Attachment 21

Forecast customer numbers, entitlements and demand

30 September 2024

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1. Introduction

To convert the net revenue requirement ("**NRR**") into prices, IPART needs to determine the forecast number of customers and or entitlements (for fixed charges), and the volume of water sales (for variable charges) to those customers in each year of the determination period.

WaterNSW forecasts for customer numbers and or entitlements and volumes are summarised below.

2. Water usage

To set the relevant usage charges for each determination, WaterNSW is required to forecast 2026-2030 water usage by each determination, and by relevant customer class.

WaterNSW's proposed water usage over the 2025 Determination period is summarised in the table below.

Table 1 – Forecast sales volumes by Determination

WaterNSW Average Annual Volumes - Draft proposal (ML)				
Volumes (ML)	**Current Determination**	**Proposal**	**Average Variance ML**	**Average Variance %**
Greater Sydney				
Volumes Forecast – Sydney Water	574,669	487,973	-75,696	-13.2%
Volumes Forecast – Council customers	6,569	4,878	-1,691	-25.7%
Rural Valleys				
Volumes Forecast – 20 year rolling average (Standard water use customers and licensed environmental water) **	3,964,658	3,729,520	-235,138	-5.9%
WAMC				
Volumes Forecast – Regulated	3,996,622	3,792,642	-203,980	-5%
Volumes Forecast – Unregulated	993,355	1,156,546	163,191	16.4%
Volumes Forecast – Groundwater	1,050,692	863,024	-187,668	-17.9%

* WAMC Unregulated and Groundwater usage forecasts have taken into account non-urban metering reform impact, this is subject to change of updated non-urban metering compliance dates.
** excludes Fish River and Lowbidgee usage (which is subject to a fully fixed charge)

As illustrated above, forecast water usage (or demand) is proposed to decrease on average for Sydney Water (-13.2%), other Greater Sydney customers (-25.7%) and for Rural Valleys and WAMC customers (-6.7% on Regulated, 16.4% on Unregulated and -17.9% on Groundwater). Everything else being equal, variable charges would increase for each of the services over the 2025 Determination as variable revenues are recovered over a smaller base, thereby increasing unit charges.

WaterNSW notes that:

- **Forecast water usage for Sydney Water is on average 13% lower than the 2020 Determination**, largely reflecting Sydney Water's expectation of relatively more of its bulk water needs being sourced from the Sydney Desalination Plant rather than WaterNSW. The forecast water usage from Sydney Water for the proposal period is net of 51.2 gigalitre per annum on average being sourced from Sydney Desalination Plan. Everything else being equal, the lower expected bulk water sales to Sydney Water result in an 18% annualised increase in variable charges to Greater

Sydney customers ($78.22/ML in 2024-25 to $176.70/ML in 2025-26) as WaterNSW variable revenues are recovered over a smaller base.

- **Forecast water usage for the Rural Valleys** is 3,729,520 ML, net of 523 ML of Aboriginal Cultural usage in Murrumbidgee. This **is a decrease of 235,138ML or -5.9% from 3,964,658 ML in the 2021 Determination** (excluding lowbidgee). The decreases of 20 year rolling average usage range from -3.3% in Murrumbidgee to -18% in Lachlan in the Southern Valleys, range from -1.3% in North coast to -18.9% in Macquarie in the Northern valleys. These 20 year rolling average usage decreases result in variable charges increase ranging from 19% annualised increase in Hunter to 38% annualised increase in Peel in the Northern valleys, and around 19% annualised increase in the Southern valleys (excluding Lachlan due to change from 40% fixed to 80% fixed tariff).

This attachment summarises the WAMC forecast volumes. For more information on WAMC forecast entitlement and volumes, please read the joint WAMC Pricing Proposal.

Activities provided by WaterNSW, undertaken on behalf of WAMC functions conferred on WaterNSW, are the subject of a separate joint pricing proposal prepared by DCCEEW, NRAR and WaterNSW.

We manage our costs via a 'whole of business' approach to deliver value to customers and have included WAMC services and costs in this bulk water pricing proposal only so far as they provide visibility of how we manage our overall costs and activities to deliver our services.

2.1 Water usage forecast for Greater Sydney

WaterNSW does not conduct its own end user water demand forecast for Sydney Water's end use customers. This function is conducted by Sydney Water as it has access to the detailed customer usage and billing data, which WaterNSW does not possess. Sydney Water regularly provides demand forecast updates to WaterNSW for both operational planning and financial modelling purposes.

Demand for Wingecarribee Shire Council, Shoalhaven City Council, Goulburn Mulwaree Council, and the Raw and Unfiltered water customers is based on historical averages (2021-24).

2.1.1 Demand in the current period in Greater Sydney

Demand in the current period is below IPART's forecast. The lower demand is likely attributable to increased sales from SDP to Sydney Water, displacing bulk water sales from WaterNSW, and forecasting error in the current period sales volumes. Demand for Sydney Water is expected be 13% below the forecast demand in the 2020 Determination as illustrated below (along with other demand variations).

Table 2 – Current period sales volumes for the Greater Sydney Determination

Actual / forecast water sales (ML)						
	2020-21	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**Total**
Forecast demand in IPART 2020 determination (ML)						
Sydney Water Corporation	564,558	571,070	577,503	585,545	585,545	2,884,220
Wingecarribee Shire Council	6,219	6,343	6,470	6,600	6,600	32,232
Shoalhaven City Council	108	110	112	114	114	558
Goulburn Mulwaree Council	50	50	50	50	50	250
Raw water customers	5	5	5	5	5	24
Unfiltered customers	147	147	147	147	147	736
Total forecast demand	**571,086**	**577,725**	**584,287**	**592,461**	**592,461**	**2,918,020**

Actual / forecast water sales (ML)						
	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Actual / forecast water sales (ML)						
Sydney Water Corporation	505,452	489,151	461,149	515,998	505,531	2,477,281
Wingecarribee Shire Council	4,867	4,398	4,656	5,072	4,748	23,740
Shoalhaven City Council	91	78	89	105	91	454
Goulburn Mulwaree Council	65	32	44	17	39	197
Raw water customers	0	0	0	0	5	5
Unfiltered customers	87	106	85	123	147	548
Total forecast demand	**510,562**	**493,765**	**466,023**	**521,314**	**510,561**	**2,502,225**
Variation to 2020 determination						
Sydney Water Corporation	-59,106	-81,919	-116,354	-69,547	-80,014	-406,940
Wingecarribee Shire Council	-1,352	-1,945	-1,814	-1,528	-1,852	-8,492
Shoalhaven City Council	-17	-32	-23	-9	-23	-104
Goulburn Mulwaree Council	15	-18	-6	-33	-11	-53
Raw and unfiltered	-65	-46	-67	-29	0	-207
Total forecast demand	**-60,525**	**-83,959**	**-118,264**	**-71,147**	**-81,900**	**-415,795**

2.1.2 Demand in the upcoming determination period in Greater Sydney

The demand forecast used in upcoming determination for Large Customers (e.g. Sydney Water) is based on estimates provided by Sydney Water as part of the 2024-25 SCI process and incorporates on average a 51.2 gigalitre reduction in annual demand driven by the operation of the Sydney Desalination Plant (SDP) outside of the mandated "60/70" rule.

The reduction in demand has triggered around 4% bill increase (in the variable charge) due to lower volumes used to set the variable charge to Sydney Water.

Table 3 – Forecast sales volumes for Sydney Water

ML	FY20-25 IPART Average	2025-26	2026-27	2027-28	2028-29	2029-30
Volumes Forecast – Sydney Water (ML)	574,669	500,336	502,576	508,875	489,298	493,779
Volumes Forecast – Council customers Water (ML)	6,569	4,878	4,878	4,878	4,878	4,878
Drought Forecast (%)		-16.4%				

* to Sydney Water, based on 2020 IPART price modelling and Atkins Cardno recommendations

As discussed below, water usage is expected to reduce for Sydney Water by 13% over the period due primarily to the additional volumes anticipated by the continued operation of the Sydney Desalination Plant outside of drought conditions (i.e. when storage levels are above 70%). It is our understanding that this forecast does consider the effects of an SDP expansion.

Given the uncertainty surrounding the potential operation of the plant, we propose that the above forecasts are adopted for the 2025 Determination period, but that IPART treats any variance between forecast and actual Sydney Desalination Plant volumes over the next five years, including those that may arise from an expansion, is addressed as a "true-up" of the annual revenue requirement in the 2030

Determination period. A true-up is considered appropriate as future SDP volumes are outside of our control and could have a material impact on our variable charges to Sydney Water.

Table 4 – Greater Sydney volume forecast (ML)

Forecast water sales (ML)						
	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Sydney Water Corporation	500,336	502,576	508,875	489,298	493,779	2,494,864
Wingecarribee Shire Council	4,748	4,748	4,748	4,748	4,748	23,740
Shoalhaven City Council	91	91	91	91	91	454
Goulburn Mulwaree Council	39	39	39	39	39	197
Raw water customers	5	5	5	5	5	24
Unfiltered customers	147	147	147	147	147	736
Total forecast demand	**505,366**	**507,606**	**513,905**	**494,328**	**498,809**	**2,520,015**

We propose to maintain the approach to forecasting water usage from the 2020 Determination, including the detailed bottom-up methodology applied by Sydney Water as a starting point for our largest customer. The forecasts for the 2025 Determination for Sydney Water are proposed to be updated using estimates for the Sydney Desalination Plant new operating rules and any expansion. Forecast water usage for Sydney Water is on average 13% lower than the 2020 Determination, largely reflecting Sydney Water's expectation of relatively more of its bulk water needs being sourced from the Sydney Desalination Plan rather than WaterNSW. For the avoidance of doubt, the forecast water usage from Sydney water for the proposal period is net of 51.2 gigalitre per annum on average being sourced from Sydney Desalination Plan.

2.2 Water usage forecasts for Rural Valleys under Cost Reflective Base Case (CRBC)

The variable charges are currently updated at each price review using the 20-year rolling average of historic usage. To set usage charges commencing 2025-26, which have updated the 20-year rolling average of water sales to incorporate the 2020-21 and 2021-22 and 2022-23 historic / forecast data.

2.2.1 Demand in the current period in rural valleys

Demand in the current period is above IPART's forecast but still leading to a reduction in outturn revenue in some years of the current period as lower water sales are observed in valleys with a high usage charge (unit cost). The results are attributable to the high volatility in rural valley sales and forecasting error produced in using the 20-year rolling average as a point average to set the rural valley usage charges.

Table 5 – Rural Valley actual volumes (ML)

Actual / forecast water sales (ML)					
Rural Valleys	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**Total**
20 year rolling average of actual water usage (MLs) Current Determination – MDB and Coastal Valleys	3,964,658 ML	3,964,658 ML	3,964,658 ML	3,964,658 ML	15,858,633 ML
Actual – MDB and Coastal Valleys	4,499,136 ML	4,076,672 ML	5,195,270 ML	3,730,043 ML	17,501,121 ML
Variance (ML) – Usage (MDB and Coastal Valleys)	534,477 ML	112,014 ML	1,230,612 ML	-234,615 ML	1,642,488 ML
Fish River					
20 year rolling average of actual water usage (MLs)	5,753 ML	5,753 ML	5,753 ML	5,753 ML	23,013 ML

Actual / forecast water sales (ML)					
Rural Valleys	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**Total**
Current Determination – Fish River Scheme					
Actual – Fish River Scheme	3,152 ML	2,649 ML	3,812 ML	4,879 ML	14,492 ML
Variance (ML) – Usage (Fish River Scheme)	-2,601 ML	-3,105 ML	-1,941 ML	-874 ML	-8,521 ML
Revenue Impact					
Revenue in current determination - User Share (post CSO)	$67.0 m	$75.1 m	$80.4 m	$83.3 m	$305.8 m
Actual/Forecast revenue - User Share	$66.4 m	$70.9 m	$96.8 m	$78.8 m	$312.8 m
Variance ($) - User share	-$0.6 m	-$4.2 m	$16.4 m	-$4.5 m	$7.1 m

2023-24 is forecasted based on three quarters of actuals and the last quarter from 2022-23. The 2024-25 forecast assumes the updated 20 year rolling average and 2022-23 actual entitlement volumes.

Updating the 20-year rolling average has led to reduced volumes and a revenue shortfall position for WaterNSW, with the 20-year rolling average for **water usage falling by 5.9% since the 2021 Determination** (3,729 GL vs 3,965 GL set by IPART).

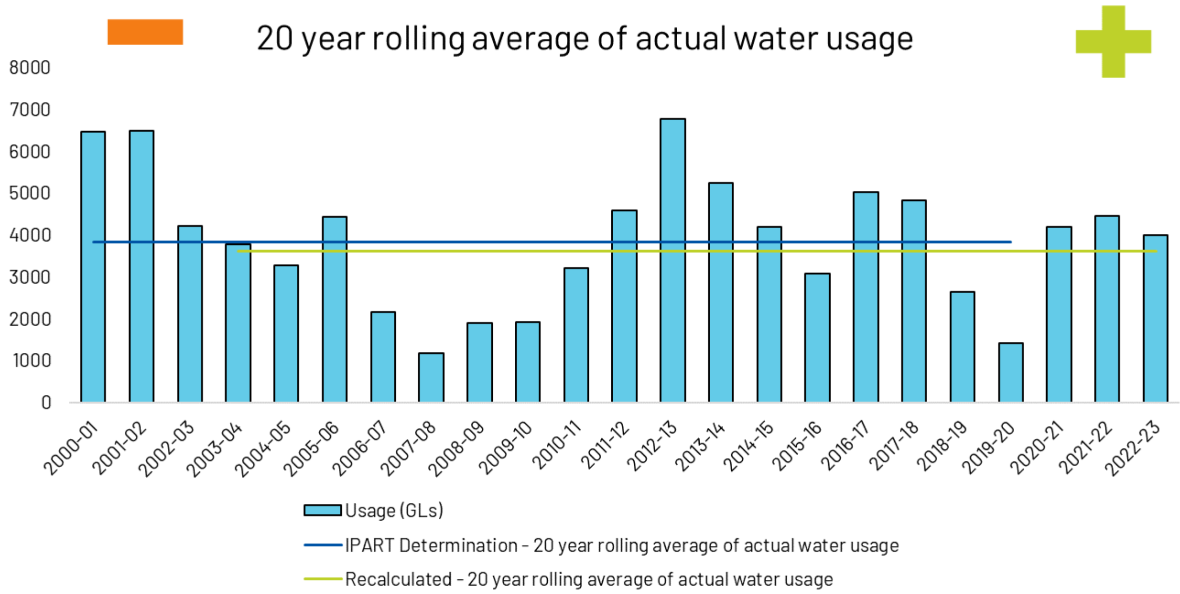
2.2.2 Demand in the upcoming period in rural valleys

WaterNSW proposes to update the 20-year rolling average using the latest set of actuals / forecast data in the current period.

Updating the 20-year rolling average is demonstrated in the figure below, where the large variation between the volumes entering and exiting the calculation is likely to lead to further volume reductions (and the need for price increases) in future years.

IPART's forecasts for water sales from the 2022 Determination and WaterNSW's forecasts for the 2025-30 Determination period are outlined below (sum of licensed environmental water and 'standard water use customer' usage).

Figure 1 – 20-year rolling average of water usage (GL) – Murray Darling Basin Valleys



*Excludes Fish River Scheme and coastal valleys

Table 6 – Forecast sales volumes for Rural Valleys

Valley	20 year rolling average of actual water usage (MLs) Current Determination	20 year rolling average of actual water usage (MLs) Proposal	Change (MLs)	Change (%)
Border	139,453	128,308	-11,145	-8.0%
Gwydir	220,489	202,463	-18,026	-8.2%
Namoi	138,241	124,286	-13,955	-10.1%
Peel	12,625	11,474	-1,151	-9.1%
Lachlan	182,100	149,333	-32,767	-18.0%
Macquarie	232,545	188,478	-44,066	-18.9%
Murray	1,379,454	1,324,577	-54,877	-4.0%
Murrumbidgee	1,531,279	1,480,771	-50,508	-3.3%
Lowbidgee	n/a	n/a	n/a	n/a
North Coast	676	668	-9	-1.3%
Hunter	123,631	115,295	-8,337	-6.7%
South Coast	4,165	3,867	-298	-7.2%
Total (excluding Fish River)	**3,964,658**	**3,729,520**	**-235,138**	**-5.9%**
Fish River	**5,753**	**4,879**	**-874**	**-15.2%**

*The 20-year rolling average is forecast to decline by 235 gigalitres per annum to 2029-30, which will lead to on average an annualised increase in variable charges of approximately 23% across the Rural valleys, ranging from 19% annualised increase in Hunter valley to 38% annualised increase in Peel valley.

We propose to maintain the use of the 20-year rolling average to set opening assumption for water usage for 2025-26 prices, then move to annual forecasts of water usage as part of our proposed revenue cap. This will provide higher confidence in the usage forecasts based on a shorter term view of storage levels and inflows as WaterNSW targets the recovery of IPART's allowed revenues, including targeting a zero under or over recovery balance.

Updating the 20-year rolling average has led to reduced volumes and a revenue shortfall position for WaterNSW, with the 20-year rolling average for **water usage falling by 5.9% since the 2021 Determination** (3,729 GL vs 3,965 GL set by IPART).

As mentioned in Attachment 5, Under the Case Reflective Base Case (CRBC), WaterNSW proposes to set its bulk water charges based on a "two-part" (i.e. fixed and variable) tariff structure for most of its rural valley customers with the exception of licensed environmental waters who would transition to a fully fixed charge. Separate charges will apply to each valley (including Greater Sydney). This approach necessitates the need to provide a usage forecast for 'standard water use customer' and licensed environmental water as discussed in the following sections.

2.2.3 Standard water use customer Usage Volumes

The Usage Volumes for standard water use customers have been sourced from the 20-year rolling average of actual water sales as discussed in the above section minus actual historic usage from volumes driven by licensed environmental water volumes (13 year rolling average till 2022-23).

Table 7 – Standard water use customer usage volumes

Standard Water Use Customers	Usage Volumes (20 year rolling Avg till 2022-23) (ML)
Border	128,164
Gwydir	176,776
Namoi	122,017
Peel	11,251
Lachlan	117,142
Macquarie	143,176
Murray	1,107,760
Murrumbidgee	1,268,613
Lowbidgee*	N/A
North Coast	668
Hunter	115,295
South Coast	3,867
Total	**3,194,727**

* Lowbidgee charges are subject to the existing 100% fixed charge, and as such Lowbidgee status quo charges are not set using a 20-year rolling average of historical water use. Table above does not include Fish River Scheme

2.2.4 Licensed environmental water use Volumes

The usage volumes for licensed environmental water have been sourced from the historical environmental usage as tagged by the Department of Primary Industries.

Table 8 – Environmental sales volumes for Rural Valleys

Licensed Environmental Water Customers	Usage Volumes (13 year rolling Avg till 2022-23) (ML)
Border	144
Gwydir	25,687
Namoi	2,269

Licensed Environmental Water Customers	Usage Volumes (13 year rolling Avg till 2022-23)(ML)
Peel	224
Lachlan	32,191
Macquarie	45,302
Murray	216,817
Murrumbidgee	212,158
Lowbidgee*	N/A
North Coast	0
Hunter	0
South Coast	0
Total	**534,792**

* Lowbidgee charges are subject to the existing 100% fixed charge, and as such Lowbidgee status quo charges are not set using a 20-year rolling average of historical water use. Table above does not include Fish River Scheme

2.2.5 Usage volumes for Fish River

WaterNSW has forecast Fish River volumes for each of the Fish River Scheme's Major Customers and minor raw and unfiltered water customers using the updated 20-year rolling average:

Table 9 – Usage Volumes Fish River

Usage Volumes Fish River	
Customer	**Usage**
Bulk Raw Water	
EnergyAustralia	1,548
Sydney Catchment Authority	1,769
Oberon Council	635
Lithgow Council	1
Individual Minor Customers	51
Bulk Filtered Water	
Lithgow Council	783
Individual Minor Customers	92

Table 10 – Usage Volumes Fish River – Minor Customers

Usage Volumes Fish River Minor customers		
Type of Minor Customer	**Number of Customers**	**Usage**
Bulk Raw Water	86	51
Bulk Filtered Water	238	92

3. Customer numbers forecast for Greater Sydney

3.1 Customer numbers

Based on the current determination assumptions, WaterNSW forecasts the following customers in the Greater Sydney region; Sydney Water Corporation, Wingecarribee Shire Council, Shoalhaven City Council, Goulburn Mulwaree Council, 6 Raw water customers, 53 Unfiltered customers. Note that forecast customer numbers for Greater Sydney fixed charge calculations are largely static from the 2020 Determination.

Table 11 – Forecast customer numbers for Greater Sydney

Forecast customer numbers for the 2025 determination period					
	2025-26	2026-27	2027-28	2028-29	2029-30
Wholesale customers (incl. Sydney Water)	4	4	4	4	4
Raw water	6	6	6	6	6
Unfiltered water	53	53	53	53	53
Total customers	**63**	**63**	**63**	**63**	**63**

4. Customer entitlements forecast for Rural Valleys under Cost Reflective Base Case (CRBC)

The following table provides the entitlements for each Rural Valley (total of licensed environmental waters and ‘standard water use customers).

“Fixed” charges for the rural valleys have traditionally been based on entitlements held in each valley. Note that forecast entitlement numbers for Rural Valley fixed charge calculations are largely unchanged from the 2021 Determination. While entitlements are not technically fixed and can vary, the continued use of entitlements as the basis for “fixed” charges has been maintained for this pricing proposal.

Table 12 – Total entitlements by valley (ML)

	Current Determination		Proposal		Change	
Valley	**General Security**	**High Security**	**General Security**	**High Security**	**General Security**	**High Security**
Border	263,218	3,141	263,218	3,141	0	0
Gwydir	509,665	26,920	509,665	27,220	0	300
Namoi	256,529	8,866	256,822	8,841	293	-25
Peel	29,635	17,367	29,049	17,367	-586	0
Lachlan	633,166	57,252	615,255	57,260	-17,911	8
Macquarie	632,466	42,691	632,466	43,847	0	1,156
Murray	2,083,603	263,575	2,090,785	261,723	7,182	-1,852
Murrumbidgee	2,267,963	436,178	2,256,182	436,169	-11,781	-9
Lowbidgee*	747,000	N/A	747,000	N/A	0	N/A
North Coast	9,531	137	9,531	137	0	0
Hunter	138,109	70,702	138,109	70,690	0	-12
South Coast	13,946	1,175	13,970	1,167	24	-8
Total (excluding Fish River)	**7,584,831**	**928,004**	**7,562,052**	**927,562**	**-22,779**	**-442**
Fish River*	**14,739**	**n/a**	**14,741**	**n/a**	**2**	**n/a**

*Minimum Annual Quantity (MAQ) in Fish River Scheme

Total Entitlements have been updated using the latest actual data from 2023. Entitlements are used to calculate the fixed charges, and are relatively stable year on year

As mentioned in Attachment 5, Under the Cost Reflective Base Case (CRBC), WaterNSW proposes to set its bulk water charges based on a "two-part" (i.e. fixed and variable) tariff structure for most of its rural valley customers with the exception of licensed environmental waters who would transition to a fully fixed charge. Separate charges will apply to each valley (including Greater Sydney). This approach necessitates the need to provide an entitlement forecast for 'standard water use customer' and licensed environmental water as discussed in the following sections.

4.1 Standard Water Use customer Entitlement Volumes

The Entitlement Volumes for standard water use customers have been sourced from the WaterNSW billing database and is derived from the 2023 actual entitlements holdings, excluding licensed environmental water entitlement volumes.

Table 13 – Standard Water Use Customer Entitlement Volumes for Rural Valleys

Standard water use customers	High Security (ML)	General Security (ML)
Border	3,141	260,412
Gwydir	21,463	403,048
Namoi	8,841	243,169
Peel	17,367	27,792
Lachlan	54,532	490,737
Macquarie	43,847	457,823
Murray	231,980	1,680,360

Standard water use customers	High Security (ML)	General Security (ML)
Murrumbidgee	421,004	1,709,368
Lowbidgee	N/A	192,290
North Coast	137	9,531
Hunter	70,690	138,109
South Coast	1,167	13,970
Total	**874,169**	**5,626,609**

Table above does not include Fish River Scheme

4.2 Licensed Environmental Water Customer Volumes

The Entitlement Volumes for licensed environmental water have been sourced from the Department of Primary Industries (and includes Lowbidgee Environmental Supplementary Licences) and is derived from the 2023 actual entitlement holdings.

Table 14 – Licensed environmental water entitlements volumes for Rural Valleys

Licensed Environmental Water Customers	High Security (ML)	General Security (ML)
Border	0	2,806
Gwydir	5,757	106,617
Namoi	0	13,653
Peel	0	1,257
Lachlan	2,728	124,518
Macquarie	0	174,643
Murray	29,743	410,425
Murrumbidgee	15,165	546,814
Lowbidgee*	N/A	554,710
North Coast	0	0
Hunter	0	0
South Coast	0	0
Total	**53,393**	**1,935,443**

Table above does not include Fish River Scheme. *Lowbidgee licences are supplementary event licences

4.3 Minimum Annual Quantity volumes for Fish River

WaterNSW has forecast Fish River Minimum Annual Quantity (MAQ) for each of the Fish River Scheme's Major Customers and minor raw and unfiltered water customers. The MAQ is used to calculate the fixed charge for each Fish River customer

Table 15 – Customer Volumes (MAQ) Fish River

Customer Volumes (Minimum Annual Quantity) Fish River	
Customer	**MAQ**
Bulk Raw Water	
EnergyAustralia	8,184
Sydney Catchment Authority	3,650
Oberon Council	1,064
Lithgow Council	100
Individual Minor Customers	17
Bulk Filtered Water	
Lithgow Council	1,678
Individual Minor Customers	48

Table 16 – Customer Volumes (MAQ) Fish River – Minor Customers

Customer Volumes Minor Customers (MAQ)		
Type of Minor Customer	**Number of Customers**	**MAQ**
Bulk Raw Water	86	17
Bulk Filtered Water	238	48

4.4 High Security Premium

The high security premiums are used to calculate the relative value of the high security fixed charge relative to the general security fixed large in each valley (except the Fish River Scheme, and the Lowbidgee), as shown below:

HS premium is calculated using two factors that define the reliability of high security water relative to general security water. These factors include:

- security factor (WSP ratio) set by IPART which IPART considers to be a proxy for the security in high security entitlements arising from the differential allocation priority in the Water Sharing Plan (WSP) and Water Management Act. The WSP ratio is derived from inputs in the relevant water sharing plan; and

- reliability ratio which considers the reliability of high security entitlements over general security entitlements based on historical allocation rates, especially in periods of low rainfall.

Reliability Ratio has been updated based on the 20-year rolling average of actual high security and general security allocations up until 2022-23. The WSP Ratio remains as per the current determination.

Table 17 – High Security Premium calculation for the Rural Valleys

Valley	WSP Ratio		Reliability Ratio		HS Premium	High Security	Premium X HS
Border	1.25	X	2.09	=	2.61	3,141	8,212
Gwydir	1.40	X	2.74	=	3.83	26,920	103,207
Namoi	1.25	X	2.13	=	2.66	8,866	23,582
Peel	6.54	X	1.69	=	11.07	17,367	192,183
Lachlan	2.50	X	2.36	=	5.88	57,252	336,614
Macquarie	1.88	X	2.80	=	5.27	42,691	225,029
Murray	1.31	X	1.68	=	2.20	263,575	579,134
Murrumbidgee	1.69	X	1.69	=	2.87	436,178	1,250,675
North Coast	1.25	X	1.03	=	1.29	137	177
Hunter	1.25	X	1.03	=	1.29	70,702	90,981
South Coast	1.25	X	1.53	=	1.91	1,175	2,240

* Numbers in the table are rounded, and may vary due to rounding

5. Rural Valley Entitlements and Volumes under the Alternative Scenarios

5.1 Alternative Scenario 1 & 2 (Valley Based Pricing)

Prices under alternative scenarios 1 & 2 are based on valley specific pricing. The entitlement and usage assumptions used to derive the CSO requirements for each scenario will be based on the individual valley forecast, as shown below.

Table 18 – Entitlement and Usage Forecast for Alternative Scenario 1 & 2

	Standard Water Use Customers			Licensed Environmental Water Customers			All Customers		
Valley	**High Security**	**General Security**	**Usage**	**High Security**	**General Security**	**Usage**	**High Security**	**General Security**	**Usage**
Border	3,141	260,412	128,164	0	2,806	144	3,141	263,218	128,308
Gwydir	21,463	403,048	176,776	5,757	106,617	25,687	27,220	509,665	202,463
Namoi	8,841	243,169	122,017	0	13,653	2,269	8,841	256,822	124,286
Peel	17,367	27,792	11,251	0	1,257	224	17,367	29,049	11,474
Lachlan	54,532	490,737	117,142	2,728	124,518	32,191	57,260	615,255	149,333
Macquarie	43,847	457,823	143,176	0	174,643	45,302	43,847	632,466	188,478
Murray	231,980	1,680,360	1,107,760	29,743	410,425	216,817	261,723	2,090,785	1,324,577
Murrumbidgee	421,004	1,709,368	1,268,613	15,165	546,814	212,158	436,169	2,256,182	1,480,771
Lowbidgee	N/A	192,290	N/A	N/A	554,710	N/A	0	747,000	0
North Coast	137	9,531	668	0	0	0	137	9,531	668
Hunter	70,690	138,109	115,295	0	0	0	70,690	138,109	115,295
South Coast	1,167	13,970	3,867	0	0	0	1,167	13,970	3,867
Total (Excluding Fish River)	**874,169**	**5,626,609**	**3,194,727**	**53,393**	**1,935,443**	**534,792**	**927,562**	**7,562,052**	**3,729,520**
Fish River*	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**14,741**	**4,879**

*Fish River Minimum Annual quantity (MAQ)

Under Alternative Scenario 1 & 2, licensed environmental water is levied a 'full freight' valley charge. Licensed environmental water entitlements and volumes are therefore included in the figures above. Fish River volumes remain the same as the CRBC.

5.2 Alternative Scenario 3 (Regional Pricing)

Prices under alternative scenarios 3 are based on regional pricing.

The entitlement and usage assumptions used to derive the CSO requirements for the regional price scenario will be based on the individual valley forecast for the individual legacy charges, and the regional forecast for the North and South Regional Charge, as shown below:

Table 19 – Entitlement and Usage Forecast for Alternative Scenario 3 Regional Pricing – All Customers

All Customers				
	Legacy Charge			
Valley	**High Security**	**General Security**	**20 year rolling average of actual water usage (MLs) Proposal**	**Region**
Border	3,141	263,218	128,308	Northern Region
Gwydir	27,220	509,665	202,463	Northern Region
Namoi	8,841	256,822	124,286	Northern Region
Peel	17,367	29,049	11,474	Northern Region
Lachlan	57,260	615,255	149,333	Southern Region
Macquarie	43,847	632,466	188,478	Northern Region
Murray	261,723	2,090,785	1,324,577	Southern Region
Murrumbidgee	436,169	2,256,182	1,480,771	Southern Region
Lowbidgee **	N/A	747,000	0	Southern Region
North Coast	137	9,531	668	Northern Region
Hunter	70,690	138,109	115,295	Northern Region
South Coast	1,167	13,970	3,867	Southern Region
Total	**927,562**	**7,562,052**	**3,729,520**	
	Regional Charge			
Northern Region	171,243	1,838,860	770,972	
Southern Region	756,319	5,723,192	2,958,548	
Total	**927,562**	**7,562,052**	**3,729,520**	
	Fish River			
Fish River*	**n/a**	**14,741**	**4,879**	

*Minimum Annual Quantity (MAQ) for Fish River Scheme *** Lowbidgee licences are supplementary event licences

Table 20 – Entitlement and Usage Forecast for Alternative Scenario 3 Regional Pricing – Standard water use customers (excluding licensed environmental water)

Standard Water Use Customers				
	Legacy Charge			
Valley	**High Security**	**General Security**	**20 year rolling average of actual water usage (MLs) Proposal**	**Region**
Border	3,141	260,412	128,164	Northern Region
Gwydir	21,463	403,048	176,776	Northern Region
Namoi	8,841	243,169	122,017	Northern Region
Peel	17,367	27,792	11,251	Northern Region
Lachlan	54,532	490,737	117,142	Southern Region
Macquarie	43,847	457,823	143,176	Northern Region
Murray	231,980	1,680,360	1,107,760	Southern Region
Murrumbidgee	421,004	1,709,368	1,268,613	Southern Region
Lowbidgee *	N/A	192,290	N/A	Southern Region
North Coast	137	9,531	668	Northern Region
Hunter	70,690	138,109	115,295	Northern Region
South Coast	1,167	13,970	3,867	Southern Region
Total	**874,169**	**5,626,609**	**3,194,727**	
	Regional Charge			
Northern Region	165,486	1,539,884	697,346	
Southern Region	708,683	4,086,725	2,497,381	
Total	**874,169**	**5,626,609**	**3,194,727**	
	Fish River			
Fish River	**n/a, and refer to table 19**			

* Lowbidgee licences are supplementary event licences

Table 21 – Entitlement and Usage Forecast for Alternative Scenario 3 Regional Pricing – Licensed environmental water

Licensed Environmental Water Customers				
	Legacy Charge			
Valley	**High Security**	**General Security**	**13 year rolling average of actual water usage (MLs) Proposal**	**Region**
Border	0	2,806	144	Northern Region
Gwydir	5,757	106,617	25,687	Northern Region
Namoi	0	13,653	2,269	Northern Region
Peel	0	1,257	224	Northern Region
Lachlan	2,728	124,518	32,191	Southern Region
Macquarie	0	174,643	45,302	Northern Region
Murray	29,743	410,425	216,817	Southern Region
Murrumbidgee	15,165	546,814	212,158	Southern Region
Lowbidgee *	N/A	554,710	N/A	Southern Region
North Coast	0	0	0	Northern Region
Hunter	0	0	0	Northern Region

Licensed Environmental Water Customers				
	Legacy Charge			
Valley	**High Security**	**General Security**	**13 year rolling average of actual water usage (MLs) Proposal**	**Region**
South Coast	0	0	0	Southern Region
Total	**53,393**	**1,935,443**	**534,792**	
	Regional Charge			
Northern Region	5,757	298,976	73,626	N/A
Southern Region	47,636	1,636,467	461,166	N/A
Total	**53,393**	**1,935,443**	**534,792**	
	Fish River			
Fish River	**n/a, and refer to table 19**			

* Lowbidgee licences are supplementary event licences

The following high security premiums are used to calculate the relative value of the high security fixed charge relative to the general security fixed large for each legacy charge and the regional charges.

Table 22 – High Security Premium calculation for the Rural Valleys – Alternative Scenario 3 Regional Pricing

Valley	**WSP Ratio**		**Reliability Ratio**		**HS Premium**	**High Security**	**Premium X HS**	**Region**
			Legacy Charge					
Border	1.25	X	2.09	=	2.61	3,141	8,212	Northern Region
Gwydir	1.40	X	2.74	=	3.83	26,920	103,207	Northern Region
Namoi	1.25	X	2.13	=	2.66	8,866	23,582	Northern Region
Peel	6.54	X	1.69	=	11.07	17,367	192,183	Northern Region
Lachlan	2.50	X	2.36	=	5.88	57,252	336,614	Southern Region
Macquarie	1.88	X	2.80	=	5.27	42,691	225,029	Northern Region
Murray	1.31	X	1.68	=	2.20	263,575	579,134	Southern Region
Murrumbidgee	1.69	X	1.69	=	2.87	436,178	1,250,675	Southern Region
North Coast	1.25	X	1.03	=	1.29	137	177	Northern Region
Hunter	1.25	X	1.03	=	1.29	70,702	90,981	Northern Region
South Coast	1.25	X	1.53	=	1.91	1,175	2,240	Southern Region
			Regional Charge					
Northern Region					3.79			
Southern Region					2.86			

*High Security Premium calculations do not apply in the Fish River Scheme or the Lowbidgee
*Numbers in the table are rounded, and may vary due to rounding

The high security premium for each regional charge is derived from the weighted average value of each of the valleys high security premium within the region.

Under Alternative Scenario 3, licensed environmental water is levied a 'full freight' regional charge, and the applicable valley legacy charge under the 40:60 fixed to variable pricing splits. Licensed environmental water entitlements and volumes are therefore included in the figures above. Fish River volumes remain the same as the CRBC.