

Independent Pricing and Regulatory Tribunal  
New South Wales

## Water NSW

### **Annual review of rural bulk water charges for 2020-21**

Draft Report  
Water

April 2020

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## Tribunal Members

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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 11 May 2020**

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:

**Water NSW Annual review of rural bulk water charges for 2020-21**

Independent Pricing and Regulatory Tribunal

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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 (IPART) is undertaking an annual review of Water NSW's regulated charges for rural bulk water services provided to rural customers in the Murray-Darling Basin (MDB)<sup>1</sup> and the Fish River Water Supply Scheme (Fish River) under Part 9 of the *Water Charge (Infrastructure) Rules 2010* (WCIR).<sup>2</sup>

This is our third annual review within the current 4-year determination of these regulated charges, which sets out the maximum charges to apply from 1 July 2017 to 30 June 2021 (the 2017 Determination).<sup>3</sup> This review provides an opportunity for us to consider whether we should update the maximum regulated charges to apply for the final year of this determination period (ie, 1 July 2020 to 30 June 2021).

Under WCIR, we may only vary the determined charges to the extent that it is “reasonably necessary” to do so, having regard to changes in demand or consumption forecasts (as measured by changes in water allocations, entitlements and sales) for the regulated bulk water services and price stability. The scope of this annual review does not include reviewing other elements of our 2017 Determination, such as the efficient costs of providing these services or the price structures.

This draft report sets out our draft decisions on Water NSW's regulated charges<sup>4</sup> to its customers in the MDB valleys and Fish River for 2020-21 and seeks comments from all interested parties. All dollar figures quoted in this report are in \$2020-21, unless stated otherwise.

## 1.1 Our draft decision is to maintain regulated charges in 2020-21

Our draft decision is to accept Water NSW's pricing application to maintain the regulated charges as set under the 2017 Determination. Under this decision, the charges that would apply in 2020-21 are determined by adjusting the charges for 2020-21, as set out in the 2017 Determination, to account for the change in the Consumer Price Index (CPI) only.

We consider that it is not reasonably necessary to vary the regulated charges we set in the 2017 Determination to take into account the latest water data (ie, changes in water allocations, entitlements and sales). While the historical data provided by Water NSW shows that water sales have declined across seven of the nine MDB valleys (ie, all valleys except Peel Valley

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<sup>1</sup> This includes nine valleys: Border, Gwydir, Namoi, Peel, Lachlan, Macquarie, Murray, Murrumbidgee and Lowbidgee.

<sup>2</sup> The *Water Charge (Infrastructure) Rules 2010* are made under s 92 of the *Water Act 2007* (Cth).

<sup>3</sup> IPART, *WaterNSW Prices for rural bulk water services from 1 July 2017*, Determination, June 2017.

<sup>4</sup> Water NSW's regulated charges include Water NSW's bulk water charges (to the extent that they are regulated under the WCIR), Murray-Darling Basin Authority (MDBA) charges, and Barwon-Dumaresq Border River Commission (BRC) charges.

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where water sales have increased and Lowbidgee Valley where water sales are not recorded)<sup>5</sup> over the 2017 determination period due to lower rainfall and water availability, Water NSW forecasts water sales to increase in 2020-21 as water availability increases and drought conditions ease. In the Fish River, water sales have been volatile over the 2017 determination period and there is no clear evidence that average sales are decreasing or increasing compared to the average sales used to set charges in the 2017 Determination. Therefore, we do not consider the latest data provides compelling evidence of a sustained shift in demand or consumption and we do not consider it is reasonably necessary to update the charges in between comprehensive price reviews.

We have also considered the impact on Water NSW of the lower than expected water sales during this period. We consider that our decision in the 2017 price review to provide Water NSW a revenue volatility allowance (which in effect allows Water NSW to achieve an 80:20 fixed to variable price structure to more closely match its cost structure) mitigates the impact on Water NSW of reduced water sales during drought.

## **1.2 We continue to see merit in applying discretion to updating prices at each annual review**

In its pricing application, Water NSW also proposed that we adopt a more formulaic approach to updating prices in future annual price reviews (ie, annual reviews for the next determination period). Water NSW's pricing application did not provide specific detail about what this formulaic approach would involve.

The current annual review framework is designed to ensure that prices are only updated when it is reasonably necessary to do so. Given that there will always be a degree of uncertainty about the direction of future prices (ie, depending on future costs and sales), our view is that this approach provides us with the discretion and judgment to answer the question of whether updating prices is likely to promote or obstruct price stability. We generally do not support a formulaic approach which would imply automatic price changes each year, because this may result in unintended outcomes.

We are seeking your preliminary views on this issue noting that it is relevant for the upcoming Water NSW rural comprehensive price review, when we intend to consider this matter, along with other related matters including the method we use to forecast sales, in more detail. The upcoming comprehensive price review is due to commence in July 2020.

## **1.3 Our review timetable**

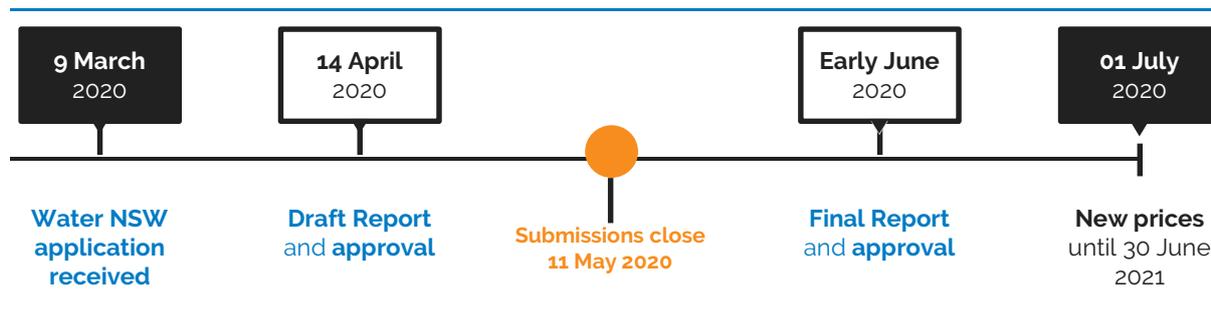
We are now seeking submissions on our draft decisions from all interested parties. **Submissions to this Draft Report are due by Monday, 11 May 2020.** We will consider all submissions before we make our final decisions and release our Final Report and Final Determination (which gives legal effect to the maximum prices) in June 2020.

Figure 1.1 sets out the review timeline, including when stakeholders can have their say.

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<sup>5</sup> Water sales in Peel Valley has increased by around 10%. Lowbidgee Valley has a 100% fixed price structure which means that we do not set a usage charge and there is no water sales data.

**Figure 1.1 Indicative timetable for this review**



## 1.4 Structure of this draft report

The remainder of this report is structured as follows:

- ▼ Chapter 2 outlines the context for the review, the approach we used to make our draft decisions and briefly outlines Water NSW's annual pricing application
- ▼ Chapter 3 presents our assessment of Water NSW's pricing application
- ▼ Chapter 4 sets out the draft regulated charges for 2020-21.

## 2 Context and our approach

Water NSW submitted its pricing application for the annual review of its regulated charges for its rural bulk water services in the MDB valleys and the Fish River for 2020-21 period to IPART for assessment on 9 March 2020. To provide context for our assessment, the sections below outline:

- ▼ The regulatory framework for this review
- ▼ The scope of this annual review
- ▼ Our approach for this annual review (including a summary of Water NSW's pricing application).

### 2.1 Regulatory framework

Under Part 9 of WCIR, IPART is accredited by the Australian Competition and Consumer Commission (ACCC) to determine or approve Water NSW's bulk water charges for rural customers in the MDB valleys and the Fish River from 1 July 2017 onwards.

WCIR require us to follow a two-stage price review process for determining or approving these regulated charges:

1. Approve or determine the regulated charges for a set determination period,<sup>6</sup> then
2. Conduct an annual review of the regulated charges for the second year of the period, and for each subsequent year within the determination period.

For the annual reviews, WCIR requires that we either approve or determine the regulated charges for the relevant year.<sup>7</sup> They also state that we must not vary the charges from those set out in the prevailing price determination, except to the extent that it is reasonably necessary, having regard to two matters only:

1. The "changes in the demand or consumption forecasts" set out in Water NSW's application for an annual review,<sup>8</sup> and
2. "Price stability".<sup>9</sup>

We completed the first stage of the price review in June 2017, when we set maximum regulated charges for rural bulk water services from 1 July 2017 to 30 June 2021 (2017 Determination).

We are now undertaking the third and final annual review of Water NSW's regulated charges for the 2017 Determination period. In the first two annual reviews we did not vary Water

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<sup>6</sup> WCIR Part 6 Division 2.

<sup>7</sup> WCIR, rule 37(2).

<sup>8</sup> WCIR, rule 37(2)(a).

<sup>9</sup> WCIR, rule 37(2)(b).

NSW's charges from the 2017 Determination.<sup>10</sup> Any variation of charges resulting from this third annual review would apply for one year only (ie, from 1 July 2020 to 30 June 2021).

## 2.2 Scope of this review

Only the regulated charges that are set under WCIR are within the scope of this annual review. The review applies to rural customers in the nine MDB valleys and Fish River, as shown in Figure 2.1. It does not apply to the charges for rural customers in the North Coast, South Coast and Hunter Valleys. These prices were set under the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) (IPART Act), and therefore are not subject to WCIR.<sup>11</sup>

**Figure 2.1** Valleys in and out of the scope of this annual review



<sup>a</sup> We have applied the Murray Valley charges to Lower Darling Valley.

**Note:** This map is not to scale and is for illustrative purposes only. Only regulated river charges are in scope of the annual review. Only rural customers in the Fish River are in scope of the annual review.

<sup>10</sup> IPART, *Annual review of rural bulk water charges for 2019-20*, June 2019, and IPART, *Annual review of regulated charges 2018-19*, June 2018.

<sup>11</sup> The 2017 Determination continues to apply for Water NSW's rural bulk water services set under the IPART Act.

The review applies to Water NSW's bulk water, Murray-Darling Basin Authority (MDBA) and Barwon-Dumaresq Border Rivers Commission (BRC) charges. The price structure for these charges comprises of:

- ▼ Usage charges in the MDB valleys (\$ per megalitre (ML) of water used) and Fish River (\$ per kilolitre (kL) of water used). In reviewing these charges, we consider the latest data on usage volumes (ie, based on the 20-year rolling average of historical water sales volumes).
- ▼ Fixed entitlement charges (\$ per ML of licensed entitlement per year) in the MDB valleys or fixed Minimum Annual Quantity (MAQ) charges<sup>12</sup> (\$ per kL of MAQ per year) in Fish River.
  - In reviewing fixed entitlement charges, we consider the latest data on water entitlement volumes for High Security (HS) or General Security (GS) entitlement, and water allocation percentages as this affects premiums for HS entitlements
  - In reviewing fixed MAQ charges, we consider the latest data on the MAQ.

The scope of this annual review does not include reviewing other elements of our 2017 Determination, such as the efficient costs of providing these services or the price structures.

## 2.3 Our approach for this review

In assessing whether to update Water NSW's regulated charges as part of this annual review, we considered:

- ▼ Water NSW's pricing application for 2020-21,
- ▼ Whether it is *reasonably necessary* to vary the regulated charges set in the 2017 Determination for 2020-21 based on the updated water sales data provided by Water NSW according to rule 37(2) of WCIR.

## 2.4 Water NSW's pricing application

In its pricing application, Water NSW requested that IPART approve regulated charges for the 2020-21 period in line with the 2017 Determination, ie, only adjust for actual inflation.<sup>13</sup> It noted that its rural customers' actual water sales is tracking significantly below the forecast water sales we used in making the 2017 Determination due to the current drought environment. It expects that sales for the 2019-20 period will continue to be lower than the 20-year historical rolling average used in the 2017 Determination.

Despite the lower water sales, Water NSW proposes to leave its regulated charges unchanged from the 2017 Determination. It indicated that its proposal is intended to provide price relief to its customers in the MDB valleys and Fish River by ensuring price stability for customers

<sup>12</sup> In the Fish River, customers' fixed charges are based on a minimum annual quantity rather than a licensed entitlement.

<sup>13</sup> Water NSW submission to IPART annual price review, March 2020. Water NSW used an inflation rate of 2.1%, to convert the 2020-21 prices listed in the 2017 Determination into 2020-21 dollars. This was based on IPART's inflation rates outlined in the submission information package sent to Water NSW in February 2020. The assumption used was an estimate only, and final charges will be calculated using the actual March-on-March CPI (which will be released by the Australian Bureau of Statistics (ABS) in April 2020).

over the remainder of the determination period and in the current environment of prolonged drought.<sup>14</sup>

In addition, Water NSW proposed that IPART consider introducing formula-driven price adjustment in its next price review to allow Water NSW to recover its efficient costs within and across the determination periods to deal with demand forecasting errors.<sup>15</sup>

Water NSW's application included updated water data as required under WCIR, its estimate of rural charges for the 2020-21 year, and customer bill impacts. For further information, Water NSW's application can be accessed on our website.

## 2.5 Whether it is reasonably necessary to update charges

Our approach for deciding whether it is *reasonably necessary* to update charges involves three broad steps:

1. Consider whether the changes in water sales since we made the 2017 Determination represents a sustained shift in demand.
2. Consider whether adjusting regulated charges to reflect updated water sales data in the annual review will reduce the price impact in the next price review to promote medium to longer term price stability.
3. If considered *reasonably necessary*, calculate the updated regulated charges to apply for 2020-21 using the same methodology employed in the 2017 Determination (but with updated input values).

### 2.5.1 Step 1: Consider whether changes in water sales represent a sustained shift in demand

We analysed the updated data (ie, water allocations, entitlement volumes and sales volumes (or usage volumes)) provided by Water NSW and assessed whether the changes in water sales represent a sustained shift in demand. This assessment involves:

- ▼ Comparing actual water sales data over the determination period to date with the forecast water sales used in the 2017 Determination
- ▼ Analysing the historical and forecast trends in water sales data, and
- ▼ Recalculating the forecasts for 2020-21 incorporating actual water sales data to date and analysing the impact on the rolling average (for water usage and allocations) used in the 2017 Determination.

If there is no compelling evidence of a sustained shift in demand (ie, if sales has either not changed or has changed in a way that is not expected to be sustained), we do not consider it to be reasonably necessary to update charges. This is because updating charges annually could result in price volatility where price changes in one direction are later offset by price changes in the other direction. This would impose risks and costs on customers through

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<sup>14</sup> Water NSW submission to IPART annual price review, March 2020, p 1.

<sup>15</sup> Water NSW submission to IPART annual price review, March 2020 p 2.

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higher price volatility and uncertainty. Therefore, in the absence of evidence of a sustained shift in demand, we consider the *reasonably necessary* threshold is not met and therefore we are likely to maintain current regulated charges as set in the comprehensive (ie, every four year) price review.

If we are satisfied there is evidence of a sustained shift in demand, we will proceed to the next step.

### **2.5.2 Step 2: Consider whether updating charges is likely to promote price stability in the medium to longer term**

Forecast water sales is one of the key inputs we use in setting Water NSW's regulated charges. In general, a higher forecast sales leads to lower charges (and vice versa), and a sustained change in demand between one price review and the next could lead to significant change in prices at the start of the next determination period. Therefore, updating the regulated charges to reflect sustained shifts in demand that occur during the determination period could help smooth this impact by effectively transitioning to a new price level and thus support medium to longer term price stability.

However, other key inputs – such as Water NSW's efficient costs - may change between price reviews. Changes in other key inputs can result in upward or downward pressure on prices, which can either be consistent with or contrary to the pressure on prices resulting from the sustained shift in demand.

These other inputs are not within the scope of this annual review process, so we do not review them in detail. However, to decide whether adjusting the regulated charges is likely to promote price stability, we need to consider the likely direction of price changes (due to all relevant factors) at the next price review and consider whether updating prices now to reflect updated sales will move prices in this direction or against it.

If there is a sustained shift in demand that indicates that prices will move in one direction, but there is evidence to show that other key inputs will likely move prices in the opposite direction, then updating prices in the annual review could result in price volatility and uncertainty. For example, if there is a sustained decrease in water usage which indicates that prices should increase and there is evidence that other inputs (such as a lower weighted average cost of capital) are likely to put downward pressure on prices, we will apply judgment to decide whether updating prices will promote medium to longer term price stability. If we decide that updating price will promote price stability, we will likely update prices as outlined in Step 3.

### **2.5.3 Step 3: Calculating updated regulated charges**

Appendix A outlines the formulas that we will use to calculate indicative regulated charges if we were to update charges for 2020-21, using actual water sales data (entitlement and usage volumes and water allocations) submitted in Water NSW's pricing application.

## 3 Our assessment of rural prices for 2020-21

To assess whether it is reasonably necessary to update prices for 2020-21 under WCIR, we considered Water NSW's pricing application and applied the assessment framework as outlined in section 2.5. The sections below summarise our draft decisions, then discuss our reasons for each decision in more detail.

### 3.1 Summary of draft decisions

Our draft decision is:

- 1 To maintain the regulated charges set under the 2017 Determination for 2020-21, adjusted for inflation as outlined in Chapter 4.

We have made a draft decision to accept Water NSW's application to maintain the regulated charges for 2020-21 set under the 2017 Determination. This reflects our assessment that it was not reasonably necessary to update prices because there is insufficient evidence to suggest that the change in annual water sales data for 2018-19 represents a sustained shift in demand in either the MDB valleys or the Fish River.

In its application, Water NSW also proposed to adopt a more formulaic approach to updating prices in future annual price reviews (ie, annual reviews for the next determination period). We note that Water NSW's application did not include specific detail of what this approach would look like. Our view is that we continue to see merit in applying discretion to updating prices at each annual review. We are seeking stakeholder comment on this issue and we will consider it further as part of the upcoming Water NSW rural price review.

### 3.2 There is no evidence of a sustained shift in demand

Based on our analysis of the updated water data (ie, water allocations and entitlement volumes and sales (or usage volumes)) provided by Water NSW, we consider that there is no compelling evidence to suggest that the latest data reflects a sustained shift in demand. This is because we consider that:

- ▼ For MDB Valleys, while water allocations and sales have declined significantly over the 2017 Determination period, these are driven by lower rainfall and water availability in drought. Water NSW forecasts that water allocations and sales will increase in 2020-21 as drought conditions improve and water availability increases.
- ▼ For Fish River, water sales have been volatile over the 2017 Determination period. Actual sales in 2017-19 are higher compared to the forecast sales used in the 2017 Determination, which results in higher rolling averages. However, Water NSW forecasts that sales will reduce in 2020-21 to be similar to the rolling average used in the 2017 Determination.

We consider there is no evidence of a sustained shift in demand such that it is reasonably necessary to update the regulated charges (ie, as outlined in Step 1 in section 2.5). Therefore, we did not undertake Step 2.<sup>16</sup>

### 3.2.1 Actual and forecast water sales in MDB valleys

For the MDB valleys, the regulated charges are influenced by entitlement volumes, water allocations and water sales. We found that:

- ▼ GS and HS entitlement volumes have remained relatively constant (less than 1% average change since the 2017 Determination) and are expected to stay the same for 2019-20 and 2020-21.
- ▼ HS water allocations have remained relatively constant (less than 2% change for all valleys since the 2017 Determination). If we were to update the 20-year rolling average based on the latest actual data (ie, 2018-19), there would be no change in the HS allocation ratios compared to the allocation ratios we used to set prices in the 2017 Determination.
- ▼ For GS water allocations, actual ratios have declined (greater than 80% for most valleys except Peel and Namoi since the 2017 Determination). While the level of water allocations in the Peel and Namoi Valleys increased, these remain low (that is, around 5% for Namoi and 38% for Peel Valley in 2018-19). If we were to update the 20-year rolling average based on the latest actual data, GS allocation would fall between 1% and 26%.

Water NSW estimates that GS allocations will decrease further in 2019-20 due to low water availability in severe drought conditions, and then increase (to levels around the GS water allocations used in the 2017 Determination) in 2020-21.

We note that small increases in dam storage levels across most of the valleys could indicate that drought conditions are beginning to ease (see Figure 3.1). This supports Water NSW's forecast increases in water allocations and sales. However, we recognise that dam levels still remain at very low levels across most of the MDB valleys.

- ▼ Actual annual water sales have declined by 45% across the eight MDB valleys<sup>17</sup> from 2017-18 to 2018-19. If we were to update the 20-year historical rolling average based on the latest actual data, the resulting sales forecast will decrease by 7.7% compared to the forecast we used to set prices in the 2017 Determination.

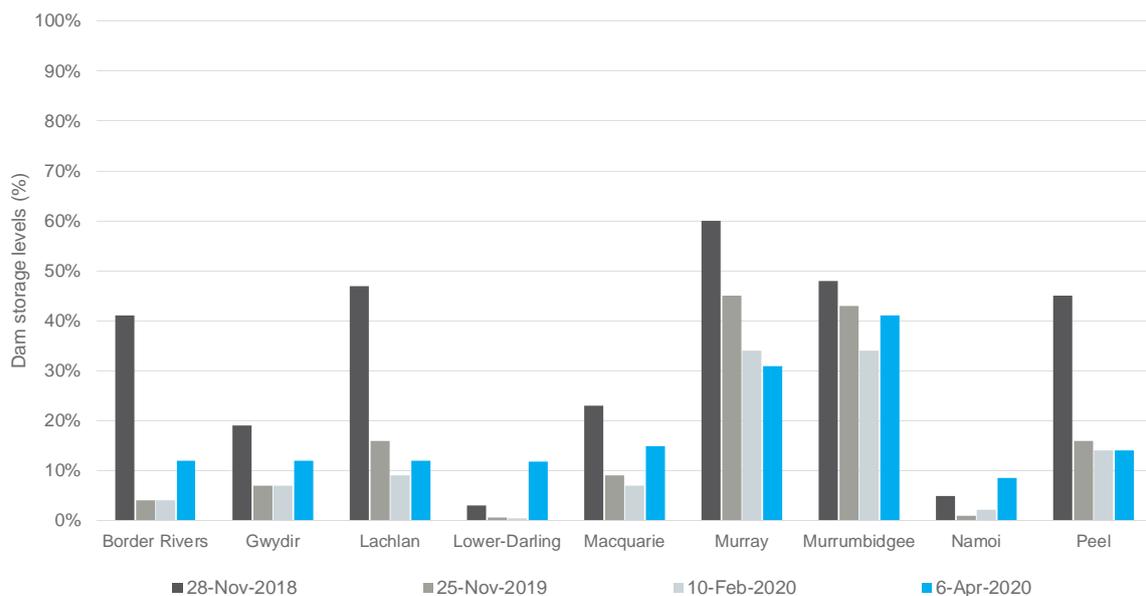
<sup>16</sup> For illustrative purposes, Appendix B presents the indicative regulated charges for 2020-21 if we were to update them (ie, Step 3).

<sup>17</sup> The eight valleys are Border, Gwydir, Namoi, Peel, Lachlan, Macquarie, Murray and Murrumbidgee. Lowbidgee is excluded because it only has fixed charges (ie, it does not have usage charges).

Water NSW estimates that annual water sales will fall further by 47% in 2019-20 and then increase by 187% in 2020-21. We note annual sales volumes are volatile and significant increases or decreases in sales volumes year-on-year are not unusual when compared to the overall historical trend (see Figure 3.2). There are a number of factors that influence the volume of water sales in a valley. This includes rainfall, availability of water, commodity prices and regional economic plans. Assuming all else is equal, increasing dam storage levels when drought conditions begin to ease (see Figure 3.1) could result in higher water sales, however we recognise that dam levels still remain at very low levels across most of the MDB valleys.

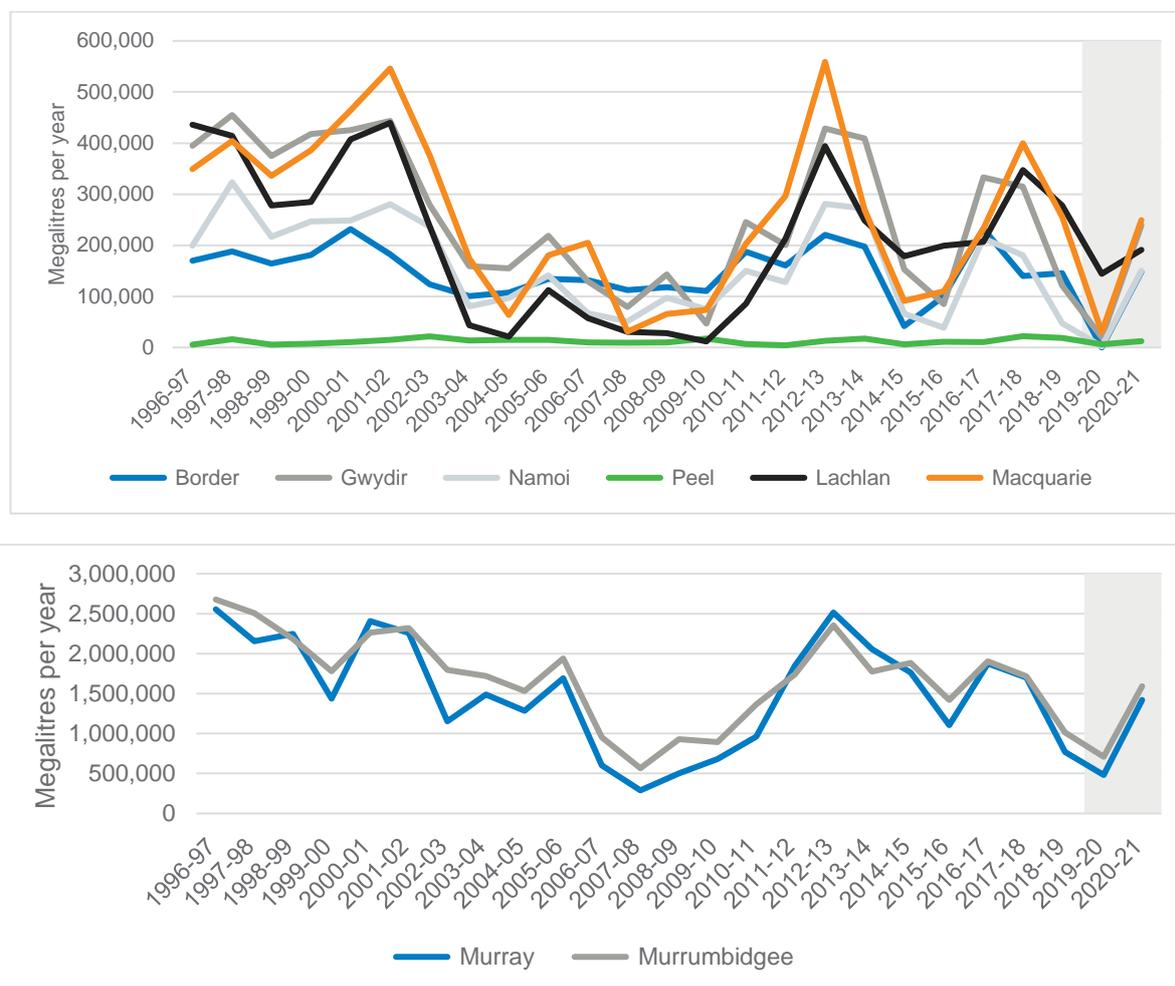
Due to the natural unpredictability of rainfall, the impact on water availability and consumption in rural NSW can be volatile. Water NSW’s forecast water sales and recent small increases in dam storage levels indicate that drought conditions are improving and greater water availability. On balance, we consider that with signs of the severe and prolonged drought conditions appearing to ease, this suggests that recent sales reductions does not reflect a sustained shift in demand.

**Figure 3.1 Recent dam storage levels in the MDB valleys**



**Source:** Water NSW dam storage levels: see <https://www.waternsw.com.au/supply/drought-information/regional-nsw> accessed 7 April 2020.

**Figure 3.2 Historical and forecast sales volumes in MDB valleys**



**Note:** The 1996-97 to 2015-16 historical sales volumes are based on the data used in the 2017 Determination while the 2016 to 2021 actual and forecast sales volumes are sourced from Water NSW's 2020-21 pricing application to IPART.

**Source:** Water NSW submission to IPART annual price review (data input into IPART model), March 2020 and IPART analysis.

### 3.2.2 Actual and forecast water sales in the Fish River

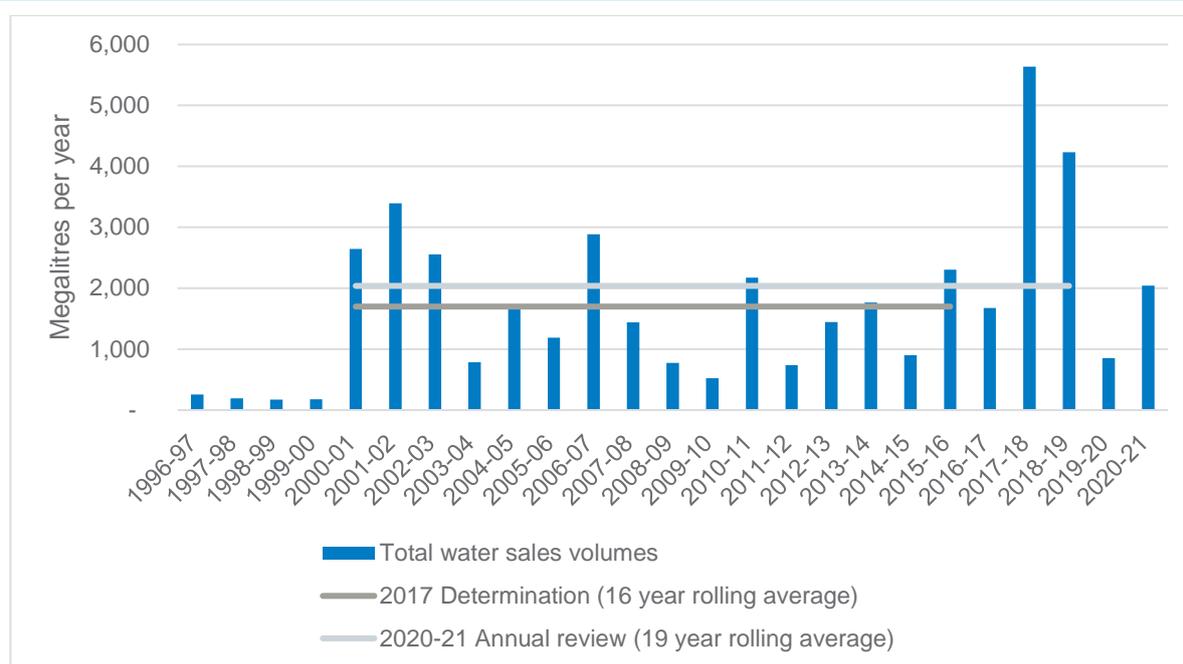
For the Fish River, Water NSW's regulated charges are influenced by the level of Minimum Annual Quantities (MAQ)<sup>18</sup> and water sales. We found that:

- ▼ MAQ levels have remained relatively constant, with less than 1% average change from 2017-18 to 2018-19, and are expected to stay the same for 2019-20 and 2020-21.

<sup>18</sup> In the Fish River, customers' fixed charges are based on a minimum annual quantity rather than a licensed entitlement.

- Actual annual water sales volumes have declined by 25% from 2017-18 to 2018-19. If we were to update the 20-year historical rolling average based on the latest actual data (ie, 2018-19), there would be an increase in the resulting sales forecast by 20% compared to the forecast used to set prices in the 2017 Determination (see Figure 3.3). This increase is due to a spike in water sales in 2017-18 and is unlikely to be sustained (see Box 3.1). Similar to the trend for MDB valleys, Water NSW estimates that water sales would have a significant decrease in 2019-20 and then increase in 2020-21 to levels similar to the 20-year rolling average used in the 2017 Determination. Similar to dam storage levels in the MDB valleys, dam storage levels in the Fish River are relatively low.<sup>19</sup>

**Figure 3.3 Total sales and rolling averages used to forecast sales in the Fish River**



**Source:** Water NSW submission to IPART annual price review (data input into IPART model), March 2020 and IPART analysis.

<sup>19</sup> Water NSW reports that the dam storage level at Oberon Dam, which is part of the Fish River, is currently at 26%. Water NSW, <https://www.waternsw.com.au/supply/visit/oberon-dam> accessed on 9 April 2020.

### **Box 3.1 Spike in actual water sales in the Fish River is unlikely to be sustained**

In our 2019-20 annual review, we found there was a spike in actual annual water sales for 2017-18, up by 236.2% compared to 2016-17. On investigation, the customers indicated that the increase in water sales was not permanent.

In 2018-19, the actual sales volumes declined by 24.9% compared to 2017-18, but actual volumes are still significantly higher than the 16-year historical rolling average used in the 2017 Determination. Water NSW estimates that sales will decline further by 80% in 2019-20 (compared to 2018-19) and increase in 2020-21. Forecast sales for 2020-21 then increases to be approximately equal to the forecast we used to set prices in the 2017 Determination. This suggests there has not been a permanent shift in water usage in Fish River and that it is not reasonably necessary to update prices.

**Source:** IPART, *Annual review of rural bulk water charges for 2019-20*, June 2019, Water NSW submission to IPART annual price review, March 2020, and IPART analysis.

### **3.3 We continue to see merit in applying discretion to updating prices at each annual review**

In its pricing application, Water NSW proposed to introduce a more formula-driven price adjustment to deal with sales forecasting issues at the next comprehensive pricing review. However, it did not provide any specific detail about what this new formulaic approach might involve.

Our current annual review approach involves IPART examining evidence and then applying our discretion to decide whether it is reasonably necessary to update prices. Our view is that this approach ensures that we adequately consider whether it is appropriate to vary the prices that we set in our comprehensive price review. We generally do not support a formulaic approach to the annual review that implies immediate price adjustments for changes in water sales, because this may result in unintended outcomes. The annual review is also limited in scope in that it only considers water sales data and not the other elements relevant to setting prices (ie, efficient costs and price structures).

We note that Water NSW's proposal to introduce a more formula-driven price adjustment is relevant for the upcoming comprehensive Water NSW rural price review. We are seeking your preliminary views on this issue at this annual review.

At the upcoming comprehensive Water NSW rural price review, we intend to consider a range of matters including the method we use to forecast sales and the appropriate allocation of demand risk (including the current risk transfer product and potential other options including a demand volatility adjustment mechanism). The upcoming comprehensive rural price review is due to commence in July 2020.

#### **IPART seeks comments**

- 1 Do you agree there is merit in applying discretion to updating prices in annual reviews?
- 2 What would a more formula-driven approach to updating prices look like?

## 4 Charges to apply in 2020-21

Based on our draft decision in Chapter 3 to maintain regulated charges as set under the 2017 Determination, we have calculated the charges that customers would pay in 2020-21 below. We used the following inflation rates to convert the charges to nominal dollars for the 2020-21 period:

- ▼ 2.1% per annum to inflate charges from 2016-17 to 2017-18 dollars,
- ▼ 1.9% per annum to inflate charges from 2017-18 to 2018-19 dollars,
- ▼ 1.3% per annum to inflate charges from 2018-19 to 2019-20 dollars, and
- ▼ 2.1% per annum to inflate charges from 2019-20 to 2020-21 dollars.<sup>20</sup>

Table 4.1 sets out our determination of Water NSW's bulk water entitlement and usage charges for HS and GS customers. These exclude MDBA and BRC charges, which are set out in Table 4.2.

**Table 4.1 Water NSW bulk water access and usage charges for 2020-21 (\$2020-21)**

Valley	HS fixed charge (\$/ML)	GS fixed charge (\$/ML)	Usage charge (\$/ML)
Border	5.73	2.13	5.85
Gwydir	11.92	3.74	12.77
Namoi	18.38	8.57	21.50
Peel	44.73	4.32	19.76
Lachlan	16.55	2.94	20.49
Macquarie	14.53	3.07	14.83
Murray	1.65	0.81	2.06
Murrumbidgee	3.17	1.19	3.56
Lowbidgee <sup>a</sup>	N/A	0.84	N/A

<sup>a</sup> There is no usage charge for Lowbidgee Valley as this valley has a 100% fixed price structure.

**Source:** IPART, *Prices for rural bulk water services from 1 July 2017 – Determination*, June 2017, p 11, adjusted for inflation.

Table 4.2 sets out our determination of MDBA and BRC entitlement and usage charges.

<sup>20</sup> Our use of 2.1% is an estimate only at this point in time. We will use the actual CPI for March-on-March result (to be released by ABS on April 2020) in our Final Report.

**Table 4.2 MDBA and BRC bulk water access and usage charges for 2020-21 (\$2020-21)**

Valley	HS fixed charge (\$/ML)	GS fixed charge (\$/ML)	Usage charge (\$/ML)
Border	4.96	1.84	0.84
Murray	7.82	3.83	1.61
Murrumbidgee	1.73	0.65	0.33

Source: IPART, *Prices for rural bulk water services from 1 July 2017 – Determination*, June 2017, p 12, adjusted for inflation.

Table 4.3 sets out our determination of access and usage charges for raw water and filtered water customers in the Fish River.

**Table 4.3 Fish River bulk water access and usage charges for 2020-21 (\$2020-21)**

Valley	Access (or MAQ) charge (\$/kL)	Usage up to MAQ (\$/kL)	Usage in excess of MAQ (\$/kL)
Raw water – major customers	0.42	0.26	0.69
Raw water – minor customers	0.42	0.26	0.69
Filtered water – minor customers	0.82	0.50	1.32

Source: IPART, *Prices for rural bulk water services from 1 July 2017 – Determination*, June 2017, p 18, adjusted for inflation.

## A Formula for updating charges in annual reviews

Boxes A.1, A.2 and A.3 (and the accompanying tables) present the formulas we would use if we were to update charges in an annual review.<sup>21</sup>

These formulas are used in Appendix B to calculate indicative charges that would apply if we had updated charges as part of this annual review, using 2018-19 actual water data (ie, water allocations, entitlements and sales) submitted by Water NSW.

The formulas update charges by including an additional year of new actual, historical data available to determine forecasts for entitlement volumes, water sales (or usage) volumes and water allocation ratios. Both usage volumes and water allocation ratios are forecast by taking a 20-year rolling historical average of the latest data. The latest data used to calculate the forecasts is typically two years behind the year to which the forecast applies.

### Box A.1 Calculation of charges for MDB valleys, excluding Fish River Scheme

In valley  $i$ , at time  $t$ , the allowed charges are:

- a) For high-security entitlements (\$/ML of entitlement):

$$HSEC_{i,t} = \frac{HSP_{i,t} \times Share_i \times Rev_{i,t}^{NRR}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- b) For general-security entitlements (\$/ML of entitlement):

$$GSEC_{i,t} = \frac{Share_i \times Rev_{i,t}^{NRR}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- c) For usage (\$/ML):

$$UC_{i,t} = \frac{(1 - Share_i) \times Rev_{i,t}^{NRR}}{EWU_{i,t}}$$

The terms used in the above formulas are defined in Table A.1.

**Source:** ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 68-69, and IPART analysis.

<sup>21</sup> This is also presented in Appendix A of the Water NSW Annual Review of regulated charges for 2018-19 Final Report, which included a review of formulas presented in the 2017 Final Report for our review of Water NSW's rural bulk water charges from 1 July 2017.

**Table A.1 Description of terms used in Box A.1**

Definitions	
<i>i</i>	Valley: Border, Gwydir, Namoi, Peel, Lachlan, Macquarie, Murray, or Murrumbidgee.
<i>t</i>	Year: 2018-19, 2019-20, or 2020-21.
$HSP_{i,t}$	High security premium for valley <i>i</i> , in year <i>t</i> , calculated as set out below.
<i>Share</i>	The share of entitlement charges in Water NSW's price structure for valley <i>i</i> .
$Rev_{i,t}^{NRR}$	The component of the (nominal) notional revenue requirement to be recovered from Water NSW customers (ie, customer share of NRR) for valley <i>i</i> , in year <i>t</i> , given by the Building Block Model at the start of the determination period.
$EHSE_{i,t}$	The expected number of high-security entitlements issued for valley <i>i</i> , in year <i>t</i> .
$EGSE_{i,t}$	The expected number of general-security entitlements issued for valley <i>i</i> , in year <i>t</i> .
$EWU_{i,t}$	The expected water usage (or sales) for valley <i>i</i> , in year <i>t</i> , based on a 20-year moving average of past water usage.
$HSEC_{i,t}$	High security entitlement charge for valley <i>i</i> , in year <i>t</i> .
$GSEC_{i,t}$	General security entitlement charge for valley <i>i</i> , in year <i>t</i> .
$UC_{i,t}$	Usage charge for valley <i>i</i> , in year <i>t</i> .

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 68-69 and IPART analysis.

The high security premium for valley *i*, in year *t*,  $HSP_{i,t}$ , is the product of the Security Factor  $SF_{i,t}$ , and the Reliability Ratio  $RR_{i,t}$ :

$$HSP_{i,t} = SF_{i,t} \times RR_{i,t}$$

The Security Factor for a valley,  $SF_{i,t}$ , is given in Table A.2.

**Table A.2 Security Factors for each valley**

Valley	Security Factor
Border	1.25
Gwydir	1.40
Namoi	1.25
Peel	6.54
Lachlan	2.50
Macquarie	1.88
Murray	1.31
Murrumbidgee	1.69

Source: IPART, *Review of prices for rural bulk water services for WaterNSW – Final Report*, June 2017, p 224.

## Box A.2 Formulas for charges for Fish River customers

Customers of the Fish River Water Supply Scheme pay water charges in three parts:

- ▼ an access charge (the Minimum Annual Quantity (MAQ) paid per kL of the customer's MAQ entitlement
- ▼ a charge for each kL of water usage that is less than or equal to the customer's MAQ entitlement (in kL), and
- ▼ a charge for each kL of water usage that is greater than the customer's MAQ.

Fish River charges are different for each water class (filtered or raw) and each customer category within each water class (minor and major customers).

The formulae that we have used to estimate the charges for each component of the Fish River for an Annual Review are described below.

$$Charge_{ix}^{MAQ\ entitlement} = \frac{Revenue_{ix}^{MAQ}}{MAQ\ level_{ix}} \quad (1)$$

$$Charge_{ix}^{usage \leq MAQ} = \frac{Revenue_{ix}^{usage \leq MAQ}}{Min(Usage_{ix}, MAQ\ level_{ix})} \quad (2)$$

$$Charge_{ix}^{usage > MAQ} = Charge_{ix}^{MAQ\ entitlement} + Charge_{ix}^{usage \leq MAQ} \quad (3)$$

Where in formula (2),  $Revenue_{ix}^{usage \leq MAQ}$  is set out in formula (4) below:

$$Revenue_{ix}^{usage \leq MAQ} = Revenue_{ix}^{total} - Revenue_{ix}^{MAQ} - Calculated\ revenue_{ix}^{usage > MAQ} \quad (4)$$

Where in formula (4)  $Calculated\ revenue_{ix}^{usage > MAQ}$  is set out in formula (5) below:

$$Calculated\ revenue_{ix}^{usage > MAQ} = Max(0, Usage_{ix} - MAQ\ level_{ix}) \times Charge_{ix}^{usage > MAQ} \quad (5)$$

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 72-73, and IPART analysis.

**Table A.3 Description of terms used in Box A.2**

Definitions	
<b>Formula 1</b>	
$Charge_{ix}^{MAQ\ entitlement}$	The MAQ entitlement charge per kL of entitlement for customer category <i>i</i> purchasing water class <i>x</i> .
$Revenue_{ix}^{MAQ}$	The required revenue to be collected from MAQ charges for customer category <i>i</i> purchasing water class <i>x</i> .
$MAQ\ level_{ix}$	The historical annual kL of MAQ entitlement by customer category <i>i</i> purchasing water class <i>x</i> .
<b>Formula 2</b>	

## Definitions

$Charge_{ix}^{usage \leq MAQ}$	The charge for each unit of water usage under or equal to the MAQ level for customer category $i$ purchasing water class $x$ .
$Revenue_{ix}^{usage \leq MAQ}$	The required revenue to be collected from usage charges for customer category $i$ purchasing water class $x$ .
$Usage_{ix}$	The amount of the historical water usage for customer category $i$ purchasing water class $x$ .

## Formula 3

$Charge_{ix}^{usage > MAQ}$	The charge for each unit of water that is used after crossing the MAQ threshold for customer category $i$ purchasing water class $x$ .
-----------------------------	--

## Formula 4

$Revenue_{ix}^{total}$	The total required revenue to be collected from charges for customer category $i$ purchasing water class $x$ .
$Calculated\ revenue_{ix}^{usage > MAQ}$	The revenue collected from charging for usage in excess of the MAQ (at the value calculated in Formula 3) for customer category $i$ purchasing water class $x$ .

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 73, and IPART analysis.

### Box A.3 Calculation of MDBA and BRC charges

In valley  $i$ , at time  $t$ , the allowed charges are:

- a) For high-security entitlements (\$/ML of entitlement):

$$HSEC_{i,t}^{MDBA/BRC} = \frac{HSP_{i,t} \times Share_i \times Rev_{i,t}^{MDBA/BRC}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- b) For general-security entitlements (\$/ML of entitlement):

$$GSEC_{i,t}^{MDBA/BRC} = \frac{Share_i \times Rev_{i,t}^{MDBA/BRC}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- c) For usage (\$/ML):

$$UC_{i,t}^{MDBA/BRC} = \frac{(1 - Share_i) \times Rev_{i,t}^{MDBA/BRC}}{EWU_{i,t}}$$

The terms used in the above formulas are defined in Table A.4.

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 75-77; IPART analysis.

**Table A.4 Description of terms used in Box A.3**

Definitions	
<i>i</i>	Valley: Border, Murray, or Murrumbidgee.
<i>t</i>	Year: 2018-19, 2019-20, or 2020-21.
$HSP_{i,t}$	High Security Premium for valley <i>i</i> , in year <i>t</i> , calculated as set out below.
<i>Share</i>	The share of entitlement charges in Water NSW's MDBA/BRC price structure for valley <i>i</i> .
$Rev_{i,t}^{MDBA/BRC}$	The MDBA/BRC component of the (nominal) notional revenue requirement to be recovered from Water NSW customers (ie, customer share of NRR) for valley <i>i</i> , in year <i>t</i> , given by the Building Block Model at the start of the determination period.
$EHSE_{i,t}$	The expected number of high-security entitlements issued for valley <i>i</i> , in year <i>t</i> .
$EGSE_{i,t}$	The expected number of general-security entitlements issued for valley <i>i</i> , in year <i>t</i> .
$EWU_{i,t}$	The expected water usage for valley <i>i</i> , in year <i>t</i> , based on a 20-year moving average of past water usage.
$HSEC_{i,t}^{MDBA/BRC}$	High security MDBA/BRC entitlement charge for valley <i>i</i> , in year <i>t</i> .
$GSEC_{i,t}^{MDBA/BRC}$	General security MDBA/BRC entitlement charge for valley <i>i</i> , in year <i>t</i> .
$UC_{i,t}^{MDBA/BRC}$	MDBA/BRC usage charge for valley <i>i</i> , in year <i>t</i> .

**Source:** ACCC, Final Decision on State Water Pricing Application: 2014-15 – 2016-17, June 2014, pp 75-77 and IPART analysis.

The high security premium for valley *i*, in year *t*,  $HSP_{i,t}$ , is the product of the Security Factor  $SF_i$ , and the Reliability Ratio  $RR_{i,t}$ :

$$HSP_{i,t} = SF_i \times RR_{i,t}$$

The Security Factor for a valley,  $SF_i$ , is given in Table A.5 below.

**Table A.5 Security Factors for each valley**

Valley	Security Factor
Border	1.25
Murray	1.31
Murrumbidgee	1.69

**Source:** IPART, *Review of prices for rural bulk water services for WaterNSW – Final Report*, June 2017, p 228.

## B Indicative updated charges

**Note: we are not proposing to update regulated charges in 2020-21. We present indicative updated charges in Appendix B for information only.**

For completeness, we have calculated indicative charges that would apply if we did decide to update regulated charges to reflect the updated data provided to us by Water NSW. If we were to update the regulated charges from 1 July 2020 to reflect the most recent water sales data:

- ▼ For the nine MDB valleys, on average, High Security entitlement charges would increase by 12%, General Security entitlement charges would decrease by 2% and usage charges would increase by 5%.
- ▼ For Fish River, on average, access charges would decrease by 0.5% and usage charges would increase by 2%.

The following sections summarise our findings.

### B.1 Indicative charges if they were updated

The following tables present our calculation of what Water NSW's 2020-21 regulated charges would be if changed to reflect updated water sales data.

Tables B.1, B.2 and B.3 presents a comparison of the regulated charges for 2020-21 (in Chapter 4) compared to charges if we were to update prices.

**Table B.1 Comparison of the 2017 Determination Water NSW charges and indicative charges if we update charges to include latest data (\$2020-21) (\$/ML)**

Valley	2019-20 charges (\$2019-20)	2020-21 charges As per 2017 Determination	2020-21 charges If prices were to be updated	Difference (%)
	A	B	C	D = C - B
<b>HS entitlement charges</b>				
Border	5.62	5.73	5.81	1.29%
Gwydir	11.68	11.92	15.36	28.82%
Namoi	18.02	18.38	23.96	30.33%
Peel <sup>a</sup>	43.84	44.73	45.03	0.66%
Lachlan	16.22	16.55	18.61	12.48%
Macquarie	14.25	14.53	15.38	5.80%
Murray	1.62	1.65	1.80	8.92%
Murrumbidgee	3.11	3.17	3.38	6.64%
Lowbidgee	0.00	N/A	N/A	N/A
<b>GS entitlement charges</b>				

Border	2.09	2.13	2.13	0.00%
Gwydir	3.67	3.74	3.56	-4.79%
Namoi	8.40	8.57	8.36	-2.46%
Peel <sup>a</sup>	4.24	4.32	4.27	-1.22%
Lachlan	2.88	2.94	2.75	-6.45%
Macquarie	3.01	3.07	3.00	-2.06%
Murray	0.80	0.81	0.80	-1.30%
Murrumbidgee	1.17	1.19	1.16	-2.65%
Lowbidgee	0.83	0.84	0.84	0.00%
<b>Usage charges</b>				
Border	5.73	5.85	5.86	0.18%
Gwydir	12.52	12.77	13.99	9.49%
Namoi	21.07	21.50	23.64	9.95%
Peel <sup>a</sup>	19.37	19.76	17.91	-9.39%
Lachlan	20.08	20.49	22.07	7.72%
Macquarie	14.53	14.83	15.43	4.05%
Murray	2.01	2.06	2.25	9.23%
Murrumbidgee	3.49	3.56	3.88	8.88%
Lowbidgee	0.00	N/A	N/A	N/A

<sup>a</sup> As set out in the 2017 Determination, the tariff structure for the Peel Valley was changed from 40:60 fixed to variable charges to 80:20 from 2018-19 onwards.

Source: IPART analysis.

**Table B.2 Comparison of the 2017 Determination MDB/BRC charges and indicative charges if we update charges to include latest data (\$2020-21) (\$/ML)**

Valley	2019-20 charges (\$2019-20)	2020-21 charges As per 2017 Determination	2020-21 charges If prices were to be updated	Difference
	A	B	C	D = C – B
<b>HS entitlement charges</b>				
Border	4.87	4.96	5.03	1.27%
Murray	7.66	7.82	8.51	8.76%
Murrumbidgee	1.69	1.73	1.84	6.71%
<b>GS entitlement charges</b>				
Border	1.81	1.84	1.84	0.00%
Murray	3.75	3.83	3.74	-2.20%
Murrumbidgee	0.64	0.65	0.63	-3.23%
<b>Usage charges</b>				
Border	0.83	0.84	0.85	1.25%
Murray	1.58	1.61	1.76	9.15%
Murrumbidgee	0.32	0.33	0.36	9.68%

Source: IPART analysis.

**Table B.3 Comparison between the 2017 Determination Fish River charges and indicative charges if we update charges inclusive of latest data (\$2020-21) (\$/kL)**

Valley	2019-20 charges (\$2019-20)	2020-21 charges As per 2017 Determination	2020-21 charges If prices were to be updated	Difference
	A	B	C	D = C – B
<b>Access (or MAQ) charges</b>				
Raw water – major customers	0.41	0.42	0.42	0.00%
Raw water – minor customers	0.41	0.42	0.42	0.00%
Filtered water – minor customers	0.81	0.82	0.81	-1.28%
<b>Usage up to MAQ charges</b>				
Raw water – major customers	0.26	0.26	0.21	-20.00%
Raw water – minor customers	0.26	0.26	0.26	0.00%
Filtered water – minor customers	0.49	0.50	0.65	31.91%
<b>Usage in excess of MAQ charges</b>				
Raw water – major customers	0.67	0.69	0.63	-7.69%
Raw water – minor customers	0.67	0.69	0.66	-3.08%
Filtered water – minor customers	1.29	1.32	1.45	10.40%

Source: IPART analysis.

## B.2 Updated volumes

Based on Water NSW's updated actual data for 2018-19, we have updated our calculations for:

- ▼ HS and GS entitlement volumes,
- ▼ HS and GS water allocation ratios, and
- ▼ Water usage volumes.

### B.2.1 Updated water entitlement volumes and water allocations

Water NSW's customers hold water access entitlements in all valleys (except in Fish River). These are generally HS and GS entitlements, with the exception of Lowbidgee, which has supplementary entitlements.

Forecast entitlement volumes and water allocations are used to calculate the fixed (HS and GS entitlement) charges in the MDB valleys. In the 2017 Determination, we forecast entitlement volumes for each year of the determination period by using the latest available full year entitlement volume data. This was entitlement volumes for 2015-16.

To calculate the entitlement charges (in this appendix) that would apply if we had updated charges (ie, 'indicative charges'), we used the entitlement volumes for 2018-19 and updated the HS premiums based on the 20-year average ratio of HS allocations to GS allocations (ie, 1999-00 to 2018-19).<sup>22</sup>

Table B.4 and Table B.5 show the annual entitlement volumes for 2017-18 and 2018-19 and estimates for 2019-20.

**Table B.4 GS entitlement volumes (ML)**

Valley	2017-18	2018-19	2019-20
	Actual	Actual	Forecast
Border	263,281	263,218	263,218
Gwydir	509,665	509,665	509,665
Namoi	256,529	256,529	256,529
Peel	29,635	29,635	29,635
Lachlan	633,166	633,166	633,166
Macquarie	632,466	632,466	632,466
Murray	2,083,271	2,083,603	2,083,603
Murrumbidgee	2,267,963	2,267,963	2,267,963
Lowbidgee <sup>a</sup>	747,000	747,000	747,000

<sup>a</sup> Lowbidgee entitlement volumes are supplementary entitlements.

**Source:** Water NSW submission to IPART annual price review (data input and submitted in IPART model), March 2020.

**Table B.5 HS entitlement volumes (ML)**

Valley	2017-18	2018-19	2019-20
	Actual	Actual	Forecast
Border	3,141	3,141	3,141
Gwydir	26,920	26,920	26,920
Namoi	8,866	8,866	8,866
Peel	17,367	17,367	17,367
Lachlan	57,302	57,252	57,296
Macquarie	42,688	42,691	42,666
Murray	263,555	263,575	267,499
Murrumbidgee	438,328	438,328	441,723

**Note:** Lowbidgee entitlement volumes are supplementary entitlements.

**Source:** Water NSW submission to IPART annual price review (data input and submitted in IPART model), March 2020.

<sup>22</sup> A HS entitlement charged is levied on HS entitlement holders for each valley and incorporates a HS premium to reflect the greater security (ie, priority in water allocations) and reliability of water supply enjoyed by HS entitlement holders relative to GS entitlement holders.

Table B.6 and Table B.7 show the 20-year average ratio of HS allocations to GS allocations used in the 2017 Determination, what it would be if we updated the prices in the 2020-21 Annual Review and the forecast ratio based on Water NSW's estimate for 2019-20.

**Table B.6 20-year rolling average GS water allocation ratios**

Valley	2017 Determination	2020-21 Annual review	Forecast
Border	46%	46%	43%
Gwydir	44%	32%	30%
Namoi	58%	44%	40%
Peel	62%	61%	56%
Lachlan	37%	30%	27%
Macquarie	40%	37%	32%
Murray	61%	55%	53%
Murrumbidgee	62%	56%	53%
Lowbidgee	N/A	N/A	N/A

**Note:** Lowbidgee entitlement volumes are supplementary entitlements.

**Source:** Water NSW submission to IPART annual price review (data input and submitted in IPART model), March 2020.

**Table B.7 20-year rolling average HS water allocation ratios**

Valley	2017 Determination	2020-21 Annual review	Forecast
Border	100%	100%	100%
Gwydir	100%	100%	100%
Namoi	100%	100%	99%
Peel	98%	98%	96%
Lachlan	83%	83%	82%
Macquarie	100%	100%	98%
Murray	95%	95%	95%
Murrumbidgee	97%	97%	97%
Lowbidgee	N/A	N/A	N/A

**Note:** Lowbidgee entitlement volumes are supplementary entitlements.

**Source:** Water NSW submission to IPART annual price review (data input and submitted in IPART model), March 2020.

## B.2.2 Updated water sales (or usage) volumes

In the 2017 Determination, we generally forecast sales as the 20-year historical average of usage volumes for each valley (ie, forecast usage for each year of the determination period was calculated as the annual average of usage volumes from 1996-97 to 2015-16). When calculating charges that would apply for 2020-21 if we were to update charges as part of this annual review (ie, 'indicative charges'), the water sales (or usage) volumes would be calculated by rolling forward the 20-year historical average – ie, using data from 1999-00 to 2018-19.

Table B.8 shows the usage volumes in 2018-19, the updated 20-year rolling averages used in the 2017 Determination and 20 year-rolling average based on the latest actual data.

**Table B.8 Water sales (or usage) volumes (ML)**

Valley	2018-19	2017 Determination	2020-21 Annual review
	(Actual full year data)	(20-year rolling average)	(20-year rolling average)
Border	145,591	148,174	147,948
Gwydir	121,130	262,135	239,365
Namoi	47,490	164,799	149,925
Peel	18,582	11,496	12,686
Lachlan	278,111	206,001	191,214
Macquarie	255,839	259,099	249,042
Murray	768,313	1,556,610	1,423,613
Murrumbidgee	1,012,156	1,733,642	1,595,330
Lowbidgee <sup>a</sup>	N/A	N/A	N/A
<b>Fish River Water Supply Scheme</b>			
Major Customer (raw) <sup>b</sup>	4,090	1,541	1,884
Minor customers (raw)	62	50	51
Minor customers (filtered)	82	116	105

<sup>a</sup> We do not forecast usage volumes for the Lowbidgee Valley as this valley has a 100% fixed price structure.

<sup>b</sup> To forecast usage volumes of the Major Customer (raw) we used a 16-year rolling average in the 2017 Determination due to limited data availability. We also decided at the time that as new data is created it would be added onto the average until it reaches a 20-year rolling average. For this Annual Review, we have used a 19-year rolling average. In this case, the impact of the first historical data point 'rolling off' is not relevant.

**Sources:** Water NSW submission to IPART annual price review (data input into IPART model), March 2020 and IPART analysis.

### B.2.3 Updated Fish River Minimum Annual Quantity and customer numbers

In the Fish River, customers have a Minimum Annual Quantity (MAQ) rather than a licensed entitlement. The fixed charge is based on the customer's MAQ. The MAQs are specified in the water sharing arrangements for the Fish River. The share of the water resource assigned to specific customers is specified in Schedule 3 of Water NSW's Water Management Licence for the Fish River Scheme.<sup>23</sup>

<sup>23</sup> This water management license for Water NSW is issued under Part 9 of the *Water Act (1912)*.

The following table compares the MAQ and customer number inputs used in the 2017 Determination to the inputs that we would have used if we had updated prices (ie, the inputs we have used to calculate the 'indicative charges' in Table B.3). To calculate the 'indicative charges', we used the 2020-21 MAQ to calculate access charges, and the 20-year rolling average of usage volumes in the valley (ie, 1999-00 to 2018-19) to calculate usage charges.

**Table B.9 Minimum Annual Quantities (MAQ)**

	Customer numbers		MAQ		MAQ Level	
	2017 Determination	2020-21 annual review	2017 Determination	2020-21 annual review	2017 Determination	2020-21 annual review
Raw water major customer	1	1	8,184 ML	8,184 ML	8,184 ML	8,184 ML
Raw water minor customers	83	84	200 kL per individual	200 kL per individual	16.6 ML	16.8 ML
Filtered water minor	216	231	200 kL per individual	200 kL per individual	43.2 ML	46.2 ML

**Note:** For each minor customer, the access charges are set with reference to a deemed MAQ of 200kL outlined in the 2017 Determination (source below).

**Source:** Water NSW submission to IPART annual price review, March 2020, p 7; IPART, *Review of prices for rural bulk water services for WaterNSW – Final Report*, June 2017, pp 110-111.

## C Background information

Water NSW (formerly State Water Corporation) delivers bulk water to irrigators and other licence holders on regulated rivers across NSW.<sup>24</sup> Water NSW develops and maintains infrastructure and supplies raw water to rural NSW and the Greater Sydney area.

Water NSW was formed on 1 January 2015 under the *Water NSW Act 2014* (NSW) (the Act). The Act provided for the former State Water Corporation to become Water NSW. It also abolished the former Sydney Catchment Authority (SCA) and transferred its functions to Water NSW.

We regulate Water NSW's charges for its rural bulk water services, which relate primarily to storing and delivering water to entitlement holders in 13 valleys across NSW. We also regulate its meter service charges and other miscellaneous charges that are set on a fee-for-service basis.

### C.1 2017 Determination and the Annual Review

In June 2017, IPART released its Final Determination on Water NSW's charges for the 2017-18 to 2020-21 determination period (the 2017 Determination). This set the target revenue requirement for each year of the determination period and set charges to recover this revenue amount. The 2017 Determination also included a framework and formulae for calculating updated charges for subsequent years of the determination period, as part of the Annual Review. This was subsequently reviewed and changed during the first Annual Review. Appendix A of this report outlines the formula that will be used to update charges.

The charges set for each year of the 2017 determination period used the most up-to-date data available at the time. This was actual usage volumes, entitlements and water allocation percentages up to the 2015-16 financial year. The Annual Review process allows IPART to update charges, if it is reasonably necessary to do so, in order to reflect updated data for usage volumes, entitlements and water allocation ratios.

#### C.1.1 Revenue requirement

We used the 'building block' method in the 2017 Determination to calculate Water NSW's notional revenue requirement. The method determines the total efficient costs by aggregating an allowance for a number of components, which reflect the business' operations and ability to deliver its regulated services. These components include:

- ▼ Operating expenditure
- ▼ A return on the assets
- ▼ A return of the assets (regulatory depreciation)

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<sup>24</sup> A regulated river is one where downstream flows are regulated by a major storage or dam to supply irrigation water.

- ▼ An allowance for meeting tax obligations, and
- ▼ An allowance for working capital.

For Water NSW specifically, there are a number of additional items which are also included in the notional revenue requirement. These are:

- ▼ Murray-Darling Basin Authority (MDBA) and Barwon-Dumaresq Border Rivers Commission (BRC) costs
- ▼ A revenue volatility allowance
- ▼ Costs related to the recovery of the Unders and Overs Mechanism (UOM)<sup>25</sup>, and
- ▼ Irrigation corporations and districts (ICD) rebates.

In the 2017 Determination, IPART set charges to reflect a 'smoothed' revenue requirement (ie, target revenue requirement), so that for each year of the determination period prices would follow a determined price path (ie, constant in real terms). The target revenue requirement is the actual revenue we expect Water NSW to generate from charges each year.

The target revenue requirement will be maintained over the 4-year determination period and is not within the scope of the Annual Review.

### C.1.2 Price structure

The price structure for Water NSW's regulated charges for most valleys<sup>26</sup> comprises of:

- ▼ A **fixed charge**- an annual fixed charge that applies to the share component specified on each water access licence (ie, \$ per ML of general security (GS) and high security (HS) water entitlement or unit share).
- ▼ A **usage charge**- a charge based on the quantity of water recorded as taken for a water access licence in the billing period (\$ per ML of water taken or usage).

For 2020-21, most valleys maintain the 40:60 fixed to variable price structure with the exception of Peel Valley and the Fish River, which have an 80:20 fixed to variable price structure, and Lowbidgee Valley which has a 100:00 fixed to variable price structure.

MDBA and BRC charges are based on an 80:20 fixed to variable price structure. These are levied in addition to the bulk water charges in the Border (BRC), Murray (MDBA) and Murrumbidgee (MDBA) valleys.

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<sup>25</sup> The UOM was discontinued for the 2017 Determination and replaced with the revenue volatility allowance. However, to address the existing UOM balance, IPART incorporated a UOM payback amount in prices so that the balances can be recovered over a 12-year period.

<sup>26</sup> The exception is Lowbidgee where Water NSW only levies a fixed charge (customers hold supplementary licences that entitle them to water use only when access water is available).

## Glossary

2017 Determination	Our pricing Determination for Water NSW Rural prices applying from 1 July 2017 to 30 June 2021
2017 determination period	The period commencing 1 July 2017 and running to 30 June 2021
ACCC	Australian Competition and Consumer Commission
ACCC's 'pricing principles'	<i>ACCC's Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010</i> , July 2011
BRC	Barwon-Dumaresq Border Rivers Commission
CPI	Consumer Price Index
Fish River	Fish River Water Supply Scheme
GS	General security
GL	Gigalitre
Greater Sydney area	Water catchments that service Water NSW storages including the Blue Mountains, Shoalhaven, Warragamba, Upper Nepean and Woronora catchments
HS	High security
HSP	High security premium
ICD	Irrigation corporations and districts
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act 1992</i> (NSW)
kL	Kilolitre
MDB	Murray-Darling Basin

MDBA	Murray-Darling Basin Authority
MAQ	Minimum Annual Quantity
ML	Megalitre
NRR	Notional revenue requirement. Revenue requirement set by IPART that represents the efficient costs of providing Water NSW's regulated monopoly services.
NSW	New South Wales
RTP	Risk transfer product
SCA	Sydney Catchment Authority (now part of Water NSW)
Target revenue	The revenue Water NSW is expected to generate from charges set by IPART.
UOM	Unders and Overs Mechanism
Water Act	<i>Water Act 2007 (Cth)</i>
WCIR	<i>Water Charge (Infrastructure) Rules 2010</i> made under s 92 of the <i>Water Act 2007 (Cth)</i>