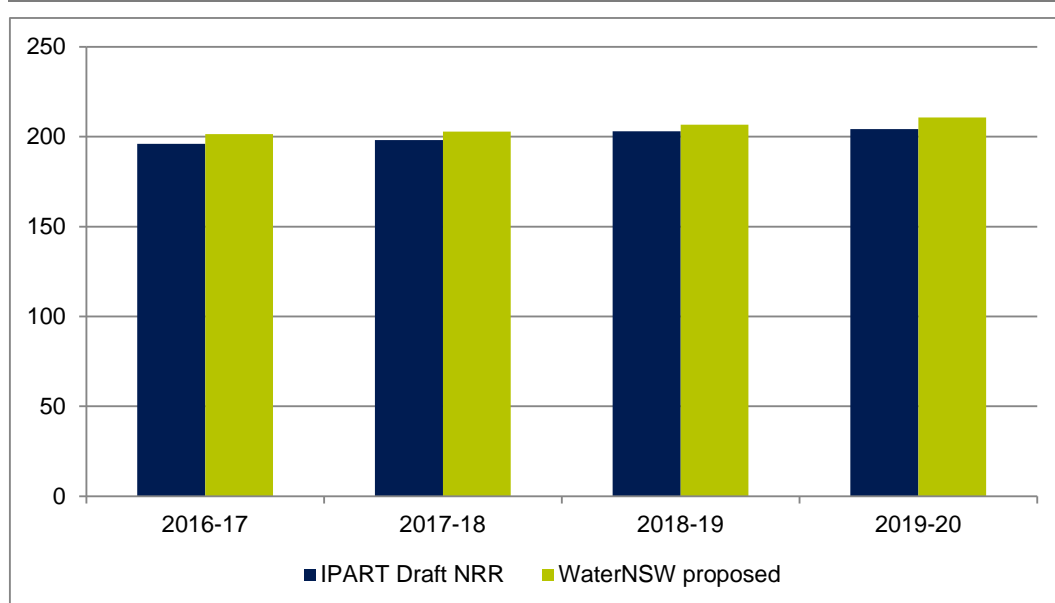
<sup>17</sup> Based on WaterNSW's pricing proposal, June 2015 p 47 including non-regulated income.



- ▼ **Higher return on capital (+\$1.3 million)** – while our allowance for capital expenditure, and hence the RAB, is lower than WaterNSW's proposal, our decision to apply a higher WACC of 4.8% compared to WaterNSW's proposed WACC of 4.6% increases the return on capital.
- ▼ **Higher return on working capital (+\$0.7 million)** – our allowance for working capital is \$2.4 million compared WaterNSW's proposed \$1.7 million<sup>18</sup>. The difference is which mainly due to a higher WACC of 4.8% compared to 4.6%
- ▼ **Higher tax allowance (+\$10.8 million)** – about a third of the reduction in the NRR is offset by the net effect of a higher tax allowance (\$18.6 million), due to WaterNSW's overly conservative estimation of its tax allowance in its proposal<sup>19</sup>.

Our adjustments to WaterNSW's cost building blocks reduce the notional revenue requirement by **\$20.6 million**.

**Figure 2.2 IPART draft and WaterNSW's proposal NRR (\$ millions, \$2015-16)**



**Source:** WaterNSW's pricing proposal to IPART, June 2015, p 47.

<sup>18</sup> WaterNSW's pricing proposal to IPART, June 2015, p 47.

<sup>19</sup> Our calculated tax allowance is about 90% higher than WaterNSW's proposed tax allowance of \$12.1 million. WaterNSW provided an estimate of its tax allowance. It incorrectly applied the ratio of tax to annual revenue requirement from our 2012 determination.

**Table 2.3 Comparison of IPART draft NRR and WaterNSW proposed building blocks (\$ million, \$2015-16)**

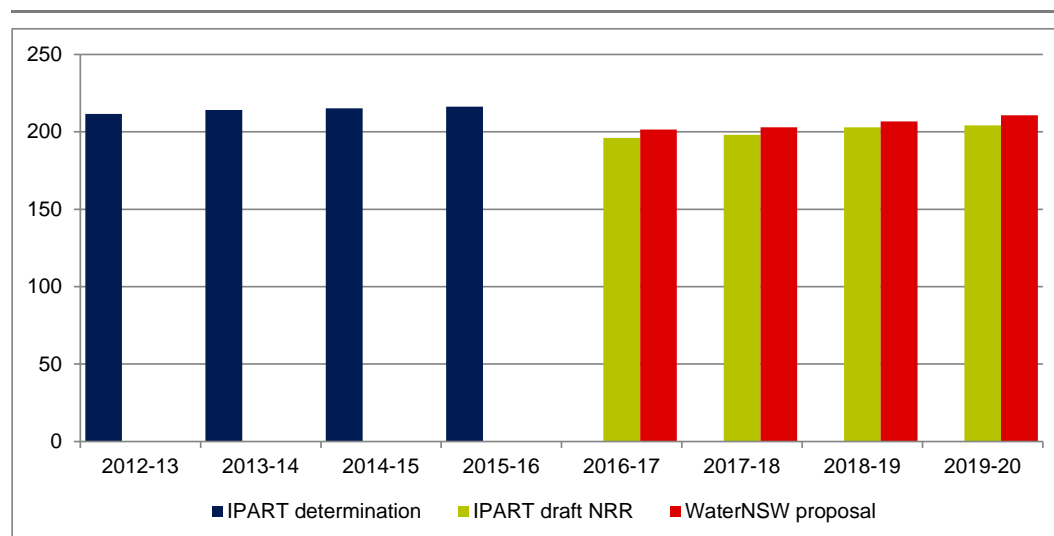
Building block	Total for 2016-17 to 2019-20			
	WaterNSW proposed	IPART	Difference (\$)	Difference (%)
Operating expenditure	405.7	373.7	-32.0	-7.9%
Return on assets	295.1	296.4	1.3	0.4%
Regulatory depreciation	107.2	105.8	-1.4	-1.3%
Return on working capital	1.7	2.4	0.7	42.0%
Net tax	12.1	22.9	10.8	89.6%
<b>Total</b>	<b>821.8</b>	<b>801.2</b>	<b>-20.6</b>	<b>-2.5%</b>

**Note:** Based on proposed revenue requirement in WaterNSW's pricing proposal to IPART, June 2015, p 47 which used a return on the RAB of 4.6%. We have adjusted WaterNSW proposed NRR to include non-regulated revenue. Totals may not add due to rounding.

**Source:** IPART calculations and WaterNSW pricing proposal, June 2015, p 47.

### Comparison with our 2012 determination

Our draft NRR is \$55.9 million (6.5%) below what we used to set prices at the 2012 Determination. We compare our 2012 determination for the then SCA with our draft determination for 2016 and WaterNSW's proposal in Figure 2.3. Detailed numbers are presented in Table 2.4.

**Figure 2.3 Comparison of 2016 IPART draft NRR with 2012 determination and WaterNSW proposal (\$ million, \$2015-16)**

**Source:** IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2012 to 30 June 2016 – Final Report*, p 3 and IPART analysis.

Table 2.4 below compares each of the building blocks between those we used to set prices at the 2012 Determination, and our draft decisions for the 2016 Determination.

**Table 2.4 Comparison of 2016 IPART draft NRR with 2012 determination (\$ millions, \$2015-16)**

Building block	2012-13 to 2015-16	Draft 2016-17 to 2019-20	Difference	Difference (%)
Operating expenditure	398.7	373.7	-25.0	-6.3%
Return on assets	339.0	296.4	-42.6	-41.2%
Regulatory depreciation	103.4	105.8	2.3	0.7%
Return on working capital	3.4	2.4	-1.0	-28.3%
Net Tax	12.7	22.9	10.3	81.4%
<b>Total</b>	<b>857.1</b>	<b>801.2</b>	<b>-55.9</b>	<b>-6.5%</b>

**Note:** Totals may not add due to rounding.

**Source:** Based on IPART, Review of prices for the Sydney Catchment Authority from 1 July 2012 to 30 June 2016, p 51 and IPART calculations.

The overall reduction in the notional revenue requirement between the 2012 and 2016 determination periods is due to our draft decisions relating to:

- ▼ lower operating expenditure (**-\$25.0 million**) due to:
  - efficiencies SCA/WaterNSW achieved over the 2012 determination period and our draft decision on further ongoing efficiencies over the 2016 determination period
- ▼ lower return on capital (**-\$42.6 million**) through:
  - a reduction in the WACC from 5.6% to 4.8%
- ▼ higher return of capital or regulatory depreciation (**+2.3million**) from a higher RAB
- ▼ higher tax allowance (**+\$10.3 million**) – mainly due to a higher taxable income arising from lower relative interest deductibles, operating expenditure and tax depreciation<sup>20</sup>, and
- ▼ lower return on working capital (**-\$1.0 million**) due to a lower WACC of 4.8% compared with our 2012 WACC of 5.6%<sup>21</sup>.

Our draft decisions and findings on each of WaterNSW's building block elements are discussed in more detail in Chapters 3, 4 and 5.

<sup>20</sup> Interest deductibles, operating expenditure and tax depreciation are subtracted from income to determine taxable income for each year of the 2016 determination period.

<sup>21</sup> IPART, Review of prices for the Sydney Catchment Authority from 1 July 2012 to 30 June 2016, p 51.

## 3 Operating expenditure

This chapter sets out our assessment of WaterNSW's efficient level of operating expenditure over the 2016 determination period. As Chapter 2 discussed, the allowance for operating expenditure within the notional revenue requirement reflects our view of the efficient level of operating costs WaterNSW will incur in servicing its customers in the Greater Sydney area over the 2016 determination period. These costs include, amongst others, labour, service contractors, energy, materials, plant and equipment.

In making our draft decisions on operating expenditure, we engaged Aither to review the efficiency of WaterNSW's proposed operating expenditure over the 2016 determination period. We asked Aither to recommend any further efficiency savings that it considered that WaterNSW should be able to achieve.

We have also decided to include a cost pass-through mechanism to account for uncertainties arising from bulk water transfers from Shoalhaven. The pass through mechanism should ensure that WaterNSW recovers the efficient costs of Shoalhaven transfers (no more or less), and that these costs are passed through to its customers.

### 3.1 Operating expenditure

Draft decision

3 IPART has decided to set the efficient level of WaterNSW's operating expenditure for the 2016 determination period as shown in Table 3.1.

We have set WaterNSW's draft allowance for operating expenditure at \$373.7 million over the 2016 determination period; which is 7.9% less than WaterNSW's original proposal.

**Table 3.1 IPART's draft decision on WaterNSW's efficient operating expenditure (\$millions, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
Total efficient operating expenditure	94.5	92.7	93.8	92.6	373.7

**Note:** Totals may not add due to rounding.

**Source:** IPART calculations.

### 3.1.1 Reasons for our draft decision

WaterNSW originally proposed operating expenditure of \$405.7 million. Its proposal identified \$13.2 million in efficiency savings over the 4 years of the determination period.<sup>22</sup>

In response to our Issues Paper, WaterNSW proposed additional efficiency gains of \$25.2 million resulting from its corporate restructure. However, these savings were offset by the inclusion of \$4.5 million for Portfolio Risk Assessment (PRA) costs. WaterNSW proposes to undertake a PRA of its Greater Sydney dams, allowing for a consistent risk based analysis of dam safety compliance. WaterNSW will use this analysis to inform its investment planning.<sup>23</sup>

WaterNSW's revised operating expenditure was \$20.7 million, or 5.1% less than its original proposal over the 4-year determination period (2016-20).<sup>24</sup>

Aither's recommended operational expenditure adjustments focussed on WaterNSW's revised proposal. Aither recommended \$2.8 million, or 0.7%, worth of operating savings relative to WaterNSW's revised proposal. Aither's adjustments include:<sup>25</sup>

- ▼ increasing savings from the merger between the former State Water and SCA, to reflect changed assumptions regarding the number of vacancies, and a reduction in the calculation of wage costs
- ▼ increasing the proportion of corporate overheads allocated to the Greater Sydney business from 53% to 55%, and
- ▼ reducing the allowance for the PRA by 18.1%, given an excessive allowance for contingencies.

We have accepted Aither's recommended adjustments to WaterNSW's operating expenditure for 2016-20. We have also removed WaterNSW's proposed \$8.5 million estimate of the costs of Shoalhaven transfers (a 2.1% decrease) from its forecast operating expenditure. This cost was estimated on an expected cost basis, incorporating probabilities of transfers over the 2016 determination period. As an alternative approach, we have decided to pass through these costs if and when they occur (see Section 8.1). The effect of these adjustments is outlined in Table 3.2.

We compare WaterNSW's proposals (original and revised) and Aither's recommendation with our draft operating costs for WaterNSW in Table 3.2.

<sup>22</sup> WaterNSW pricing proposal to IPART, June 2015, pp 50-51.

<sup>23</sup> WaterNSW, Submission to IPART Issues Paper, October 2015, pp 1-2.

<sup>24</sup> WaterNSW, Submission to IPART Issues Paper, October 2015, pp 1-2.

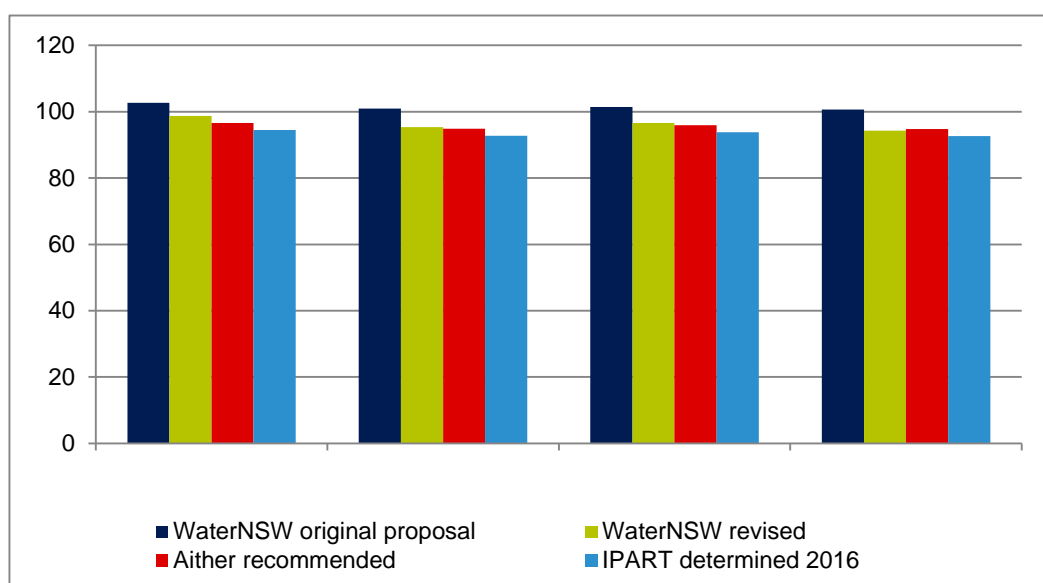
<sup>25</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, pp iv-v and 130.

**Table 3.2 Forecast operating expenditure 2016-20 (\$ '000, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
<b>WaterNSW proposed operating expenditure</b>	<b>102,680</b>	<b>100,956</b>	<b>101,436</b>	<b>100,633</b>	<b>405,704</b>
Less efficiency savings	-4,727	-6,918	-6,626	-6,953	-25,224
Plus proposed Portfolio Risk Assessment (PRA)	764	1,320	1,772	640	4,496
<b>Revised WaterNSW operating expenditure</b>	<b>98,717</b>	<b>95,358</b>	<b>96,582</b>	<b>94,320</b>	<b>384,977</b>
<b>Aither Adjustments</b>					
Changes to remuneration and vacancy assumptions	-2,497	-305	-597	-270	-3,669
Changes to cost allocation of overheads	557	21	303	823	1,704
Reductions to costs of the PRA	-138	-238	-320	-116	-812
<b>Sub-total recommended adjustments</b>	<b>-2,078</b>	<b>-522</b>	<b>-614</b>	<b>-437</b>	<b>-2,777</b>
<b>Aither recommended operating expenditure</b>	<b>96,639</b>	<b>94,836</b>	<b>95,968</b>	<b>94,757</b>	<b>382,200</b>
Less proposed Shoalhaven pumping allowance	2,120	2,120	2,120	2,120	8,480
<b>IPART recommended operating expenditure</b>	<b>94,520</b>	<b>92,716</b>	<b>93,848</b>	<b>92,637</b>	<b>373,719</b>

**Source:** Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 130, WaterNSW pricing proposal to IPART, June 2015, p 50, and IPART calculations.

Aither's recommended allowance for 2019-20 is higher than WaterNSW's revised proposal, as shown by Figure 3.1. This is due to the increase in the allocation of overheads to the Greater Sydney component of WaterNSW exceeding the combined reductions from changes to remuneration/vacancies and PRA efficiencies. However, over the entire 2016 determination period, Aither's recommendations reduce WaterNSW's revised proposed operating expenditure by 0.7%.

**Figure 3.1 Comparison of operating costs (\$ millions, \$2015-16)**

**Data source:** Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 123, and IPART calculations.

### Implications for WaterNSW's performance

We note that we have set WaterNSW's operating expenditure allowance to allow it to recover its efficient costs of delivering its bulk water supply functions, consistent with the requirements of its operating licence and other regulatory instruments. That is, our decisions on expenditure should not compromise WaterNSW's performance in delivering its monopoly services in accord with its statutory requirements.

Aither assessed WaterNSW's new organisational structure as sound.

In general, the review team is of the view that the approach taken to redesigning and implementing new corporate arrangements is sound, and that the strategic objectives of the organisation are consistent with its mandate, including statutory obligations placed upon it, and commercial arrangements with customers. The approach taken to operationalising objectives throughout the business also appears sound and consistent with higher level objectives.<sup>26</sup>

<sup>26</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 51.

### WaterNSW's operating expenditure over the 2012 determination period

WaterNSW underspent on its operating expenditure allowance by \$10.2 million, or 2.5%, over the 2012 determination period (2012-13 to 2015-16). WaterNSW reported that the key drivers of this underspend were:<sup>27</sup>

- ▼ no requirement to pump water from the Shoalhaven (-\$1.9 million)
- ▼ savings in energy costs related to routine pumping (-\$0.9 million)
- ▼ the repeal of the carbon tax (-\$5.6 million)
- ▼ the lower than forecast need for bulk water purchases from the Fish River Scheme (-\$0.4 million), and
- ▼ savings in insurance premiums (-\$4.0 million).

These lower than expected operating costs were partly offset by higher than forecast costs related to:

- ▼ managing incidents (+\$1.2 million), and
- ▼ Warragamba Dam risk and reliability investigation (+\$1.5 million).

We compare WaterNSW's actual operating expenditure with the allowed operating expenditure in each year of the 2012 Determination period in Table 3.3.

**Table 3.3 WaterNSW actual operating expenditure compared with IPART determined over 2012 determination period (\$ millions, \$2015-16)**

	2012-13	2013-14	2014-15	2015-16 <sup>a</sup>	Total
Determined	100.6	101.8	102.1	102.2	406.7
Actual	93.4	98.5	101.1	103.6	396.6
Difference	-7.2	-3.3	-1.0	1.4	-10.1
Difference %	-7.2%	-3.3%	-1.0%	1.4%	-2.5%

<sup>a</sup> WaterNSW's 2015-16 value is a forecast.

**Note:** Totals may not add due to rounding.

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 30.

### Cost allocation

The allocation of corporate overheads between WaterNSW's Greater Sydney and Rural regulated businesses will directly affect the efficient costs, NRR and prices for both businesses and each set of customers.

<sup>27</sup> WaterNSW pricing proposal to IPART, June 2015, p 31.



WaterNSW's revised proposal allocated corporate overheads to its Greater Sydney and Rural businesses based on the following approach, which defines the businesses into two 'regions':

- ▼ **Direct costs:** costs/savings attributed to specific projects within each region.
- ▼ **Overhead costs:**
  - "Within the region": overheads/savings attributed to a specific region.
  - Corporate: overheads/savings not attributable to either region.

WaterNSW proposed to allocate corporate overheads and savings based on each region's proportion of the total "within the region" overheads (Greater Sydney and Rural).

However, Aither recommended that the allocation of corporate overheads between the two businesses should be based on each business's share of the total "within the region" overheads **and** direct costs. Aither's adjustment resulted in an increased share of corporate overhead costs and savings being allocated to Greater Sydney (55% from 53%). This is reflected in our recommended forecast operating costs.<sup>28</sup>

### Continuing and catch-up efficiency savings

Aither have not applied any continuing (or ongoing) efficiency savings to WaterNSW's operating expenditure. Continuing efficiency represents the scope for a top performing or 'frontier' company to continue to improve its efficiency. Catch-up efficiency relates to the improvements in systems and processes to achieve the performance of the frontier company over time.

Based on Aither's analysis, we consider that continuing and catch-up efficiencies are incorporated in WaterNSW's proposed program of efficiencies over the 2016 determination period. Aither acknowledges that WaterNSW has made significant labour cost savings as a result of the creation of the combined entity including a reduction in staffing levels. Aither concluded that WaterNSW's new organisational structure is likely to be consistent with a prudent business, and additional 'on-going' productivity adjustments should not be applied to WaterNSW's operational expenditure forecasts.<sup>29</sup>

We consider that WaterNSW has addressed catch-up efficiencies through its organisational restructure.

<sup>28</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 112.

<sup>29</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, pp 121-122.

## 4 Capital expenditure

This chapter sets out our draft decisions on WaterNSW's prudent and efficient capital expenditure. As with operating expenditure, we engaged Aither to review WaterNSW's historical and forecast capital expenditure and make recommendations on the amount of capital expenditure that should be included in the RAB.

Under the building block method, there is no explicit allowance for capital expenditure in the notional revenue requirement (NRR). Instead, prudent and efficient capital expenditure is added to the RAB and recovered through the allowances for a return on assets and regulatory depreciation (discussed in Chapter 5).

To decide how much capital expenditure is added to the RAB, we review WaterNSW's proposals and apply:

- ▼ a prudence test to its actual capital expenditure over the 2012 determination period (past capital expenditure), and
- ▼ an efficiency test to its proposed capital expenditure for the 2016 determination period (forecast capital expenditure).

The prudence test assesses whether, in the circumstances that existed at the time, the decision to invest in the asset is one that the utility, acting prudently, would be expected to make. The test assesses both:

- ▼ the prudence of how the decision was made to invest, and
- ▼ the prudence of how the investment was executed (ie, the construction or delivery of the asset), having regard to information available at the time.

The efficiency test examines whether the proposed capital expenditure represents (over the life of the asset) the best way of meeting customers' needs, subject to the utility's regulatory requirements.

Since the 2005 Determination, we have set output measures for WaterNSW as a basis for measuring the prudence and efficiency of capital and operating expenditure in our price determinations. In this chapter, we examine WaterNSW's performance against the output measures established in the 2012 Determination and outline our draft decisions on output measures for the 2016 Determination.

## 4.1 Past capital expenditure

### Draft decision

- 4 IPART's draft decision is to accept WaterNSW's revised past capital expenditure as prudent and efficient and include \$93.5 million in the starting RAB for the 2016 Determination as shown in Table 4.1.

WaterNSW's proposed and revised past capital expenditure and our draft decision are shown in Table 4.1.

Our draft decision on WaterNSW's capital expenditure over the 2012 Determination was based on our assessment of WaterNSW's proposal, and recommendations by our expenditure consultants, Aither.

In December 2015, WaterNSW revised its forecast expenditure for 2015-16 and communicated this to Aither. WaterNSW reduced its capital expenditure forecast for 2015-16 by \$31.6 million.<sup>30</sup> WaterNSW stated that it would re-phase \$27.5 million worth of capital expenditure into the 2016 determination period.

Aither accepted the entire \$31.6 million adjustment, recommending that we adjust for WaterNSW's proposed capital expenditure reduction and re-phasing in 2015-16.<sup>31</sup>

**Table 4.1 IPART's draft decision on WaterNSW's past capital expenditure (\$ millions, \$2015-16)**

	2012-13	2013-14	2014-15	2015-16	Total
WaterNSW proposed (June)	19.1	33.9	16.5	58.1	127.7
WaterNSW revised (Dec)	19.1	33.9	14.3 <sup>a</sup>	26.5	93.8
IPART's draft decision	19.1	33.9	14.3	26.5	93.8
Difference (draft to proposed)	0	0	-2.2	-31.6 <sup>b</sup>	<b>-34.8</b>
Difference (draft to proposed %)	0%	0%	-13.2%	-54.4%	<b>-26.5%</b>

<sup>a</sup> -\$2.5million reduction in 2014-15 capital expenditure was reported by WaterNSW in the update to its Annual Information Return in September 2015. This updated 2014-15 forecasts for actual capital expenditure.

<sup>b</sup> WaterNSW revised their capex forecast for 2015-16 including \$4.1 million in efficiencies and \$27.5 million proposed to be re-phased into 2016-20.

**Note:** 2015-16 figures are forecasts.

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 32, Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 60, and IPART calculations.

Our draft decisions on capital expenditure reflect our assessment of the efficient and prudent expenditure on capital works that should be included in the RAB, and hence recovered through prices.

<sup>30</sup> The \$2.5 million adjustment referred to in Table 4.1 was received as part of WaterNSW's September update of the AIR. This updated 2014-15 forecasts to actuals.

<sup>31</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 92.

### Capital expenditure over the 2012 determination period

WaterNSW's capital expenditure allowance for the 2012 Determination was \$149.9 million. In its June 2015 pricing proposal for the 2016 Determination, WaterNSW estimated its actual capital expenditure for the 2012 determination period to be \$127.7 million, which would be \$22.3 million or 14.9% lower than the capital expenditure allowance we used in setting prices at our 2012 Determination (Table 4.2).<sup>32</sup>

WaterNSW's revised forecast for 2012 determination period is \$56.4 million or 37.6% less than the capital expenditure allowance we used in setting prices at our 2012 Determination. This figure is a combination of underspend reported in its proposal (\$22.3 million) and subsequent revisions outlined in Table 4.1.<sup>33</sup>

WaterNSW reported that much of this capital underspend is due to the deferral of the Warragamba Environmental Flows construction works.

**Table 4.2 WaterNSW past capital expenditure compared with IPART allowed over 2012 Determination period (\$ million, \$2015-16)**

	2012-13	2013-14	2014-15	2015-16	Total
IPART determination 2012	35.2	37.5	36.3	40.9	149.9
WaterNSW actual/forecast expenditure (June)	19.1	33.9	16.5	58.1	127.7
WaterNSW revised expenditure	19.1	33.9	14.3	26.5	93.8
<b>IPART draft capital expenditure</b>	<b>19.1</b>	<b>33.9</b>	<b>14.3</b>	<b>26.5</b>	<b>93.8</b>

**Note:** 2015-16 figures are forecasts.

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 32, Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 92.

In 2012, WaterNSW expected that a decision on the Warragamba Dam environmental flows regime would be part of the next version of the Metropolitan Water Plan (MWP) and that construction would start in 2015-16. However, the new MWP has been delayed and is yet to be released, and WaterNSW now does not expect to spend the allowance for this project (\$17.7 million) in the current determination period.<sup>34</sup>

WaterNSW's original proposal (see Table 4.1) suggests that if the Warragamba Dam Environmental Flows allowance is excluded, its total capital underspend in the 2012 determination period would have been \$4.4 million (or 3.4%).<sup>35</sup> We acknowledge that the deferral of the project is a major contributor to the under expenditure over the 2012 determination period. However, WaterNSW's year-

<sup>32</sup> WaterNSW's pricing proposal to IPART, June 2015, p 32.

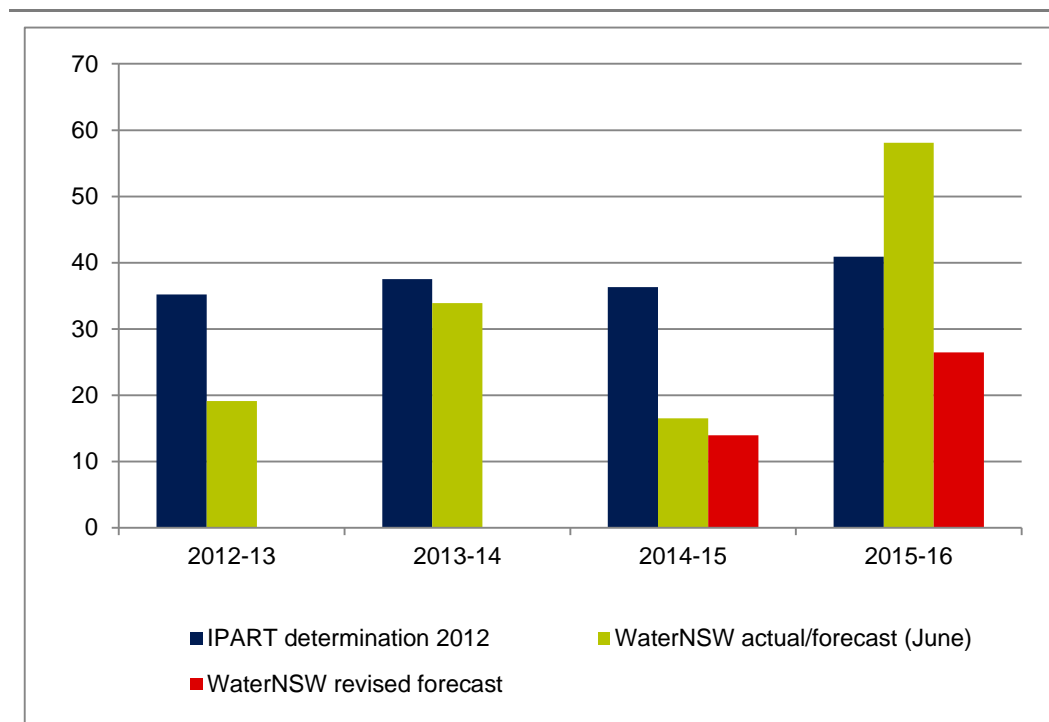
<sup>33</sup> WaterNSW's pricing proposal to IPART, June 2015, p 32.

<sup>34</sup> WaterNSW's pricing proposal to IPART, June 2015, p 33.

<sup>35</sup> Warragamba Environmental Flows allowance underspend was \$17.7million see WaterNSW's pricing proposal to IPART, June 2015, p 33.

on-year actual capital works expenditure profile differs markedly from the allowed expenditure profile over the 2012 determination period (see Figure 4.1).

**Figure 4.1 WaterNSW capital expenditure – Allowance vs actuals (\$million, \$2015-16)**



**Data source:** WaterNSW pricing proposal to IPART, p 32, and Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 92.

Aither did not recommend any adjustments to WaterNSW's capital expenditure over the 2012 Determination period, stating that:

In general, most expenditure proposed by WaterNSW was found to be prudent. Our observations are that most projects examined had a good level of planning and detailed investigations have been carried out prior to committing to design and implementation phase. However, the conservatism in estimating, including the use of arbitrary non-specific contingencies, indicates the potential for systemic inefficiencies to be built into the forecast capital expenditure, which may partially explain the consistent under-expenditure compared to forecasts in the past.<sup>36</sup>

Aither notes that WaterNSW has a tendency to over-forecast capital expenditure, a view supported by the inclusion of large non-specific contingencies within estimates for projects sampled by the review team.<sup>37</sup> This has implications for forecast capital expenditure as outlined in the next section.

<sup>36</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 91.

<sup>37</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 128.

## 4.2 Forecast capital expenditure

### Draft decision

- 5 IPART has decided to set WaterNSW's forecast prudent and efficient level of capital expenditure for the 2016 Determination period at \$233.1 million, as shown in Table 4.3.

Our draft decision is to include \$233.1 million in forecast capital expenditure in the RAB over the 2016 determination period. This is \$140 million or 37.5% less than WaterNSW's original proposal for the 2016 determination period.

The proposed capital expenditure and our draft decision are shown in Table 4.3.

**Table 4.3 IPART draft decision on WaterNSW's forecast capital expenditure (\$ million, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
WaterNSW proposed	65.7	89.9	71.0	146.5	<b>373.1</b>
Adjustments	-4.2	-16.2	-17.7	-101.9	<b>-140.0</b>
IPART draft capital expenditure	61.5	73.7	53.4	44.6	<b>233.1</b>
Difference (%)	-6.4%	-18.0%	-24.9%	-69.6%	<b>-37.5%</b>

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 53, and Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 129 and IPART calculations.

### 4.2.1 Reasons for our draft decision

WaterNSW originally proposed capital expenditure of \$373.1 million, which included \$131.1 million for design and the early construction phase of the Shoalhaven Transfers project.

WaterNSW revised its proposal after discussions with our expenditure consultants, Aither. WaterNSW reduced its original proposal for capital expenditure on the Shoalhaven Transfers project over the 2016 determination period from \$131.1 million to \$24.3 million.<sup>38</sup> WaterNSW also proposed re-phasing \$27.5 million worth of capital expenditure from the 2012 determination period to 2016 determination period.

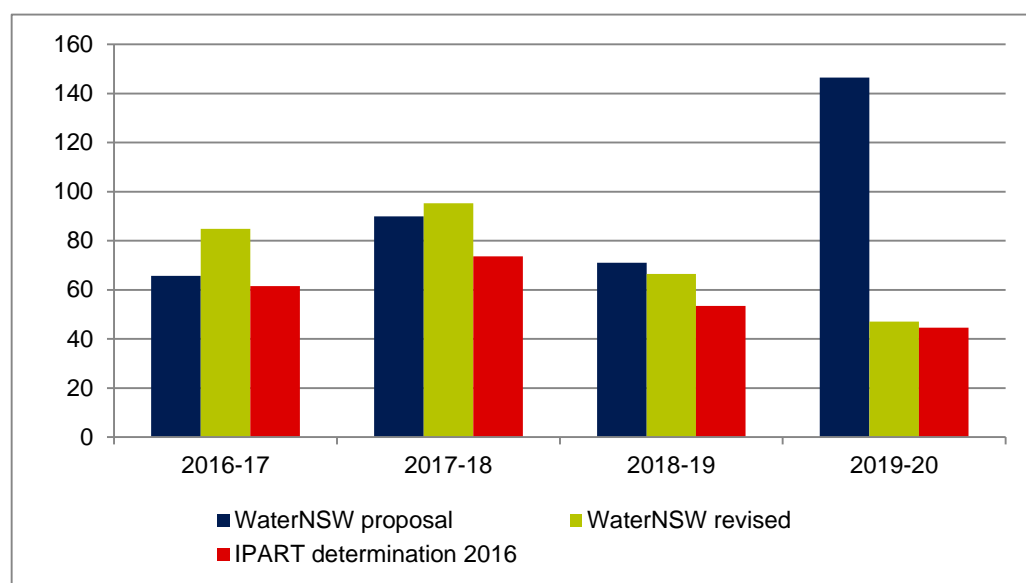
Our draft decision is to allow \$233.1 million in forecast capital expenditure over the 2016 determination period. This is \$140 million or 37.5% less than WaterNSW's original proposal over the 2016 determination period, as shown in Table 4.3.

Our draft decision on WaterNSW's prudent and efficient capital expenditure over the 2016 determination period reflects Aither's recommendations.

<sup>38</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 73.

We compare WaterNSW's proposed and revised capital expenditure, with our draft allowed capital expenditure for the 2016 determination period in Figure 4.2 and Table 4.4.

**Figure 4.2 WaterNSW's proposed capital expenditure compared with IPART's draft allowed for the 2016 determination period (\$ million, \$2015-16)**



**Source:** WaterNSW's pricing proposal to IPART, June 2015, p 53, Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 129. and IPART calculations.

Aither assessed 14 of WaterNSW's capital projects, representing 84.3% of WaterNSW's forecast capital expenditure for the 2016 determination period.<sup>39</sup> Aither's assessment included projects that spanned the 2012 and 2016 determination periods and beyond 2019-20.

We have accepted all of Aither's recommended adjustments to WaterNSW's capital expenditure. These include:

- ▼ the removal of the Shoalhaven transfers project (\$131.1 million)
- ▼ project specific downward adjustments:
  - Tallowa Dam, based on detailed costings (\$11.3 million).
  - Upper canal refurbishment, value that was brought forward but double counted by WaterNSW (\$5.0 million).
  - IT Assets Renewal program, reduction in staff numbers (\$0.2 million).
  - Shoalhaven transfer works, over spending on geotech work (\$4.0 million).
  - Motor vehicle fleet procurement, reduction in staff numbers (\$0.5 million).

<sup>39</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 125.

- ▼ a 5% efficiency adjustment due to overly conservative contingencies in capital projects, and
- ▼ removal of WaterNSW's proposed re-phasing of 2015-16 capital expenditure (\$27.5 million).

**Table 4.4 Adjustments to capital expenditure 2016 determination period (\$ million, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
<b>WaterNSW actual/ forecast</b>	<b>65.7</b>	<b>89.9</b>	<b>71.0</b>	<b>146.5</b>	<b>373.1</b>
Plus WaterNSW proposed re-phasing from 2015-16	20.1	3.6	3.8	0.0	27.5
Minus Shoalhaven transfer scheme <sup>a</sup>	-3.5	-7.7	-16.5	-103.4	-131.1
Plus: revised WaterNSW Shoalhaven transfer Scheme	2.6	9.5	8.2	4.0	24.3
<b>Revised WaterNSW proposed capital expenditure</b>	<b>85.0</b>	<b>95.4</b>	<b>66.4</b>	<b>47.1</b>	<b>293.8</b>
Total recommended project specific adjustments	-0.1	-14.1	-6.5	-0.2	-20.9
<b>Sub-total recommended capital expenditure</b>	<b>84.8</b>	<b>81.2</b>	<b>59.9</b>	<b>46.9</b>	<b>272.9</b>
Recommended adjustment for re-phasing	-20.1	-3.6	-3.8	0.0	-27.5
Efficiency adjustment (5%) <sup>b</sup>	-3.2	-3.9	-2.8	-2.3	-12.3
<b>Aither final recommended expenditure</b>	<b>61.5</b>	<b>73.7</b>	<b>53.4</b>	<b>44.6</b>	<b>233.1</b>
<b>IPART draft capital expenditure</b>	<b>61.5</b>	<b>73.7</b>	<b>53.4</b>	<b>44.6</b>	<b>233.1</b>

<sup>a</sup> WaterNSW revised its original proposed capital expenditure for the Shoalhaven transfer scheme after detailed discussions with our expenditure consultants (Aither).

<sup>b</sup> Based on adjustment to contingencies built into projects by WaterNSW.

**Source:** Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 129.

As outlined above, WaterNSW proposed re-phasing \$27.5 million of capital expenditure from the 2012 determination period to the 2016 determination period. This is to account for projects that it is unable to deliver in 2015-16, including parts of the Warragamba reliability upgrade.

Aither saw this as evidence of a persistent trend in WaterNSW over-forecasting capital expenditure, along with its already above average forecast capital expenditure.



Therefore, Aither recommend removing all rephased amounts from 2016-20. Aither questioned WaterNSW's ability to deliver its revised expenditure forecasts. Aither's position is based on WaterNSW's history of underspending relative to forecast capital expenditure:

During the interview process it was acknowledged by WaterNSW officers that it may be a challenge to deliver some of the projects concurrently due to the ability to isolate different sections of the network at the same time (e.g. Warragamba Pipeline and Upper Canal). There may also be difficulties with internal resources to manage projects involving mechanical and electrical expertise such as the Metropolitan Dams Electrical Upgrade project and Warragamba Pipeline valves and controls upgrade, along with external resources.

For these reasons, we recommend that the under-spend in 2015-16 is not re-phased into the next regulatory period. Given the limited time available, the review team is not disputing the prudence or efficiency of the expenditure proposed for re-phasing. It is simply our view that WaterNSW may not be able to absorb this increase into the next four year period, which may result in further under-delivery.<sup>40</sup>

We have accepted Aither's assessment of WaterNSW's capital expenditure for the 2016 determination period, as shown in Table 4.3.

We compare WaterNSW's actual and allowed capital expenditure for the 2012 determination period with WaterNSW's proposed and our draft capital expenditure for the 2016 determination period in Figure 4.3.

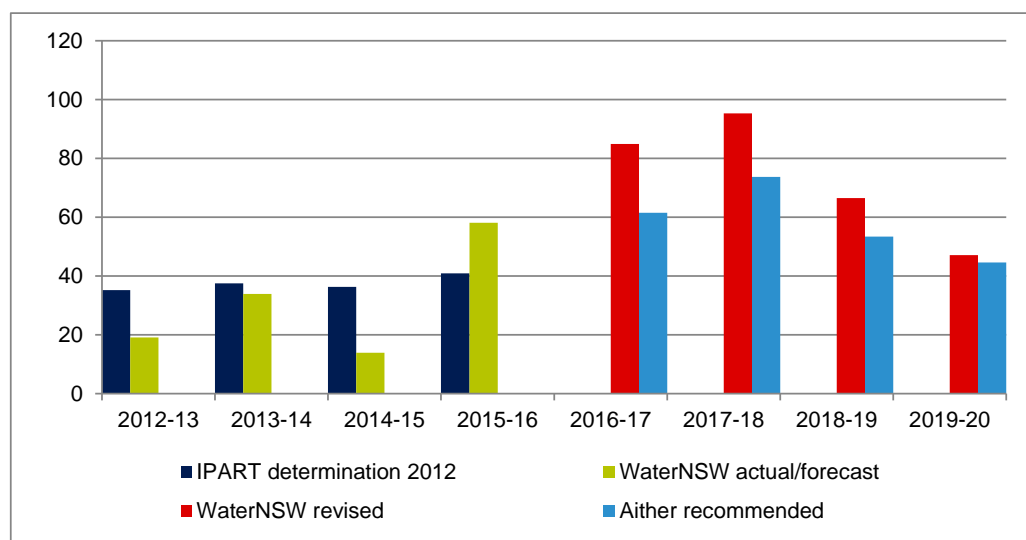
We note that Aither's recommended expenditure for the four years of the 2016 determination period (\$233.1 million) is still significantly higher than both the capital expenditure allowance IPART set over the four years of the 2012 Determination (\$149.9 million) and WaterNSW's actual expenditure over the 4-year 2012 determination period (\$93.5 million). These differences are highlighted in Figure 4.3.

Our draft expenditure allowance is based on Aither's assessment of WaterNSW's proposal:

However, the review team's concern is that the expenditure profile may be unrealistic to deliver, and that there is a risk that WaterNSW will under-deliver against the proposed expenditure as has occurred in the past. Disruptions from the merger are additional factors not present in past years.<sup>41</sup>

<sup>40</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 95.

<sup>41</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 94.

**Figure 4.3 WaterNSW's capital expenditure – 2012 and 2016 determination periods (\$ million, \$2015-16)**

**Source:** WaterNSW's pricing proposal to IPART, June 2015, p 32 and Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 129.

### 4.3 Output measures

Since the 2005 Determination, we have set output measures for WaterNSW as a starting point for measuring the prudence and efficiency of capital and operating expenditure in our price reviews. In the sections that follow, we examine WaterNSW's performance against the 2012 Determination output measures and outline our draft decisions on output measures for the 2016 Determination.

#### Draft decision

- 6 IPART has established 10 output measures for the 2016 determination period. We require WaterNSW to monitor and report annually on progress against the output measures described in Table 4.6 throughout the 2016 determination period.

#### 4.3.1 Reasons for our decisions

We developed nine output measures in the 2012 Determination (Box 4.1). For this 2016 Determination, Aither assessed WaterNSW's performance against those output measures.<sup>42</sup>

<sup>42</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 80.

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**Box 4.1 2012 Determination output measures for WaterNSW**
**Continuation/adjustments to existing output measures from 2009 determination**

1. Deliver a strategy for the future of the Upper Canal by June 2013.
2. Complete the Prospect Reservoir downstream filter trench upgrade by June 2014.
3. Complete the Wingecarribee Dam safety upgrade project by June 2013.
4. Complete the Metropolitan Dams electrical system upgrade project by June 2017.

**Additional output measures**

5. Upper Canal refurbishment – complete refurbishment works by June 2016.
  6. Warragamba Dam Environmental Flows – confirm a means of cost-effectively delivering the required environmental flows specified by the NSW Government in the 2014 MWP by June 2014, with construction to begin as directed by the Government.
  7. Warragamba Dam Pipeline Valves and Controls – establish and deliver a 5-year capital program to refurbish, modify and replace all existing valves and associated infrastructure (including controls) on the Warragamba pipeline by December 2012.
  8. Warragamba Dam Reliability Upgrade – complete upgrade works to the crest gates and their operating systems by 2016 to ensure they are code compliant, and investigations associated with the remainder of works to address reliability of Warragamba Dam by June 2013.
  9. Shoalhaven Transfers Works – complete preparation and gain approval of a business case for the preferred option specified by the NSW Government in the 2014 MWP for the transfer of water from the Shoalhaven River to Sydney by June 2015.
- 

Aither examined WaterNSW's performance against the nine output measures contained in the 2012 Determination and commented that:

- ▼ While six of the output measures had been met or substantially met, three of the output measures had not:
  - *Output measure 4:* While progress has been made, the Metropolitan Dams Electrical System Upgrade is likely to be delayed until 2018-19.
  - *Output measure 8:* The Warragamba Dam Reliability Upgrade project is unlikely to be completed by 2016, but WaterNSW is waiting on results from the geographical investigation and Hawkesbury Nepean Valley Flood Management Review, so it is reasonable that the works are to be delayed.
  - *Output measure 9:* The Shoalhaven Transfer Works project is dependent on finalisation of the revised Metropolitan Water Plan, so it is appropriate to delay the project until that time.

Aither recommended that the Metropolitan Dams Electrical System Upgrade for the 2016 Determination remains a relevant measure for WaterNSW.

WaterNSW did not propose output measures for the 2016 Determination in its original submission, but did detail six major capital projects (Table 4.5) in its response to our Issues Paper<sup>43</sup>. It considered that the six capital projects were representative of the delivery program of the Greater Sydney capital program and that we should monitor them as output measures.

**Table 4.5 WaterNSW proposed capital projects for monitoring**

Project Name	Driver	Total Cost (\$000, \$2015-16)	2017-2020 Cost \$000, \$2015-16)	Expected completion
1. Upper Canal Refurbishment – Phase 2.	Discretionary Standards – Other	68,845	65,770	2020
2. Blue Mountains Electrical Monitoring and Control	Discretionary Standards	3,585	3,585	2019
3. Warragamba Embankment Upgrade	Mandatory Stds – Renewals	10,050	7,200	2022
4. Burrawang Pumping Station Elect System Stage 3	Mandatory Stds – Other	12,302	3,232	2018
5. Warragamba Pipelines valves and controls upgrade	Discretionary Stds – Other	11,533	10,137	2021
6. Next tranche of water (notionally Shoalhaven)	Growth	610,736	131,116	2024

**Source:** WaterNSW submission to IPART Issues Paper, October 2015, p 5.

Aither's proposed 10 output measures for the 2016 determination period<sup>44</sup> include:

- ▼ output measures to monitor the first five of the capital projects outlined by WaterNSW
- ▼ a broader measure that covers WaterNSW's sixth proposed capital project for expenditure on the next tranche of water supply (notionally Shoalhaven) (ie, a measure concerning achieving substantial progress in planning for the next augmentation of supply), and
- ▼ four additional measures including a carryover measure from the 2012 Determination.

Aither's key selection criteria for choosing measures were that there be a balance of projects due for completion by the middle of the regulatory period and those due later or beyond, a variety of works ranging from one-off projects to ongoing renewal programs, and to capture an adequate proportion of the spend.

<sup>43</sup> WaterNSW submission to IPART Issues Paper, October 2015, p 5.

<sup>44</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 87.

Our draft decision is to accept Aither's recommended output measures, which are listed in Table 4.6. We will use these output measures as the starting point for assessing the prudence and efficiency of WaterNSW's expenditure at its next price determination, scheduled for 2020.

**Table 4.6 Proposed 2016 Output Measures**

Project	Proposed output measure	Expected completion	Rationale
Tallowa Dam Preliminary Risk Assessment and Design (WEM009)	Completion of the project meeting budget and outcomes	December 2018	Near term project
Upper Canal Interim Works Phase 2	Completion of the project meeting budget and outcomes	2019/20	Later in regulatory period
Metropolitan Dams Electrical system (Stage 3) (WEM028)	Completion of the project meeting budget and outcomes	End of the next regulatory period	Medium term project
Warragamba Pipelines valves and controls upgrade	20% of total planned valve upgrades completed per year	2020-21	Ongoing project
Motor vehicle fleet – procurement	Achieve a reduction in vehicle changeovers of at least 4 vehicles on average per year until 2020-21	Ongoing	Efficiency gain
Hydrometric Renewals Program (WEM001)	Detailed asset management plan in place for the program	December 31 2016	Based on improving the evidence base and transparent prioritisation of expenditure
Blue Mountains Electrical Monitoring and Control	Project completion	December 31 2019	Proposed by WaterNSW
Warragamba Embankment Upgrade	Progress towards project completion	December 31 2022	Proposed by WaterNSW
Burrawang Pumping Station Elect System Stage 3	Project completion	December 31 2018	Proposed by WaterNSW
Future augmentation of Sydney's water supply	Substantial progress required in identifying and planning the next augmentation for Sydney's water supply	End of the next regulatory period	Revision to proposal by WaterNSW

**Note:** Output measures for Pipelines valves and controls upgrade and Motor vehicle fleet – procurement were provided in an email from Aither to IPART, 03 February 2016.

**Source:** Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 87.

## 5 Allowances for return on assets, regulatory depreciation and taxation

To calculate the allowances for a return on assets and regulatory depreciation in the revenue requirement, we need to determine three key inputs:

- ▼ the value of WaterNSW's regulatory asset base (RAB) for its Greater Sydney regulated business, which represents the economic value of the assets used to deliver its monopoly services
- ▼ the appropriate asset lives and depreciation method for WaterNSW's RAB for Greater Sydney, and
- ▼ the appropriate rate of return (eg, using the WACC) on WaterNSW's RAB for Greater Sydney.

The sections below provide an overview of our decisions on these issues and the value of the RAB.

### 5.1 The value of the RAB

Draft decision

- 7 IPART has set WaterNSW's opening Regulatory Asset Base (RAB) for its Greater Sydney operations at the commencement of the determination period (1 July 2016) at \$1,498 million (see Table 5.1).

The RAB represents the value of WaterNSW's assets on which we consider it should earn a return on capital and an allowance for regulatory depreciation. In determining the value of the RAB over the 2016 determination period, we have calculated:

- ▼ the opening RAB at 1 July 2016 by rolling the RAB forward from 1 July 2011 to 30 June 2015, and
- ▼ the value of the RAB in each year of the 2016 determination period.

Our RAB roll-forward calculations for the 2016 determination period are shown in Table 5.1 below.

**Table 5.1 IPART's draft RAB for WaterNSW's 2016 Determination period (\$'000s, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20
<b>Opening RAB</b>	<b>1,498.1</b>	1,532.2	1,577.1	1,600.6
<i>Plus:</i> Efficient capital expenditure	61.5	73.7	53.4	44.6
<i>Less:</i> Asset disposals <sup>a</sup>	2.0	2.2	2.2	2.2
<i>Less:</i> Regulatory depreciation	25.5	26.6	27.7	28.4
<b>Closing RAB</b>	<b>1,532.2</b>	<b>1,577.1</b>	<b>1,600.6</b>	<b>1,614.6</b>

<sup>a</sup> All asset disposals are sales of land.

**Note:** Totals may not add due to rounding.

**Source:** IPART calculations.

### 5.1.1 Reasons for our draft decision

#### Calculating the RAB over the 2016 determination period

We calculated the RAB in each year of the 2016 determination period by rolling forward the RAB to 2019-20 by:

- ▼ adding \$373.7 million of prudent and efficient forecast capital expenditure to the opening RAB over the period (discussed in Chapter 4)
- ▼ deducting:
  - \$8.4 million for the regulatory value of asset disposals (see section 5.2), and
  - \$108 million for regulatory depreciation (see section 5.4).

We used our forecast RAB to generate the return on capital and allowance for depreciation over the 2016 determination period.

Our calculation of the RAB for the 2016 determination results in a closing RAB that is \$167.3 million lower than WaterNSW originally proposed.<sup>45</sup> Table 5.2 below compares our finding on the RAB to WaterNSW's proposal.

<sup>45</sup> WaterNSW supplementary information, 21 July 2015.

**Table 5.2 IPART and WaterNSW proposed closing RAB (\$'000s, \$2015-16)**

	2015-16	2016-17	2017-18	2018-19	2019-20
IPART	1,498.2	1,532.2	1,577.1	1,600.6	1,614.6
WaterNSW Proposed	1,529.8	1,567.4	1,627.7	1,667.9	1,781.8
Difference	-31.6	-35.2	-50.6	-67.3	-167.3
Difference %	-2.1%	-2.2%	-3.1%	-4.0%	-9.4%

**Note:** WaterNSW's proposed RAB includes forecast inflation for 2014-15 of 2.4%. The actual inflation for 2014-15 was 1.5%. Totals may not add due to rounding.

**Source:** Calculated by IPART using information from WaterNSW's pricing proposal.

The main differences leading to a lower RAB than WaterNSW proposed are:

- ▼ our draft decisions to reduce WaterNSW's forecast capital expenditure by \$140.0 million, and
- ▼ the use of actual inflation for 2014-15 in the RAB roll-forward, which decreased the 2016-17 opening RAB by around \$16.0 million.

### Calculating the closing 2012 Determination RAB

We calculate the opening RAB for 2016-17 by rolling the RAB forward over the 2012 determination period. We use the determined RAB at 1 July 2011<sup>46</sup> and make the following adjustments:

- ▼ add prudent and efficient capital expenditure (see Chapter 4)
- ▼ deduct the regulatory value of assets disposals (see section 5.2 below)
- ▼ deduct the regulatory depreciation we allowed at the 2012 determination, and
- ▼ add the annual indexation of the RAB.

Our calculation of the opening RAB for the 2016 determination period is set out in Table 5.3 below.

<sup>46</sup> When we set the RAB at our 2012 determination, the figures we used for 2011-12 were forecasts. Therefore, we need to adjust the 2011-12 figures for actual figures including our decisions on capital expenditure for 2011-12.



**Table 5.3 IPART's draft RAB calculation for WaterNSW's 2012 Determination period (\$'000's, \$nominal)**

	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Opening RAB</b>	1,363.6	1,387.4	1,413.1	1,456.1	1,464.0
<i>Plus: Actual prudent and efficient capex</i>	20.1	17.8	32.6	14.0	26.5
<i>Less: Asset disposals</i>	2.4	1.7	7.2	2.0	2.0
<i>Less: Allowed regulatory depreciation</i>	25.3	23.9	25.1	26.0	27.3
<i>Plus: Indexation</i>	31.6	33.5	42.8	21.9	36.9
<b>Closing RAB</b>	1,387.4	1,413.1	1,456.1	1,464.0	1,498.2

**Note:** Figures for 2015-16 are forecasts. Inflation figures used for indexation are: 2011-12, 2.3%; 2012-13, 2.4%; 2013-14, 3.0%; 2014-15, 1.5%; 2015-16, 2.5%. Totals may not add due to rounding.

**Source:** Calculated by IPART using information from WaterNSW's pricing proposal.

## 5.2 Asset disposals

We deduct the value of any regulatory assets WaterNSW disposed of during the 2012 determination period and proposes to dispose of during the 2016 determination period from the RAB. We do this to ensure that customers are not charged a return on assets or regulatory depreciation for assets that are no longer used to provide the regulated services.

Disposals can include asset sales, write-offs and write-downs. We regard disposals as significant if they attract capital gains tax or account for more than 0.5% of the RAB.

### Draft decision

#### 8 IPART has decided to:

- Deduct the regulatory value of actual and forecast asset disposals from the RAB, where the regulatory value is determined as:
  - For significant sales of assets purchased before the RAB line-in-the-sand: Asset sales revenue x RAB/DRC at the time the RAB was established.
  - For significant sales of assets purchased post RAB line-in-the-sand: purchase price + capital expenditure – depreciation + indexation.
  - For significant asset write-offs: Determined on a case-by-case basis.
  - For non-significant write-offs: Zero unless determined by exception on a case-by-case basis.
  - For non-significant asset sales: Receipts from asset sales.

#### 9 IPART has accepted WaterNSW's forecast asset disposals of \$2.1 million per annum and treated them as non-significant, resulting in 100% of the receipts of sale being deducted from the RAB.

WaterNSW forecasts asset disposals of \$2.1 million per annum for 2016-17 to 2019-20. In its calculation of the opening RAB for 2016-17, WaterNSW deducted asset disposals.<sup>47</sup>

### 5.2.1 Reasons for our decision

We have changed the way we treat asset disposals compared with our 2012 Determination.

Our approach to asset disposals reflects our view that the asset's identifiable **regulatory value** should be removed from the RAB. This is the value of the asset as it entered the RAB (if known), adjusted for the effect of depreciation and indexation. We also consider that the business should pay any tax obligations from the regulatory profit it retains.

This approach means the business bears the risk of any profits or losses arising from the sale of an asset, and customers are not affected. We consider this to be appropriate because the benefit customers received came from consuming the service, not from ownership of the asset. We consider that the impact of any profit or loss should lie entirely with the business (or shareholder).

Our policy on the regulatory treatment of asset disposals is set out in detail in Appendix H of our Draft Report of the review of Sydney Water.<sup>48</sup>

### Our treatment of WaterNSW's disposals

WaterNSW proposed minor disposals of \$8.4 million between 2016 and 2020. We consider that these disposals are non-significant under our asset disposals policy. Therefore, we removed 100% of the sales receipts from WaterNSW's RAB.

## 5.3 Rate of return

We include an allowance for a return on assets in the revenue requirement. This represents our assessment of the opportunity cost of the capital invested to provide the regulated services. Our approach ensures that the business can continue to make efficient capital investments in the future.

To calculate this allowance, we multiply the value of the RAB in each year of the determination period by an appropriate rate of return. As for previous reviews, we have determined the rate of return using a weighted average cost of capital (WACC).

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<sup>47</sup> WaterNSW, Annual Information Return, 2014-15.

<sup>48</sup> IPART, *Review of prices for Sydney Water Corporation - From 1 July 2016 to 30 June 2020 - Draft Report*, March 2016, Appendix H, p 238.

## Draft decision

## 10 IPART has decided:

- to apply a real post-tax WACC of 4.8% to calculate the return on WaterNSW's assets, and
- set an allowance for return on capital of \$296.4 million over the 2016 determination period as shown in Table 5.5.

We have developed our current approach to setting the WACC in consultation with stakeholders in a number of reviews.<sup>49</sup> Our draft decision is to use our standard methodology for all parameters. We have selected the midpoint WACC value of 4.8%.

The WACC is based on market data (risk free rate, debt margin and inflation) sampled to 20 January 2016. The market-based parameters and the resulting WACC will be updated before we make our final decision. Our draft decisions on parameters are shown in Table 5.4.

**Table 5.4 WACC for draft decision (sampled to 20 Jan 2016)**

	WACC: current data			WACC: long-term			WACC range		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
Nominal risk free rate		2.8%			4.6%				
Inflation		2.5%			2.5%				
Debt margin		2.8%			2.9%				
Gearing		60%			60%				
Market risk premium	7.0%	8.5%	10.0%	5.5%	6.0%	6.5%			
Equity beta	0.6	0.7	0.8	0.6	0.7	0.8			
Cost of debt (nominal pre-tax)		5.6%			7.5%				
Nominal Vanilla WACC	6.2%	6.9%	7.7%	7.7%	8.0%	8.4%	6.9%	7.4%	8.0%
Post-tax real WACC	3.6%	4.3%	5.1%	5.0%	5.4%	5.8%	4.3%	<b>4.8%</b>	5.4%

**Source:** Bloomberg, RBA, IPART calculations.

WaterNSW's submissions (the pricing proposal and the response to the Issues Paper) generally support IPART's approach to estimating the WACC, and our objective of setting a WACC that reflects the efficient cost of capital for a benchmark entity that operates in a competitive market and faces similar risks to the regulated business.<sup>50</sup>

<sup>49</sup> IPART completed a major review of the WACC in 2013 (IPART, *Review of WACC Methodology – Final Report*, December 2013). More recently, we have developed the method of estimating the debt margin and the inflation adjustment (IPART, *IPART's New Approach to Estimating the Cost of Debt – Final report*, April 2014; IPART, *New approach to forecasting the WACC inflation adjustment – Fact Sheet*, March 2015).

<sup>50</sup> WaterNSW pricing proposal to IPART, June 2015, pp 48-49.

WaterNSW's initial proposal was for a WACC of 4.58%.<sup>51</sup> WaterNSW calculated this value using our standard approach and industry-specific parameters for all aspects of the WACC. However, it subsequently provided an updated WACC to correct their proposal.<sup>52</sup> While their revised WACC proposal was also for 4.58%, they altered their WACC estimate in two ways: they revised their debt margin values and proposed a WACC that placed a 60% weighting on the long-term (10-year) WACC estimate and 40% weight on the current WACC estimate.

Our draft decision is to use our methodology for all aspects of the WACC, including selecting a WACC that places 50% weight on both the long-term and current estimates of the WACC.

We provide our approach to setting the WACC in Appendix C.

### Allowance for return on capital

When we apply the WACC of 4.8%, the resulting return on capital (WACC% x RAB) is shown in Table 5.5 below.

Our allowance for a return on capital is higher than that proposed by WaterNSW in June 2015.<sup>53</sup> This outcome is a result of the higher WACC having a greater effect on return on capital than a lower RAB. The lower RAB is an outcome of our draft decision to provide for a lower capital expenditure allowance than that proposed by WaterNSW.

**Table 5.5 IPART's draft and WaterNSW's proposed return on capital (\$ millions, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
IPART draft decision	71.6	73.5	75.1	76.0	296.4
WaterNSW Proposed	69.9	72.2	74.6	78.3	295.1
Difference	2.0	1.3	0.5	-2.3	1.3
Difference %	2.9%	1.8%	0.7%	-2.9%	0.4%

**Note:** Totals may not add due to rounding.

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 47, and IPART calculations.

An allowance is made for a return on working capital, which represents the holding cost of net current assets. The draft allowance is \$2.4 million over the four years of the 2016 determination period.

<sup>51</sup> WaterNSW pricing proposal to IPART, June 2015, p 48.

<sup>52</sup> Email from WaterNSW to IPART, 18 August 2015.

<sup>53</sup> WaterNSW pricing proposal to IPART, June 2015, p 47.

## 5.4 Regulatory depreciation

An allowance for regulatory depreciation is included in the revenue requirement (and used in calculating the value of the RAB, as discussed above). This is intended to ensure that the capital invested in the regulatory assets is returned over the useful life of each asset.

We calculate this allowance by determining the appropriate asset life/lives for the assets in WaterNSW's RAB and the appropriate depreciation method to use.

### Draft decision

#### 11 IPART has decided to use:

- a straight-line depreciation method for the 2016 determination period, and
- an average asset life of 60 years for new and existing assets.

#### 12 IPART has made a draft decision to set WaterNSW's allowance for regulatory depreciation at \$105.8 million over the 2016 determination period (Table 5.6).

### 5.4.1 Reasons for our draft decision

We accept WaterNSW's proposed 60-year average asset life for existing and new assets. This is consistent with the average asset life used in our 2012 Determination for SCA. We do not consider that further differentiation of asset lives is prudent at this time, considering the recent restructure of WaterNSW.

We have also decided to use a straight-line approach to depreciation. This is consistent with our approach in previous reviews.<sup>54</sup> We consider that the straight line method is superior to alternatives in terms of simplicity, consistency and transparency.

#### Adopting WaterNSW's average asset life

WaterNSW's proposed allowance for regulatory depreciation is \$107.3 million or 13% of its total proposed revenue requirement for the 4-year 2016 determination period.<sup>55</sup> To calculate this allowance, WaterNSW proposed to:

- ▼ Use an asset life of 60 years for both new and existing assets over the 2016 determination period, the same as in the 2012 Determination. WaterNSW is of the view that the capital investment profile in the current determination period will not materially change the average useful life of assets.

<sup>54</sup> Under this method, the assets in the RAB are depreciated by an equal value in each year of their economic life, so that their real written down value follows a straight line over time, from the initial value of the asset to zero at the end of the asset's life.

<sup>55</sup> WaterNSW pricing proposal to IPART, June 2015, p 47.

- ▼ Apply the straight-line method in calculating depreciation in its pricing proposal.<sup>56</sup>

Our lower depreciation allowance is due to a lower RAB caused by our prudence and efficiency adjustments to WaterNSW's proposed capital expenditure program.

Our expenditure consultants, Aither, acknowledge that in principle using WaterNSW's proposed average asset life is appropriate and standard regulatory practice.<sup>57</sup> However, Aither recommends that IPART explore differentiating the asset lives for new assets into categories:

On balance, the review team recommend that IPART explores differentiating the asset lives for new assets into categories such as those provided by WaterNSW, although possibly a smaller number of categories. This is likely to provide a more accurate outcome for the upcoming regulatory period. However, it would require additional analysis of the proposed capital program. It would also introduce some minor additional complexity into IPART's pricing model, although the review team understand that this approach has been adopted in the past across a range of regulated businesses.<sup>58</sup>

We consider that WaterNSW's merger would make it difficult to implement Aither's recommendation in the 2016 determination period. However, we will consider this issue as part of WaterNSW's subsequent determination.

**Table 5.6 IPART and WaterNSW proposed allowance for regulatory depreciation (return of capital) (\$ millions, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
IPART	25.0	26.0	27.0	27.8	105.8
WaterNSW Proposed	25.4	26.3	27.1	28.4	107.3
Difference	-0.4	-0.3	-0.1	-0.6	-1.4
Difference %	-1.8%	-1.1%	-0.3%	-2.2%	-1.3%

**Note:** Totals may vary due to rounding.

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 47, and IPART calculations.

## 5.5 Allowance for tax

We include an explicit allowance for tax, because we use a post-tax WACC to estimate the allowance for a return on assets in the revenue requirement. This allowance reflects the regulated business's forecast tax liabilities.

The tax allowance is one of the last building block items we calculate, due to its dependence on the NRR (excluding tax).

<sup>56</sup> WaterNSW pricing proposal to IPART, June 2015, p 49.

<sup>57</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 89.

<sup>58</sup> Aither, *WaterNSW Greater Sydney expenditure review*, February 2016, p 90.

## Draft decision

## 13 IPART has decided to adopt the regulatory tax allowance of \$22.9 million shown in Table 5.7.

We have provided a regulatory tax allowance for WaterNSW Greater Sydney as detailed in Table 5.7. This is much higher than that proposed by WaterNSW, largely as a result of WaterNSW's conservative assumptions used to calculate its proposed tax allowance.

**Table 5.7 IPART and WaterNSW proposed regulatory tax allowance (\$ million, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20	Total
IPART decision	4.4	5.3	6.3	7.0	22.9
WaterNSW Proposed	3.0	3.0	3.0	3.1	12.1
Difference	1.4	2.3	3.3	3.9	10.8
Difference %	46%	77%	109%	125%	90%

**Note:** Totals may vary due to rounding.

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 47, and IPART calculations.

### 5.5.1 Reasons for our draft decision

We calculate the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for franking credits to the business's (nominal) taxable income.<sup>59</sup> For this purpose, taxable income is the NRR (excluding tax allowance) less operating cost allowances, tax depreciation, and interest expenses.

As part of calculating the appropriate tax allowance, the business is required to provide forecast tax depreciation for the determination period. Other items such as interest expense are based on the parameters used for the WACC, and the value of the RAB.<sup>60</sup>

WaterNSW proposed a tax allowance of \$12.1 million for the 2016 determination period. Our draft decision is to include a tax allowance of \$22.9 million, which is \$10.8 million higher than WaterNSW's proposal. WaterNSW assumed a tax allowance consistent with our 2012 determination. However, our draft determination results in a higher taxable income, compared with our 2012 Determination, arising from lower relative interest deductibles, operating expenditure and tax depreciation.<sup>61</sup>

<sup>59</sup> Under a post-tax framework, the value of franking credits (gamma) enters the regulatory decision only through the estimate of the tax liability.

<sup>60</sup> The nominal cost of debt is the sum of the nominal risk free rate and nominal debt margin.

<sup>61</sup> Interest deductibles, operating expenditure and tax depreciation are subtracted from income to determine taxable income for each year of the 2016 determination period.



We have also changed our policy regarding the treatment of revenue from grants and capital contributions when calculating the regulatory tax allowance. Our new policy is discussed in detail below.

WaterNSW has indicated in its submission that it does not have any grants or capital contributions for the 2016 determination period. Therefore, we do not consider that our policy applies to WaterNSW's 2016 Determination.

#### Excluding revenue from grants and capital contributions from the regulatory tax allowance

We have decided to deduct grants and cash contributions net of tax from capital expenditure. We have also decided to exclude the revenue from grants and capital contributions from the regulatory tax allowance. This better reflects the impact of tax for these contributions.

Cash contributions that WaterNSW receives from third parties towards its capital expenditure are typically deducted from the RAB. This ensures customers do not pay for a return on assets or regulatory depreciation for capital expenditure that WaterNSW has not funded.

However, forecast cash contributions have previously been included as income in the tax allowance calculation to provide an agency with an allocation of tax against that contribution. There was no tax adjustment for differences in actual historical cash contributions compared to those forecasts.

Under current ATO rules, an agency is required to pay tax on cash contributions and grants. This means that only the amount net of tax can be applied to capital expenditure. Deducting the full amount of the cash contribution from capital expenditure and providing the agency a tax allowance for that cash contribution effectively converts a proportion of the RAB into cash. As a result, we have decided to deduct only the cash contribution amount net of tax from capital expenditure (ie, the RAB) and not include the cash contribution in the tax allowance calculation.



## 6 Forecast water sales and customer numbers

Once we have determined the revenue requirement for the 2016 determination period, the next step in our approach is to decide on WaterNSW's forecasts for water sales and customer numbers. These forecasts are used in calculating the price levels to recover the required revenue.

It is important that the forecasts are reasonable. If they differ from WaterNSW's actual water sales over the determination period, the determined prices will result in the utility over- or under-recovering its required revenue.

WaterNSW's customer numbers are stable and Sydney Water accounts for about 99% of WaterNSW's total water sales, so the effect of customer numbers is not as important in setting prices as forecast water sales.

WaterNSW relies on water sales estimates from Sydney Water to set its prices. We ensure that there is consistency in these estimates.

We note that our approach to setting water prices for WaterNSW removes risk associated with some of the uncertainty around water sales. If WaterNSW's sales of water to Sydney Water are affected by output from the Sydney Desalination Plant (SDP), the price paid by Sydney Water increases to cover the costs incurred by WaterNSW (see Chapter 8). Variations in water sales (not associated with the SDP) will still impact WaterNSW, but this impact will be limited to the 20% of its revenue that is subject to its water usage prices (about 80% of its revenue is tied to its fixed charges).

The sections following discuss our draft decisions on WaterNSW's forecast customer numbers and water sales, as well as our consideration of a demand volatility adjustment mechanism for WaterNSW.

### 6.1 Forecast customer numbers

Draft decision

- 14 IPART's draft decision is to adopt the customer numbers as proposed by WaterNSW for the purpose of calculating draft prices (Table 6.1).

Table 6.1 contains the customer numbers separated into wholesale customers and raw and unfiltered water customers. WaterNSW supplies water to four wholesale customers, Sydney Water and three councils (Wingecaribee Council, Shoalhaven City Council, and Goulburn-Mulwaree Council).

**Table 6.1 WaterNSW – customer numbers 2015-2020**

	2015-16	2016-17	2017-18	2018-19	2019-20
Total wholesale customers	4	4	4	4	4
Raw water customers	8	8	8	8	8
Unfiltered water customers	53	53	53	53	53
<b>Total customers</b>	<b>65</b>	<b>65</b>	<b>65</b>	<b>65</b>	<b>65</b>

**Source:** WaterNSW proposal to IPART, July 2015, p 37; WaterNSW annual information return 2015.

WaterNSW also supplies 61 small retail customers (raw water and unfiltered water customers) directly from its water supply system. Raw water customers extract water directly from dams and are generally commercial users such as mines. Unfiltered water customers generally extract water downstream of dams and are usually semi-rural residential users (the unfiltered water is not suitable for human consumption).

### 6.1.1 Reasons for draft pricing decision

We can forecast customer numbers with some certainty. WaterNSW supplied between 65 and 67 customers<sup>62</sup> with water each year over the 2012 determination period. Given the nature of its operations, WaterNSW is not expecting its customer base to change in the near future.<sup>63</sup> For this reason, we have decided to accept WaterNSW's forecast customer numbers for calculating draft prices for the 2016 determination period.

## 6.2 Forecast water demand

Draft decision

15 IPART's draft decision is to:

- Increase WaterNSW's forecast water sales to Sydney Water by 1.1% or around 23,000 ML over the determination period (Table 6.2).
- Adopt the forecast water sales for councils and raw and unfiltered water customers proposed by WaterNSW, for the purpose of calculating draft prices (Table 6.2).

<sup>62</sup> 67 customers from 2011-12 to 2013-14, 65 customers in 2014-15, 65 projected for 2015-16, WaterNSW's annual information return 2015.

<sup>63</sup> WaterNSW pricing proposal to IPART, June 2015, p 36.

Sydney Water accounts for about 99% of WaterNSW's total water sales. The remaining 1% of sales is to the three Councils and raw and unfiltered water customers.

Table 6.2 below lists our draft decision on WaterNSW's forecast water sales to its customers, compared to WaterNSW's proposed forecasts. We have accepted WaterNSW's forecasts for councils and smaller users. We have increased WaterNSW's forecast water sales to Sydney Water by 1.1% over the 2016 determination period.

**Table 6.2 WaterNSW demand forecasts 2015-2020 (ML/year)**

	2015-16	2016-17	2017-18	2018-19	2019-20
<b>IPART's draft decision</b>					
Sydney Water	522,292	532,125	539,433	543,943	550,135
Wingecarribee Shire Council	4,800	4,800	4,800	4,800	4,800
Shoalhaven City Council	90	90	90	90	90
Goulburn-Mulwaree Council	108	108	108	108	108
Raw and unfiltered	220	220	220	220	220
<b>IPART water sales</b>	<b>527,510</b>	<b>537,343</b>	<b>544,651</b>	<b>549,161</b>	<b>555,353</b>
<b>WaterNSW's forecasts</b>					
Sydney Water	522,292	527,763	533,174	537,654	543,798
Wingecarribee Shire Council	4,800	4,800	4,800	4,800	4,800
Shoalhaven City Council	90	90	90	90	90
Goulburn-Mulwaree Council	108	108	108	108	108
Raw and unfiltered	220	220	220	220	220
<b>WaterNSW water sales</b>	<b>527,510</b>	<b>532,981</b>	<b>538,392</b>	<b>542,872</b>	<b>549,016</b>

**Note:** Demand forecasts for sales to Sydney Water are slightly higher than Sydney Water's forecast sales to its end-customers as these include water lost to leakages.

**Source:** WaterNSW pricing proposal to IPART, June 2015, p 37 and IPART analysis.

#### Forecasts for the 2016 determination period versus sales over the 2012 determination period

Sales for the 2016 determination period are forecast to be 3.8% higher under our forecasts compared to actual water sales over the 2012 determination period, including:

- ▼ a 3.7% forecast increase for Sydney Water
- ▼ a 10.7% forecast increase for Councils, and
- ▼ a 25.7% forecast increase for raw and unfiltered water customers.

This is shown by Table 6.3 below, which lists WaterNSW's actual water sales to these customers over the 2012 determination period and our draft forecasts of water sales to these customers over the 2016 determination period.

**Table 6.3 WaterNSW actual v forecast demand 2013-2020 (ML/year)**

	2012-13	2013-14	2014-15	2015-16
<b>Actual demand 2012 period</b>				
Sydney Water	518,021	531,904	516,222	522,292
Wingecarribee Shire Council	3,775	4,385	4,462	4,800
Shoalhaven City Council	96	91	80	90
Goulburn-Mulwaree Council	53	55	66	108
Raw and unfiltered	180	172	128	220
<b>IPART water sales</b>	<b>522,125</b>	<b>536,607</b>	<b>520,958</b>	<b>527,510</b>
	2016-17	2017-18	2018-19	2019-20
<b>IPART forecast demand 2016 period</b>				
Sydney Water	532,125	539,433	543,943	550,135
Wingecarribee Shire Council	4,800	4,800	4,800	4,800
Shoalhaven City Council	90	90	90	90
Goulburn-Mulwaree Council	108	108	108	108
Raw and unfiltered	220	220	220	220
<b>IPART water sales</b>	<b>537,343</b>	<b>544,651</b>	<b>549,161</b>	<b>555,353</b>

Source: WaterNSW pricing proposal to IPART, June 2015, p 29 and IPART analysis.

#### Forecast sales compared to actual sales over the 2012 determination period

WaterNSW's actual sales over the 2012 determination (Table 6.4) were 6.3% higher than forecast, including:

- ▼ higher sales to Sydney Water (6.3%) and to Wingecarribee Council (15.4% or 2,322 ML), and
- ▼ marginally offset by lower sales to Goulburn-Mulwaree (59.7% or 418 ML) and Shoalhaven City Council (10.8% or 43 ML), and to raw water and unfiltered water customers (30.0% or 300 ML).

Water sales to Goulburn-Mulwaree Council were significantly lower than expected. This is because Goulburn-Mulwaree Council had only started receiving supply from WaterNSW just before the 2012 determination period and, without any historic data to analyse, forecasting its demand at that time was uncertain.

Table 6.3 below compares forecast to actual water sales over the 2012 determination period.

**Table 6.4 WaterNSW actual and forecast demand 2012-13 to 2015-16 (ML/year)**

	2012-13	2013-14	2014-15	2015-16	Average
<b>Forecast demand 2012 period</b>					
Sydney Water	487,516	489,651	491,807	495,395	491,092
Wingecarribee Shire Council	3,700	3,750	3,800	3,850	3,775
Shoalhaven City Council	100	100	100	100	100
Goulburn-Mulwaree Council	100	100	200	300	175
Raw and unfiltered	250	250	250	250	250
<b>Total water demand</b>	<b>491,666</b>	<b>493,851</b>	<b>496,157</b>	<b>499,895</b>	<b>495,392</b>
<b>Actual demand 2012 period</b>					
Sydney Water	518,021	531,904	516,222	522,292	522,110
Wingecarribee Shire Council	3,775	4,385	4,462	4,800	4,356
Shoalhaven City Council	96	91	80	90	89
Goulburn-Mulwaree Council	53	55	66	108	71
Raw and unfiltered	180	172	128	220	175
<b>Total water demand</b>	<b>522,125</b>	<b>536,607</b>	<b>520,958</b>	<b>527,510</b>	<b>526,800</b>
<b>Difference forecast v actual</b>	<b>30,459</b>	<b>42,756</b>	<b>24,801</b>	<b>27,615</b>	<b>31,408</b>
<b>Difference %</b>	<b>6.2%</b>	<b>8.7%</b>	<b>5.0%</b>	<b>5.5%</b>	<b>6.3%</b>

**Note:** Demand in 2015-16 is a forecast.

**Source:** WaterNSW annual information return, 2015 and IPART, *Review of prices for the Sydney Catchment Authority – From 1 July 2012 to 30 June 2016*, June 2012, p 93.

## 6.2.2 Reasons for draft pricing decision

### Forecast sales to Sydney Water

WaterNSW's forecast water sales to Sydney Water are based on Sydney Water's own sales forecasts to its customers. Sydney Water has developed a sophisticated water demand model, for the purpose of developing its own forecast water sales.

We conducted an extensive review of Sydney Water's demand forecasting model for the 2012 Determination. Sydney Water updated its approach in 2014, which was reviewed and endorsed by Sapere Research Group consulting.<sup>64</sup> As part of our current 2016 review of Sydney Water's prices, we have undertaken a high level review of the updated methodology and key assumptions underpinning Sydney Water's customer numbers and demand forecasts.

<sup>64</sup> Tooth, R., *Peer Review of Sydney Water Short Term Demand Forecast*, Sapere Research Group, Report for Sydney Water, January 2015.

We found that Sydney Water's demand forecasting approach is sophisticated and generally robust. However, we amended Sydney Water's demand forecasts slightly, to reflect our adjustments to Sydney Water's assumptions regarding the responsiveness of demand to changes in water price. Sydney Water forecast total water sales of 2.1 million MLs over the 2016 determination period; whereas we are adopting a sales forecast of 2.2 million MLs in modelling Sydney Water's draft prices (ie, an increase of about 1%). Our review of Sydney Water's forecast water sales to its customers, including further information on our adjustments to these forecasts, is contained in Chapter 7 of the Draft Report on our *Review of prices for Sydney Water Corporation*.

In deriving WaterNSW's forecast water sales to Sydney Water, we have taken our draft decision on Sydney Water's forecast sales to its customers and increased the value to reflect the water associated with real system losses (ie, leakage), unauthorised consumption, and unbilled unmetered consumption (eg, for firefighting) imbedded in Sydney Water's supply system.

The water demand forecasts (Table 6.2) above assume that Sydney Water does not purchase any bulk water from SDP over the determination period. If Sydney Water does purchase bulk water from SDP during the course of the determination, this will result in decreased purchases from WaterNSW. To ensure that any resulting loss of sales by WaterNSW does not result in loss of revenue, we have decided to introduce a mechanism (see Chapter 8) that will allow WaterNSW to adjust its variable charge so that it allows WaterNSW to recover its target revenue from Sydney Water regardless of the SDP's mode of operation. We consider that this mechanism is required because the majority of WaterNSW's costs are fixed costs.

#### Forecast sales to local councils and small customers

In its pricing submission,<sup>65</sup> WaterNSW explains that it consulted with its customers about their expected water demand for the 2016 determination period. Following this consultation, it has forecast 2015-16 sales levels to remain constant over the 2016 determination period.

We consider WaterNSW's consultation process with its customers is a reasonable method for estimating water sales. We also compared the forecast figures to actual results over the 2012 determination period.

We consider WaterNSW's approach is reasonable and we have decided to adopt WaterNSW's forecast water sales to local councils and its raw and unfiltered water customers for the purpose of setting prices.

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<sup>65</sup> WaterNSW pricing proposal to IPART, June 2015, p 37.

### 6.3 Demand volatility adjustment mechanism

When determining prices for Sydney Water and Hunter Water, we make forecasts of the level of water we expect them to sell over the determination period. If actual sales differ from our forecasts, then their revenues will be impacted. One way of taking account of this risk is to use a mechanism that, for example, compensates the utility for such losses at the next determination of its prices.

For the current 2016 determinations for Sydney Water and Hunter Water, we have made a decision to consider at the 2020 determinations whether to make an adjustment to the revenue requirement and prices to address any over or under-recovery of revenue over the 2016 determination period.

We also considered this issue for WaterNSW's prices. However, we consider that such an adjustment is not warranted for WaterNSW because only 20% of its sales are recovered by its volumetric charges. Therefore, 80% of its revenue from fixed charges is not impacted by changes in demand. As well, we have reduced some risk to WaterNSW's revenue with the introduction of a cost pass-through mechanism for Shoalhaven transfers.

We consider that these measures and the emphasis on the fixed charge to recover costs minimises the need for a demand volatility adjustment mechanism.

## 7 Incentive schemes – Form of regulation

Form of regulation refers to the collection of methods used to regulate prices for monopoly services. These methods can include how costs are assessed, whether prices are directly or indirectly controlled, how differences between forecast and actual demand are handled, and how performance gains are incentivised.

We are making changes to the form of regulation for WaterNSW (as well as the other metropolitan water utilities we regulate).<sup>66</sup> These changes are aimed at more effective regulation that encourages businesses to become more efficient. We consider these changes will enhance the long term interests of all stakeholders.

In this chapter, we report and discuss our decisions on:

- ▼ **Accommodating an Annual Water Quality Incentive Payment scheme:** this would encourage WaterNSW to supply a higher standard of water to Sydney Water, where efficient
- ▼ **Introducing an Efficiency Carryover Mechanism (ECM):** this will remove the incentive for businesses to delay cost savings, which means customers benefit, through lower prices sooner, and
- ▼ **Greater use of performance benchmarking:** to improve our ability to assess a business's costs, while encouraging it to improve its performance.

WaterNSW asked IPART to consider these proposals in its June submission. The ECM is a response to its request for an Efficiency Benefits Sharing Scheme (EBSS).

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<sup>66</sup> We are conducting concurrent pricing reviews of Sydney Water and Hunter Water and have adopted common changes to the form of regulation associated with the Efficiency Carryover Mechanism (ECM), which is discussed in this chapter, across the three utilities.



## 7.1 Annual Water Quality Incentive Payment (AWQIP)

### Draft decision

16 IPART has decided to defer regulating prices associated with the proposed Annual Water Quality Incentive Payment (AWQIP) scheme:

- this allows WaterNSW and Sydney Water to implement the AWQIP scheme during the 2016 determination period, if both parties can reach agreement on the scheme.

The Annual Water Quality Incentive Payment (AWQIP) scheme is contained in the current Raw Water Supply Agreement (RWSA)<sup>67</sup> between WaterNSW and Sydney Water<sup>68</sup>. The AWQIP scheme sets out the conditions under which Sydney Water would provide an incentive payment to WaterNSW for a higher quality of raw water delivered to the Prospect Water Filtration Plant.

IPART supports the rationale behind the AWQIP scheme. We have decided to defer regulating prices associated with the AWQIP scheme between WaterNSW and Sydney Water.

This decision **allows** WaterNSW and Sydney Water to negotiate and conclude payments associated with the scheme during the 2016 determination period. We consider the AWQIP scheme to be important and encourage WaterNSW and Sydney Water to investigate whether the scheme's adoption over the 2016 determination period can lead to cost savings. IPART will consider setting maximum prices for any scheme in 2020 once further information is provided to establish appropriate prices.

### 7.1.1 Reasons for draft pricing decision

Under the current AWQIP scheme, WaterNSW is eligible to receive up to \$1 million annually if water quality in a given year is better than the average quality of the preceding five years, based on the following parameters: alkalinity, colour, turbidity and exceptional operating circumstances.

The RWSA itself was not agreed by WaterNSW and Sydney Water until after their 2012 pricing determinations were completed and therefore the clause relating to any AWQIP could not be included in the implementation of the determinations. In our report to the Minister on the RWSA, we expressed our support for the objectives of an AWQIP scheme and stated we would consider its inclusion in the next determination.<sup>69</sup>

<sup>67</sup> Raw Water Supply Agreement between Sydney Catchment Authority and Sydney Water Corporation, Schedule 3, October 2013, p 9.

<sup>68</sup> The RWSA establishes the arrangements by which WaterNSW supplies bulk water to Sydney Water.

<sup>69</sup> IPART, Report to the Minister on the RWSA, October 2013, p 4.

Implementation of the AWQIP scheme should result in benefits to WaterNSW and Sydney Water and, ultimately, lower costs to water users. The rationale behind the AWQIP scheme is that both parties should only engage in the scheme if each benefits. That is, if:

- ▼ WaterNSW receives payments under the scheme in excess of the costs it incurs in providing higher quality water, and
- ▼ Sydney Water's savings in lower treatment costs as a result of the higher quality water received from WaterNSW exceed its payments to WaterNSW under the scheme.

Therefore, the AWQIP scheme should result in lower water supply costs overall. Consequently, we maintain our support for the objectives of the scheme.

At our Public Hearing in November 2015,<sup>70</sup> Sydney Water stated that it supported the principle of an AWQIP scheme, but suggested a joint review of the scheme by WaterNSW and Sydney Water. Sydney Water considered that a joint review could further consider the risks, treatment capability and costs borne by all parties under the AWQIP scheme.

In its June 2015 submission, WaterNSW proposed that the AWQIP be included in IPART's 2016 determination of its prices. It provided an estimate on the net benefit of the where an incentive was paid, but it did not provide detail on the costs of activities under the scheme or the water quality projections associated with the AWQIP scheme.<sup>71</sup>

WaterNSW has not provided sufficient information to enable us to determine prices for services provided under the AWQIP with any certainty.<sup>72</sup> We consider that the best way forward is to defer regulating prices associated with the AWQIP scheme at this time. This **allows** WaterNSW and Sydney Water to implement the AWQIP scheme during the 2016 determination period, if both parties can come to an agreement and they see benefit in the scheme. We consider that this approach:

- ▼ will provide an incentive for Sydney Water and WaterNSW to engage in a AWQIP scheme if each party gains and hence there is an overall reduction in water supply operating costs – particularly as they would retain all savings of the scheme over the 2016 determination period
- ▼ will enable WaterNSW and Sydney Water to assess the overall net benefits of any incentive scheme, and
- ▼ may result in additional information on the scheme and hence allow for price regulation in a future determination.

<sup>70</sup> Transcript, IPART Public Hearing, 10 November 2015, p 22.

<sup>71</sup> WaterNSW pricing proposal to IPART, June 2015, p 64.

<sup>72</sup> Schedule 3 of the RWSA provides prices for various parameters for the scheme but they were established in October 2013.

The successful implementation of a scheme should result in lower prices to customers in future determinations, as any lowering of costs will be included in expenditure forecasts.

## 7.2 Efficiency carryover mechanism (ECM)

### Draft decision

- 17 IPART has decided to establish an efficiency carryover mechanism and intend to apply it at WaterNSW's 2020 price review. This mechanism:
- applies to controllable operating expenditure from 2015-16 to 2018-19
  - ensures the business is able to retain permanent cost reductions for four years before they are passed on to customers through lower prices, and
  - allows the business to retain temporary over and under spends.

Our intention is to apply an efficiency carryover mechanism (ECM) to operating expenditure at the next price review that provides equal incentives for permanent efficiency savings (ie, permanent cost reductions) over the regulatory period.<sup>73</sup>

In its pricing proposal to its own pricing review, Sydney Water proposed a symmetric efficiency carryover mechanism (ECM), called an efficiency benefit sharing scheme (EBSS), applying to controllable operating expenditure and a portion of capital expenditure.<sup>74</sup>

In its pricing proposal, WaterNSW proposed a similar scheme based on Sydney Water's proposal. WaterNSW's scheme would allow it to retain any efficiency gains for a specified period of time (ie, 'carry them over' to the next regulatory period if necessary), rather than having to pass the savings on to customers at the beginning of the next regulatory period. Its proposed scheme would only apply to operating expenditure, excluding non-controllable costs, with a 4-year carryover period. A Cap and Collar of 5% was proposed, limiting the gains and losses of the scheme for the 2016 determination period.<sup>75</sup>

### 7.2.1 Reasons for draft decision

Our current form of regulation allows businesses to keep any benefits resulting from cost savings they make during the regulatory period. This intended feature of our form of regulation is referred to as 'incentive regulation' because it provides a financial reward to incentivise businesses to deliver cost savings. Cost savings are considered a beneficial because, if they are permanent, they can be

<sup>73</sup> By 'regulatory period', we mean determination period – ie, the duration of the determination, which is usually four years.

<sup>74</sup> Sydney Water pricing proposal to IPART, June 2015, pp 254-265.

<sup>75</sup> WaterNSW pricing proposal to IPART, June 2015, p 63.

passed through to customers through lower prices in subsequent regulatory periods (when the regulator re-sets prices based on its assessment of efficient costs).

A shortcoming of the current approach is that, to the extent there are opportunities to make permanent efficiency savings, the financial reward for achieving these savings deteriorates over the regulatory period. That is, a saving made in year one of the regulatory period results in four years of additional profit, whereas a saving made in year three of the regulatory period results in just two years of additional profits.

The consequence of this feature of our form of regulation is that businesses can have an incentive to delay savings from the latter years of one regulatory period to the early years of the next regulatory period. Delaying efficiency savings is wasteful and it means customers have to wait longer before they benefit from lower prices (see Appendix D).

The objective of the ECM is to equalise the incentive to make permanent efficiency savings regardless of when they are made within the regulatory period. This is done by guaranteeing WaterNSW will be able to retain an efficiency saving for four years regardless of when it is made within the regulatory period.

The process for applying the ECM at the next price review can be described in four steps:

- ▼ Determine if WaterNSW permanently reduced costs below the allowance (\$X).
- ▼ Determine in which year this saving was achieved (n).
- ▼ Ensure the allowance in the next regulatory period reflects the saving = \$X.
- ▼ Carryover an efficiency benefit to the next regulatory period equal to  $\$X \times (n-1)$  to ensure WaterNSW retains the benefit for four years.<sup>76</sup>

We consider the ECM will improve the form of regulation by removing the incentive to delay cost savings. While the benefits of this are limited to accelerating the delivery of savings that would have occurred anyway, we consider this is still an improvement on the current regulatory framework and is in the long term interests of WaterNSW's customers.

<sup>76</sup> For example, if the business makes a \$10 million ( $X=\$10m$ ) saving in year 3 ( $n=3$ ) of a 4-year regulatory period, the ECM ensures the \$10 million saving is factored into the expenditure allowance of the next regulatory period and it provides a carryover benefit of  $\$10m \times (3-1) = \$20$  million in the next regulatory period. Adding this \$20 million carryover benefit to the \$20 million gained from underspending in years 3 and 4 of the first regulatory period means the total benefit to the business is \$40 million ( $4 \times \$10m$ ).

Our ECM is asymmetric in the sense that while it equalises the incentive to achieve permanent efficiency savings over time, it preserves all other features of the current form regulation. That is:

- ▼ Permanent cost increases are held by the business until the next price review where they are assessed by the regulator and, if determined to be efficient, passed on to customers (through price increases as a result of an increase in the business's operating expenditure allowance) – this provides an incentive to the business to avoid inefficient increases in costs.
- ▼ Temporary over and under spends are retained by the business – this provides an incentive for the business to manage within its budget.

We engaged Cambridge Economic Policy Associates (CEPA) to review both Sydney Water's proposed EBSS and a modified EBSS that we proposed in our Sydney Water Issues Paper.<sup>77</sup> This modified approach was identical to Sydney Water's proposed EBSS as long as actual expenditure remained below the regulatory allowance (the current form of regulation, where the business incurs overspends, would apply above the allowance). CEPA reviewed the options in light of experiences in other jurisdictions and the particular circumstances in NSW's urban water sector.<sup>78</sup>



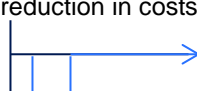
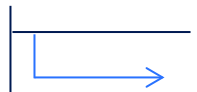
Our ECM is based on CEPA's recommendation. It departs from our modified EBSS in that we no longer treat temporary over and underspends asymmetrically.

Table 7.1 compares how permanent and temporary over and underspends are treated relative to the current form of regulation for each of the ECMs considered. We have highlighted in blue where the option differs from the current form of regulation.

<sup>77</sup> IPART, Sydney Water Issues Paper, September 2015, pp 81-90.

<sup>78</sup> CEPA, Advice on Efficiency Carryover Mechanisms, February 2016. Available online: [http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro\\_Pricing/Review\\_of\\_prices\\_for\\_Sydney\\_Water\\_Corporation\\_from\\_1\\_July\\_2016](http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro_Pricing/Review_of_prices_for_Sydney_Water_Corporation_from_1_July_2016)

**Table 7.1 Comparison of proposed efficiency carry over mechanisms relative to the current form of regulation**

Change in actual expenditure relative to the allowance	1. Current form of regulation	2. Sydney Water Proposed EBSS	3. IPART Modified EBSS	4. IPART's draft ECM, based on CEPA
1. Permanent increase in costs 	Retained by the business until IPART can assess at next price review.	Retained for 5 years – then passed on to customers.	Retained by the business until IPART can assess at next price review.	Retained by the business until IPART can assess at next price review.
2. Temporary increase in costs 	Retained by the business.	Passed on to customers after 5-year lag.	Retained by the business.	Retained by the business.
3. Temporary reduction in costs 	Retained by the business.	Passed on to customers after 5-year lag.	Passed on to customers after 4-year lag.	Retained by the business.
4. Permanent decrease in costs 	Held for varying lengths of time depending on when the saving is made. <sup>a</sup>	Retained for 5 years – then passed on to customers.	Retained for 4 years – then passed on to customers.	Retained for 4 years – then passed on to customers.

<sup>a</sup> That is, if the saving is made in year 1 it can be held for four years. If it is made in year 4, it can be held for one year. Note this assumes we know the actual year 4 expenditure when we reset the allowance for the next regulatory period. In reality, the business could make an unexpected saving in year 4 and retain it for five years.

Source: IPART analysis.

We intend to apply the ECM to WaterNSW's operating expenditure.

We have decided not to apply an ECM to capital expenditure. Given the additional complexity associated with introducing an ECM for capital expenditure, the additional risk of unintended consequences (ie, incentivising the business to over forecast and to inefficiently defer capital expenditure), and the limited opportunities for efficient trade-offs between operating and capital expenditure, we have decided not to introduce a capex ECM at this time.

#### Implementing the ECM at future price reviews and the role of the expenditure review

We are consulting on our proposed ECM as part of this Draft Report. If included in the Final Report, our expression of intent to adopt an ECM as outlined above does not bind a future IPART Tribunal to adopt such a mechanism. Therefore, we cannot prevent a future Tribunal deciding to remove, amend, or replace the ECM. We acknowledge that the effectiveness of incentive mechanisms rests on

the confidence businesses have in them. However, we consider this is the businesses' opportunity to respond to the improved incentives, demonstrate the value of the ECM and make a case for its continued use in the future.

Importantly, a key feature of our ECM is that we retain discretion in resetting expenditure allowances at the start of each regulatory period. The role of the expenditure review is therefore maintained and we can continue to set expenditure allowances to reflect the best available information on efficient costs.

In preparation for the next price review, we will request the business populate and submit the ECM spreadsheet along with its pricing proposal. We will then use a populated ECM spreadsheet as a tool to inform the expenditure review. Our expectation is that by removing the incentive to delay savings and providing a tool for utilities to demonstrate their performance over the regulatory period, the ECM will improve the amount and quality of information available to us at the next round of expenditure reviews.

Unlike our modified EBSS in our Issues Paper, which passes temporary underspends on to customers, the ECM does not remove the incentive businesses could have to underspend the allowance early in the determination and to increase spending towards the end of the determination. We will continue to monitor historical expenditure patterns and factor this information into our expenditure review process.

Appendix D sets out the design of the ECM in greater detail and provides worked examples showing how the ECM would be applied in various scenarios.

### 7.3 Performance benchmarking

Our current form of regulation makes some use of benchmarking in assessing a business's performance during the expenditure review undertaken by consultants. In our Issues Paper for the Sydney Water review, we indicated our intention to make greater use of performance benchmarking of urban water utilities in NSW.<sup>79</sup>

We have also undertaken performance benchmarking work in the urban water and transport sectors. For example, in 2009 we were asked by the NSW Government to review the productivity of selected State-Owned Corporations (SOCs).<sup>80</sup> More recently, as part of our current review into public transport fares, we published an information paper<sup>81</sup> on the total factor productivity of Sydney's rail network.

<sup>79</sup> IPART, *Review of prices for Sydney Water Corporation, Water – Issues Paper*, September 2015, pp 80-90.

<sup>80</sup> IPART, *Review of the productivity of state owned corporations - Final Report*, July 2010.

<sup>81</sup> IPART, *Information Paper 13 – Total Factor Productivity Sydney's rail network*, December 2015.

## Draft decision

- 1 IPART has decided to work with regulated businesses and regulators in other jurisdictions to develop a performance benchmarking capability to inform future price reviews.

### 7.3.1 Reasons for our draft decision

In a competitive market, firms are continually benchmarked against each other by their customers. Customers will gravitate towards strong performers that are offering value for money and away from poor performers that are not offering value for money. These competitive forces drive businesses to improve. In the absence of competition, there is an opportunity for the regulator to simulate these competitive forces by undertaking benchmarking.

There are several benefits to performance benchmarking:

- ▼ it will help inform our expenditure reviews
- ▼ it will help businesses demonstrate their performance, and
- ▼ it will simulate competitive forces and help drive businesses to improve.

Benchmarking urban water businesses in NSW is challenging for a number of reasons - there are relatively few water businesses and each varies significantly in size and scope of operations. However, we consider the potential value in benchmarking justifies us finding solutions to these challenges and developing a performance benchmarking capability.

There are several approaches to performance benchmarking that we intend to consider and develop, including:

- ▼ **Cost driver and activity benchmarking.** This approach analyses and compares specific cost drivers (eg, labour expenses) and activities (eg, IT and billing systems) against other businesses. Some functions (eg, billing) are general enough to be compared across businesses in different sectors.
- ▼ **Productivity index analysis.** This approach allows relatively small samples of firms to be benchmarked against each other. This is relevant in NSW where there are few urban water utilities. This approach also allows analysis of changes in a business's own productivity over time.
- ▼ **Efficiency frontier analysis.** This approach involves measuring a business's efficiency relative to an efficiency frontier, where the frontier represents the most efficient performance, across a range of measures, from a sample of comparable businesses.



There are opportunities to benefit from the benchmarking capabilities that have already been developed in other jurisdictions. For example, the Essential Services Commission (ESC) in Victoria has considerable experience in benchmarking urban water utilities.<sup>82</sup> Ofwat in the UK and the Australian Energy Regulator (AER) in Australia have also developed and applied benchmarking methodologies, which we can learn from. There may also be opportunities to collaborate with regulators in other jurisdictions to broaden the set of comparator utilities included in comprehensive benchmarking exercises.<sup>83</sup>

We note that the success of a performance benchmarking program depends significantly on the extent of involvement and buy in from the utilities. A major challenge will be developing and refining data sets for the regulated businesses.

However, we consider benchmarking complementary to potential further changes in the form of regulation, as is the case in the UK. Developing datasets by business function could also facilitate a future move towards component pricing, which would make costs more transparent, assist in performance comparisons, and could open the sector up to greater competition.

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<sup>82</sup> For example: ESC, Victorian Urban Water Utility Benchmarking – prepared by Economic Insights, January 2015. Available online: <http://www.esc.vic.gov.au/Water/Relevant-papers-and-submissions-prepared-by-the-Wa/2014-Study-into-the-productivity-of-water-business/Victorian-Urban-Water-Utility-Benchmarking-prepare>.

<sup>83</sup> Note that this collaboration would extend the work already undertaken and published through the national performance report (<http://www.bom.gov.au/water/npr/>).

## 8 Price structures and prices

In this chapter we outline our decision on prices for water services provided by WaterNSW to its customers in the Greater Sydney Area. These services include:

- ▼ Bulk water, which WaterNSW supplies to four water utilities (Sydney Water Corporation, Wingecarribee Council, Shoalhaven City Council and Goulburn Mulwaree Council). These utilities then treat this water and on-sell it to their residential and non-residential customers.
- ▼ Raw and unfiltered water, which WaterNSW supplies to 61 retail customers along its bulk water supply system.<sup>84</sup>

Our draft pricing decisions are based on our draft decisions on notional revenue requirement, price structures and forecast water sales. This chapter outlines our draft prices to Sydney Water, the three local councils and raw and unfiltered water customers.

### 8.1 WaterNSW's prices to Sydney Water

Sydney Water accounts for about 99% of WaterNSW's bulk water sales and revenue. WaterNSW's draft prices to Sydney Water reflect our draft decisions to:

- ▼ set prices to recover WaterNSW's target revenue for the Greater Sydney area in each year of the determination period
- ▼ use water sales forecasts consistent with our review of Sydney Water's prices in setting the volumetric charge.

#### 8.1.1 Price structures

Draft decision

- 18 IPART has decided to maintain the structure of prices to Sydney Water, which achieves an 80:20 split in forecast revenue between fixed and volumetric charges.

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<sup>84</sup> WaterNSW pricing proposal to IPART, June 2015, pp 36-37.

### Reasons for draft pricing decision

We have accepted WaterNSW's proposal to maintain the 80:20 ratio of fixed to volumetric charge for its bulk water prices to Sydney Water.

This price structure was first implemented in the 2012 Determination. Prior to the 2012 Determination, the then SCA price structure was 40:60 fixed to volumetric, where 40% of revenue from Sydney Water was collected through the fixed charge and 60% through the volumetric charge.

WaterNSW maintains its position that the high fixed to volumetric price ratio reflects the largely fixed cost nature of its business and provides cost certainty to its largest customer.<sup>85</sup> We consider that the proposed 80:20 split remains broadly appropriate. Stakeholders did not comment on this issue.

#### 8.1.2 Cost pass-through mechanism for Shoalhaven transfers

WaterNSW incurs additional costs in transferring water from the Shoalhaven River in times of low water availability. Under the 2010 Metropolitan Water Plan (MWP), transfers from the Shoalhaven River commence when dam levels fall to 75% and continue until they rise above 80%.<sup>86</sup> The transfers increase WaterNSW's costs and, under the 2012 Determination, these are currently included in the notional revenue requirement as operating costs quantified on an expected cost basis.

Draft decision

19 IPART has decided to:

- adopt a cost formula to determine the efficient costs of Shoalhaven transfers, defined in Box 8.2, and
- introduce a mechanism to pass-through WaterNSW's costs of Shoalhaven transfers through its volumetric charge to Sydney Water.

### Reasons for draft pricing decision

We remain interested in pricing approaches that better reflect the scarcity value of dam water. At the wholesale level, such pricing can encourage the efficient sourcing and use of bulk water.

<sup>85</sup> WaterNSW pricing proposal to IPART, June 2015, p 58.

<sup>86</sup> NSW Office of Water, *2010 Metropolitan Water Plan*, August 2010, p 24.

Under the current form of regulation, we set efficient operating and capital expenditure allowances for the regulatory period with an expectation that costs can fluctuate, some new costs will arise, and some expected costs will not occur. If there is no bias in the forecasts, we would expect the gains from underspends to offset the losses from overspends over the long term.

Where there is a significant cost that may or may not occur during the regulatory period, and if the business has no meaningful influence over whether the cost is incurred or how big the cost will be, there can be a case to provide a mechanism in the determination to pass through these costs into prices as they are incurred. Cost pass-through mechanisms allow the efficient costs of uncertain and uncontrolled events that arise during the regulatory period to be passed through to customers within the regulatory period.

We are introducing a cost pass-through mechanism in the WaterNSW Draft Determination for Shoalhaven transfers. This recognises the uncertainty associated with forecasting the incidence of the transfers, and will provide a signal to Sydney Water about the costs of supply augmentation in times of increased water scarcity.

WaterNSW incurs additional costs in transferring water from the Shoalhaven. As these transfers are activated by dam level rules (and hence factors such as weather conditions), they can be difficult to predict. The pass through mechanism can address such uncertainty.

### Cost pass-through principles

We consider cost pass through mechanisms should only be applied in limited circumstances, consistent with the principles outlined in Box 8.1. We found that the cost of Shoalhaven transfers satisfies our principles:

- ▼ the transfer rules provide an exogenous trigger to activate the pass-through mechanism
- ▼ there is scope to determine the efficient cost before it is passed through
  - we have developed a cost formula that directly determines the efficient energy costs incurred by WaterNSW for the transfers in \$/MWh (Box 8.2)
- ▼ the magnitude of the transfer cost could have a material impact on WaterNSW
- ▼ WaterNSW cannot influence the likelihood of the trigger event or the resulting cost, because Shoalhaven transfers operate according to the operating rules set out in the Metropolitan Water Plan, and
- ▼ a pass-through will result in prices that are more reflective of the efficient cost.

In the 2012 Determination, we decided to allow for the cost recovery of Shoalhaven pumping on an expected costs basis rather than a cost pass-through mechanism. Shoalhaven transfers did not occur over the 2012 determination period and as a result, WaterNSW over-recovered as it did not incur any costs.

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**Box 8.1 Cost pass-through principles**

Cost pass-through mechanisms should only be applied in very limited circumstances. They are generally limited to situations where:

- ▼ a trigger event (to activate the cost pass-through) can be clearly defined at the time of the price determination
- ▼ there is provision to approve or determine the resulting efficient cost before it is passed through to customers<sup>a</sup>
- ▼ it is clear the regulated business cannot influence the likelihood of the trigger event or the resulting cost
- ▼ it is clear that a cost pass-through will result in prices that are more reflective of efficient cost, and
- ▼ the costs would have a potentially material impact on the regulated business.

<sup>a</sup> Under the IPART Act, this effectively means the cost must be clearly identified at the time of the price determination.

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### Cost formula to determine the efficient cost of Shoalhaven transfers

Our formula for determining the costs of Shoalhaven transfers is defined in Box 8.2. The formula multiplies average monthly off-peak energy prices in \$/MWh and the number of ML transferred from the Shoalhaven system.<sup>87</sup> The formula approximates the actual cost incurred by WaterNSW that would pass through to Sydney Water for each month when water is transferred.

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**Box 8.2 Cost of Shoalhaven transfers (CST)**

$$RRP \times 1.96MWh/ML \times STV$$

Where:

**RRP** is the NSW regional reference price for the 18 half-hourly periods from 10:00pm to 07:00am averaged over each month, in \$/MWh, as reported by the Australian Energy Market Operator.

**STV** (Shoalhaven transfer value) is the number of MLs transferred from the Shoalhaven system.

**1.96MWh/ML** is the composite usage rate factor in MWh/ML for the Shoalhaven system.<sup>a</sup>

<sup>a</sup> Email to IPART, WaterNSW, 18 February 2016.

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<sup>87</sup> Burrawang Pumping Station.

### 8.1.3 Setting bulk water prices for Sydney Water

In the 2012 Determination, WaterNSW's bulk water prices to Sydney Water were based on a SDP related volumetric charge schedule, tied to specific modes of SDP operation (SDP off and SDP on).

Under this schedule, WaterNSW would levy Sydney Water a lower volumetric charge when SDP was not in operation and not supplying water to Sydney Water, and a proportionally higher volumetric charge when SDP was in operation and supplying water to Sydney Water. This protected WaterNSW's revenue from the effects of lower bulk water sales to Sydney Water when the SDP was in operation, and allowed it to recover its efficient costs.

Draft decision

20 IPART has decided to:

- set WaterNSW's maximum fixed charge to Sydney Water over the 2016 determination period as listed in Table 8.1, and
- adopt a formula based approach to calculating the volumetric charge to large customers, ie, Sydney Water, (defined in Box 8.3) to reflect all possible modes of operation of the Sydney Desalination Plant.

**Table 8.1 Draft fixed charge to Sydney Water for the 2016 Determination (\$2015-16)**

	2016-17	2017-18	2018-19	2019-20
Fixed charge (\$million p.a.)	154.12	156.11	159.62	161.23
Volumetric charge (\$/ML) - SDP volume zero	72.41	72.35	73.36	73.27

**Note:** The volumetric price is calculated assuming the volume supplied by SDP is zero and is provided for comparison purposes only. The volumetric charge to Sydney Water is to be calculated using the volumetric charge formula in Box 8.3.

**Source:** IPART calculations.

**Box 8.3 Volumetric price (\$/ML)**

$$\frac{20\% \times TR}{(FS - Q_{SDP})} + \frac{CST}{AS}$$

Where:

- ▼ *TR* is the target revenue requirement from prices to be recovered from all large customers<sup>a</sup> for the relevant month (as listed in the determination)
- ▼ *FS* is forecast water sales (ML) to all large customers for the relevant month (as listed in the determination)
- ▼ *Q<sub>SDP</sub>* is actual water supplied from SDP to all large customers in the relevant month, where:

$$Q_{SDP} \geq FS \text{ then the volumetric price is nil}$$

- ▼ *AS* is the actual sales (ML) from WaterNSW to all large customers in the relevant month
- ▼ *CST* is the cost of Shoalhaven transfers in the relevant month defined in Box 8.2.

<sup>a</sup> Currently Sydney Water is WaterNSW's only large customer.

## Reasons for draft pricing decision

### Volumetric price

We are adopting a charging formula that will apply throughout the 2016 determination period to account for all potential operating modes of the SDP. The formula will increase WaterNSW's volumetric price to large customers (ie, Sydney Water) in proportion to any increase in the SDP's supply of water to Sydney Water, to ensure WaterNSW recovers its efficient costs. The charging formula also reflects our draft decision to introduce a pass through mechanism for Shoalhaven transfer costs.

Under the schedule for the 2012 Determination, WaterNSW could levy Sydney Water a lower volumetric charge when SDP was not in operation and a proportionally higher volumetric charge when SDP was in operation and supplying water to Sydney Water. However, our 2012 Determination specified only two volumetric price schedules (SDP off and SDP on).<sup>88</sup>

<sup>88</sup> WaterNSW pricing proposal to IPART, June 2015, p 58.

Our decision at the 2012 Determination was aimed at ensuring WaterNSW receives sufficient revenue from its volumetric charge to recover its costs, regardless of the SDP's operating regime. The more water SDP supplies Sydney Water, the less water WaterNSW sells to Sydney Water (all other things being equal). This means that SDP's operating regime can impact on WaterNSW's revenue and its ability to recover its costs, given that it is largely a fixed cost business.<sup>89</sup>

For this Determination, WaterNSW has proposed the 'on' and 'off' approach to adjusting its volumetric charge to Sydney Water to account for reduced sales as a result of the SDP being in operation. However, it has recognised that such an approach would need to be sufficiently flexible (or formulaic) to accommodate potential changes to the SDP's operating regime.<sup>90</sup>

To accommodate the possibility of changes to the SDP's operating regime (eg, including in a 'low flow' mode, where it may be operating at level less than full production), we have decided to applying a pro-rata equation (charging formula). The charging formula calculates a volumetric price charged to Sydney Water for each ML of water supplied in each month. Our charging formula is defined in Box 8.3.

To apply the charging formula to calculate the volumetric price to Sydney Water each month, we have provided:

- ▼ the Target Revenue (TR) from prices to be recovered from Sydney Water each month through the volumetric charge, as shown in Table 8.2, and
- ▼ the monthly average of forecasts sales, as shown in Table 8.3.

**Table 8.2 WaterNSW's average monthly Sydney Water specific target revenue (\$ millions, \$2015-16)**

	2016-17	2017-18	2018-19	2019-20
WaterNSW total TR	194.23	196.72	201.12	203.12
SWC % of TR	99.18%	99.19%	99.21%	99.22%
TR – \$ million / year	192.65	195.14	199.53	201.54
<b>TR – \$ million /month</b>	<b>16.05</b>	<b>16.26</b>	<b>16.63</b>	<b>16.79</b>

Source: IPART calculations.

<sup>89</sup> We set SCA's prices to Sydney Water to recover 80% of SCA's revenue through a fixed charge (rising from 40%) and 20% from a variable or volumetric charge. This price structure better reflects SCA's large fixed costs of doing business, but does not perfectly match its cost structure.

<sup>90</sup> WaterNSW pricing proposal to IPART, June 2015, p 58.



**Table 8.3 WaterNSW's monthly average sales to Sydney Water**

	2016-17	2017-18	2018-19	2019-20
WaterNSW demand (ML/year)	532,125	539,433	543,943	550,135
<b>Forecast sales – monthly average</b>	44,344	44,953	45,329	45,845

Source: IPART calculations.

Using a monthly average of forecast sales, WaterNSW will recover the target revenue requirement from Sydney for each year of the Determination.

### Prices

Under our draft determination, compared to WaterNSW's proposed prices, Sydney Water will pay on average about \$4.3 million less per year (\$17.2 million over the 2016 determination period) in fixed charges. This represents a reduction in the fixed charge of 2.6%.

The volumetric charge will be on average \$2.81 (or 3.7%) less per ML under our draft prices than that proposed by WaterNSW (Table 8.4). This is assuming that the SDP is not in operation, and therefore, not supplying water to Sydney Water.

**Table 8.4 WaterNSW proposed and IPART draft prices to Sydney Water (\$2015-16)**

	2015-16 Current	2016-17	2017-18	2018-19	2019-20
<b>WaterNSW proposed</b>					
Fixed charge (\$million/month)	14.17	13.22	13.34	13.57	13.89
Volumetric charge SDP "off" (\$/ML)	85.81	75.17	75.08	75.73	76.63
Volumetric charge SDP "on" (\$/ML)	104.87	90.62	90.33	90.96	91.83
<b>IPART draft prices</b>					
Fixed charge (\$million/month)	14.17	12.84	13.01	13.30	13.44
Volumetric charge (\$/ML) - SDP volume zero	85.81	72.41	72.35	73.36	73.27
Volumetric charge (\$/ML) - SDP volume 90 GL	104.87	87.15	86.84	87.91	87.60
<b>Difference</b>					
Fixed charge (\$million/month)		-0.38	-0.33	-0.27	-0.45
Volumetric charge (\$/ML) - SDP volume zero		-2.76	-2.73	-2.37	-3.36
Volumetric charge (\$/ML) - SDP volume 90 GL		-3.47	-3.49	-3.05	-4.23

Source: WaterNSW pricing proposal to IPART, June 2015, p 57, and IPART calculations.

## 8.2 Prices to local councils

### 8.2.1 Price structure

Draft decision:

- 21 IPART has decided to adopt a 80:20 fixed to volumetric charge ratio for its Council customers.

#### Reasons for draft pricing decision

In its pricing submission, WaterNSW proposed that we align its council customers' price structure with that of Sydney Water – a fixed/variable ratio of 80%:20%.<sup>91</sup> WaterNSW submitted that the application of a higher fixed charge reflects the largely fixed cost nature of WaterNSW's business and recognises the highly secure nature of water availability to councils. The proposed higher fixed charge also takes into account the relative stability in water demand from the councils.

WaterNSW noted that it had consulted with its council customers on the overall proposal as well as changes that specifically affect them.<sup>92</sup> At IPART's Public Hearing, Shoalhaven City Council commented that WaterNSW's proposed prices would result in a reduction in the bills for the councils and they had no issue with the change in the pricing ratio.<sup>93</sup>

We consider that the new ratio better reflects the highly fixed-cost nature of WaterNSW's business. As the councils themselves seem comfortable with the change, we have adopted the new structure in calculating the draft charges to the councils.

### 8.2.2 Cost allocation

In the 2012 Determination, we used a model developed by WaterNSW to allocate costs to local councils for the purpose of setting prices. That is, WaterNSW identified the costs of assets that supply water to the local councils, and apportioned costs to each council based on their water demand.

For the 2016 Determination, WaterNSW developed its pricing proposal using the same council model as the 2012 Determination, but updated for current values. We have used this model to generate our draft prices, with some amendments to better align the model with our pricing principles (ie, inclusion of a tax allowance building block, a WACC of 4.8% and some amendments to depreciation and inflation inputs).

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<sup>91</sup> WaterNSW pricing proposal to IPART, June 2015, p 59.

<sup>92</sup> WaterNSW pricing proposal to IPART, June 2015, p 45.

<sup>93</sup> Transcript IPART Public Hearing, 10 November 2015, p 20.

### 8.2.3 Consideration of application of pass through mechanism for Shoalhaven transfers to councils

Draft decision:

- 22 IPART has decided not to introduce a pass-through mechanism for Shoalhaven transfers to local councils.

#### Reasons for draft pricing decision

As outlined above, we have decided to introduce a mechanism to pass through WaterNSW's costs of transferring water from the Shoalhaven to WaterNSW's volumetric price to Sydney Water.

As part of our examination of a cost pass through mechanism for Shoalhaven transfers, we considered whether we should apply the pass-through mechanism to the three council customers.

We concluded that the pass-through mechanism should not apply to the three council customers as the transfers result in water leaving the Shoalhaven scheme. Councils should not pay for the transfers as they are triggered by storage levels in that part of the supply system which predominately services Sydney Water.

The cost of transfers would not reflect the costs of providing water to the councils in times of increased scarcity.

### 8.2.4 Prices

Draft decision:

- 23 IPART has decided to set WaterNSW's draft maximum prices to local councils for its water supply services over the 2016 determination period as listed in Table 8.5.

**Table 8.5 Draft prices to local councils for the 2016 Determination (\$2015-16)**

	2016-17	2017-18	2018-19	2019-20
Fixed charge to Wingecarribee Shire Council (\$ pa)	1,021,220	1,021,220	1,021,220	1,021,220
Fixed charge to Shoalhaven City Council (\$ pa)	19,148	19,148	19,148	19,148
Fixed charge to Goulburn Mulwaree (\$ pa)	22,977	22,977	22,977	22,977
Volumetric charge to local councils (\$/ML)	53.19	53.19	53.19	53.19

Source: IPART calculations.

### Reasons for draft pricing decision

WaterNSW proposed prices are in Table 8.6. Under these proposed prices forecast annual revenue was \$1.1 million per year from 2016-17 to 2019-20.

**Table 8.6 WaterNSW's proposed prices to Councils (\$2015-16)**

	2015-16 Current	2016-17	2017-18	2018-19	2019-20
<b>Fixed charge (\$/month)</b>					
Wingecarribee Council	23,118	69,298	69,298	69,298	69,298
Shoalhaven City Council	600	1,559	1,559	1,559	1,559
Goulburn-Mulwaree Council	1,801	1,299	1,299	1,299	1,299
<b>Volumetric charge (\$/ML)</b>	216.17	43.31	43.31	43.31	43.31
<b>Total council revenue (\$M)</b>	1.4	1.1	1.1	1.1	1.1
<b>Change in revenue year on year</b>		-22%	0%	0%	0%

Source: WaterNSW pricing proposal to IPART, June 2015, pp 59-61.

Our draft prices as shown in Table 8.7 are higher than those proposed by WaterNSW because we made some amendments to its modelling calculations to take account of pricing principles we use to set prices. Our draft prices would result in an annual revenue requirement from the councils of \$1.3 million.

**Table 8.7 IPART draft prices to Councils (\$2015-16)**

	2015-16 Current	2016-17	2017-18	2018-19	2019-20
<b>Fixed charge (\$/month)</b>					
Wingecarribee Council	23,118	85,102	85,102	85,102	85,102
Shoalhaven City Council	600	1,596	1,596	1,596	1,596
Goulburn-Mulwaree Council	1801	1,915	1,915	1,915	1,915
<b>Volumetric charge (\$/ML)</b>	216.17	53.19	53.19	53.19	53.19
<b>Total council revenue (\$M)</b>	1.4	1.3	1.3	1.3	1.3
<b>Change in revenue year on year</b>		-4.4%	0%	0%	0%

Source: WaterNSW pricing proposal to IPART, June 2015, pp 59-61, and IPART calculations.

We noted that the Councils had agreed to the new pricing structure after being informed by WaterNSW that its proposed prices would reduce their total revenue requirement from \$1.4 million per annum in 2015-16 to \$1.1 million per year from 2016-17 to 2019-20.<sup>94</sup>

<sup>94</sup> WaterNSW pricing proposal to IPART, June 2015, p 59.

### 8.3 Prices to bulk raw water and unfiltered water customers

Draft decision

24 IPART has decided to set WaterNSW's draft maximum prices to raw and unfiltered water customers for its water supply services over the 2016 determination period at current levels, as listed in Table 8.8.

**Table 8.8 Draft maximum prices to raw and unfiltered customers for the 2016 Determination (\$2015-16)**

	2015-16	2016-17	2017-18	2018-19	2019-20
Raw water customers					
Fixed charge to raw water customers (\$ p.a)	0	0	0	0	0
Volumetric charge to raw water customers (\$/ML)	680.0	680.0	680.0	680.0	680.0
Unfiltered water customers					
Fixed charge to unfiltered water customers -for 20 mm meter (\$ pa) <sup>a</sup>	104.0	104.0	104.0	104.0	104.0
Volumetric charge to unfiltered water customers (c/kL)	118.0	118.0	118.0	118.0	118.0

<sup>a</sup> This charge is for customers with 20mm meters, customers with larger meters will face proportionately higher charges based on the relative size of their meter.

**Source:** WaterNSW pricing proposal to IPART, June 2015, pp 60, and IPART calculations.

We have accepted WaterNSW's proposal to maintain prices for small customers in real terms over the determination. WaterNSW calculates that the total revenue requirement from the small customers is \$0.3 million per annum.<sup>95</sup>

#### Reasons for draft pricing decision

In the 2012 Determination, IPART accepted WaterNSW's proposal to align the price structure of small customers to the retail network (generally Sydney Water).<sup>96</sup> In 2012, we also considered that the prices for raw and unfiltered water customers would ensure these customers adequately contributed to the recovery of WaterNSW's costs.

WaterNSW has stated that it is problematic to determine the specific costs of supplying raw water customers and the allocation of fixed costs is difficult, because of the small number and scattered distribution of raw water customers.

On balance, and on the basis of administrative efficiency and price stability, we consider WaterNSW's proposal to be reasonable.

<sup>95</sup> WaterNSW pricing proposal to IPART, June 2015, p 60.

<sup>96</sup> WaterNSW's reasoning was to ensure that the cost to customers is similar so there is no incentive to connect or disconnect from an alternative supply, where available.

## 9 Impacts of pricing decisions

This chapter outlines the impact of our pricing decisions on WaterNSW's customers. It also discusses the implications of our pricing decisions on other matters we must consider under section 15 of the IPART Act (see Appendix A). These include:

- ▼ WaterNSW's service standards
- ▼ WaterNSW's financial viability and shareholders
- ▼ general inflation, and
- ▼ the environment.

We are satisfied that our 2016 Draft Determination achieves an appropriate balance between these matters.

The following sections explain the impacts of our determined prices on some of these matters. They discuss our considerations regarding the impacts on customers, service standards, WaterNSW's financial position, the NSW's Government's Consolidated Fund, general inflation and the environment.

### 9.1 Impacts on water customers

We have assessed the impact of our draft prices on customers and consider the impact reasonable. In reaching our pricing decisions, we considered the impacts of these prices on Sydney Water and its customers, the three local councils supplied by WaterNSW and their customers, and WaterNSW's smaller retail customers that receive raw water and unfiltered water.

#### 9.1.1 Impacts on Sydney Water and its customers

Sydney Water is WaterNSW's largest customer, accounting for 99.2% of WaterNSW's target revenue. The draft prices for WaterNSW to Sydney Water will have a small impact on the bills of Sydney Water's customers.

Under our draft prices, Sydney Water's bulk water purchases from WaterNSW account for an average of 8.2% of Sydney Water's total revenue requirement over the 2016 determination period (see Table 9.1).

**Table 9.1 Sydney Water's bulk water purchase as a percentage of total efficient costs (\$ millions, \$2015-16)**

	2015-16	2016-17	2017-18	2018-19	2019-20
SWC bulk water purchases	214.9	192.6	195.1	199.5	201.5
Total efficient cost of SWC (NRR)	2,593.2	2,358.0	2,385.1	2,399.2	2,424.9
WaterNSW water costs as a proportion of SWC's NRR	8.3%	8.2%	8.2%	8.3%	8.3%

**Note:** SWC is Sydney Water Corporation.

**Source:** IPART calculations assume no supply from SDP over 2016-17 to 2019-20.

Our draft prices for WaterNSW's bulk water supply to Sydney Water will reduce the bills of Sydney Water's customers in real terms (Table 9.2). For example, in 2016-17, a Sydney Water residential customer who uses 200 kL per year of water and has a 20mm meter will face a decrease of \$98.14 or 8.4% in their bill compared to 2015-16.<sup>97</sup> The contribution of lower WaterNSW bulk water costs to this decrease is 8.6% or about \$8.45.

Including the effects of forecast inflation ('nominal' dollars), the typical Sydney Water residential customer will pay an extra \$1.10 in WaterNSW bulk water costs in 2019-20 compared to current bills (see Table 9.2). Even including inflation, the price paid by a typical residential customer for WaterNSW bulk water as part of their Sydney Water bill will increase by 1% over 2015-16 to 2019-20 years.

**Table 9.2 Impact of bulk water costs on typical Sydney Water customers (\$ nominal) – with inflation**

	2015-16	2016-17	2017-18	2018-19	2019-20
<b>Residential: 20mm meter and 200 kL pa</b>					
Water and sewerage bill, SWC customer (\$)	1,167.1	1,068.9	1,095.6	1,123.0	1,151.1
WaterNSW total impact on bill (\$)	108.4	96.0	96.3	97.3	97.0
WaterNSW impact as a percentage of bill	9.3%	9.0%	8.8%	8.7%	8.4%
<b>Non-Residential : 40mm meter and 5800 kL pa</b>					
Water and sewerage bill, SWC customer	21,520.0	18,592.2	19,114.5	19,651.3	20,142.6
WaterNSW impact on bill (\$)	433.5	384.2	385.3	389.2	388.2
WaterNSW impact as a percentage of bill	2.0%	2.1%	2.0%	2.0%	1.9%

**Note:** Totals may not add due to rounding. Prices are based on no SDP operation.

**Source:** IPART calculations.

<sup>97</sup> The calculation of the bill for the Sydney Water customer is based on the draft prices for residential customers determined in our associated review for Sydney Water – see IPART, *Review of prices for Sydney Water Corporation - From 1 July 2016 to 30 June 2020 – Draft Report*, March 2016, chapter 8. Change is \$1,167 in 2015-16 minus \$1,069 for 2016-17.

We note the price and bill analysis presented above does not include the potential impact of Shoalhaven transfer costs on Sydney Water or its customers. As discussed in Chapter 8, we have included a mechanism to pass WaterNSW's Shoalhaven transfer costs through to Sydney Water via the volumetric charge. In our concurrent review of Sydney Water's prices, we have also included provision for Sydney Water to pass through the costs of Shoalhaven transfers (arising from its increased WaterNSW costs) to the service charges of its customers in the year after these costs are incurred.

However, we do not expect the cost of Shoalhaven transfers to have a significant impact on end use water customers. For example, WaterNSW forecast Shoalhaven transfer costs of \$8.5 million over the 2016 determination period, which equates to about 10% of its notional revenue requirement.

### 9.1.2 Impacts on local councils and their customers

We expect that our draft prices for the three councils will have a negligible impact on their bills.

For the 2016 determination period, we have changed the Councils' fixed to usage (volumetric) pricing ratio from 25:75 to 80:20. We note that the Councils have agreed<sup>98</sup> to the new ratio after being informed by WaterNSW that its proposed prices would reduce their total revenue requirement from \$1.4 million in 2015-16 to \$1.1 million<sup>99</sup> per annum in each year of the 2016 determination period.

Our proposed prices are higher than those proposed by WaterNSW,<sup>100</sup> but will still result in a reduced annual revenue requirement of \$1.3 million per annum over the 2016 determination period.<sup>101</sup>

Under our draft determined prices:

- ▼ Wingecarribee Council's fixed charge will be \$189,644 (22.8%) per year higher than under WaterNSW's proposed prices
- ▼ Shoalhaven City Council's fixed charge will be \$439 (2.4%) per year higher than under WaterNSW's proposed prices
- ▼ Goulburn Council's fixed charge will be \$7,389 (47.4%) per year higher than under WaterNSW's proposed prices, and
- ▼ each council's usage charge will be approximately one cent per kilolitre (22.8%) higher.

<sup>98</sup> Transcript IPART Public Hearing, 10 November 2015, p 20.

<sup>99</sup> WaterNSW's proposed prices remain the same in real terms throughout the 2016 determination period and its proposed water demand for each council also remains constant for each year.

<sup>100</sup> We made some amendments to better align WaterNSW's pricing calculations with the pricing principles we use to calculate prices (ie, we included of a tax allowance building block, a WACC of 4.8% and some other amendments to depreciation and inflation inputs).

<sup>101</sup> Similar to WaterNSW's proposals, our proposed prices remain the same in real terms throughout the 2016 determination period and we have forecast that each Council's forecast water demand will also remain the same for each year.



The Councils' charges are higher under our determined prices compared to WaterNSW's proposal, but our determined prices still result in a 4.4% decrease in the councils' forecast bills compared to current prices (2015-16).

**Table 9.3 WaterNSW's proposed prices to Councils (\$2015-16)**

	2015-16 Current	2016-17	2017-18	2018-19	2019-20
<b>Fixed charge (\$/month)</b>					
Wingecarribee Council	23,118	69,298	69,298	69,298	69,298
Shoalhaven City Council	600	1,559	1,559	1,559	1,559
Goulburn-Mulwaree Council	1,801	1,299	1,299	1,299	1,299
<b>Volumetric charge (\$/ML)</b>	216.17	43.31	43.31	43.31	43.31
<b>Total council revenue (\$M)</b>	1.4	1.3	1.3	1.3	1.3
<b>Change in revenue year on year</b>		-4.1%	0.0%	0.0%	0.0%

Source: WaterNSW pricing proposal to IPART, June 2015, pp 59-61, and IPART calculations.

### 9.1.3 Impacts on raw water and unfiltered water customers

We have decided to maintain prices for small customers in real terms over the determination period. Therefore, excluding inflation, our draft prices will have no impact on customers' bills (assuming consumption patterns remain stable).

## 9.2 Impacts on service standards

We have assessed the impact of our draft decisions on service standards and are satisfied that WaterNSW can achieve efficiency savings and generate sufficient revenue to maintain its service standards.

WaterNSW has proposed significant savings as a result of the merger of the former SCA and State Water. Under our Draft Determination, we are satisfied that WaterNSW can achieve efficiency savings and generate sufficient revenue to maintain its service standards.

Over the 2012 determination period, WaterNSW:<sup>102</sup>

- ▼ achieved 100% full to high compliance with licence<sup>103</sup> conditions selected for audits in 2012-13 and 2013-14, and is addressing recommendations relating to improvements in the Water Quality Management System
- ▼ achieved greater than 99% compliance against the Raw Water Supply Agreement with Sydney Water, and

<sup>102</sup> WaterNSW pricing proposal to IPART, June 2015, p 27.

<sup>103</sup> WaterNSW's Operating Licence sets out requirements to be met in relation to quality standards for raw water, catchment management and water supply.

- ▼ complied with the NSW Dam Safety Committee's requirements, Australian National Committee on Large Dams guidelines, and with current international best practice regarding dam safety.

WaterNSW reports<sup>104</sup> that there are no proposals to change the levels of service over the 2016 determination period. Service standards (in the form of water quality standards and reliable delivery of water) are contained in supply agreements, which are not due for review in the foreseeable future.

As the administrator of WaterNSW's Operating Licence,<sup>105</sup> we will monitor WaterNSW's performance over the 2016 determination period. As well, we have set output measures to reflect the nature of the capital program and we expect WaterNSW to report against the output measures over the 2016 determination period. A list of the output measures for WaterNSW is set out in Chapter 4.

We consider that the prices we have determined will allow WaterNSW to continue to meet its obligations in relation to service standards.

### 9.3 Impacts on WaterNSW and its shareholder

We have assessed the impact of our draft prices on WaterNSW and are satisfied that WaterNSW will be financially sustainable over the 2016 determination period based on the prices in this Determination. That is, WaterNSW will be able to:

- ▼ fund the provision of its regulated services, and maintain, renew and develop the assets required to provide these services
- ▼ service and repay debt, and
- ▼ access debt markets for new borrowing requirements.

Further, we are satisfied that this Determination will enable WaterNSW to earn a reasonable rate of return on its assets.

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<sup>104</sup> Aither, WaterNSW Greater Sydney expenditure review, February 2016, p 116.

<sup>105</sup> IPART administers operating licences for four government water utilities. Each licence is regularly reviewed and annually audited.

### 9.3.1 Rate of return

The prices we have determined will allow WaterNSW to generate enough revenue to recover its efficient costs over the 2016 determination period. Our calculation of efficient costs includes a rate of return component based on WaterNSW's WACC (see Chapter 5). Therefore, the prices will allow WaterNSW to achieve a real post-tax rate of return on its regulated asset base of 4.8%.

### 9.3.2 Financeability

We consider that the prices we have determined will allow WaterNSW to remain financially sustainable over the 2016 determination period.

In making price determinations, IPART applies a financeability test to assess how pricing decisions are likely to affect a utility's short term financial viability. The financeability test is based on a utility's actual gearing ratio and a forecast of the actual interest expense. We assess whether our pricing decisions would enable the utility to raise finance consistent with an investment grade rated (Baa2) firm, over the regulatory period.

WaterNSW is unable to provide separate actual debt levels and interest costs for its WaterNSW **Greater Sydney** and WaterNSW **Rural** regulated businesses. On this basis, we have decided to determine WaterNSW's financeability at the corporate level (ie, combined WaterNSW Greater Sydney and WaterNSW Rural regulated businesses). To do this, we analyse the results of our determined prices on the financial results of the Greater Sydney business while keeping the results of the Rural business constant.

Under this approach, if corporate WaterNSW's financeability is of concern, we would carry out further investigations and consider adjusting the prices of the business that we are currently reviewing. To do this, we would need to analyse contextual matters present at the time, for example:

- ▼ examining the immediate past price review of the other regulated business, and
- ▼ examining the current operating environment of each regulated business.

Our financeability test involves calculating three credit metrics and comparing them to the Baa2 benchmarks:

- ▼ Funds from operations (FFO) interest cover: calculated as FFO plus interest expense divided by interest expense. This is a coverage ratio and measures a utility's ability to service its debt prior to repayment.
- ▼ Debt gearing (Debt/RAB): calculated as debt divided by the regulatory value of fixed assets plus working capital. This is a leverage ratio and measures a utility's ability to repay its debt.

- ▼ FFO over net debt: calculated as FFO divided by net debt. This is a more dynamic measure of leverage than debt gearing and a useful indicator of a utility's ability to generate cash flows.

Table 9.4 below shows our calculations for the three ratios we use to assess financeability.

**Table 9.4 WaterNSW (corporate) financeability ratios**

Ratio	2015-16 Current	2016-17	2017-18	2018-19	2019-20
FFO interest cover	4.6	4.2	3.9	4.1	3.9
Debt gearing	23%	24%	26%	27%	28%
FFO over debt	27%	20%	19%	19%	19%

Source: IPART calculations.

Table 9.5 shows the calculations for the key financial ratios IPART uses in assessing financeability.

**Table 9.5 IPART rating categories and benchmarks**

Ratio	A3	Baa1	Baa2	Baa3	Ba1
FFO interest cover	>2.9	2.3-2.9	1.7-2.5	1.4/1.5-1.7	<1.4/1.5
Debt gearing	<60%	80-85%	60-91%	90-100%	>100%
FFO over debt	>10%	>10%	6-10%	5-8%	<4%

Source: IPART calculations

Table 9.4 shows that WaterNSW consistently outperforms our minimum benchmark rating (Table 9.5 - Baa2), with all calculated ratios for all years of the 2016 determination period above our benchmark rating (Baa2).

WaterNSW's gearing ratio grows from 24% to 28% over the 2016 determination. While this results in a positive result for WaterNSW's financeability test, this is less than half our benchmark of 60%. We believe that this is inconsistent with Treasury's capital structure policy.<sup>106</sup>

We conclude that based on our draft prices WaterNSW will maintain its financial position over the 2016 determination period.

<sup>106</sup> NSW Treasury, *Capital Structure Policy for Government Businesses*, September 2002, p 9.

### 9.3.3 Dividend payments

Dividend policy is a matter for WaterNSW and the NSW Government. For our modelling purposes, we applied a 70% dividend payout ratio<sup>107</sup> in our financeability assessment. We consider that our determined prices will support this dividend payout ratio and enable WaterNSW to maintain its financeability.

## 9.4 Other impacts

We have assessed the impact of our draft prices on general price inflation, Consolidated Fund, the environment and water quality are satisfied that our prices allow WaterNSW to meet its obligations.

Under the IPART Act, we are required to have regard to various matters that may be impacted by our pricing determinations.

Under section 16 of the IPART Act, IPART is required to report on the likely **impact 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 will fall. The extent of this fall will depend on Treasury's application of its financial distribution policy and how the change affects after-tax profit.

Our financial modelling is based on a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit. 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 after-tax profit of 70 cents.

Under section 15 of the IPART Act, we are required to consider the effect of our determinations **on general price inflation**. Currently, water and wastewater costs in Sydney contribute 0.26% towards the consumer price index (all groups, 8 capital cities),<sup>108</sup> while the annual average increase in the bill of a typical Sydney Water residential water and wastewater customer consuming 200 kL per annum is -2.7% (in real terms). Therefore, the approximate annual impact on general price inflation is -0.007% points (above the change in the CPI).<sup>109</sup> Considering that the cost of bulk water from WaterNSW to Sydney Water is less than 10% (Table 10.1), the impact of WaterNSW's services on general inflation is negligible.

<sup>107</sup> We have used NSW Treasury's standard reference point of a dividend payout ratio of 70% of after-tax profit for Government businesses, NSW Treasury, *Financial Distribution Policy for Government Businesses*, May 2014, tpp 14-04, p 3.

<sup>108</sup> Australian Bureau of Statistics, Consumer Price Index 16th Series Weighting Pattern (cat. no. 6471.0).

<sup>109</sup>  $-0.007\% = -2.7\% \times 0.26\%$ .

Under section 15 of the IPART Act, we are required to have regard to the need to maintain ecologically sustainable development by taking account of all feasible options **to protect the environment**.

We expect that our price decisions will enable WaterNSW to meet its environmental performance standards and encourage sustainable water management and consumption over the 2016 determination period.

We set prices to enable WaterNSW to recover its efficient costs of delivering its monopoly services, including providing it with sufficient revenue to efficiently comply with its regulatory requirements (including environmental requirements).

There are various measures that WaterNSW is required to report on regarding its environmental objectives.

Under its Operating Licence, WaterNSW is required to provide IPART with an Environmental Management Report annually that details:

- ▼ WaterNSW's environmental objectives and targets, and
- ▼ programs for environmental management implemented to achieve WaterNSW's environmental objectives and targets.

The Environmental Management Report must cover WaterNSW's progress in maintaining its programs across the business to manage risks to the environment and meet the requirements of the *WaterNSW Act 2014* (such as complying with the principles of ecologically sustainable development).

WaterNSW is required to report against various indicators, including indicators concerned with the environmental consequences of greenhouse gas emissions, water quality and river health in the catchments.

Over the 2012 determination period, WaterNSW met all its requirements relating to the environment. This was achieved within the operating expenditure allowance set in the 2012 Determination.

We note that over the 2012 determination period, WaterNSW's Healthy Catchment Strategy:<sup>110</sup>

- ▼ Provided more than \$800,000 in infrastructure grants to target high priority sewage and stormwater infrastructure improvements in the catchment.
- ▼ Committed \$1.4 million to assist landholders to treat erosion, protect riparian areas and manage grazing land to best practice. By 31 December 2014, 41 grants had been awarded.

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<sup>110</sup> WaterNSW pricing proposal to IPART, June 2015, p 21.

- ▼ Maintained a strong focus on the impacts of mining on the catchments and water supply infrastructure by ongoing active involvement in planning approval and subsidence management processes to identify and mitigate risks posed by mining as well as undertaking science and research to help determine long-term impacts of mining on water resources and related environments.

We also note that WaterNSW made substantial progress towards developing a fully implemented Environmental Management System (EMS).<sup>111</sup> WaterNSW reports that the EMS is on track for certification by 30 June 2016, well ahead of the 30 June 2017 Operating Licence requirement. It also maintained 100% environmental release compliance with the requirements of the Combined Approvals under the Water Sharing Plan.

The quality of water supplied by WaterNSW to its customers in the Greater Sydney area of operations is regulated through its Operating Licence, Raw Water Supply Agreements and through a Memorandum of Understanding with NSW Health. All water quality requirements in the Operating Licence are subject to the approval of NSW Health and all water quality reporting obligations on WaterNSW include reporting to NSW Health. During the 2012 determination period, WaterNSW met or exceeded all its water quality compliance targets.

WaterNSW's environmental obligations and water quality requirements require a large portion of its budget. We consider that the prices we have determined will allow WaterNSW to fund those obligations over the 2016 determination period.

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<sup>111</sup> WaterNSW pricing proposal to IPART, June 2015, p 22.







## Appendices



## A Matters to be considered by IPART 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).

Table A.1 outlines the sections of the report that address each matter.

**Table A.1 Consideration of section 15 matters by IPART**

<b>Section 15(1)</b>	<b>Report reference</b>
a) the cost of providing the services	Chapter 3 and 4
b) the protection of consumers from abuses of monopoly power	Chapter 7
c) the appropriate rate of return and dividends	Chapter 5
d) the effect on general price inflation	Chapter 9
e) the need for greater efficiency in the supply of services	Chapter 3 and 4
f) ecologically sustainable development	Chapter 9.
g) the impact on borrowing, capital and dividend requirements	Chapter 9
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	Not applicable
i) need to promote competition	Chapter 8
j) considerations of demand management and least cost planning	Chapter 6 and 8
k) the social impact	Chapter 2 and 9
l) standards of quality, reliability and safety	Chapter 9

## B WaterNSW's regulatory framework

### B.1 WaterNSW's regulatory framework

The roles and responsibilities of WaterNSW are prescribed by the *Water NSW Act 2014*, and the operating licence issued to the former SCA. Under Section 6 of the *Water NSW Act 2014*, WaterNSW is required to meet the following primary objectives:

- ▼ capture, store and release water in an efficient, effective, safe and financially responsible manner
- ▼ supply water in compliance with appropriate standards of quality
- ▼ ensure that declared catchment areas and water management works in such areas are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment
- ▼ provide for the planning, design, modelling and construction of water storages and other water management works, and
- ▼ maintain and operate the works of WaterNSW efficiently and economically and in accordance with sound commercial principles.

It also has other objectives, including: to be a successful business; exhibit a sense of social responsibility towards the community and regional development; and conduct its operations in compliance with the principles of ecologically sustainable development.

WaterNSW's operations are governed by a number of regulatory requirements and licensing regimes, including:

- ▼ **IPART.** We are responsible for setting the maximum prices that WaterNSW can charge for its monopoly services. We are also responsible for monitoring and reporting on WaterNSW's compliance with its operating licence, including its obligations in relation to customer service, water quality, and system performance.
- ▼ **NSW Dam Safety Committee.** The Committee is responsible for prescribing dam safety requirements and monitoring compliance of WaterNSW's prescribed dams with those requirements.

- ▼ **NSW Health.** NSW Health provides advice to WaterNSW on public health issues in regard to drinking water. The Memorandum of Understanding (MoU) between NSW Health and WaterNSW recognises the role of each agency in relation to water quality standards and public health.
- ▼ **Department of Primary Industries Water (DPI Water, formerly the NSW Office of Water).** DPI Water is responsible for licensing WaterNSW's extractions of water from the natural environment and regulating its releases of water to the environment.
- ▼ **Environment Protection Authority (EPA).** The EPA is responsible for monitoring WaterNSW's compliance with EPA's regulatory instruments relating to environment protection. The MoU between the two agencies recognises their role in protecting the environment of NSW.
- ▼ **Catchment Audits.** Under the WaterNSW Act, WaterNSW is required to conduct catchment audits every three years, and assess the state of the catchments having regard to catchment health indicators, and document its findings in its annual Catchment Activities report.
- ▼ **Water supply agreements.** The agreements outline the arrangements between WaterNSW and its customers for the supply of water.

IPART audits WaterNSW's activities in the GS area for compliance with the Operating Licence and reports to the Minister each year. We completed our last operational audit in December 2014, for the period 1 July 2013 – 30 June 2014.<sup>112</sup>

We found that over the audit period, WaterNSW achieved full compliance with requirements relating to water supply sufficiency, catchment and environmental management, and high compliance with requirements relating to water quality.<sup>113</sup>

## B.2 Metropolitan Water Plan

The NSW Government's Metropolitan Water Plan outlines the mix of supply augmentation and demand management measures that ensure Sydney, the Illawarra and the Blue Mountains have enough water now and for the future. The Metropolitan Water Plan is reviewed periodically. It was first developed in 2004 in response to indications a drought was taking hold, updated in 2006 due to deepening drought, and updated again in 2010 as part of the review cycle.<sup>114</sup>

<sup>112</sup> IPART, *Sydney Catchment Authority Operational Audit 2013/14 - Compliance Report*, December 2014.

<sup>113</sup> IPART, *Sydney Catchment Authority Operational Audit 2013/14 - Compliance Report*, December 2014, p 1.

<sup>114</sup> NSW Government, Metropolitan Water Directorate, *Updating the Plan*, accessed on 12 June 2015 from <http://www.metrowater.nsw.gov.au/planning-sydney/updating-plan>

The 2010 Metropolitan Water Plan is currently being reviewed to take account of changes in water demand and supply, and new data and research. The Metropolitan Water Directorate (responsible for developing the plan) has adopted a phased approach to the review of the 2010 Plan, with reports to the NSW Government at the end of each phase:<sup>115</sup>

- ▼ **Phase 1** – scoping, research and investigations and community engagement (complete).
- ▼ **Phase 2** – portfolio development and assessment, including hydro-economic modelling; review of options for future water conservation and recycling; preliminary business case for releasing environmental-flows from Warragamba Dam; community engagement; development of a monitoring, evaluation, reporting and improvement plan (commenced).
- ▼ **Phase 3** – further hydro-economic modelling and community engagement before finalising the preferred portfolio of measures for securing water supply.
- ▼ **Phase 4** – Government consideration and endorsement of the revised plan.

Currently, the Metropolitan Water Plan has no statutory force. However, as noted above, Sydney Water is required to maintain and comply with an agreed roles and responsibility protocol regarding the development and implementation of the Metropolitan Water Plan under its Operating Licence.

Of particular relevance to our current review of Sydney Water's prices will be:

- ▼ the operating environment and rules prescribed for SDP
- ▼ the impact of the Metropolitan Water Plan on estimates of the Long Run Marginal Cost (LRMC) of water supply (ie, our benchmark for setting water usage prices in past water price reviews), and
- ▼ possible cost implications for WaterNSW and flow through to Sydney Water's long-term bulk water costs.

The Metropolitan Water Plan has strong links with the Government's Hawkesbury-Nepean Valley Flood Management Review, which considers options for managing flooding downstream of Warragamba Dam.<sup>116</sup> This review may impact the timing of the Metropolitan Water Plan.

<sup>115</sup> NSW Government, Metropolitan Water Directorate, Updating the Plan, accessed on 12 June 2015 from <http://www.metrowater.nsw.gov.au/planning-sydney/updating-plan/current-review>

<sup>116</sup> NSW Government, Department of Primary Industries, Hawkesbury-Nepean Valley Flood Management Review, accessed on 12 June 2015 from <http://www.water.nsw.gov.au/water-management/water-availability/flood-management/hawkesbury-nepean-valley-flood-management-review>

In the 2012 Determination, we passed through the prudent and efficient costs related to the Metropolitan Water Plan. The 2010 Metropolitan Water Plan set the following goals for 2015:<sup>117</sup>

- ▼ 70 GL per year of recycled water in Sydney (these projects are mostly delivered by Sydney Water).
- ▼ Up to 90 GL per year of desalinated water.
- ▼ Saving 145 GL per year through water efficiency (Sydney Water has had a large role in implementing these measures).<sup>118</sup>

### B.3 Hawkesbury-Nepean Valley Flood Management Review

The NSW Government is also examining ways to mitigate flood risk in the Hawkesbury-Nepean Valley, downstream of Warragamba Dam.<sup>119</sup> Following preliminary investigations, a taskforce was appointed in early 2014 to identify ways to improve the local communities' ability to respond to floods and examine various flood mitigation options.

The options being considered may have implications for WaterNSW's expenditure program. However, as the review is yet to conclude, WaterNSW could not factor the taskforce's final recommendations in its pricing proposal.<sup>120</sup>

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<sup>117</sup> NSW Government, Metropolitan Water Directorate, 2010 Metropolitan Water Plan, August 2010, p 7.

<sup>118</sup> We note total demand for water in the greater Sydney area is around 500 GL each year.

<sup>119</sup> NSW Government, Department of Primary Industries, Hawkesbury-Nepean Valley Flood Management Review, accessed on 12 June 2015 from <http://www.water.nsw.gov.au/water-management/water-availability/flood-management/hawkesbury-nepean-valley-flood-management-review>

<sup>120</sup> WaterNSW pricing proposal to IPART, June 2015, p 43.



## C Weighted average cost of capital

This appendix provides an overview of our draft decision on the weighted average cost of capital (WACC) to apply to WaterNSW. Our Draft decision is to apply a post-tax real WACC of 4.8% to calculate the return on WaterNSW's assets.

### Reasons for our decision

#### C.1 Overview

We have developed our approach to setting the WACC in consultation with stakeholders in a number of reviews over the last few years.<sup>121</sup> Our draft decision is to use the resulting methodologies for all aspects of the WACC. The parameters that underpin our draft decision are shown in Table C.1.

**Table C.1 Rate of return range and parameters (sampled to 20 January 2016)**

	WACC: current data			WACC: long-term			WACC range		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
Nominal risk free rate		2.8%			4.6%				
Inflation		2.5%			2.5%				
Debt margin		2.8%			2.9%				
Gearing		60%			60%				
Market risk premium	7.0%	8.5%	10.0%	5.5%	6.0%	6.5%			
Equity beta	0.6	0.7	0.8	0.6	0.7	0.8			
Cost of debt (nominal pre-tax)		5.6%			7.5%				
Nominal Vanilla WACC	6.2%	6.9%	7.7%	7.7%	8.0%	8.4%	6.9%	7.4%	8.0%
Post-tax real WACC	3.6%	4.3%	5.1%	5.0%	5.4%	5.8%	4.3%	<b>4.8%</b>	5.4%

**Source:** Bloomberg, RBA, IPART calculations.

<sup>121</sup> We completed a major review of the WACC in 2013 [IPART, *Review of WACC Methodology – Final Report*, December 2013]. More recently, we developed the method of estimating the debt margin and the inflation adjustment [IPART, *IPART's New Approach to Estimating the Cost of Debt – Final Report*, April 2014; IPART, *New approach to forecasting the WACC inflation adjustment – Fact Sheet*, March 2015].

The WACC is based on market data (risk free rate, debt margin and inflation) sampled to 20 January 2016. The market-based parameters and the resulting WACC will be updated before we make our final decision.

In our 2013 review of the WACC, we set out a decision rule for selecting a point within our range of WACC values.<sup>122</sup> As our measure of market uncertainty is currently within one standard deviation of the long-term average, we have selected the midpoint WACC value (Figure C.1).

WaterNSW's initial proposal was for a WACC of 4.58%.<sup>123</sup> This value was based on our standard approach and industry-specific parameters for all aspects of the WACC. WaterNSW subsequently provided an updated WACC to correct their proposal.<sup>124</sup> While their revised WACC proposal was also for 4.58%, they altered their WACC estimate in two ways: they revised their debt margin values and proposed a WACC that placed a 60% weighting on the long-term (10-year) WACC estimate and 40% weight on the current WACC estimate. They did not provide any rationale or evidence to support departing from our standard approach of weighting long-term and current WACC estimates by 50:50.

## C.2 50:50 weighting on long-term and current WACC estimates

Our draft decision is to retain the existing 50:50 weighting of the long-term and current WACC estimates.

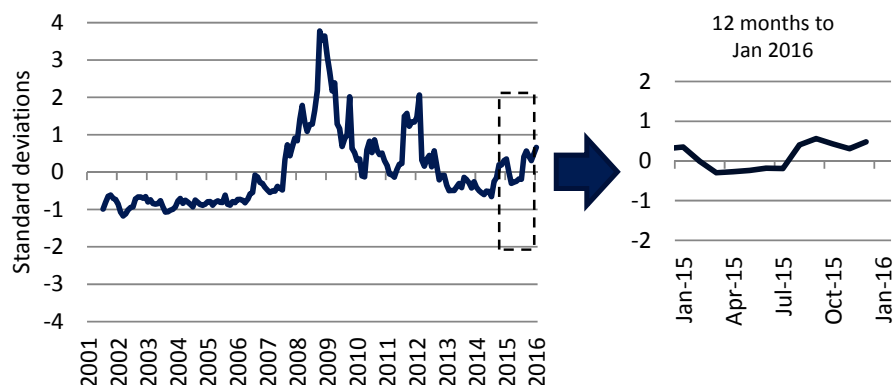
In accordance with our 2013 WACC methodology decision rule for selecting the WACC point estimate,<sup>125</sup> we have selected the midpoint WACC value within our range because the current uncertainty index threshold has not been exceeded (see Figure C.1). This has the effect of weighting the long-term and current WACC estimates by 50:50. We have consistently applied this decision rule in all of our WACC decisions since establishing the methodology.

<sup>122</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 4.

<sup>123</sup> WaterNSW, pricing proposal to IPART, June 2015, p 48.

<sup>124</sup> Email from WaterNSW to IPART, Correction to Table 5.2, WaterNSW Greater Sydney IPART Submission, 18 August 2015.

<sup>125</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013.

**Figure C.1** IPART's uncertainty index

Source: IPART analysis.

We conducted a major review of our WACC methodology in 2013. An important reform of the WACC review was to address the fall in the yield on 10-year Commonwealth Government bonds, which is the basis for our measure of the risk free rate.

As shown in Figure C.2, five years ago, yields were around 5% to 6%. Current levels are around 2% to 3%. We developed a WACC methodology that estimated the WACC using both 10-year averages and 40-day averages of market data, including the risk free rate. We also specified that if market conditions are relatively stable,<sup>126</sup> we would select the midpoint estimate. On the other hand, if market uncertainty exceeds our pre-defined threshold, we would consider whether we should depart from the midpoint of our WACC range.<sup>127</sup>

<sup>126</sup> That is, when the uncertainty index is within one standard deviation of long-term averages.

<sup>127</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, pp 2, 4.

**Figure C.2 Yield on 10-year Commonwealth Government bonds**

Data source: Bloomberg.

We also consider that applying our pre-defined decision rule and WACC methodology enhances the transparency and predictability of our regulatory approach. It is noteworthy that WaterNSW's initial submission supported the developments in our WACC approach, including the 50:50 weighting on current and long-term data. WaterNSW states:

The review resulted in a revised methodology that is more robust and is likely to withstand financial market volatility. One of the key changes to the WACC framework is the way the cost of debt is calculated. Under the new methodology, 50% of the cost of debt is calculated using the 'on the day' approach and 50% is calculated using the long term average approach. At the time of the review, the then SCA supported IPART in adopting the revised methodology as it provides improved certainty and stability in the rate of return. WaterNSW continues to support the revised approach and took the opportunity during the merger process to restructure the former SCA's debt portfolio to mirror IPART's cost of debt methodology.<sup>128</sup>

<sup>128</sup> WaterNSW pricing proposal to IPART, June 2015, p 48.

## D Efficiency carryover mechanism

### D.1 Current form of regulation

In its pricing proposal, Sydney Water identified and discussed a shortcoming with the current form of regulation. Under the current form of regulation, the financial reward for making permanent efficiency savings deteriorates over the regulatory period.<sup>129</sup> A saving made in year 1 can be held for four years whereas a saving made in year 3 can be held for just two years.

This can result in an incentive for businesses to delay revealing efficiency savings from the end of one regulatory period until the beginning of the next regulatory period. Figure D.1 illustrates the problem.

**Figure D.1 Problem identified with the current form of regulation**

	Present Value 5%	Regulatory Period 1				Regulatory Period 2				Regulatory Period 3				Terminal Value
Panel 1 - Making a saving in year 3 results in the business receiving two years of benefit														
Year		1	2	3	4	5	6	7	8	9	10	11	12	
Opex allowance		100	100	100	100	90	90	90	90	90	90	90	90	
Actual opex		100	100	90	90	90	90	90	90	90	90	90	90	
Profit	\$16.87	-	-	10	10	-	-	-	-	-	-	-	-	
Benefit to customers	\$159.24	-	-	-	-	10	10	10	10	10	10	10	10	200
	\$176.10													
Panel 2 - The business has an incentive to delay making the saving until year 5 so that it can receive four years of benefit														
Year		1	2	3	4	5	6	7	8	9	10	11	12	
Opex allowance		100	100	100	100	100	100	100	100	90	90	90	90	
Actual opex		100	100	100	100	90	90	90	90	90	90	90	90	
Profit	\$29.17	-	-	-	-	10	10	10	10	-	-	-	-	
Benefit to customers	\$130.06	-	-	-	-	-	-	-	-	10	10	10	10	200
	\$159.24													
Panel 3 - Under an Efficiency Carryover Mechanism, efficiencies are held for four years before being passed to customers														
Year		1	2	3	4	5	6	7	8	9	10	11	12	
Opex allowance		100	100	100	100	100	100	90	90	90	90	90	90	
Actual opex		100	100	90	90	90	90	90	90	90	90	90	90	
Profit to firm	\$32.16	-	-	10	10	10	10	-	-	-	-	-	-	
Benefit to customers	\$143.94	-	-	-	-	-	-	10	10	10	10	10	10	200
	\$176.10													

**Note:** Terminal Value is the present value of the annual benefit to customers into perpetuity (ie, \$10 / WACC).

**Data source:** IPART analysis.

<sup>129</sup> Sydney Water pricing proposal to IPART, June 2015, p 255.

- ▼ Panel 1: if the business makes a permanent efficiency saving in year 3, it can retain this benefit for two years before it is passed to customers in year 5 through a lower allowance leading to lower prices.
  - The present value of this to the business is \$16.87.
  - The present value to customers is \$159.24.
  - While this would be the best outcome for customers, the business may have an incentive to delay the saving in order to hold onto it for longer.
- ▼ Panel 2: if the business decides to delay this efficiency saving until year 5, it retains the benefit for four years before it is passed to customers in year 9.
  - The present value of this to the business is \$29.17 (ie, greater than \$16.87). Therefore the business has an incentive to delay this saving.
  - Delaying the saving results in waste (ie, it is inefficient because the total present value falls from \$176.10 in panel 1 to \$159.24 in panel 2).
  - Delaying the saving makes customers worse off (ie, the present value to customers falls from \$159.24 in panel 1 to \$130.06 in panel 2).
- ▼ Panel 3: With an ECM in place, the business retains the benefit from an efficiency saving for four years regardless of when the saving is made. In theory, the business will then have an incentive to deliver any known efficiency saving as soon as possible.
  - The key difference in panel 3 (compared to panel 1) is the allowance remains at \$100 in years 5 and 6, allowing the business to retain the saving for four years before it is passed on to customers.
  - The present value to the business is \$32.16 (ie, greater than \$29.17). With an ECM, the business has an incentive to make the saving as soon as possible.
  - Bringing savings forward makes customers better off (ie, the present value to customers increases from \$130.06 in panel 2 to \$143.94 in panel 3).
  - Note that under the ECM the total present value (\$176.10) is the same as in panel 1. Therefore, removing the incentive to delay savings results in a more efficient outcome.

## D.2 CEPA's efficiency carryover mechanism

We engaged Cambridge Economic Policy Associates (CEPA) to review Sydney Water's proposed EBSS, our modified EBSS and other options in light of experiences in other jurisdictions and the particular circumstances in NSW's urban water sector.<sup>130</sup>

<sup>130</sup> CEPA, Advice on Efficiency Carryover Mechanisms, February 2016. Available online: [http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro\\_Pricing/Review\\_of\\_prices\\_for\\_Sydney\\_Water\\_Corporation\\_from\\_1\\_July\\_2016](http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro_Pricing/Review_of_prices_for_Sydney_Water_Corporation_from_1_July_2016).

CEPA considered both symmetric and asymmetric options and recommended that we adopt an asymmetric approach. Key features of CEPA's recommended Efficiency Carryover Mechanism (ECM) include:

- ▼ It applies to controllable operating expenditure (ie, total operating expenditure less bulk water costs). This is consistent with Sydney Water's proposal.
- ▼ It does not apply to capex. Although CEPA supports an ECM for capital expenditure in principle, it did not consider there to be evidence of significant substitutability between operating and capital expenditure.<sup>131</sup> Given the additional costs and complexity involved in extending the ECM to include capex, the risk of unintended consequences (ie, over forecasting and inefficient deferral of capex), and the limited potential for substitutability between operating and capital expenditure, CEPA recommended that we not apply the ECM to capex at this time.
- ▼ It is an asymmetric mechanism that rewards permanent cost reductions and does not additionally penalise permanent cost increases. A feature of symmetric schemes is that permanent cost increases are retained by the business for a fixed number of years before being passed on to customers. CEPA considers that the regulator should retain discretion to reset expenditure allowances, which would include reviewing permanent cost increases to ensure they are efficient before passing them on to customers. Sydney Water expressed that it is open to the regulator retaining discretion to reset the allowance. We consider this view is more consistent with an asymmetric approach rather than a symmetric approach.
- ▼ It ensures permanent efficiency savings are held for four years. Although the ECM would be simplified by allowing savings to be held for five years as per Sydney Water's proposal, CEPA considers that a 4-year holding period provides sufficient incentive for the business to find and deliver cost savings.
- ▼ Temporary over and underspends are retained by the business. This is the major difference between the ECM and the modified EBSS and directly addresses Sydney Water's concern with the modified EBSS.

### D.3 Design and operation of the efficiency carryover mechanism

The following three examples show how the ECM is built up from a simple concept to a more complex model capable of handling the fact that we will implement the ECM during year 4 of the determination when we do not know the actual expenditure for that year. Each step builds on the last.

In this section we also make it clear where we have clarified or extended CEPA's recommended ECM.

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<sup>131</sup> Evidenced by Sydney Water's proposal to limit the capital expenditure EBSS to about 9.5% of capital expenditure which it considers to be more recurrent and clearly substitutable with operating expenditure.

Figure D.2 provides a simple worked example. If a permanent saving is made in year 3, the ECM ensures that the business will carry the benefit over into the next regulatory period so that the business gets to retain the benefit for four years.

**Figure D.2 Simple example of how the ECM works**

Year	Regulatory Period 1				Regulatory Period 2			
	1	2	3	4	5	6	7	8
Base allowance	100	100	100	100	80	80	80	80
Actual	100	100	80	80	80	80	80	80
Under (over)	-	-	20	20	-	-	-	-
Outperformance	-	-	20	20	-	-	-	-
Permanent gain	-	-	20	20				
Incremental gain	-	-	20	-				
ECM calc								
- year 1	-	-	-	-				
- year 2		-	-	-	-			
- year 3			20	20	20	20		
- year 4				-	-	-	-	
ECM benefit					20	20	-	-
Total allowance	100	100	100	100	100	100	80	80
Total gain (loss)	-	-	20	20	20	20	-	-

Data source: IPART analysis.

The ECM involves the following steps:

- ▼ Under (over): this gives the difference between the base allowance and actual expenditure.
- ▼ Outperformance: is the same as the under (over) when this is an under-spend. Is set to zero when the under (over) is an over-spend.
- ▼ Permanent gain: working backwards from year 4 to year 1, this calculates how much of the outperformance in year 4 also occurred in year 3; how much of the outperformance that occurred in both years 4 and 3 also occurred in year 2; and how much of this outperformance that occurred in years 4, 3, and 2 also occurred in year 1.
- ▼ Incremental gain: working forwards from year 1 to 4, this calculates the first year that a permanent saving occurred. It is the 'incremental gain' that the ECM ensures is carried forward for four years.
- ▼ ECM calculations: ensures that any incremental gain is held for four years.
- ▼ The regulator retains discretion to reset the base allowance in regulatory period 2. The permanent reduction in expenditure of \$20 is factored into the next period's base allowance. In this example, there are no other adjustments to the base allowance in regulatory period 2.

Figure D.3 shows how the ECM is lagged 1-year to account for the fact that we do not know actual expenditure in year 4 when the ECM is implemented.



**Figure D.3 ECM is lagged 1-year so that it is based on actuals**

Year	Regulatory Period 1					Regulatory Period 2				
	ECM1					ECM2				
	0	1	2	3	4	5	6	7	8	
Base allowance	100	100	100	100	100	80	80	80	80	
Actual	100	100	100	80	80	80	80	80	80	
Under (over)	-	-	-	20	-	-	-	-	-	
Outperformance	-	-	-	20	-	-	-	-	-	
Permanent gain	-	-	-	20						
Incremental gain	-	-	-	20						
ECM1 calc										
- year 0	-	-	-	-	-					
- year 1		-	-	-	-	-				
- year 2			-	-	-	-	-			
- year 3				20	20	20	20	-		
ECM benefit						20	20	-	-	
Total allowance		100	100	100	100	100	100	80	80	
Total gain (loss)		-	-	20	20	20	20	-	-	

Data source: IPART analysis.

In practice, there is a complicating factor. That is, we do not know year 4 actual expenditure when we implement the ECM during the price review (which occurs during year 4). The solution to this problem involves **looking back at four years of actual data**.

- ▼ When we implement ECM1 in year 4, we look at the four previous years of actual data (ie, years 0, 1, 2, and 3). This is implicit in CEPA's model. Our presentation of the ECM makes this explicit.
- ▼ Figure D.3 shows what happens when a permanent efficiency saving is made in year 3, the benefit is assumed to be held in both years 3 and 4. The ECM ensures that the benefit is carried forward a further two years (years 5 and 6).
- ▼ Any further saving made in year 4 will be captured by ECM2. That is, ECM2 will calculate the under (over) spend in year 4 as the lesser of:
  - The base allowance in year 4 minus actual spend in year 4, or
  - The actual spend in year 3 minus the actual spend in year 4.

Figure D.4 shows how the ECM has an adjustment factor to ensure permanent savings made in the last year of the previous determination are only held for four (not five) years.

**Figure D.4 Simple example of how the ECM works**

Real WACC 5%	Regulatory Period 1					Regulatory Period 2			
	ECM1					ECM2			
Year	0	1	2	3	4	5	6	7	8
Base allowance	100	100	100	100	100	80	80	80	80
Actual	80	80	80	80	80	80	80	80	80
Under (over)	20	20	20	20	-	-	-	-	-
Outperformance	20	20	20	20	-	-	-	-	-
Permanent gain	20	20	20	20	-	-	-	-	-
Incremental gain	20	-	-	-	-	-	-	-	-
ECM1 calc									
- year 0	20	20	20	20	20				
- year 1		-	-	-	-				
- year 2			-	-	-				
- year 3				-	-				
- year 0 adjustment						-21			
ECM benefit						-21	-	-	-
Total allowance		100	100	100	100	59	80	80	80
Total gain (loss)	20	20	20	20	20	-21	-	-	-

Data source: IPART analysis.

In this example, a permanent efficiency saving of \$20 is made in year 0. Without an adjustment factor, the business would be able to retain this saving for five years.

Retaining the saving for five years would be inconsistent with the purpose of the ECM of equalising incentives over time. The business may have an incentive to delay savings until the last year of a determination in order to maximise returns.<sup>132</sup>

ECM1 has an adjustment term ('year 0 adjustment') which, in this case, offsets the fifth year of benefit (received in year 4) with a corresponding negative adjustment to the allowance in the first year of the next regulatory period (ie, year 5). We have adjusted the formula used by CEPA to be clear that the adjustment factor only applies when a permanent efficient saving made in year 0. This is consistent with the intent of CEPA's adjustment factor.

Note that we are inflating this adjustment term by the WACC<sup>133</sup> in order to ensure incentives are fully equalised (assuming the WACC represents whatever benefit the business receives from getting the additional 5th year cash flow in year 4). This is an extension to CEPA's model. CEPA recognised and discussed the effect of the time value of money, but, for simplicity, did not include time value of money adjustments in its recommended model.

<sup>132</sup> This incentive already exists under the current form of regulation and is precisely the incentive the ECM is designed to remove.

<sup>133</sup> If cash flows are assumed to occur at the end of each year, this should be the nominal WACC calculated for regulatory period 2.

The adjustment term recognises when a permanent efficiency saving is made in year 0. Because the business receives this benefit for five years (years 0, 1, 2, 3, and 4), the adjustment term inflates the fifth year of this benefit (received in year 4) by the WACC and returns it to customers in year 5.

Given permanent savings made in year 4 are not observed by the regulator and consequently could be held for five years, we include an adjustment to the carryover calculation that claws back 1-year worth of benefit for savings made in year 4 of the previous determination period.

#### **D.4 Reasons for not applying the efficiency carryover mechanism to capex**

A potential side-effect of introducing a rolling incentive mechanism is that it can change the relationship between operating and capital expenditure. On the face of it, there is an argument to introduce ECMs for both operating and capital expenditure on the grounds that this will balance incentives and trade-offs between operating and capital expenditure. However, we have decided to limit the ECM to apply only to operating expenditure at this time for the following reasons:

- ▼ The rationale behind rolling incentive mechanisms like the EBSS and ECM is that businesses have an incentive to delay cost savings because, once revealed, this information will be used to reduce the allowance in the next period. It is clear how this rationale applies to operating expenditure which is relatively stable over time. It is less clear how this rationale applies to capital expenditure which can vary over time as capex plans are delayed or accelerated. A reduction in capex could be a deferral or an efficiency saving, it is difficult to know.
- ▼ Applying the ECM to a small portion of capital expenditure is problematic because it could result in inefficient cost shifting for the purpose of generating benefits through the mechanism.
- ▼ We consider that introducing an ECM for capital expenditure would strengthen the incentive to over forecast and inefficiently defer capital expenditure. Due to asymmetric information, it is difficult to distinguish between efficiency savings and deferrals. Due to the lag between capital expenditure deferral and the resulting deterioration in service standards, it can be difficult to distinguish between efficient and inefficient deferrals.

- ▼ The relationship between operating and capital expenditure is influenced by a range of factors.<sup>134</sup> The premise that operating and capital expenditure incentives will be balanced by applying the same mechanisms to both may not hold in practice and there may be better approaches available to achieve this outcome. For example, balancing incentives for operating and capital expenditure solutions was a major reason in Ofwat's decision to move away from separate operating and capital expenditure allowances (and rolling incentive mechanisms) and to adopt a total expenditure approach.<sup>135</sup>
- ▼ The potential risk of introducing an operating expenditure ECM and not a capital expenditure ECM is that businesses could have an incentive to increase capital expenditure in order to reduce operating expenditure late in the determination period. We consider this risk is limited by ex-post capital expenditure reviews that assess whether increases in capex are prudent and efficient.

#### **D.5 Examples of how the efficiency carryover mechanism would apply under various scenarios**

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<sup>134</sup> Including the extent of substitutability between opex and capex, the actual cost of capital relative to the allowed WACC, governance frameworks, and management incentives.

<sup>135</sup> Ofwat, *Setting price controls for 2015-20 – Final methodology and expectations for companies' business plans*, July 2013, pp 18-19. [http://www.ofwat.gov.uk/wp-content/uploads/2015/11/pap\\_pos201307finalapproach.pdf](http://www.ofwat.gov.uk/wp-content/uploads/2015/11/pap_pos201307finalapproach.pdf)

**Example 1 of 6: When a permanent saving is made in year 1 (2016-17)**

- ▼ The saving is in year 1 of the regulatory period. There is no additional carryover under the ECM. The business keeps the saving for the four years.

INPUT VALUES																	
WACC		5%															
Base allowance RP1		100															
Base allowance RP2		90															
Base allowance RP3		90															
Regulatory Periods		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanisms						ECM2016				ECM2020				ECM2024			
ROW		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90
2	Actual expenditure	100	100	100	100	90	90	90	90	90	90	90	90	90	90	90	90
3	Gain (loss)				0	10	10	10									
4	Out performance				0	10	10	10									
5	Permanent gain				0	10	10	10									
6	Incremental gain				0	10	0	0									
7	ECM calc																
8	- 2015-16				0	0	0	0	0								
9	- 2016-17					10	10	10	10								
10	- 2017-18						0	0	0	0							
11	- 2018-19							0	0	0	0						
12	- 2019-20 adjustment									0	0						
13	<b>ECM1 benefit</b>									<b>0</b>	<b>0</b>	<b>0</b>					
14	Gain (loss)								0	0	0	0					
15	Out performance								0	0	0	0					
16	Permanent gain								0	0	0	0					
17	Incremental gain								0	0	0	0					
18	ECM calc																
19	- 2019-20								0	0	0	0	0				
20	- 2020-21									0	0	0	0				
21	- 2021-22										0	0	0	0			
22	- 2022-23											0	0	0	0		
23	- 2023-24 adjustment													0	0		
24	<b>ECM2 benefit</b>													<b>0</b>	<b>0</b>	<b>0</b>	
25	Total allowance			100	100	100	100	100	100	90	90	90	90	90	90	90	90
26	Total gain / loss			0	0	10	10	10	10	0	0	0	0	0	0	0	0

Source: IPART analysis.

### Example 2 of 6: When a saving is made in year 2 (2017-18)

- ▼ The saving is in year 2 of the regulatory period. The ECM carries the benefit forward 1-year into the next regulatory period. The business keeps the saving for four years.

INPUT VALUES																	
WACC		5%															
Base allowance RP1		100															
Base allowance RP2		90															
Base allowance RP3		90															
Regulatory Periods		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanisms						ECM2016				ECM2020				ECM2024			
ROW		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90
2	Actual expenditure	100	100	100	100	100	90	90	90	90	90	90	90	90	90	90	90
3	Gain (loss)				0	0	10	10									
4	Out performance				0	0	10	10									
5	Permanent gain				0	0	10	10									
6	Incremental gain				0	0	10	0									
7	ECM calc																
8	- 2015-16				0	0	0	0	0								
9	- 2016-17					0	0	0	0								
10	- 2017-18						10	10	10	10							
11	- 2018-19							0	0	0	0						
12	- 2019-20 adjustment									0							
13	ECM1 benefit									10	0	0					
14	Gain (loss)								0	0	0	0					
15	Out performance								0	0	0	0					
16	Permanent gain								0	0	0	0					
17	Incremental gain								0	0	0	0					
18	ECM calc																
19	- 2019-20								0	0	0	0	0				
20	- 2020-21									0	0	0	0				
21	- 2021-22										0	0	0	0			
22	- 2022-23											0	0	0	0		
23	- 2023-24 adjustment													0			
24	ECM2 benefit													0	0	0	
25	Total allowance			100	100	100	100	100	100	100	90	90	90	90	90	90	90
26	Total gain / loss			0	0	0	10	10	10	10	0	0	0	0	0	0	0

Source: IPART analysis.

### Example 3 of 6: When a saving is made in year 3 (2018-19)

- ▼ The saving is in year 3 of the regulatory period. The ECM carries the benefit over two years into the next regulatory period. The business keeps the saving for four years.

INPUT VALUES																					
WACC		5%																			
Base allowance RP1		100																			
Base allowance RP2		90																			
Base allowance RP3		90																			
Regulatory Periods		RP2012				RP2016				RP2020				RP2024							
Efficiency Carryover Mechanisms						ECM2016				ECM2020				ECM2024							
ROW		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28				
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90				
2	Actual expenditure	100	100	100	100	100	100	90	90	90	90	90	90	90	90	90	90				
3	Gain (loss)				0	0	0	10													
4	Out performance				0	0	0	10													
5	Permanent gain				0	0	0	10													
6	Incremental gain				0	0	0	10													
7	ECM calc																				
8	- 2015-16				0	0	0	0	0												
9	- 2016-17					0	0	0	0												
10	- 2017-18						0	0	0	0											
11	- 2018-19							10	10	10	10										
12	- 2019-20 adjustment									0											
13	<b>ECM1 benefit</b>									<b>10</b>	<b>10</b>	<b>0</b>									
14	Gain (loss)								0	0	0	0									
15	Out performance								0	0	0	0									
16	Permanent gain								0	0	0	0									
17	Incremental gain								0	0	0	0									
18	ECM calc																				
19	- 2019-20								0	0	0	0	0								
20	- 2020-21									0	0	0	0								
21	- 2021-22										0	0	0	0							
22	- 2022-23											0	0	0	0						
23	- 2023-24 adjustment													0		0					
24	<b>ECM2 benefit</b>													<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>				
25	Total allowance			100	100	100	100	100	100	100	100	90	90	90	90	90	90				
26	Total gain / loss			0	0	0	0	10	10	10	10	0	0	0	0	0	0				

Source: IPART analysis.

**Example 4 of 6: When a saving is made in year 4 (2019-20)**

- ▼ The saving is in year 4 of the regulatory period. The business keeps this saving for five years. However, ECM2020 returns the fifth year of saving (after adjusting this amount by the WACC) to customers in year 1 of the next determination period (ie, 2024-25).

INPUT VALUES																	
WACC		5%															
Base allowance RP1		100															
Base allowance RP2		100															
Base allowance RP3		90															
Regulatory Periods		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanisms						ECM2016				ECM2020				ECM2024			
ROW		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	100	100	100	100	90	90	90	90
2	Actual expenditure	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90	90
3	Gain (loss)				0	0	0	0									
4	Out performance				0	0	0	0									
5	Permanent gain				0	0	0	0									
6	Incremental gain				0	0	0	0									
7	ECM calc																
8	- 2015-16				0	0	0	0	0								
9	- 2016-17					0	0	0	0								
10	- 2017-18						0	0	0	0							
11	- 2018-19							0	0	0	0						
12	- 2019-20 adjustment									0	0						
13	ECM1 benefit									0	0	0					
14	Gain (loss)								10	10	10	10					
15	Out performance								10	10	10	10					
16	Permanent gain								10	10	10	10					
17	Incremental gain								10	0	0	0					
18	ECM calc																
19	- 2019-20								10	10	10	10	10				
20	- 2020-21									0	0	0	0				
21	- 2021-22										0	0	0	0			
22	- 2022-23											0	0	0	0		
23	- 2023-24 adjustment													-10.5			
24	ECM2 benefit													-10.5	0	0	
25	Total allowance			100	100	100	100	100	100	100	100	100	100	79.5	90	90	90
26	Total gain / loss			0	0	0	0	0	10	10	10	10	10	-10.5	0	0	0

Source: IPART analysis.



### Example 5 of 6: When there are temporary over and underspends

- ▼ Temporary over and underspends are retained by the business (ie, symmetric treatment of temporary over and under spends).

INPUT VALUES																	
WACC		5%															
Base allowance RP1		100															
Base allowance RP2		100															
Base allowance RP3		100															
Regulatory Periods		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanisms						ECM2016				ECM2020				ECM2024			
ROW		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	Actual expenditure	100	100	100	100	90	110	100	100	100	100	100	100	100	100	100	100
3	Gain (loss)				0	10	-10	0									
4	Out performance				0	10	0	0									
5	Permanent gain				0	0	0	0									
6	Incremental gain				0	0	0	0									
7	ECM calc																
8	- 2015-16				0	0	0	0	0								
9	- 2016-17					0	0	0	0								
10	- 2017-18						0	0	0	0							
11	- 2018-19							0	0	0	0						
12	- 2019-20 adjustment									0							
13	ECM1 benefit									0	0	0					
14	Gain (loss)								0	0	0	0					
15	Out performance								0	0	0	0					
16	Permanent gain								0	0	0	0					
17	Incremental gain								0	0	0	0					
18	ECM calc																
19	- 2019-20								0	0	0	0	0				
20	- 2020-21									0	0	0	0				
21	- 2021-22										0	0	0	0			
22	- 2022-23											0	0				
23	- 2023-24 adjustment													0			
24	ECM2 benefit													0	0	0	
25	Total allowance			100	100	100	100	100	100	100	100	100	100	100	100	100	100
26	Total gain / loss			0	0	10	-10	0	0	0	0	0	0	0	0	0	0

Source: IPART analysis.

### Example 6 of 6: When there is a temporary underspend in year 3

- ▼ If a temporary underspend in year 3 is mistaken for a permanent saving under the ECM, this could result in a loss for the business in the next determination period. If there is doubt whether the saving is permanent, the business is unlikely to apply for a carryover under the ECM. We will continue to look at the pattern of historical expenditure when resetting of the allowance.

INPUT VALUES																	
WACC		5%															
Base allowance RP1		100															
Base allowance RP2		90															
Base allowance RP3		100															
Regulatory Periods		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanisms		ECM2016				ECM2020				ECM2024							
ROW		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	100	100	100	100
2	Actual expenditure	100	100	100	100	100	100	90	100	100	100	100	100	100	100	100	100
3	Gain (loss)				0	0	0	10									
4	Out performance				0	0	0	10									
5	Permanent gain				0	0	0	10									
6	Incremental gain				0	0	0	10									
7	ECM calc																
8	- 2015-16				0	0	0	0	0								
9	- 2016-17					0	0	0	0								
10	- 2017-18						0	0	0	0							
11	- 2018-19							10	10	10	10						
12	- 2019-20 adjustment									0							
13	ECM1 benefit									10	10	0					
14	Gain (loss)								-10	-10	-10	-10					
15	Out performance								0	0	0	0					
16	Permanent gain								0	0	0	0					
17	Incremental gain								0	0	0	0					
18	ECM calc																
19	- 2019-20								0	0	0	0	0				
20	- 2020-21									0	0	0	0				
21	- 2021-22										0	0	0	0			
22	- 2022-23											0	0	0	0		
23	- 2023-24 adjustment													0			
24	ECM2 benefit													0	0	0	
25	Total allowance			100	100	100	100	100	100	100	100	90	90	100	100	100	100
26	Total gain / loss			0	0	0	0	10	0	0	0	-10	-10	0	0	0	0

Source: IPART analysis.

## Glossary

2005 Determination	<i>Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report, September 2005 (Determination Nos 5, 6 and 7, 2005).</i>
2005 determination period	The period from 1 October 2005 to 30 June 2009, as set in the 2005 Determination.
2009 Determination	<i>Review of prices for the Sydney Catchment Authority from 1 July 2009, June 2009 (Determination No 3, 2009).</i>
2009 determination period	The period commencing 1 July 2009 to 30 June 2012.
2012 Determination	<i>Review of prices for the Sydney Catchment Authority from 1 July 2012, June 2012 (Determination No 2, 2012).</i>
2012 determination period	The period commencing 1 July 2012 to 30 June 2016.
2016 determination period	The period commencing 1 July 2016.
70/80 rule	Under Government's 2010 Metropolitan Water Plan, SDP is to operate at full production and supply Sydney Water's area of operations when the total dam storage level is below 70% and continue to do so until the total dam storage level reaches 80%.
Annual revenue requirement	The notional revenue requirement in each year of the determination period.

Core operating expenditure	Operating expenditure central to operations as opposed to non-core expenditure which covers items outside of normal activities such as pumping from the Shoalhaven River.
Council customers	WaterNSW has three local Council customers - Wingecarribee Council, Shoalhaven City Council and Goulburn-Mulwaree Council.
current determination period	The period from 1 July 2012 to 30 June 2016, as set in the 2012 Determination.
CPI	Consumer Price Index
determination period	The period over which price limits (maximum prices) are set by IPART.
DRC	Depreciated Replacement Cost
EBSS	WaterNSW's proposal for an Efficiency Benefit Sharing Scheme to provide it with an equal incentive to make efficiency gains in each year of the determination.
EPA	Environment Protection Authority
GL	Gigalitre
Greater Sydney area	Water catchments that service WaterNSW storages including the Blue Mountains, Shoalhaven, Warragamba, Upper Nepean and Woronora catchments.
Hawkesbury-Nepean Valley Flood Management Review	Established to consider flood planning, flood mitigation and flood response in the Hawkesbury-Nepean Valley.
IPART	Independent Pricing and Regulatory Tribunal of NSW.
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act 1992</i> (NSW).
kL	Kilolitre
LRMC	Long Run Marginal Cost (of supply).

Metropolitan Water Plan (MPW 2010)	Designed to set out the mix of water supply and demand management measures to ensure a secure, cost effective and sustainable water supply for greater Sydney.
ML	Megalitre
Notional revenue requirement	Revenue requirement set by IPART that represents the efficient costs of providing WaterNSW's monopoly services.
NPV	Net Present Value
RAB	Regulatory Asset Base
Raw water customers	Receive raw water directly from WaterNSW's dams.
Raw Water Quality Incentive Payment Scheme	Under the RWQIP, WaterNSW is eligible to receive up to \$1 million annually from Sydney Water if water quality in a given year is better than the average quality of the preceding five years.
RWSA	Raw Water Supply Agreement between Sydney Water and WaterNSW
SCA	Sydney Catchment Authority
SDP	Sydney Desalination Plant Pty Ltd.
Scarcity pricing	Scarcity pricing would see prices rise when water is scarce and decrease when water becomes more abundant.
Shoalhaven Transfers	Transfers of bulk water from dams in the Shoalhaven region to dams that supply the Sydney region.
Shoalhaven Transfer Works	Infrastructure involved in transferring water from the Shoalhaven region to dams supplying Sydney.
SOC	State-owned corporation
SOC Act	<i>State Owned Corporations Act 1989 (NSW)</i>

State Water	The former State Water owned and maintained major infrastructure assets that enabled delivery of bulk water to approximately 6,300 licensed bulk water users on the state's regulated rivers – now part of WaterNSW.
Sydney Catchment Authority	The former Sydney Catchment Authority owned and maintained infrastructure to supply bulk water mainly to Sydney Water – now part of WaterNSW.
Sydney Water	Sydney Water Corporation.
Sydney Water Act	<i>Sydney Water Act 1994</i> (NSW)
Unfiltered customers	Unfiltered customers are positioned relatively close to filtration plants and take water at various points along the transmission lines (pipeline and Upper Canal).
upcoming determination period	the period commencing 1 July 2016.
WACC	Weighted Average Cost of Capital.
WaterNSW	WaterNSW was created under the <i>Water NSW Act 2014</i> , through the merger of the Sydney Catchment Authority and State Water.
<i>Water NSW Act 2014</i>	Enacted to combine the two bulk water suppliers, State Water and Sydney Catchment Authority.