



WaterNSW

Annual Review of rural bulk water charges for 2019-20

Draft Report
Water

April 2019

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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 13 May 2019.

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

You can also send comments by mail to:

WaterNSW Annual Review of regulated charges

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1 Executive Summary

1.1 Introduction

The Independent Pricing and Regulatory Tribunal (IPART, or ‘we’) is undertaking an Annual Review of WaterNSW’s regulated charges for rural bulk water services in the Murray-Darling Basin (MDB) and the Fish River Water Supply Scheme (FRWSS) for the 2019-20 financial year. This is required under the *Water Charge (Infrastructure) Rules 2010* (WCIR).¹

WaterNSW delivers bulk water to irrigators and other licence holders on regulated rivers across NSW.² WaterNSW operates 42 dams and weirs and other infrastructure, to deliver water to its customers.³

This is the second Annual Review within the current 4-year determination of WaterNSW’s regulated charges for rural bulk water services (the 2017 Determination),⁴ which set maximum charges from 1 July 2017 to 30 June 2021. The 2017 Determination included three broad categories of regulated charges:

- ▼ **Bulk Water Charges** – annual charges to recover customers’ share of the efficient costs of delivering WaterNSW’s rural bulk water services. These are levied as a two-part tariff, comprising:
 - Fixed entitlement charges - \$ per megalitre (ML) of licensed entitlement,⁵ and
 - Variable usage charges - \$ per ML of water used (extracted from the river).⁶
- ▼ **Murray-Darling Basin Authority (MDBA) and Borders River Commission (BRC) Charges** – which we set for licence holders in the Murray, Murrumbidgee and Border valleys to recover customers’ share of the costs of WaterNSW’s payments to the MDBA and BRC. These are also levied as a two-part tariff, comprising entitlement and usage charges.
- ▼ **Miscellaneous Charges** – which include a range of charges for meter services and other miscellaneous activities.

This Annual Review relates to WaterNSW’s ‘bulk water charges’ (to the extent that they are regulated under the WCIR), and MDBA and BRC charges. This review provided an opportunity for us to consider updating these charges for the third year of the 2017 determination period, if we consider it to be reasonably necessary to do so, having regard to changes in demand or consumption forecasts and price stability.⁷

¹ The *Water Charge (Infrastructure) Rules 2010* are made under s 92 of the *Water Act 2007* (Cth).

² The difference between unregulated and regulated rivers is that regulated rivers are controlled by a major storage or dam to supply water.

³ IPART, *WaterNSW Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021*, p 1.

⁴ IPART, *WaterNSW Prices for rural bulk water services from 1 July 2017*, Determination, June 2017.

⁵ Or, for customers in the FRWSS: Minimum Annual Quantity (MAQ).

⁶ Except for customers in Lowbidgee valley which have a 100% fixed charge.

⁷ WCIR, rule 37(2).

Reviewing other elements of our 2017 Determination, such as prudent and efficient costs and tariff structures, are not within scope of this Annual Review.

This report sets out our draft decisions on WaterNSW's 2019-20 regulated charges to its customers in the MDB and FRWSS, and explains how we reached these decisions.

In addition, we seek stakeholder feedback on whether a large increase in usage in the FRWSS in 2017-18 reflects a sustained or permanent change in demand (see question 1 in Chapter 4).

1.2 Our draft decision is to maintain regulated charges in 2019-20

Our draft decision is to maintain the regulated charges as set under the 2017 Determination, which includes making adjustments for CPI to determine the charges applicable for the 2019-20 period. This supports WaterNSW's Annual Review application to have regulated charges increase by CPI only.

We consider that it is not reasonably necessary to make variations to regulated charges, having regard to annual changes in demand or consumption, and its impact on pricing stability. Specifically, we consider that updated water sales data (ie, changes in usage volumes, entitlement volumes and water allocation ratios) do not support or reflect a sustained or permanent shift in demand. Therefore, we consider there is no compelling case to update charges to enhance price stability and accuracy. This decision is consistent with the ACCC's pricing principles and within the scope of our powers under the WCIR.

1.3 Structure of this report

The remainder of this Report is structured as follows:

- ▼ Chapter 2 provides an overview of the regulatory framework applying to the Annual Review and our approach to the Annual Review.
- ▼ Chapter 3 summarises WaterNSW's application.
- ▼ Chapter 4 explains our decision not to vary charges set out in the 2017 Determination.
- ▼ Chapter 5 outlines the regulated charges for 2019-20.

1.4 List of questions for stakeholder comment

IPART seeks comments on:

- 1 What is the explanation for the increase in usage volumes in the FRWSS in 2017-18? Does this increase reflect a sustained or permanent shift in water demand or consumption?

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2 Overview of the regulatory framework and the annual review process

Under the *Water Charge (Infrastructure) Rules 2010* (WCIR), we are required to undertake annual reviews of WaterNSW's regulated charges for rural bulk water services. The valleys included in the Annual Review are listed in section 2.2.

The Annual Review does not relate to maximum charges for rural bulk water services set under the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) (IPART Act).⁸ The valleys excluded from the Annual Review are WaterNSW's North Coast, South Coast and Hunter Valleys. Supply to certain customers in the Fish River Water Supply Scheme is also excluded.

2.1 Regulatory framework

Under Part 9 of the WCIR, IPART is accredited by the Australian Competition and Consumer Commission (ACCC) to determine or approve WaterNSW's bulk water charges in the MDB valleys from 1 June 2016 and onwards.

The charges for WaterNSW's bulk water services supplied in the MDB valleys and to rural customers in the FRWSS are regulated under:

- ▼ The *Water Act 2007* (Cth)
- ▼ The WCIR, and
- ▼ The ACCC's 'pricing principles' for price approvals and determinations under the WCIR of July 2011 (ACCC's 'pricing principles').

The WCIR sets out a 2-stage process for determining or approving the regulated charges for WaterNSW's MDB Valleys (and rural customers in the FRWSS):

1. The approval or determination of regulated charges for a set determination period.⁹ This was completed by IPART in June 2017 and applies from 1 July 2017 to 30 June 2021 (the 2017 Determination).¹⁰ Then,
2. The Annual Review, undertaken after the first year of the determination period set under the first stage, and for each subsequent year within the determination period. WaterNSW is required to submit to IPART an application for approval or determination of its regulated charges for 2019-20. IPART must then approve WaterNSW's application or otherwise determine WaterNSW's regulated charges, in accordance with the Annual Review process set out in the WCIR.¹¹

⁸ The 2017 Determination continues to apply for WaterNSW's rural bulk water services set under the IPART Act.

⁹ WCIR Part 6 Division 2.

¹⁰ IPART, *WaterNSW Prices for rural bulk water services from 1 July 2017*, Determination Water, June 2017.

¹¹ WCIR Part 6 Division 3.

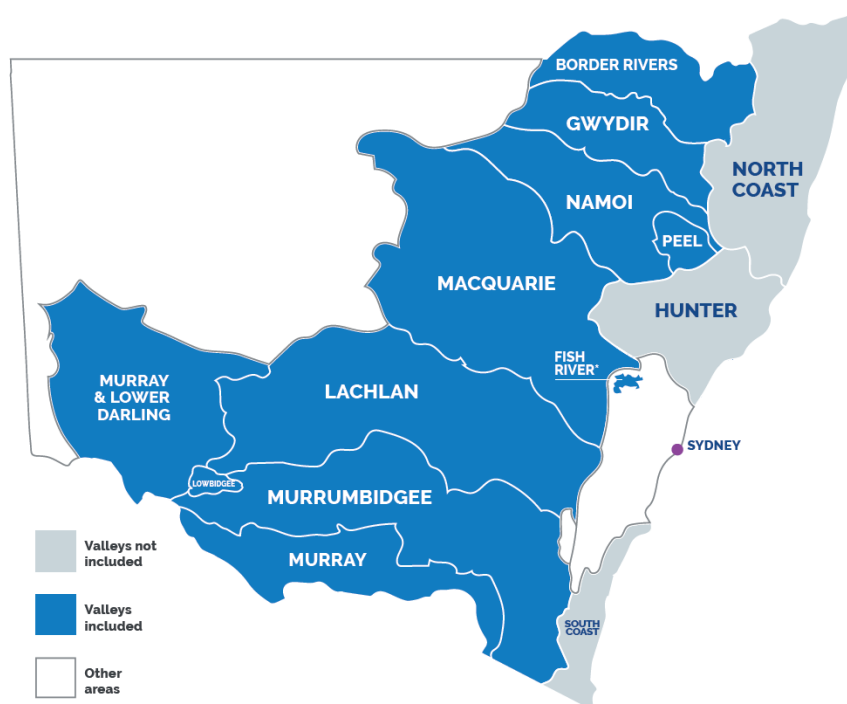
The Annual Review provides us with the opportunity to review and update regulated charges, if it is reasonably necessary to do so, having regard to changes in demand or consumption forecasts, and price stability. Reviewing other elements of our 2017 Determination, such as prudent historical costs and efficient forecast costs and tariff structures, are not within scope of an Annual Review.

This is the second Annual Review of WaterNSW's charges for the current determination period. Any variation to charges as a result of this Annual Review would apply for one year only (ie, from 1 July 2019 to 30 June 2020 for this Annual Review).

2.2 This review applies to all nine MDB valleys and rural FRWSS customers

The Annual Review applies to nine MDB valleys and rural customers in the FRWSS as shown in Figure 2.1. Further, the Annual Review does not affect WaterNSW's North Coast, South Coast and Hunter Valley customers, as these valleys are not subject to the WCIR.

Figure 2.1 Valleys in and out of scope for the Annual Review



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 FRWSS are in scope of the Annual Review.

2.3 Overview of our approach to consider whether it is *reasonably necessary* to vary charges in the Annual Review

Under the WCIR, IPART must either approve or determine the regulated charges for the relevant year according to the criteria set out under rule 37(2) of the WCIR. Accordingly, IPART must not vary 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:

- ▼ The “changes in the demand or consumption forecasts” set out in WaterNSW’s application for an Annual Review,¹² and
- ▼ “Price stability”.¹³

For WaterNSW, the regulated charges set under the WCIR were outlined in the 2017 Determination. We have set constant charges in the 2017 Determination (ie, real \$2016-17), but have included annual adjustments to index charges by CPI (ie, to reflect nominal charges).

To assess the reasonably necessary threshold, we consider whether:

- ▼ The change in demand or consumption (ie, water sales volumes) represents a permanent or sustained shift in the demand profile.
- ▼ There is a case to respond to changes in demand or consumption.
- ▼ There is a material demand and revenue volatility risk exposure that WaterNSW would face based on the latest data.

If we were to change the regulated charges for 2019-20 to reflect updated sales volumes, we would apply the approach set out in Appendix A to calculate charges. In essence, Appendix A states that regulated charges could vary as usage, entitlement and water allocations change year on year.

2.4 Overview of the Annual Review timetable

IPART must either approve or determine WaterNSW’s regulated charges within three months of receiving WaterNSW’s pricing application. The timeframe may be extended by one month at a time, provided IPART informs WaterNSW why it has been unable to make its decision during the required timeframe. If IPART requests further information from WaterNSW during the review, any day in which this information request remains unfulfilled extends IPART’s three month period for this review.

In making our draft decision, we have considered WaterNSW’s pricing application, which was received on 12 March 2019. Further, we will consider all submissions received on the Draft Report and Draft Approval, prior to releasing the Final Report and Approval, for charges to apply from 1 July 2019 to 30 June 2020. The timetable for this review is outlined in Table 2.1.

Table 2.1 Annual Review timetable

Milestone	Date
Received pricing application from WaterNSW	12 March 2019
Release Draft Report and Draft Approval	16 April 2019
Submissions to the Draft Report close	13 May 2019
Release Final Report and Final Approval	4 June 2019

¹² WCIR, rule 37(2)(a).

¹³ WCIR, rule 37(2)(b).

3 WaterNSW's application for 2019-20

The first step in our Annual Review process is to consider WaterNSW's application for the 2019-20 period. As required under the WCIR, we assess the application (Chapter 4) and consider if it is reasonably necessary to vary charges from those set under the 2017 Determination.

This chapter summarises the key details of WaterNSW's pricing application for the 2019-20 period and information provided to IPART. WaterNSW's pricing application complies with the form and content requirements under the WCIR.

3.1 Summary of WaterNSW's pricing application

WaterNSW is requesting that IPART approve regulated charges for the 2019-20 period in line with the 2017 Determination, only adjusted for actual inflation.¹⁴

In its application to IPART, WaterNSW briefly outlined that it considered the impact of a change in prices to its customers when it made the decision to propose to leave charges unchanged from the 2017 Determination. Its application indicated that any increase in charges due to a decrease in usage volumes, because of drought, may result in bill pressure to its customers. Further, its application included updated water sales data as required under WCIR, its estimate of rural charges for the 2019-20 period, and customer bill impacts. For full information, the WaterNSW's application can be accessed on our website.

3.2 WaterNSW's proposed charges for 2019-20

The rural charges proposed by WaterNSW for the nine valleys and FRWSS are shown in Table 3.1, Table 3.2 and Table 3.3. WaterNSW calculated the regulated charges by converting the charges included in the 2017 Determination from 2016-17 real dollars into 2019-20 nominal dollars. The following inflation rates were used to convert the charges:

- ▼ 2.1% per annum to inflate charges from 2016-17 dollars to 2017-18 dollars
- ▼ 1.9% per annum to inflate charges from 2017-18 dollars to 2018-19 dollars, and
- ▼ 2.5% per annum to inflate charges from 2018-19 dollars to 2019-20 dollars.

¹⁴ WaterNSW has proposed to adjust for inflation of 2.5%, based on IPART's inflation rates outlined in the submission information package sent to WaterNSW in February 2019. We note that this is an estimate only at that point in time. We will use the actual CPI for March-on-March result (to be released by ABS in April 2019) in our Final Report.

Table 3.1 WaterNSW's application for bulk water charges in 2019-20 (\$2019-20) (\$/ML)

Valley	Usage charge	High Security (HS) entitlement charge	General Security (GS) entitlement charge
Border	5.79	5.68	2.11
Gwydir	12.65	11.81	3.71
Namoi	21.30	18.21	8.49
Peel	19.58	44.31	4.28
Lachlan	20.30	16.39	2.91
Macquarie	14.69	14.40	3.04
Murray	2.04	1.64	0.80
Murrumbidgee	3.53	3.14	1.18
Lowbidgee	N/A	N/A	0.84

Source: WaterNSW's Pricing application, March 2019, pp 3-4.

Table 3.2 WaterNSW's application for MDBA/BRC charges in 2019-20 (\$2019-20) (\$/ML)

Valley	Usage charge	HS entitlement charge	GS entitlement charge
Border	0.84	4.92	1.83
Murray	1.60	7.75	3.79
Murrumbidgee	0.32	1.71	0.65

Source: WaterNSW's Pricing application, March 2019, p 4.

Table 3.3 WaterNSW's application for FRWSS charges in 2019-20 (\$2019-20) (\$/kL)

Valley	Usage charges	Usage < Minimum Annual Quantity (MAQ) ^a charges	Usage > MAQ charges
Raw water - major customers	0.42	0.26	0.68
Raw water - minor customers	0.42	0.26	0.68
Filtered water - minor customers	0.81	0.49	1.31

^a In the FRWSS, 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 FRWSS.

Source: WaterNSW's Pricing application, March 2019, p 6.

3.3 Updated water sales data

WaterNSW provided the following water sales data (ie, usage volumes, entitlement volumes and water allocations) as part of its application to IPART (refer to Appendix B.2 for more details):

- ▼ forecast demand or consumption for 2019-20
- ▼ estimated demand or consumption during 2018-19, and
- ▼ actual demand or consumption in 2017-18.

We used this information in our review of whether charges should be updated, as follows:

-
- ▼ We used the actual water sales for 2017-18 as inputs in assessing rural charges in the nine valleys by updating the 20-year rolling average of actual water usage and entitlement volumes.
 - ▼ We used the estimate of water sales for 2018-19 and 2019-20 for noting only.

In addition, the updated water sales data informed our assessment of whether changes in demand or consumption represent a sustained or permanent shift. This is discussed in section 4.2 of this Draft Report.

4 Our assessment of rural charges for the 2019-20 period

Our draft decision is to maintain the regulated charges as set under the 2017 Determination, which includes making adjustments for CPI to determine the charges applicable for the 2019-20 period. This is in line with WaterNSW's Annual Review application for the 2019-20 period.

In reaching our draft decision, we considered WaterNSW's application, requirements under the WCIR, and applied our assessment framework as outlined in section 2.3. Overall, our decision reflects that:

- ▼ We found no evidence to suggest that the change in annual water sales data for 2017-18 reflects a sustained or permanent shift in demand or a material change in the industry.
- ▼ Consequently, we considered that there is no compelling case to update charges to enhance price stability and accuracy. In general, including the latest data point has the potential to improve the general accuracy of our charges, however this is not the case for this Annual Review given the volatility in usage volumes and lack of evidence of a sustained or permanent shift in demand.
- ▼ We considered that mitigating WaterNSW's revenue volatility risk by updating prices should have a lesser weight than the other two considerations. This is because in the 2017 Determination we decided to give WaterNSW a revenue volatility allowance to mitigate revenue volatility risk associated with the misalignment between its cost structure and tariff structure.

4.1 Sustained or permanent shift in demand or consumption

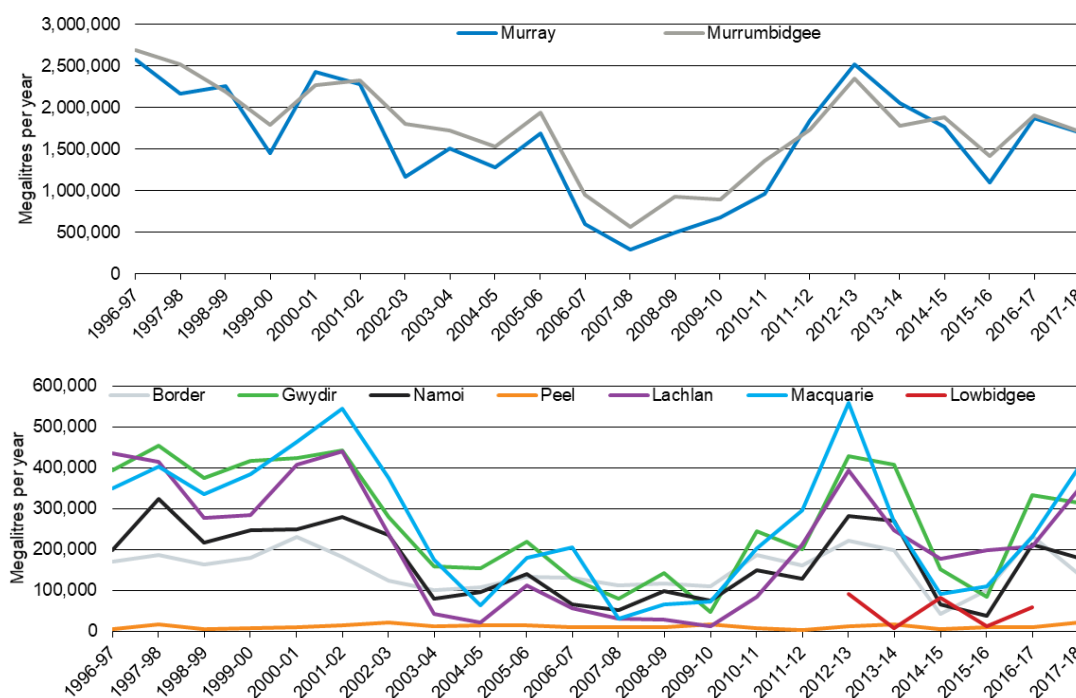
Where there is a sustained or permanent shift in demand, there may be a strong case to vary charges through the Annual Review process. To address this, we assessed the information provided by WaterNSW under the following circumstances:

- ▼ Changes in water volumes on a year-on-year basis
- ▼ Historical trends in water volumes, and
- ▼ Impact on the rolling averages of water volumes used in the 2017 Determination.

On a year-on-year basis, there was a slight net decline of 3.73% in total actual usage volumes in the eight valleys¹⁵ from 2016-17 to 2017-18. WaterNSW indicated that this decline is due to lower rainfall or drought. However, this decline is not unusual when compared to the overall volatile historical trend in annual usage volumes (see Figure 4.1). Due to the natural unpredictability of rainfall, the impact on water availability and consumption in rural NSW can be volatile, particularly over a short timeframe.

¹⁵ 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).

Figure 4.1 Historical annual usage volumes in the nine valleys



Note: The 1996-97 to 2015-16 historical usage volumes are based on the data used in the 2017 Determination while the 2016-17 and 2017-18 historical usage volumes are sourced from WaterNSW as part of its 2019-20 application to IPART.

Data source: IPART analysis.

Unless there is strong evidence to support a sustained or permanent shift in water demand, annual changes in water demand or consumption are likely to reflect business-as-usual variations in demand. If this is the case, updating charges annually could result in volatile movements where charges could increase one year and subsequently decrease in the next year. This would impose risks and costs on customers through higher price volatility and uncertainty.

If we were to update the 20-year rolling average based on the latest data points, there would be a slight net decline in consumption of 4.10% when compared to the rolling average used in the 2017 Determination. However, this does not necessarily suggest that the 2017-18 data point reflects a sustained shift in water demand. We note that:

- ▼ The rolling average calculation is affected by the difference between the last year 'rolling off' (ie, 1997-98) and new data point (ie, 2017-18) being included.
- ▼ There needs to be strong evidence that the 2017-18 actual data is reflective of a sustained or permanent change in water demand compared to the forecast used in the 2017 Determination. We currently do not have this evidence.

On balance, we consider there is no strong evidence to suggest that the latest data reflects a sustained or permanent change in water usage.

4.2 Price stability

To calculate prices, we need to forecast the volume of water demand and entitlements for each year during a determination period. That is, we determine the revenue requirement of the utility over the determination period (which generally equates to our assessment of the efficient costs of delivering the monopoly services) and then set prices each year to recover this revenue requirement, using forecasts of water demand and entitlement volumes. If actual water demand and entitlement volumes equal our forecasts, the utility will recover its revenue requirement through prices. On the other hand, if actual volumes are less than forecast the utility will under-recover relative to its revenue requirement; and if actual volumes are greater than forecast it will over-recover relative to its revenue requirement.

In the scope of this review, the term ‘price accuracy’ refers to the extent to which prices are calculated using accurate water demand and entitlement forecasts. The closer forecast water demand and entitlements are to actuals, the more accurate calculated prices will be in that the utility’s actual revenue received via prices will be closer to its revenue requirement.

In general, including more recent data has the potential to improve the accuracy of charges. For example, if more recent data reflects a sustained or permanent shift in demand, then updating charges can improve price stability and accuracy. However, adjusting charges in response to business-as-usual volatility could introduce greater price volatility, without improving the accuracy of prices, within the 4-year determination period.

To assess price volatility, we calculated indicative charges using updated usage and entitlement volumes and allocation ratios provided by WaterNSW. In addition, we compared these indicative charges with the charges under the 2017 Determination (as discussed in Appendix B), and assessed the potential impact on customer bills (as discussed in Appendix C).

The indicative charges show that in the nine valleys in the MDB:

- ▼ The indicative change in total rural charges varies on valley-to-valley basis, between -3.9% and 7.7% for all valleys, excluding Peel Valley.¹⁶
- ▼ For high security customers, the indicative impact on customer bills is within a range of -1.4% and 5.2%.
- ▼ For general security customers, the indicative impact on customer bills is within a range of -2.4% and 6.0%.

In the FRWSS, we observed a large increase in annual usage volumes of a major customer (EnergyAustralia) in 2017-18. Based on the data provided to us by WaterNSW, the water usage increased by 258.1%, or from 1,540 ML in 2016-17 to 5,513 ML in 2017-18 (see Table B.5). While the historical annual usage in this scheme is volatile, the annual usage in 2017-18 appears to be an outlier. We are seeking feedback from stakeholders to understand the

¹⁶ We excluded the Peel Valley results in our comparison of indicative charges for 2019-20 against the 2017 Determination as these are affected by other changes outside the scope of this annual review. In the 2017 Determination, we made a decision to change the tariff structure in the Peel Valley from 40:60 fixed to variable to 80:20 fixed to variable from 2018-19 onwards. Consequently, this led to a relatively large increase in entitlement charges (particularly High Security entitlement charges) with an associated reduction in the usage charge.

reasons for this large increase and whether it reflects a sustained or permanent shift in water demand in the FRWSS.

Given that there is no strong evidence to suggest that the latest water data reflects a structural or permanent shift in demand in 2017-18, our draft decision is that there is no compelling case to update charges to enhance price accuracy. We also consider that incorporating all the new data is better undertaken during the periodic (4-yearly) price review.

Our Draft Decision is that it is not reasonably necessary to update charges in 2019-20 when considering the changes in updated water demand data and its impact on price stability.

IPART seeks comment

- 1 What is the explanation for the increase in usage volumes in the FRWSS in 2017-18? Does this increase reflect a sustained or permanent shift in water demand or consumption?

4.3 Demand and revenue volatility

Overall, we consider that mitigating WaterNSW's revenue volatility risk through updating charges is less material than the other two considerations in the Annual Review. This is because WaterNSW has a revenue volatility allowance included in the 2017 Determination to mitigate its revenue volatility risk associated with the mismatch between its cost structure and price structure (coupled with the difficulty in forecasting sales volumes).¹⁷ This allowance allowed WaterNSW to purchase a risk transfer product to receive the security of an 80:20 fixed to variable price structure.¹⁸

¹⁷ IPART, *WaterNSW Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021*, pp 92-94.

¹⁸ In general, WaterNSW's actual price structure is 40:60 fixed to variable, while its cost structure is at minimum 80:20 fixed to variable costs.

5 Charges to apply in 2019-20

In Chapter 4, we discussed the draft decision that it is not reasonably necessary to make variations to WaterNSW's regulated charges as set under the 2017 Determination, and only make adjustments to prices in the 2017 Determination to reflect CPI.¹⁹

The charges that customers will pay in 2019-20 are set out below. We used the following inflation rates to convert the charges to nominal dollars for the 2019-20 period:

- ▼ 2.1% per annum to inflate charges from 2016-17 dollars to 2017-18 dollars
- ▼ 1.9% per annum to inflate charges from 2017-18 dollars to 2018-19 dollars, and
- ▼ 2.5% per annum to inflate charges from 2018-19 dollars to 2019-20 dollars.²⁰

Table 5.1 sets our determination of bulk water entitlement and usage charges for high security (HS) and general security (GS) customers. These exclude MDBA and BRC charges, which are set out in Table 5.2.

Table 5.1 Draft decision: WaterNSW bulk water charges for 2019-20 (\$2019-20)

Valley	Usage charge (\$/ML)	HS fixed charge (\$/ML)	GS fixed charge (\$/ML)
Border	5.80	5.68	2.11
Gwydir	12.66	11.81	3.71
Namoi	21.31	18.21	8.49
Peel	19.59	44.33	4.28
Lachlan	20.31	16.40	2.91
Macquarie	14.70	14.40	3.04
Murray	2.04	1.64	0.80
Murrumbidgee	3.53	3.15	1.18
Lowbidgee ^a	N/A	N/A	0.84

^a There is no usage charge for Lowbidgee Valley as this valley has a 100% fixed tariff structure.

Note: The difference between IPART and WaterNSW's calculation is due to rounding.

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

Table 5.2 sets out our determination of MDBA and BRC entitlement and usage charges.

¹⁹ There is an adjustment for inflation "built-in" to the 2017 Determination.

²⁰ Our use of 2.5% 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 2019) in our Final Report.

Table 5.2 Draft decision: MDBA and BRC bulk water charges for 2019-20 (\$2019-20)

Valley	Usage charge (\$/ML)	HS fixed charge (\$/ML)	GS fixed charge (\$/ML)
Border	0.84	4.92	1.82
Murray	1.60	7.75	3.79
Murrumbidgee	0.33	1.71	0.65

Note: The difference between IPART and WaterNSW's calculation is due to rounding.

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

Table 5.3 sets out our determination of access and usage charges for raw water and filtered water customers in the FRWSS.

Table 5.3 Draft decision: FRWSS bulk water charges for 2019-20 (\$2019-20)

Valley	Access charge (\$/kL)	Usage < MAQ (\$/kL)	Usage > MAQ (\$/kL)
Raw water – major customers	0.42	0.26	0.68
Raw water – minor customers	0.42	0.26	0.68
Filtered water – minor customers	0.81	0.49	1.30

Note: The difference between IPART and WaterNSW's calculation is due to rounding.

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



Appendices

A Formulas for updating charges in Annual Reviews

Boxes A.1, A.2 and A.3 (and the accompanying tables) present the formulas we use to update charges in an Annual Review.²¹

These formulas are used in Appendix B to calculate indicative charges using 2017-18 actual water sales data (usage and entitlement volumes and allocation ratios) submitted by WaterNSW.

The formulas update charges by including an additional year of new actual, historical data available to determine forecasts for entitlement volumes, 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.

²¹ This is also presented in Appendix A of the WaterNSW 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 WaterNSW'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 WaterNSW's tariff structure for valley <i>i</i> .
$Rev_{i,t}^{NRR}$	The component of the (nominal) notional revenue requirement to be recovered from WaterNSW 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.
$HSEC_{i,t}$	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 FRWSS customers

Customers of the Fish River Water Supply Scheme (FRWSS) 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 customers MAQ entitlement (in kL), and
- ▼ a charge for each kL of water usage that is greater than the customers MAQ.

FRWSS 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 FRWSS 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:

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

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

Definitions	
Formula 1	
$Charge_{ix}^{MAQ\ entitlement}$	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> .
Formula 2	
$Charge_{ix}^{usage \leq MAQ}$	The charge for each unit of water usage under or equal to the MAQ level for customer category <i>i</i> purchasing water class <i>x</i> .

Definitions	
$Revenue_{ix}^{usage \leq MAQ}$	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 .

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.
<i>HSP_{i,t}</i>	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 WaterNSW's MDBA/BRC tariff structure for valley <i>i</i> .
<i>Rev_{i,t}^{MDBA/BRC}</i>	The MDBA/BRC component of the (nominal) notional revenue requirement to be recovered from WaterNSW 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.
<i>EHSE_{i,t}</i>	The expected number of high-security entitlements issued for valley <i>i</i> , in year <i>t</i> .
<i>EGSE_{i,t}</i>	The expected number of general-security entitlements issued for valley <i>i</i> , in year <i>t</i> .
<i>EWU_{i,t}</i>	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.
<i>HSEC_{i,t}^{MDBA/BRC}</i>	High security MDBA/BRC entitlement charge for valley <i>i</i> , in year <i>t</i> .
<i>GSEC_{i,t}^{MDBA/BRC}</i>	General security MDBA/BRC entitlement charge for valley <i>i</i> , in year <i>t</i> .
<i>UC_{i,t}^{MDBA/BRC}</i>	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}*:

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

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 IPART's analysis – indicative charges

To inform our decision to not vary the regulated charges from those set in the 2017 Determination, we calculated the indicative charges that would apply if we did adjust the prices in the 2017 Determination to reflect the updated sales volume data provided to us by WaterNSW. The following sections summarise our findings.

B.1 Indicative charges if they were updated

The following tables present our calculation of what WaterNSW's 2019-20 regulated charges would be if changed to reflect updated sales volumes (referred to as 'indicative charges'). These charges are in \$2016-17 (ie, they exclude the effects of inflation), to allow comparability with the charges set under the 2017 Determination.

Table B.1 details the total usage and entitlement charges applicable for each of the nine valleys in the MDB. The total charge is the sum of WaterNSW's bulk water charges (detailed in Table B.2) and MDBA/BRC charges (detailed in Table B.3). These usage and entitlement charges have been set under the 2017 Determination.

The indicative charges for 2019-20 in Table B.1 illustrate a change in total rural charges of between -3.9% and 7.7%.²² The change in charges would vary from valley to valley and the type of charges (ie, usage charges versus entitlement charges).

²² The range excludes the Peel Valley. In the 2017 Determination, we made a decision to change the tariff structure in the Peel Valley from 40:60 fixed to variable to 80:20 fixed to variable from 2018-19 onwards. This has led to a relatively large increase in entitlement charges (particularly High Security entitlement charges) with an associated reduction in the usage charge.

Table B.1 Comparison of the 2017 Determination total charges and indicative charges if we update charges to include latest data (\$2016-17) (\$/ML)

Valley	2017 Determination	2019 Annual Review – if prices were to be updated	Difference (%)
Usage charges			
Border	6.23	6.20	-0.5%
Gwydir	11.87	12.35	4.0%
Namoi	19.98	20.79	4.1%
Peel ^a	55.09	17.54	-68.2%
Lachlan	19.04	20.51	7.7%
Macquarie	13.78	14.11	2.4%
Murray	3.40	3.54	3.9%
Murrumbidgee	3.61	3.79	4.9%
Lowbidgee	N/A	N/A	N/A
HS entitlement charges			
Border	9.93	9.74	-1.9%
Gwydir	11.08	11.78	6.3%
Namoi	17.08	18.00	5.4%
Peel ^b	20.78	41.55	99.9%
Lachlan	15.38	15.69	2.0%
Macquarie	13.51	12.98	-3.9%
Murray	8.80	8.99	2.2%
Murrumbidgee	4.57	4.65	1.9%
Lowbidgee	N/A	N/A	N/A
GS entitlement charges			
Border	3.69	3.69	0.0%
Gwydir	3.48	3.44	-1.1%
Namoi	7.96	7.92	-0.5%
Peel ^c	2.01	4.14	106.0%
Lachlan	2.73	2.70	-1.0%
Macquarie	2.85	2.88	1.3%
Murray	4.32	4.29	-0.6%
Murrumbidgee	1.72	1.71	-1.0%
Lowbidgee	0.78	0.78	0.0%

a,b,c In the 2017 Determination, we made a decision to change the tariff structure in the Peel Valley from 40:60 fixed to variable to 80:20 from 2018-19 onwards. This has led to a relatively large increase in entitlement charges (particularly High Security entitlement charges) with an associated reduction in the usage charge.

Source: IPART analysis.

Table B.2 Comparison of the 2017 Determination WaterNSW charges and indicative charges if we update charges to include latest data (\$2016-17) (\$/ML)

Valley	2017 Determination	2019 Annual Review – if prices were to be updated	Difference (%)
Usage charges			
Border	5.44	5.42	-0.5%
Gwydir	11.87	12.35	4.0%
Namoi	19.98	20.79	4.1%
Peel	55.09	17.54	-68.2%
Lachlan	19.04	20.51	7.7%
Macquarie	13.78	14.11	2.4%
Murray	1.91	1.98	3.9%
Murrumbidgee	3.31	3.47	4.9%
Lowbidgee	N/A	N/A	N/A
HS entitlement charges			
Border	5.33	5.22	-1.9%
Gwydir	11.08	11.78	6.3%
Namoi	17.08	18.00	5.4%
Peel	20.78	41.55	99.9%
Lachlan	15.38	15.69	2.0%
Macquarie	13.51	12.98	-3.9%
Murray	1.54	1.57	2.2%
Murrumbidgee	2.95	3.01	1.9%
Lowbidgee	N/A	N/A	N/A
GS entitlement charges			
Border	1.98	1.98	0.0%
Gwydir	3.48	3.44	-1.1%
Namoi	7.96	7.92	-0.5%
Peel	2.01	4.14	106.0%
Lachlan	2.73	2.70	-1.0%
Macquarie	2.85	2.88	1.3%
Murray	0.75	0.75	-0.6%
Murrumbidgee	1.11	1.10	-1.0%
Lowbidgee	0.78	0.78	0.0%

Source: IPART analysis.

Table B.3 Comparison of the 2017 Determination MDB/BRC charges and indicative charges if we update charges to include latest data (\$2016-17) (\$/ML)

Valley	2017 Determination	2019 Annual Review – if prices were to be updated	Difference (%)
Usage charges			
Border	0.78	0.78	-0.5
Murray	1.50	1.56	3.9
Murrumbidgee	0.30	0.32	4.9
HS entitlement charges			
Border	4.61	4.52	-1.9
Murray	7.27	7.42	2.2
Murrumbidgee	1.61	1.64	1.9
GS entitlement charges			
Border	1.71	1.71	0.0
Murray	3.56	3.54	-0.6
Murrumbidgee	0.61	0.60	-1.0

Source: IPART analysis.

Table B.4 Comparison between the 2017 Determination FRWSS charges and indicative charges if we update charges inclusive of latest data (\$2016-17) (\$/kL)

Valley	2017 Determination	2019 Annual Review – if prices were to be updated	Difference (%)
Access charges			
Raw water – major customers	0.39	0.39	0.0%
Raw water – minor customers	0.39	0.39	0.0%
Filtered water – minor customers	0.76	0.76	0.0%
Usage ≤ MAQ charges			
Raw water – major customers	0.24	0.21	-12.5%
Raw water – minor customers	0.24	0.24	-2.1%
Filtered water – minor customers	0.46	0.57	24.8%
Usage > MAQ charges			
Raw water – major customers	0.63	0.61	-3.9%
Raw water – minor customers	0.63	0.63	0.2%
Filtered water – minor customers	1.22	1.33	8.8%

Source: IPART analysis.

B.2 Updated sales volumes

Based on WaterNSW's updated actual water sales data for 2017-18, we have updated our calculations for:

- ▼ Water usage volumes
- ▼ High Security (HS) and General Security (GS) entitlement volumes, and
- ▼ HS and GS water allocation ratios.

B.2.1 Updated water usage volumes

In the 2017 Determination, we generally forecast usage volumes 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 updating charges for 2019-20 period, the usage volumes are calculated by rolling forward the 20-year historical average – ie, using data from 1998-99 to 2017-18.

Table B.5 shows the updated 20-year rolling averages of annual historical usage volumes.

Table B.5 Usage Volumes (ML)

Valley	2017-18 (actual full year data)	2017 Determination (20-year historical average 1996-97 to 2015-16)	2019-20 Annual Review (20-year historical average 1998-99 to 2017-18)
Border	139,605	148,174	148,885
Gwydir	315,046	262,135	252,047
Namoi	180,156	164,799	158,375
Peel	22,084	11,496	12,035
Lachlan	347,406	206,001	191,209
Macquarie	399,825	259,099	253,053
Murray	1,701,381	1,556,610	1,498,367
Murrumbidgee	1,715,238	1,733,642	1,654,408
Lowbidgee ^a	N/A	N/A	N/A
Fish River Water Supply Scheme			
Major Customer (raw) ^b	5,513	1,541	1,761
Minor customers (raw)	57	50	50
Minor customers (filtered)	66	116	107

^a We do not forecast usage volumes for the Lowbidgee Valley as this valley has a 100% fixed tariff structure.

^b To forecast usage volumes of the Major Customer (raw) (ie, Energy Australia), we used a 15-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 18-year rolling average. In this case, the impact of the first historical data point 'rolling off' is not relevant.

Sources: WaterNSW submission to IPART annual price review (data input into IPART model), March 2019 and IPART analysis.

B.2.2 Updated water entitlement volumes

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

Forecast entitlement volumes 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.

The tables below show annual movement of entitlement volumes for 2016-17, 2017-18 and estimates for 2018-19. To calculate indicative entitlement charges (in Appendix B), we used the entitlement volumes for 2017-18 and updated the HS premiums based on the 20-year average of HS allocations to GS allocations ratio (ie, 1998-99 to 2017-18).²³

Table B.6 GS entitlement volumes (ML)

Valley	2016-17	2017-18	2018-19
Border	263,238	263,218	263,281
Gwydir	509,665	509,665	509,665
Namoi	256,212	256,212	256,529
Peel	30,428	30,428	29,635
Lachlan	633,166	633,166	633,166
Macquarie	632,466	632,466	632,466
Murray	2,083,271	2,083,271	2,083,271
Murrumbidgee	2,267,963	2,267,963	2,267,963
Lowbidgee	747,000	747,000	747,000

Note: Lowbidgee entitlement volumes are supplementary entitlements.

Source: WaterNSW submission to IPART annual price review (data input and submitted in IPART model), March 2019.

Table B.7 HS entitlement volumes (ML)

Valley	2016-17	2017-18	2018-19
Border	3,121	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	57,304	57,301	57,302
Macquarie	42,712	42,688	42,688
Murray	263,603	263,590	263,555
Murrumbidgee	438,328	438,328	438,328

Note: Lowbidgee entitlement volumes are supplementary entitlements.

Source: WaterNSW submission to IPART annual price review (data input and submitted in IPART model), March 2019.

²³ 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.

B.2.3 Updated FRWSS Minimum Annual Quantity and customer numbers

In the FRWSS, 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 FRWSS. The share of the water resource assigned to specific customers is specified in Schedule 3 of WaterNSW's Water Management Licence for the Fish River Scheme.²⁴ The MAQs are analogous to entitlements in other valleys.

The following table compares the MAQ and customer number inputs used in the 2017 Determination and inputs used if we update prices (ie, indicative charges in Table B.4). For the latter, we used the 2019-20 MAQ to calculate indicative access charges, and we used the 20-year rolling average of usage volumes in the valley (ie, 1998-99 to 2017-18 period) for indicative usage charges.

Table B.8 Minimum Annual Quantities (MAQ)

	2017 Customer numbers	2019-20 Customers numbers	2017 MAQ	2019-20 MAQ	2017 MAQ Level	2019-20 MAQ Level
Raw water major customer	1	1	8,184 ML	8,184 ML	8,184 ML	8,184 ML
Raw water minor customers	83	83	200 kL per individual	200 kL per individual	16.6 ML	16.6 ML
Filtered water minor	216	228	200 per kL per individual	200 kL per individual	43.2 ML	45.6 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: WaterNSW submission to IPART annual price review, March 2018, p 7; IPART, *Review of prices for rural bulk water services for WaterNSW – Final Report*, June 2017, pp 110-111.

²⁴ This water management license for WaterNSW is issued under Part 9 of the *Water Act (1912)*.

C IPART's analysis – indicative customer bill impacts

The tables below compare expected average customer bills in 2019-20 under two scenarios:

1. if charges are unchanged from those set in the 2017 Determination, and
2. if charges are updated to the indicative charges calculated in Appendix B.

The estimated bills are presented in nominal dollars (ie, including inflation).²⁵

For the MDB valleys, our analysis of bills is based on:

- ▼ HS entitlement holders at 100% of usage, and
- ▼ GS entitlement holders at 60% of usage.²⁶

For both HS and GS entitlements, customers are broken down into three categories:

- ▼ small customers with 100 ML of entitlements
- ▼ medium customers with 500 ML of entitlements, and
- ▼ large customers with 1,000 ML of entitlements.

In summary, the indicative customer bill impact shows that:

- ▼ Based on the indicative changes to WaterNSW charges (see Table C.1), the indicative impact on customer bills for high security customers would be within a range of -1.4% and 5.2%. For general security customers, the indicative impact is within a range of -2.4% and 6.0%.
- ▼ Based on the indicative changes to MDBA/BRC charges (see Table C.2), the indicative impact on customer bills for high security customers would be within a range of -1.7% to 2.5%. For general security customers, the indicative impact would be narrower, within a range of nil to 0.3%.

²⁵ We have used an estimated inflation rate of 2.5%.

²⁶ These variables are based on the bill impact approach we used in the WaterNSW 2017 Final Report. Source: IPART, *Review of prices for rural bulk water services for WaterNSW – Final Report*, June 2017, pp 183-184.

Table C.1 Indicative comparison of annual bulk water customer bills (\$2019-20) excluding MDBA/BRC charges

Valley	2017 Determination charges – Annual bills (\$)	Indicative updated charges – Annual bills (\$)	Difference (%)
HS Customers			
Small customers			
Border	1,148	1,135	-1.1%
Gwydir	2,447	2,574	5.2%
Namoi	3,952	4,137	4.7%
Peel	6,392	6,302	-1.4%
Lachlan	3,671	3,860	5.1%
Macquarie	2,910	2,889	-0.7%
Murray	368	378	2.7%
Murrumbidgee	668	691	3.4%
Lowbidgee	N/A	N/A	N/A
Medium customers			
Border	5,740	5,675	-1.1%
Gwydir	12,235	12,870	5.2%
Namoi	19,760	20,685	4.7%
Peel	31,960	31,510	-1.4%
Lachlan	18,355	19,300	5.1%
Macquarie	14,550	14,445	-0.7%
Murray	1,840	1,890	2.7%
Murrumbidgee	3,340	3,455	3.4%
Lowbidgee	N/A	N/A	N/A
Large customers			
Border	11,480	11,350	-1.1%
Gwydir	24,470	25,740	5.2%
Namoi	39,520	41,370	4.7%
Peel	63,920	63,020	-1.4%
Lachlan	36,710	38,600	5.1%
Macquarie	29,100	28,890	-0.7%
Murray	3,680	3,780	2.7%
Murrumbidgee	6,680	6,910	3.4%
Lowbidgee	N/A	N/A	N/A
GS Customers			
Small customers			
Border	559	558	-0.2%
Gwydir	1,131	1,157	2.4%
Namoi	2,128	2,175	2.2%
Peel	1,603	1,565	-2.4%
Lachlan	1,510	1,600	6.0%
Macquarie	1,186	1,211	2.1%
Murray	202	207	2.1%

Valley	2017 Determination charges – Annual bills (\$)	Indicative updated charges – Annual bills (\$)	Difference (%)
Murrumbidgee	330	339	2.8%
Lowbidgee	84	84	0.0%
Medium customers			
Border	2,795	2,789	-0.2%
Gwydir	5,653	5,786	2.4%
Namoi	10,638	10,876	2.2%
Peel	8,017	7,823	-2.4%
Lachlan	7,548	8,001	6.0%
Macquarie	5,930	6,055	2.1%
Murray	1,012	1,033	2.1%
Murrumbidgee	1,649	1,695	2.8%
Lowbidgee	420	420	0.0%
Large customers			
Border	5,590	5,578	-0.2%
Gwydir	11,306	11,572	2.4%
Namoi	21,276	21,752	2.2%
Peel	16,034	15,646	-2.4%
Lachlan	15,096	16,002	6.0%
Macquarie	11,860	12,110	2.1%
Murray	2,024	2,066	2.1%
Murrumbidgee	3,298	3,390	2.8%
Lowbidgee	840	840	0.0%
Fish River Water Supply Scheme			
Raw water - major customers	3,895	3,825	-1.8%
Raw water - minor customers	412	408	-1.0%
Filtered water - minor customers	608	663	8.9%

Source: IPART analysis.

Table C.2 Indicative comparison of annual bulk water customer bills (\$2019-20) – MDBA/BRC charges only

Valley	2017 Determination charges – Annual bills (\$)	Indicative updated charges – Annual bills (\$)	Difference (%)
HS Customers			
Small customers			
Border	576	566	-1.7%
Murray	935	957	2.4%
Murrumbidgee	204	209	2.5%
Medium customers			
Border	2,880	2,830	-1.7%
Murray	4,675	4,785	2.4%
Murrumbidgee	1,020	1,045	2.5%
Large customers			
Border	5,760	5,660	-1.7%

Valley	2017 Determination charges – Annual bills (\$)	Indicative updated charges – Annual bills (\$)	Difference (%)
Murray	9,350	9,570	2.4%
Murrumbidgee	2,040	2,090	2.5%
GS Customers			
Small customers			
Border	232	232	0.0%
Murray	475	477	0.3%
Murrumbidgee	85	85	0.2%
Medium customers			
Border	1,162	1,162	0.0%
Murray	2,375	2,383	0.3%
Murrumbidgee	424	425	0.2%
Large customer			
Border	2,324	2,324	0.0%
Murray	4,750	4,766	0.3%
Murrumbidgee	848	850	0.2%

Source: IPART analysis.

D Background information

WaterNSW (formerly State Water Corporation) delivers bulk water to irrigators and other licence holders on regulated rivers across NSW.²⁷ WaterNSW develops and maintains infrastructure and supplies raw water to rural NSW and the Greater Sydney area.

WaterNSW 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 WaterNSW. It also abolished the former Sydney Catchment Authority (SCA) and transferred its functions to WaterNSW.

We regulate WaterNSW'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.

D.1 2017 Determination and the Annual Review

In June 2017, IPART released its Final Determination on WaterNSW'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.

D.1.1 Revenue requirement

We used the 'building block' method in the 2017 Determination to calculate WaterNSW'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)

²⁷ 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 WaterNSW 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 Border Rivers Commission (BRC) costs
- ▼ A revenue volatility allowance
- ▼ Costs related to the recovery of the Unders and Overs Mechanism (UOM)²⁸, 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 WaterNSW 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.

D.1.2 Tariff structure

WaterNSW currently levies a two-part tariff for most valleys²⁹ comprised 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 2019-20, most valleys maintain the 40:60 fixed to variable tariff structure with the exception of Peel valley and the FRWSS, which have an 80:20 fixed to variable tariff structure, and Lowbidgee valley which has a 100:00 tariff structure.

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

²⁸ 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.

²⁹ The exception is Lowbidgee where WaterNSW 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 WaterNSW 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	Border Rivers Commission
CPI	Consumer Price Index
DPI Water	Department of Industry - Water
FRWSS	Fish River Water Supply Scheme
GS	General security
GL	Gigalitre
HS	High security
HSP	High security premium
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 WaterNSW's regulated monopoly services.
NSW	New South Wales
RTP	Risk transfer product
Target revenue	The revenue WaterNSW is expected to generate from charges set by IPART.
UOM	Unders and overs mechanism
WCIR	<i>Water Charge (Infrastructure) Rules 2010</i> made under s 92 of the <i>Water Act 2007</i> (Cth)