



# Water Monitoring Report 2018–19: Monitoring approach and assumptions

This document accompanies the Australian Competition and Consumer Commission (ACCC) Water Monitoring Report 2018–19. It outlines the ACCC's data sources, approach to monitoring and assumptions used for the typical irrigator bill analysis in the report.

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## List of abbreviations

ACT	Australian Capital Territory
ACCC	Australian Competition and Consumer Commission
CICL	Coleambally Irrigation Cooperative Limited
CIT	Central Irrigation Trust
DELWP	Victorian Department of Environment, Land, Water and Planning
DEW	South Australian Department of Environment and Water
DNRME	Queensland Department of Natural Resources, Mines and Energy
DPIE	New South Wales Department of Planning, Industry and Environment
EPSDD	ACT Environment, Planning and Sustainable Development Directorate
ESC	Essential Services Commission (Victoria)
GL	Gigalitre (one billion litres)
GMW	Goulburn–Murray Water
GS	General security
HP	High pressure
HS	High security
ICD	Irrigation corporation and district
IHS	Integrated Horticulture Supply
IIO	Irrigation infrastructure operator
IO	Infrastructure operator
IPART	Independent Pricing and Regulatory Tribunal (New South Wales)
IR	Irrigation right
KL	Kilolitres (one thousand litres)
LAW	Large Area Supply, Wah Wah (excluding Integrated Horticulture Supply)
LMW	Lower Murray Water
LP	Low pressure
MDB	Murray–Darling Basin

MDBA	Murray–Darling Basin Authority
MI	Murrumbidgee Irrigation Limited
MIL	Murray Irrigation Limited
ML	Megalitre (one million litres)
MP	Medium pressure
NRM	Natural Resource Management
NSW	New South Wales
NWI	National Water Initiative
OMF	Operating and Maintenance Fee
QLD	Queensland
RFI	Request for information
RIT	Renmark Irrigation Trust
SA	South Australia
VIC	Victoria
VWR	Victorian Water Register
WAE	Water access entitlement
WAMC	Water Administration Ministerial Corporation
Water Act	<i>Water Act 2007</i>
WCIR	Water Charge (Infrastructure) Rules 2010
WCPMIR	Water Charge (Planning and Management Information) Rules 2010
WCR	Water Charge Rules 2010
WDR	Water delivery right
WMI	Western Murray Irrigation Limited
WPM	Water planning and management

## Glossary

<b>Basin Plan</b>	A high level framework on which the Australian Government and Basin States agreed, and that sets standards for the management of the Murray–Darling Basin’s water resources in a coordinated and sustainable way in collaboration with the community. Officially known as the Basin Plan 2012
<b>Basin state/s</b>	New South Wales, Victoria, Queensland, South Australia, or the Australian Capital Territory (ACT)
<b>Basin state agencies</b>	Basin state departments and water authorities
<b>bulk water charge</b>	A charge payable for either or both the storage of water for, or the delivery of water to:  (i) infrastructure operators  (ii) other operators of reticulated water systems  (iii) other persons (including private diverters and environmental water holders).
<b>carryover</b>	Arrangements which allow water entitlement holders to hold allocated water in storages so that it is available in subsequent years
<b>infrastructure charge</b>	Charges infrastructure operators impose for access to their water service infrastructure and services provided in relation to that access <sup>1</sup>
<b>infrastructure operator</b>	Any person or entity who owns or operates infrastructure for one or more of the following purposes:  (i) the storage of water  (ii) the delivery of water  (iii) the drainage of water  for the purpose of providing a service to someone who does not own or operate the infrastructure
<b>irrigation infrastructure operator</b>	An infrastructure operator who owns or operates water service infrastructure for the purpose of delivering water for the primary purpose of being used for irrigation

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<sup>1</sup> This is a general description of ‘infrastructure charge’ and is not referring to the new definition of infrastructure charge contained in the Water Charge Rules 2010 which commenced on 1 July 2020.

<b>irrigation network</b>	The water service infrastructure of an irrigation infrastructure operator—in practice, irrigation networks typically constitute a network of carriers (open channels, pipes and/or natural waterways) used to convey water from a water source through customer service points to customer properties—an irrigation network may be either a gravity-fed network (typically using channels and/or natural waterways) or a pressurised network (using pipes)
<b>irrigation right</b>	A person’s right against an off-river IO to receive water, which is not a water access right or a water delivery right. It usually can be transformed into a water access entitlement
<b>infrastructure service</b>	Access, or a service provided relating to access, to water service infrastructure and includes the storage, delivery, drainage and taking of water
<b>joint water supply scheme</b>	Similar to cooperatives where the members form and run an organisation to deliver water to irrigators
<b>non-volumetric charge</b>	A charge that does not reference a volume of a water right, for example, a charge which is levied per account, per outlet or per meter
<b>off-river infrastructure service / off-river infrastructure operator</b>	The storage, delivery and/or drainage of water diverted from a natural watercourse through a network consisting of channels and/or pipes (which can be gravity fed or pressurised) to another person. An operator providing such services is an off-river infrastructure operator
<b>on-river infrastructure service / on-river infrastructure operator</b>	Harvesting and storing water through infrastructure such as dams, lakes, weirs and reservoirs located primarily on a natural watercourse, and delivering water, primarily through natural watercourses. An operator providing such services is an on-river infrastructure operator.
<b>private diverter</b>	An irrigator that extracts water directly from a natural watercourse (either a regulated or unregulated river)
<b>regulated water charge</b>	Regulated water charges include fees or charges payable to an irrigation infrastructure operator for access, changing access, or terminating access to its irrigation network; bulk water charges; charges for water planning and management activities.  See section 91 of the Water Act 2007 for a full definition.

<b>termination</b>	When a person terminates or surrenders the whole or part of a right of access to the off-river IO's network, typically by terminating water delivery right
<b>termination fee</b>	A fee that an off-river IO may impose when an irrigator terminates
<b>the Water Act</b>	<i>Water Act 2007</i> (Cth)
<b>tradeable water right</b>	One of: (i) water access rights (ii) water delivery rights (iii) irrigation rights.
<b>transformation</b>	Process by which an irrigator permanently transforms their entitlement to water under an irrigation right against an off-river IO into a water access entitlement held by the irrigator (or anybody else other than the off-river IO), thereby reducing the volume (e.g. share component) of the operator's water access entitlement
<b>volumetric charge</b>	Charge imposed based on the volume of a water right or physical amount of water. A fixed volumetric charge is a charge based on the volume of a water right held, while a variable volumetric charge is a charge based on the volume of the right that is utilised in a particular manner
<b>water access entitlement (WAE)</b>	Perpetual or ongoing entitlement, by or under a law of a state, to exclusive access to a share of the water resources of a water resource plan area
<b>water access entitlement trade</b>	Change of ownership and/or location where water related to the water access entitlement may be taken is changed(including through the establishment of a tagging arrangement)
<b>water access right</b>	Any right conferred by or under a law of a state to hold and/or take water from a water resource, and includes: <ul style="list-style-type: none"> <li>• stock and domestic rights</li> <li>• riparian rights</li> <li>• a water access entitlement</li> <li>• a water allocation</li> </ul>
<b>water allocation</b>	Specific volume of water allocated to water access entitlements in a given water accounting period
<b>water allocation trade</b>	Change of ownership and/or location of a particular volume of water allocation

<b>watercourse</b>	A river, creek or other natural watercourse (whether modified or not) in which water is contained or flows (whether permanently or intermittently) and includes: <ul style="list-style-type: none"> <li>I. a dam or reservoir that collects water flowing in a watercourse</li> <li>II. a lake or wetland through which water flows</li> <li>III. a channel into which the water of a watercourse has been diverted</li> <li>IV. part of a watercourse</li> <li>V. an estuary through which water flows</li> </ul>
<b>Water Charge (Infrastructure) Rules 2010 (WCIR)</b>	Rules for fees and charges payable to an infrastructure operator for: <ul style="list-style-type: none"> <li>• bulk water charges</li> <li>• access to the off-river IO's network, or services provided relating to that access</li> <li>• matters specified in regulations made under s. 91(1)(d) of the <i>Water Act 2007</i></li> </ul>
<b>Water Charge (Planning and Management Information) Rules 2010 (WCPMIR)</b>	Rules relating to charges for water planning and water management activities in the Murray–Darling Basin and requiring the publication of information on the details of the charge and the process for determining the charge
<b>Water Charge (Termination Fees) Rules 2009 (WCTFR)</b>	Rules for fees or charges payable to an off-river IO in relation to terminating access to an operator's irrigation network (or services relating to such termination), or surrendering a right to delivery of water through the operator's irrigation network
<b>water market rules</b>	Water Market Rules 2009.
<b>water delivery right (WDR)</b>	Right to have water delivered by an infrastructure operator. It typically represents the holder's right of access to an irrigation network (there may also be a right to drainage), and can be terminated
<b>water service infrastructure</b>	infrastructure for one or more of the following purposes: <ul style="list-style-type: none"> <li>(i) the storage of water</li> <li>(ii) the delivery of water</li> <li>(iii) the drainage of water</li> </ul> for the purpose of providing a service to another person.

# 1. Introduction

## *Background*

The ACCC has a number of roles in the Murray–Darling Basin, including monitoring regulated water charges including termination fees, transformations, and producing a report for the Minister. This document accompanies the Australian Competition and Consumer Commission (ACCC) Water Monitoring Report 2018–19.

It outlines the ACCC’s data sources, approach to monitoring and assumptions used for the typical irrigator bill analysis in the report. The ACCC collects data from infrastructure operators (IOs) and Basin states. The ACCC also uses information from reports and other sources published by a number of Australian Government departments and agencies, academia and industry consultants.

Both on and off-river IOs are generally regarded as monopolies. This is because competition is unlikely to develop between these IOs as they generally operate in geographically exclusive areas for water harvesting, storage and/or delivery services. The ACCC’s monitoring helps highlight where IOs may be exercising their market power over irrigators and other customers and assists policy makers to determine the appropriate form of regulation for these monopolies.

The ACCC also facilitates effective water (and related) markets by monitoring and enforcing compliance with the water charge and market rules. Due to their monopoly position, IOs can, and have incentive to, prevent or unreasonably delay trade or transformation requests and increase the cost of terminations. This report uses a range of sources to assess regulated water charges.

## **1.1 This structure of this report**

The structure of the report is as follows:

- This chapter provides background on the reporting entities including smaller off-river infrastructure operators (off-river IOs).
- Chapter 2 sets out the assumptions and methodology used in the production of typical bills for on-river IOs
- Chapter 3 sets out the assumptions and methodology used in the production of typical irrigator bills for customers of off-river IOs
- Chapter 4 sets out the assumptions and background information for the ACCC’s approach to monitoring WPM activities and regulated WPM charges

## 1.2 Reporting entities

The table below lists all reporting entities and the request for information (RFI) formats provided to each entity. Table 1.1: Reporting entities

Reporting entity	Type of information request <sup>2</sup>			
	Small off-river IO	Off-river IO	On-river IO	WPM
Barossa Infrastructure Limited (SA): <b>Barossa</b>		✓		
Bringan Private Irrigation Trust (NSW): <b>Bringin</b>	✓			
Buddah Lake Irrigators' Association (NSW): <b>Buddah Lake</b>		✓		
Bullatale Private Irrigation Trust (NSW)				
Bungunyah-Koraleigh Irrigation Trust (NSW): <b>Bungunyah-Koraleigh</b>	✓			
Cadell Constructions (NSW)	✓			
Central Irrigation Trust (SA): <b>CIT</b>		✓		
Coleambally Irrigation Co-operative Limited (NSW): <b>Coleambally</b>		✓		
Coliban Water (Vic): <b>Coliban</b> <sup>3</sup>		✓		✓
Creeks Pipeline Company Ltd (SA)	✓			
Department of Environment and Water (SA): <b>DEW</b>				✓
Department of Environment, Land, Water and Planning (Vic): <b>DELWP</b>				✓
Department of Planning, Industry and Environment: <b>DPIE</b> <sup>4</sup>				✓
Department of Natural Resources, Mines and Energy (Qld): <b>DNRME</b>				✓
Eagle Creek Pumping Syndicate (NSW): <b>Eagle Creek</b>		✓		
Environment, Planning and Sustainable Development Directorate (ACT): <b>EPSDD</b>				✓
Glenview Private Irrigation Trust (NSW): <b>Glenview</b>	✓			
Goodnight Private Irrigation Trust (NSW): <b>Goodnight</b>	✓			

<sup>2</sup> 'On-river infrastructure operator' and 'off-river infrastructure operator' are defined in the glossary.

<sup>3</sup> While Coliban Water holds a volume of water access entitlement greater than the 10GL threshold for small operators, the majority of Coliban's customers are urban, and Coliban cannot give effect to transformation. For these reasons, the ACCC does not prepare a typical irrigator bill for Coliban or report on Coliban's terminations in chapter 2 of the 2018–19 Report. The RFI sent to Coliban Water seeks information on Coliban Water's one WPM charge and was sent to monitor compliance with the WCPMIR.

<sup>4</sup> The DPIE was established on 1 July 2019 and assumed most of the functions of the former Department of Planning and Environment and the former Department of Industry that were dissolved on the same date. The Office of Environment and Heritage were also abolished and merged into the newly-formed department. See <https://www.legislation.nsw.gov.au/regulations/2019-159.pdf>

Reporting entity	Type of information request <sup>2</sup>			
	Small off-river IO	Off-river IO	On-river IO	WPM
Goulburn–Murray Water (Vic): <b>GMW</b>		✓	✓	✓
GWMWater (Vic) <sup>5</sup>			✓	✓
Hay Private Irrigation District (NSW): <b>Hay</b>		✓		
Jemalong Irrigation Limited (NSW): <b>Jemalong</b>		✓		
Lower Murray Water (Vic): <b>LMW</b>		✓	✓	✓
Marthaguy Irrigation Scheme (NSW): <b>Marthaguy</b>		✓		
Moira Private Irrigation District (NSW): <b>Moira</b>		✓		
Murray Irrigation Limited (NSW): <b>MIL</b>		✓		
Murrumbidgee Irrigation Limited (NSW): <b>MI</b>		✓		
Narromine Irrigation Board of Management (NSW): <b>Narromine</b>		✓		
Pomona Water (NSW): <b>Pomona</b>	✓			
Renmark Irrigation Trust (SA): <b>RIT</b>		✓		
SunWater (Qld): <b>SunWater</b>		✓	✓	
Tenandra Irrigation Scheme (NSW): <b>Tenandra</b>		✓		
WaterNSW (NSW): <b>WaterNSW</b>			✓	✓
West Cadell Private Irrigation Trust (NSW): <b>West Cadell</b>	✓			
West Cororgan Private Irrigation District (NSW): <b>West Cororgan</b>		✓		
Western Murray Irrigation (NSW): <b>WMI</b>		✓		
Woodlane Irrigation Trust Inc (SA): <b>Woodlane</b>	✓			

Note: IO = infrastructure operators; WPM = Water planning and management.

Note that the ACCC did not receive completed 2018–19 requests for information from Bullatale Private Irrigation Trust (NSW) and Goodnight Private Irrigation Trust (NSW).

### 1.3 Small off-river infrastructure operators

The ACCC collects, but largely does not report information from a number of off-river IOs holding or servicing 10 GL or less. The ACCC uses this information to assess compliance with the water charge rules<sup>6</sup> and the water market rules (the Rules). A number of these small

<sup>5</sup> GWMWater was formerly known as Grampians Wimmera Mallee Water.

<sup>6</sup> The water charge rules is a term used to collectively refer to three sets of rules made under the Water Act 2007: the Water Charge (Infrastructure) Rules 2010, the Water Charge (Termination Fees) Rules 2009, and the Water Charge (Planning and Management Information) Rules 2010. On 3 April 2019 the Minister amended the water charge rules. The Minister had already accepted the ACCC's advice to remove the requirements for some IOs to prepare network service plans, with this change coming into effect on 1 July 2017. To enhance pricing transparency, IOs are now required to provide more

off-river IOs are located in New South Wales along the Murray River. They typically manage joint private works, have a small customer base and use a mixture of fixed and variable charges to recover their costs. Table 1.2 details the characteristics of some of these smaller off-river IOs.

**Table 1.2: Selected small operator characteristics**

Off river infrastructure operator	Upgrade or restructure in 2018–19?	Volume WAE held by operator (ML)	Total volume delivered by operator in 2018–19 (ML)	Total volume transformed in 2018–19 (ML)	Total volume terminated in 2018–19 (ML)
Bringan	No	HS: 1 307 GS: 2 569	2 764	300	300
Bungunyah-Koraleigh	No	HS: 1 605 GS: 684 <sup>a</sup>	1 167	113	81
Cadell Construction	No	HS: 88 GS: 8 457 S&D: 976	1 163	0	0
Glenview	No	569	55	4	
Goodnight	Yes	n/a	n/a	n/a	n/a
Pomona	No	HS: 2 373 GS: 564	1 267	164	85
West Cadell	No	3 280	1 259	0	0
Woodlane	Yes	Class 3a: 456	336	0	0

Source: ACCC from data provided and published by off-river IOs

Notes: a. Bungunyah-Koraleigh's general security (GS) WAE held includes both GS and stock and domestic volumes of water

b. S&D is Stock and Domestic WAE

c. Class 3a is an irrigation entitlement in South Australia

## 1.4 Infrastructure operators that perform different roles

Three of the IOs featured in this report provide both on-river and off-river infrastructure services (Lower Murray Water, Goulburn–Murray Water and SunWater). These IOs act as vertically integrated operators and are not solely on-river IOs or off-river IOs. When reporting on these operators, the ACCC distinguishes between their operation as an on-river IO and their operation as an off-river IO. This approach allows for comparison with other entities that provide comparable services but are not vertically integrated.

To make an assessment of transformation, termination and trade activity within and between IO networks, the ACCC asks IOs for information on:

- number of transformations or terminations (or combination of both)
- the volume of irrigation rights transformed and of water delivery rights terminated

detail on their schedules of charges, and to provide customers with information on any termination fees they propose to charge. However, the Minister rejected the ACCC's advice on non-discrimination provisions, distributions and removing customers' private right of action against IOs. The water charge rules were also consolidated into a single instrument, which commenced on 1 July 2020.

- the volume of trade in water allocations within, into and out of off-river IOs
- the location and extent of activity
- compliance with the Rules (see chapter 5 of the Water Monitoring Report 2018–19).



## 2. On-river infrastructure operators

### *Background*

This chapter relates to the analysis presented in chapter 3 of the 2018–19 Report which covers on-river infrastructure operators (IOs).

IOs provide on-river infrastructure services, off-river infrastructure services or both.

On-river infrastructure services include harvesting and storing water through infrastructure, such as dams, lakes, weirs and reservoirs, and delivering water, primarily through natural watercourses, to an extraction point on a natural watercourse. An on-river IO imposes on-river infrastructure charges to recover costs associated with these services. On-river IOs are also responsible for water carry-over in line with water allocation frameworks determined by Basin states.

The chapter reports on the data used and the methodologies applied for on-river IOs:

- Section 2.1 outlines the ACCC's approach to monitoring
- Section 2.2 presents background information on the on-river typical bills
- Section 2.3 describes how the typical bills are constructed.

### **2.1 ACCC approach to monitoring**

The ACCC produces typical on-river IO bills<sup>7</sup> for infrastructure operators which assist in making a comparison of regulated water charges across different IOs that have different charging arrangements and tariff structures. The typical on-river IO bills and corresponding analysis provides a simple representation of how regulated charges translate into a typical customer bill.

The ACCC produces typical bills for:

- a typical customer located on-river (which may be either a private diverter or an off-river IO)
- a typical customer located off-river, having water delivered through a network from the natural watercourse extraction point(s).

The following sections set out the assumptions and methodology used in the production of typical on-river bills for on-river IOs for inclusion in the Water Monitoring Report 2018–19 .

### **2.2 The ACCC's on-river typical IO bills**

Typical on-river IO bills were constructed for 36 charge categories within a number of geographical areas across six on-river IOs. The analysis consists of two scenarios for each on-river IO and their respective charge categories—1000 ML of water access entitlement (WAE) and either 50 per cent or 100 per cent of that volume being delivered.

The charges assumed to be payable by a 'typical' customer for which each typical bill is calculated are determined after assessing each on-river IO's response to the ACCC's annual requests for information (RFI) and through discussions with each on-river IO.

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<sup>7</sup> These typical bills were called 'hypothetical bills' in previous monitoring reports.

The selection of charges for typical off-river IO bills in this way is aimed at producing typical bills that reflect all the regulated water charges imposed on a typical on-river IO customer who receives on-river infrastructure services for the storage and delivery of water.

Actual individual on-river customer bills will depend on the nature of their water holdings and will not correspond directly with the ACCC's typical bills. Further, the ACCC's analysis does not account for behaviour that may alter the amount of a customer's actual bill such as trade and carry-over.

### ***NSW drought relief package***

In July 2018, the New South Wales Government announced a drought relief package that included fixed charge rebates for general security water holders. It has provided up to \$4000 to all general security entitlement holders. This rebate applies to the fixed component charges in typical customer bills. This subsidy does not apply to high security licence holders for regulated river systems nor government entities. These subsidies were automatically applied to WaterNSW general security typical customer bills for 2018–19.

## **2.3 On-river typical bills**

### **2.3.1 Victoria**

#### ***Goulburn–Murray Water***

The analysis of Goulburn–Murray Water (GMW) assumes one typical on-river IO customer in each charge category within two systems (nine typical irrigator customers).

In the Goulburn system, it is assumed there is one typical on-river IO customer for each of:

- Bulk<sup>8</sup>– Loddon
- Bulk – Bullarook
- Bulk – Campaspe
- Bulk – Goulburn
- Bulk – Broken
- Private Diverter – all basins
- Bulk – Ovens.

In the Murray system, it is assumed there is one typical on-river IO customer for each of:

- Bulk – Murray
- Private Diverter – all basins.

It is further assumed that:

- a bulk water customer holds 1000 ML of high reliability bulk water entitlement. Bulk water customers may include GMW's retail arm, urban and rural water authorities and commercial businesses.
- a private diverter:
  - is an irrigator who extracts water directly from a natural watercourse
  - holds 1000 ML of high reliability WAE (Victorian water share)

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<sup>8</sup> 'Bulk' refers to a customer who holds a Victorian bulk water entitlement.

- holds 10 extraction shares<sup>9</sup> based on the Victorian conversion rules used at the time of unbundling
- has two large-sized service points.

The 2018–19 typical on-river IO bill analysis includes a fixed charge for bulk water entitlement holders and is called the bulk water high reliability entitlement.

The 2018–19 typical on-river IO bill analysis includes the following fixed charges for private diverters:

- high reliability water share entitlement storage fee
- service fee
- access fee (regulated waterways)
- service point fee (large).

These charges are imposed (where relevant) on the GMW customers in any of the basins in the Murray or Goulburn systems, although the actual amount of these charges will differ depending on the basin or system.

GMW's on-river customers do not pay specific water planning and management (WPM) charges. However, GMW must pay two per cent of its allowed revenues as its share of the Victorian Environmental Contribution (see section 6.2.3 and chapter 6 of the Water Monitoring Report 2018–19 for more information on the Environmental Contribution).

### ***Lower Murray Water***

The analysis for Lower Murray Water (LMW) assumes a private diverter in the Victorian River Murray.

It is further assumed that the private diverter:

- holds 1000 ML of high reliability WAE (Victorian water share) and an equivalent volume of annual use limit
- holds 10 extraction shares based on the Victorian conversion rules used at the time of unbundling and
- has one account, and thus incurs the service charge once.

The 2018–19 typical on-river IO bill analysis includes the following charges for private diverters, all of which are fixed charges:

- service charge
- operational fee
- entitlement storage fee (Murray Basin)
- Department of Environment, Land, Water and Planning (DELWP) water share fee.

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<sup>9</sup> An extraction share is a share of the total amount of water that can be drawn from regulated rivers at a certain point over a given period of time. Extraction shares are used to restrict water extraction in times of high demand. From: Victorian Water Register, 'Water Dictionary', [https://waterregister.vic.gov.au/about/index.php?option=com\\_glossary&view=items&Itemid=136&term\\_id=28](https://waterregister.vic.gov.au/about/index.php?option=com_glossary&view=items&Itemid=136&term_id=28), viewed 18 February 2020.

The entitlement storage fee is an on-river infrastructure charge imposed on LMW by GMW. LMW classifies its service charge, operational fee and DELWP water share fee as WPM charges.

### 2.3.2 New South Wales

#### *WaterNSW*

WaterNSW has both private diverter customers and other customers such as off-river IOs and urban water authorities. The charges for a given valley and entitlement reliability do not vary based on the type of customer (i.e. private diverters pay the same charges as other on-river customers<sup>10</sup>). Therefore, the ACCC has produced one set of typical customer bills for an on-river customer holding 1000 ML of WAE (New South Wales water access licence).

The analysis assumes 16 WaterNSW customers, two per valley with one holding high security WAE and the other holding general security WAE. Typical customer bills are produced for each New South Wales regulated river valley in the MDB, namely:

- Murray
- Murrumbidgee
- Lachlan
- Macquarie
- Namoi
- Peel
- Gwydir
- Border.

The 2018–19 typical on-river IO bill analysis includes the following charges:

- Fixed charges:
  - WaterNSW access (entitlement) charge
  - Water Administration Ministerial Corporation (WAMC) water access (entitlement) charge. This includes the MDBA and Borders Rivers Commission entitlement charges where applied.
- Variable charges:
  - WaterNSW usage fee
  - WAMC water usage fee. This includes the MDBA and Borders Rivers Commission usage charges where applied.

The Department of Planning, Industry and Environment (DPIE) access and usage charges are WPM charges collected by WaterNSW from its customers.

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<sup>10</sup> However, certain off-river operators receive a rebate on their charges, known as the 'Irrigation Corporations and District Rebate' (ICD rebates). These are usually lump-sum rebates given by WaterNSW to certain off-river operators for activities that result in avoided costs for WaterNSW or have externalities which benefit customers outside these off-river IOs. This includes cost savings in billing and metering, and some system wide benefits of some of the environmental and licensing information collected by the ICDs as part of their business operations. This rebate is not accounted for in the ACCC's on-river typical irrigator bill analysis.

### 2.3.3 Queensland

#### *Department of Natural Resources, Mines and Energy*

The analysis assumes one Department of Natural Resources, Mines and Energy (DNRME) private diverter holding 1000 ML of WAE (Queensland water allocation) located within the Dumaresq River water management area in the Border Rivers resource operations plan area.

The 2018–19 typical on-river IO bill analysis includes the following charges for customers listed on DNRME’s schedule of charges (Dumaresq River water management area):

- Fixed charge:
  - entitlement charge (Part A).
- Variable charge:
  - usage charge (Part B).

The charges for Dumaresq River water management area for 2018–19 are in schedule 14 of Queensland’s *Water Regulation 2016* (current as of 29 November 2019) under the *Water Act 2000* (Qld).

#### *SunWater*

The analysis for SunWater assumes six private diverters holding 1000 ML of WAE (Queensland water allocation), located in the following areas of the Queensland Murray-Darling Basin (MDB):

- Cunnamulla
- Chinchilla Weir
- Macintyre Brook
- Maranoa Weir St George
- Upper Condamine—further divided into the following three pricing categories/areas:
  - North branch
  - North branch risk A
  - Sandy Creek/Condamine River.

The 2018–19 typical customer bill analysis includes the following charges for customers:

- Fixed charge:
  - allocation charge – bulk water charge part A.
- Variable charge:
  - allocation water – bulk water charge part B.

### 2.3.4 South Australian Murray private diverter, South Australia

South Australian water users do not receive any on-river infrastructure services from an on-river IO located in South Australia. However, private diverters along the Murray River in South Australia are required to pay WPM charges and therefore typical irrigator bills have been produced for customer’s located on-river.

The 2018–19 typical on-river IO bill analysis for private diverters includes the Natural Resource Management (NRM) water levy as a WPM charge.

## 3. Off-river infrastructure operators

### *Background*

This chapter relates to the analysis presented in chapter 4 of the 2018–19 Water Monitoring Report which covers off-river infrastructure operators (off-river IOs).

Off-river IOs typically provide the transportation and delivery of water from the natural watercourse through a network consisting of channels and/or pipes to a customer's extraction points. The off-river IO is responsible for off-river delivery and maintaining the network but can also provide other services such as managing water access rights on behalf of customers.

An off-river IO imposes off-river infrastructure charges to recover the costs associated with providing customers with these services.

An off-river IO's network can be gravity-fed (consisting of channels and/or pipes) or pressurised (piped networks only). Pressurised networks generally have higher operating costs compared to gravity-fed networks due to the higher energy costs required to pump water around the network.

The chapter reports on the data used and the methodologies applied for off-river IOs:

- section 3.1 presents background information on the off-river typical irrigator bills
- section 3.2 provides information on the NSW emergency drought relief package and the implications for the ACCC's typical irrigator bills
- section 3.3 describes how the typical off-river irrigator bills are constructed.

### **3.1 Background to off-river typical irrigator bills**

Typical irrigator bills for off-river IOs were constructed using assumptions about typical customers' charging profile for each reporting off-river IO holding over 10 GL of WAE.<sup>11</sup> The typical irrigator charging profile is assessed from each off-river IO response to the ACCC's annual RFI and discussions with each off-river IO.

Several of the larger off-river IOs have tariff structures in which charges differ based on the network and/or the customer's WAE/irrigation right (IR) category. Customers were categorised by either the network they used or their WAE/IR category. This resulted in 37 customer profiles across 19 reporting off-river IOs and two on-river IOs who also operate off-river IO operations.

For each customer profile, six different typical irrigator bills were constructed, reflecting:

- three different volumes of WAEs (or IR for relevant South Australia and New South Wales customers) and a corresponding volume of water delivery right (WDR) of 50 ML, 250 ML and 1000 ML
- two different levels of water delivery – either 50 per cent or 100 per cent of entitlement.

For example, for the 250 ML of WAE scenario, typical irrigator bills were constructed assuming either 125 ML or 250 ML water was delivered to the customer. The majority of analysis presented in the Water Monitoring Report 2018–19 relates to an irrigator holding 250 ML of WAE.

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<sup>11</sup> The ACCC consulted off-river IOs before deciding which charges to include in typical irrigator customer bills.

The typical irrigator bill analysis includes:

- off-river infrastructure charges identified as being payable by the 'typical' irrigator
- all charges listed on an off-river IOs schedule of charges that relate to WPM and on-river infrastructure charges which are incurred by the operator and passed through to its customers.<sup>12</sup>

Where an off-river IO presents a single 'government charge' on their schedule of charges which includes both WPM and on-river infrastructure charges, the ACCC has separated out the components attributable to on-river infrastructure charges and the components attributable to WPM charges in conjunction with the relevant off-river IO. This document sets out all the off-river IO-specific assumptions and calculations used to separate the on-river infrastructure and WPM charge components.

Actual individual bills for customer's located off-river will depend on the nature of their water holdings and network access and may not correspond directly with the ACCC's typical irrigator bills. Further, the ACCC's analysis does not account for irrigator behaviour that may alter the amount of the bill, for example allocation trade, casual user arrangements, carryover decisions and the timing of water delivery.

The 2018–19 report includes a sample of NSW off-river IOs who have had zero or close to zero allocations for general security entitlements and the ACCC has calculated average typical irrigator bills for those who are receiving no water. The analysis has assumed that all selected off-river IOs have had zero allocations and there has been no carry-over or water traded in (see box 4.2, chapter 4 of the 2018–19 Report).

### **3.2 NSW emergency drought relief package**

As was noted in the ACCC's 2017–18 water monitoring report, the New South Wales (NSW) Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. The waiving of these irrigation charges were a component of the NSW Government's Drought Relief Package. The package also includes \$30 million to waive these charges in 2019–20. Other waivers in the same package include bee site permits, agricultural vehicle registration and grazing permits.

The specific fixed charges that were waived on irrigator bills include:

- WaterNSW – fixed charges for 2018–19 general security licence holders ranged from a low of \$0.78 for the Murray and Lower Darling rivers to a high of \$8.28 for the Namoi River.
- Water Administration Ministerial Corporation – fixed charges for the general security licence holders ranged from a low of \$1.36 for the Murrumbidgee River to a high of \$2.70 for Namoi River.
- Murray–Darling Basin/Border River Commission – fixed charges for general security licence holders ranged from a low of \$0.63 for the Murrumbidgee River to a high of \$3.70 for the Murray and Lower Darling Rivers. Note that these MDBA/Border River Commission charges were applied to the Murray/Lower Darling, Murrumbidgee and Border Rivers/valleys only.

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<sup>12</sup> On-river and off-river infrastructure charges are levied directly on customers by the off-river infrastructure operator when the infrastructure operator provides both on-river and off-river infrastructure services (for example, GMW and SunWater). On-river infrastructure charges are passed onto the customer when an off-river infrastructure operator is not also the relevant on-river infrastructure operator.

All of the fixed fees noted above are applied per ML of water entitlement held. Further, this drought subsidy was capped at \$4000 per annum. This subsidy does not apply to high security licence holders for regulated river systems nor government entities. These subsidies were automatically applied to NSW general security typical irrigator bills.

### 3.3 Off-river typical irrigation bills

#### 3.3.1 Central Irrigation Trust, South Australian Murray

The analysis for Central Irrigation Trust (CIT) is for three typical irrigator bills, calculated for an irrigator located in one of the CIT districts other than Golden Heights or Sunlands<sup>13</sup> and receiving either:

- a high pressure service
- a medium pressure service, or
- a low pressure service.<sup>14</sup>

Further, each typical irrigator bill assumes that the irrigator:

- has an irrigation connection on the property—meaning no drainage charge applies (as this charge is only levied on customers that do not have an irrigation connection) and
- is supplied with irrigation water at a proportion of 65 per cent at off-peak times and 35 per cent at peak times.

The 2018–19 typical irrigator bill analysis includes the following charges for each of the three types of services selected from CIT's schedule of charges:

- Fixed charges:
  - irrigation service charge (levied per ML of WDR held)
  - NRM water levy (levied per ML of IR held).
- Variable charges:
  - water consumption charge (peak), high, medium and low pressure depending on the service (levied per ML of water delivered in peak period)
  - water consumption charge (off-peak), high, medium and low pressure depending on the network (levied per ML of water delivered in off-peak period).

Given that CIT's schedule of charges comes into effect on 1 October each year, this analysis uses a weighted average of the 2017–18 (July to September) and the 2018–19 (from October to the end of the financial year) schedules of charges. The typical irrigator bills are calculated on a weighting of 25 per cent for the first schedule and 75 per cent for the second.

The NRM water levy is a WPM charge. CIT's irrigation customers do not pay any on-river infrastructure charges as there is no on-river IO in South Australia.

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<sup>13</sup> CIT operates the following irrigation districts: Berri, Cadell, Chaggey, Cobdogla, Golden Heights, Kingston, Loxton, Lyrup, Moorook, Mypolonga, Sunlands and Waikerie. CIT's tariff structure applies one set of charges for districts other than Golden Heights and Sunlands (although variable charges do depend on whether low, medium or high pressure services are received), and individual charges for each of the Golden Heights and Sunlands districts, due to unique circumstances in those districts.

<sup>14</sup> The low pressure network service relates to Berri, Chaffey (Ral Ral), Cobdogla, Kingston, Lyrup, Moorook & Waikerie. The medium pressure network service relates to Cadell and Mypolonga. The high pressure network service relates to Chaffey (Cooltong) & Loxton. Typical irrigator bills are not calculated for irrigators using the high lift high pressure irrigation service.

### 3.3.2 Renmark Irrigation Trust, South Australian Murray

The analysis assumes one irrigator in Renmark Irrigation Trust's (RIT) network which:

- has an equivalent farm size—5.38 ha, 26.94 hectares or 107.76 hectares, respectively for each of the volumes of IR
- has one irrigation connection on its farm (as such, drainage charges do not apply).

The analysis applies the conversion of IR to an equivalent farm size because RIT levies its access charge based on farm size in hectares. The conversion rule is 9.28 ML per hectare.<sup>15</sup>

The 2017–18 typical irrigator bill analysis includes the following charges listed on RIT's schedule of charges. There is a schedule for July-December 2018 and one for January-June 2019, but the charges are the same in each schedule.

- Fixed charges:
  - Irrigation access charge<sup>16</sup> (levied per rated hectare per half year)
  - NRM water levy (levied per kilolitre (KL) of 'entitlement' (IR) held).
- Variable charge:
  - Water delivery charge (levied per KL of water delivered).

As for CIT, RIT irrigation customers do not pay any on-river infrastructure charges as there is no on-river IO in South Australia and the NRM water levy serves as a WPM charge.

### 3.3.3 Goulburn–Murray Water, Victoria

The off-river typical irrigator bill analysis for GMW assumes nine irrigators, one in each of GMW's off-river networks. Three of these networks are pressurised and six are gravity-fed.

The three pressurised networks are:

- Nyah
- Woorinen
- Tresco.

The six gravity-fed networks are:

- Central Goulburn
- Loddon Valley<sup>17</sup>
- Murray Valley
- Rochester
- Shepparton
- Torrumbarry.

The analysis assumes that each irrigator in any of the pressurised and gravity-fed networks:

- holds high reliability water share

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<sup>15</sup> This conversion rule is assumed after consultation between the ACCC and RIT.

<sup>16</sup> This charge is levied per half year. For the typical irrigator bill construction it is converted to a single, yearly charge.

<sup>17</sup> This was previously known as Pyramid-Boort.

- holds a volume of water delivery shares (in ML/day) equal to 1/100 of the water share volume (0.5 ML/day, 2.5 ML/day or 10 ML/day).

The 2018–19 typical irrigator bill analysis includes the following charges for all GMW networks:

- Fixed charges:
  - high reliability water share entitlement storage fee (levied per ML of high reliability water share held)
  - service (levied per account held)
  - infrastructure access (levied per delivery share held)
  - service point (irrigation) (payable by gravity-fed networks only, levied per service point)—‘Local Read’ fee for 50 ML typical irrigator bill; ‘Remote read and operate’ fee for 250 ML and 1000 ML typical irrigator bills
  - additional service point (payable by pressurised networks only, levied per additional service point)
  - drainage charges (see below).
- Variable charge:
  - infrastructure use (levied per ML of water delivered).

The high reliability water share entitlement storage fee is the on-river infrastructure charge passed on to customer’s located off-river. GMW’s off-river customers do not pay a specific WPM charge. However, two per cent of GMW’s total revenue collected from off-river infrastructure charges imposed on customers is used to recover costs associated with the Victorian Environmental Contribution (see section 2 above and chapter 6 2018–19 Report for more information on the Environmental Contribution).

### **Drainage charges**

The 2018–19 analysis assumes drainage charges are also levied on customers in all GMW networks.

The analysis assumes an irrigator in a pressurised network:

- has one property
- drainage water use is consistent with the WAE (‘water share’).

The 2018–19 typical irrigator bill analysis includes the following drainage charges for pressurised networks:

- Nyah:
  - subsurface drainage service fee (levied per account)
  - subsurface drainage water use (levied per ML of water delivered).
- Woorinen
  - subsurface drainage service fee (levied per account)
  - subsurface drainage area fee (levied per hectare)
  - subsurface drainage water use (levied per ML of water delivered).
- Tresco
  - subsurface drainage fee (levied per ML of water delivered).

As noted above, the subsurface drainage area fee is only levied in the Woorinen network, and is levied per hectare. Using information provided by GMW in 2013–14, the ACCC has assumed a hectare to ML conversion ratio of 0.155 hectares to 1 ML.<sup>18</sup>

The 2018–19 typical irrigator bill analysis includes the following drainage charges for gravity-fed networks:

- surface drainage service fee (levied per account)
- surface drainage area fee (levied per hectare)
- surface drainage water use fee (levied per ML of water delivered).

Similar to pressurised networks, the ACCC calculated a hectare to ML ratio for irrigators in a gravity-fed network for the surface drainage area fee. The hectare to ML ratio assumed for each gravity-fed network for the drainage area fee is provided in the table below.

**Table 3.1: GMW conversion ratios for surface drainage area fees in gravity-fed networks**

Gravity-fed network	Hectare to ML ratio
Loddon Valley	0.5 hectare to 1 ML
Rochester	0.2 hectare to 1 ML
Central Goulburn	0.275 hectare to 1 ML
Shepparton	0.354 hectare to 1 ML
Torrumbarry	0.419 hectare to 1 ML
Murray Valley	0.208 hectare to 1 ML

GMW's schedule of charges includes a range of other surface and subsurface drainage fees. Based on information provided by GMW, the ACCC has determined that these fees would not be levied on the 'typical' irrigator, as they apply only in specific circumstances, and have thus been excluded from the typical irrigator bill analysis.

### 3.3.4 Lower Murray Water, Victoria

The off-river typical irrigator bill analysis for Lower Murray Water (LMW) assumes one irrigator in the Robinvale pressurised network, and one in each of the following three gravity-fed networks of LMW:

- Merbein
- Red Cliffs
- First Mildura Irrigation District (Mildura).

The analysis assumes that each of these four irrigators:

- holds high reliability water shares

<sup>18</sup> GMW provided typical irrigator bills for medium and large customers. GMW also advised that the size of the medium and large customers varies across networks and the area for drainage is also different between medium and large customers within the same network. The hectare to ML conversion ratio was calculated as the average of hectare to ML ratio for a medium customer and the hectare to ML ratio for a large customer. Application of this ratio results in a different drainage area depending on the water access entitlement scenario.

- holds an equivalent number of delivery shares—respectively 6, 30 or 120 delivery shares (based on 0.12 times the amount of water share)
- has one ‘assessment’ with LMW (meaning that the service charge is incurred once)
- is provided with a full drainage service.

The 2018–19 typical irrigator bill analysis for off-river customers in each network includes the following charges:

- Fixed charges:
  - service charge (levied per ‘assessment’)
  - delivery share fee (levied per ‘delivery share’ (WDR) held)
  - property drainage fee<sup>19</sup> (levied per ‘delivery share’ (WDR) held)
  - entitlement storage fee – Murray Basin – high reliability (levied per ML of water share held – this is an on-river infrastructure charge imposed by GMW on LMW and passed through to its customers)
  - DELWP water share fee (levied per water share held in the Victorian Water Register).
- Variable charge:
  - metered water usage fee (levied per ML of water delivered).

### **3.3.5 West Corugan Private Irrigation District, New South Wales Murray**

The typical irrigator bill analysis for West Corugan Private Irrigation District (West Corugan) includes the following charges listed on West Corugan’s schedule of charges.

- Fixed charges:
  - network access fee (levied per ML of ‘delivery entitlement’ (WDR) held)
  - fixed government fee levied per ML of ‘water entitlement’ (IR) held).
- Variable charge:
  - water consumption fee (paid monthly, per ML of water delivered).

The fixed government fee recovers WaterNSW and the NSW Department of Planning, Industry and Environment (DPIE) Water fixed charges imposed on West Corugan and passed through to its customers. Similarly, the water consumption fee recovers WaterNSW, DPIE and Murray Darling Basin Authority (MDBA) variable charges imposed on West Corugan, and also some of its own costs (e.g. variable costs of delivering water through the off-river network).

These charges also include recovery of WaterNSW and DPIE charges payable in relation to water used for transportation or conveyance losses. West Corugan does not hold a separate WAE to cover conveyance losses, rather it uses some of the water allocated to its general security water access licence to cover losses. The transportation/conveyance water also incurs WaterNSW and DPIE charges which are then shared across all customers holding IRs and/or that have water delivered. The typical irrigator bill analysis makes the following assumptions to separate out the WaterNSW, DPIE and MDBA charge components within each of the two relevant West Corugan charges.

- Government fixed charges:

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<sup>19</sup> For Robinvale, Red Cliffs and Merbein this is Property drainage fee Division 1.

- West Corugan’s listed annual fixed government fee (\$7.88/ML) exceeds the sum of the WaterNSW fixed fee (\$0.78/ML), DPIE fixed fee (\$1.52/ML) and MDBA fixed fee of \$3.70 for the Murray valley by \$1.88. This remainder (\$1.88/ML), which accounts for the fixed costs of West Corugan purchased conveyance water applicable to WaterNSW, DPIE and the MDBA, is separated into WaterNSW (\$0.0.24/ML), DPIE (\$0.48/ML) and MDBA (\$1.16) components using a ratio of the actual WaterNSW, DPIE Water and MDBA fixed charges.
- Government usage charges:
  - the components of West Corugan’s listed water consumption fee are separated using the following formula. This calculation accounts for the WaterNSW and DPIE variable charges levied on water used for conveyance.
  - West Corugan component = water consumption fee less DPIE component less WaterNSW component and less MDBA component.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.6 Moira Private Irrigation District, New South Wales Murray**

The typical irrigator bill analysis for Moira Private Irrigation District (Moira) includes the following charges listed on its schedule of charges.

- Fixed charges:
  - administration: operating costs (levied per ML of WDR held)
  - administration: electricity connection charge (levied per ML of WDR held).
- Variable charges:
  - Moira delivery fee (levied per ML of water delivered)
  - government charges (levied per ML of water delivered)
  - losses factor (levied per ML of water delivered).

Moira’s administration operating costs charge and government usage charge recover both WaterNSW, DPIE and MDBA charges. In the former case (Moira’s administration operating costs charge), the charge also recovers some of Moira’s own off-river costs. The typical irrigator bill analysis makes the following assumptions to separate the WaterNSW, DPIE and MDBA charge components within each of the two relevant Moira charges.

- Government fixed charges:
  - assume the actual WaterNSW (\$0.78/ML), DPIE (\$1.52/ML) and MDBA (\$3.70/ML) fixed charges are fully passed through to Moira customers as part of the administration operating costs. The difference between the sum of the actual WaterNSW and DPIE fixed charges and the administration operating costs charge is assumed to be Moira’s fixed off-river infrastructure charge (\$12.50/ML).
- Government usage charges:
  - the government charge listed on Moira’s schedule (\$4.63/ML) represents the WaterNSW usage charge for the Murray valley set by the Independent Pricing and Regulatory Tribunal (IPART). For the typical irrigator bills, the government charge

listed by Moira has been separated into WaterNSW, DPIE and MDBA components using the ratio of the actual fixed WaterNSW charge relative to the actual DPIE fixed charge.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.7 Murray Irrigation Limited, New South Wales Murray**

The typical irrigator bill analysis for Murray Irrigation Limited (MIL) includes the following charges listed on MIL's schedule of charges:

- Fixed charges:
  - account administration fee – maximum (levied per account)
  - water entitlement fee Class C general security (levied per ML of 'water entitlement' (IR) held)
  - landholding access fee (levied per landholding)
  - large irrigation outlet fee (levied per large irrigation outlet)
  - delivery entitlement fee (levied per ML of 'delivery entitlement' (WDR) held)
  - drainage fixed fee (levied per ML of 'delivery entitlement' (WDR) held).
- Variable charges:
  - standard water usage fee - Government charges recovery - Tier 1 variable fee (levied per ML of water delivered in tier)
  - standard water usage fee - Government charges recovery - Tier 2 variable fee (as above)
  - standard water usage fee - Government charges recovery - Tier 3 variable fee (as above)
  - standard water usage fee - MIL Tier 1 variable fee (as above)
  - standard water usage fee - MIL Tier 2 variable fee (as above)
  - standard water usage fee - MIL Tier 3 variable fee (as above)
  - drainage variable fee (levied per ML of water delivered).

The water entitlement fee Class C general security and the Government charges recovery Tier 1, 2 and 3 variable fees include WaterNSW, DPIE and MDBA fixed and variable charges.

The analysis makes the following assumptions to account for the way in which some charges are levied:

- each irrigator operates a single property, incurring the landholding access fee once
- each irrigator has one account, incurring the account administration fee once
- irrigators with 50 ML and 250 ML of WDR have one large irrigation outlet, incurring the large irrigation outlet fee once

- irrigators with 1000 ML of WDR have two large irrigation outlets, incurring the large irrigation outlet fee twice.

Government fixed charges:

- The water entitlement Class C charge (\$5.89/ML) is presented on the MIL schedule as a combined government charge relating to general security 'water entitlements' (IRs) and is \$0.11 above the sum of the actual WaterNSW (\$0.77/ML), DPIE (\$1.49/ML) and MDBA (fixed general security charges and a Murray–Darling Basin Authority (MDBA) charge of \$3.63. The \$0.11 was deducted from MIL's fixed delivery entitlement fee which dropped from \$6.57 to \$6.46/ML.

Government usage charges:

- Separating the WaterNSW and DPIE variable charges from MIL variable charges is more difficult due to the tiered nature of MIL's 'government charges recovery' charge. Whereas MIL incurs DPIE and WaterNSW variable charges at a constant rate per ML of usage, MIL recovers these costs from customers using a tiered 'government charges recovery' charge, which decreases as usage increases (i.e. a declining block tariff).

MIL also applies a declining tiered structure to its own variable charges. The tiered system has the following structure:

- Tier 1: 0–5 ML
- Tier 2: 6–100 ML
- Tier 3: >100 ML.

Charges are imposed against the tiers starting at tier 1. For example, for an irrigator with 250 ML WAE who has 100 per cent water delivered, the irrigator would pay for 5 ML at tier 1 charges, 95 ML at tier 2 charges and the remaining 150 ML at Tier 3 charges.

The combined variable government charge is the same for all tiers at \$4.54/ML. The actual government charges include WaterNSW (\$1.99/ML), DPIE (\$1.08/ML) and MDBA (\$1.56/ML) and this totals to \$4.63 which is \$0.09 above what MIL listed on its SOC. The \$0.09 amount was deducted from each of the three tiers delivery charges.

As noted in section 3.3.5, while the ACCC made changes to the fixed government charges, they were not included in the final typical irrigator bills due to the NSW Government waiving of the fixed charge component of general security licence holders for the 2018–19 reference year.

### **3.3.8 Eagle Creek Pumping Syndicate, New South Wales Murray**

Eagle Creek Pumping Syndicate (Eagle Creek) is a joint water supply scheme, where customers jointly hold a single WAE (rather than the operator holding the entitlement and customers holding IRs). The 2018–19 typical irrigator bill analysis includes the following charges listed on Eagle Creek's schedule of charges.

- Fixed charges:
  - Eagle Creek fixed charge, general security (levied per ML of share of WAE or WDR held)<sup>20</sup>

<sup>20</sup> Eagle Creek's schedule of charges does not clearly specify whether its fixed charges are in relation to ML of water delivery right held or ML of (share of) WAE held. However, since the typical irrigator bill analysis assumes that the irrigator holds an equivalent amount of water delivery right and (share of) WAE, this distinction is not material to the analysis.

- Government fixed charge, general security (levied per ML of share of WAE or WDR held).
- Variable charges:
  - Eagle Creek usage charge (levied per ML of water delivered)
  - Government usage charge (levied per ML of water delivered).

Eagle Creek's schedule shows a government fixed charge and a government usage charge which recover both WaterNSW and DPIE charges imposed on Eagle Creek. The typical irrigator bill analysis makes the following assumptions to separate the WaterNSW and DPIE charge components.

- Government fixed charges:
  - the listed charge (\$5.49/ML) is less than the total of the actual WaterNSW, (\$0.78/ML), DPIE (\$1.52/ML) and MDBA (\$3.70) charges. The analysis assumes the actual DPIE fixed charge (\$1.49/ML) is fully passed through to Eagle Creek's customers as part of the government fixed charge. The remainder is assumed to be the WaterNSW fixed charge (\$4.00/ML). There is a very small difference between the \$5.89 for the WaterNSW general security fixed charge the relevant charge on WaterNSW's schedule of charges for the New South Wales Murray valley (\$5.89/ML). The difference between these two charges (\$0.0019/ML) is taken to be WaterNSW's irrigation corporation and district (IDC) rebate for Eagle Creek. The IDC rebate for Eagle Creek was \$24.42 in 2018–19.
- Government usage charges:
  - the Eagle Creek government usage charge (\$4.54/ML) is equal to sum of the relevant regulated WaterNSW (\$1.95/ML) and DPIE (\$2.59/ML<sup>21</sup>) charges for the New South Wales Murray valley. Therefore this analysis divides the Eagle Creek government usage charge into these two components.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### 3.3.9 Western Murray Irrigation, New South Wales Murray

The analysis assumes one irrigator in each of Western Murray Irrigation's (WMI) three networks:

- Buronga
- Coomealla
- Curlwaa.

It is assumed that each irrigator does not incur meter reading or administration charges.

The 2018–19 typical irrigator bill analysis includes the following charges listed on WMI's schedule of charges, which apply to all three networks at the applicable rates listed on the schedule unless otherwise specified.

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<sup>21</sup> The \$2.59 charge includes the \$1.53 MDBA component which covers the New South Wales Government's contribution to the funding of the MDBA

- Fixed charges:
  - access fee for delivery entitlement (per ML of 'delivery entitlement' (WDR) held)
  - asset replacement fund (per ML of 'delivery entitlement' (WDR) held)
  - joint venture repayment (Coomoalla only) (per ML of 'delivery entitlement' (WDR) held)
  - infrastructure loan repayment (Buronga only) (per ML of 'delivery entitlement' (WDR) held)
  - fixed government charge (for general security entitlements) (per ML of 'water entitlement' (IR) held)
  - membership levy (per ML of 'water entitlement' (IR) held)
  - land and water management plan charge (Buronga only) (per ML of 'delivery entitlement' (WDR) held).
- Variable charges:
  - water usage above access fee allowance (per ML of water delivered above 'access fee allowance' (see below))
  - variable government charge (per ML of water delivered).

WMI does not levy its usage charge as long as water usage is below or equal to the customer's 'access fee allowance', which is set as a specified percentage of delivery entitlements. For each network in 2018–19, this allowance is:

- 60 per cent for Buronga
- 45 per cent for Coomealla
- 60 per cent for Curlwaa.

An irrigator that uses water above the allowance percentage incurs the 'water usage above access fee allowance', for each ML above the allowance.

The typical irrigator bill analysis makes the following assumptions to separate the WaterNSW, DPIE and MDBA charge components within each of the two combined government charges listed by WMI:

- Fixed government charges:
  - the fixed government charge (\$6.00/ML) listed on WMI's SOC was the same as the combined charges of WaterNSW (\$0.78/ML), DPIE (\$1.52/ML and MDBA (\$3.70/ML). No further adjustments were necessary for government fixed charges.
- Variable government charges:
  - the variable government charge listed on WMI's SOC (\$4.63/ML) was also the same as the combined charges of WaterNSW (\$1.99/ML), DPIE charge (\$1.08/ML) and MDBA charge (\$1.56/ML). No further adjustments were necessary for government variable charges apart from splitting WMI's aggregated variable government charge.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### 3.3.10 Coleambally Irrigation Cooperative Limited, New South Wales Murrumbidgee

The typical irrigator bill analysis for Coleambally Irrigation Cooperative Limited (CICL) assumes one irrigator in CICL's network who is connected through one large common irrigation outlet. It includes the following charges listed on CICL's schedule of charges.

- Fixed charges:
  - CICL access fee (levied per ML of 'delivery entitlement' (WDR) held)
  - compliance fee (levied per ML of 'delivery entitlement' (WDR) held)
  - Coleambally Irrigation Mutual Co-operative Limited (CIMCL) Levy (levied per ML of 'delivery entitlement' (WDR) held)
  - large outlet charge – common irrigation outlet (levied per large outlet)
  - peak flow charge – large flume 12 to 30 ML/day (levied per ML of nominated peak flow for each outlet)
  - government water charges – access fee (levied per ML of general security 'water entitlement' (IR) held).
- Variable charge:
  - government water charges – usage fee (levied per ML of water delivered).

The peak flow charge is levied on the basis of the maximum flow capacity. For a large common irrigation outlet, the flow ranges from 12 ML to 30 ML per day. The maximum flow is nominated by the irrigator within this range. CICL has advised the ACCC that irrigators typically nominate a peak flow of 15 ML and that most irrigators hold a 'water entitlement' (IR) of at least 1000 ML.

As such, the 2018–19 analysis assumes that in the 1000 ML scenario, the irrigator has a maximum peak flow of 15 ML per day; and in the 50 ML and 250ML scenarios, the irrigator has a maximum peak flow of 6 ML per day.

The government water charges access (fixed) fee and the government water charges usage (variable) fee recover WaterNSW, DPIE and MDBA fixed and usage charges imposed on CICL and passed on to customers.

- Government fixed charges:
  - access fee: this fee (\$3.14) is equal to sum of the relevant fixed regulated WaterNSW (\$1.15/ML), DPIE Charges (\$1.36/ML) and the MDBA charge (\$0.63) for the New South Wales Murrumbidgee valley. Therefore this analysis divides the CICL access fee into these three components.
- Government usage charges:
  - usage fee: this fee (\$4.66) is equal to the sum of the relevant variable regulated WaterNSW (\$3.44/ML) and DPIE (\$0.90/ML) and the MDBA usage charge (\$0.32) for the New South Wales Murrumbidgee valley. Therefore this analysis divides the CICL Government water charges fee into these three components.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### 3.3.11 Murrumbidgee Irrigation Limited, New South Wales Murrumbidgee

Murrumbidgee Irrigation Limited (MI) changed its charging structure on its schedule of charges commencing in 2017–18 and has continued with this structure. MI stated in its advice to customers that the changes were intended to reduce the complexity of its previous charges, remove any cross subsidies and customers would be charged, regardless of location the same price.

MI's previous pricing structure included a standard outlet charge, with tiered charges applying a declining block tariff based on the size of the delivery entitlement. Further, there were pricing groups based on location within, and type of, irrigation network. The 2017–18 pricing schedule replaced these charges with a single flat rate for holding delivery entitlements. It also simplified some pricing groups (removing the small and large area supply groups) and realigned the outlet charge with the actual cost of different sized outlets.

The analysis applies to the following four types of irrigators across MI's networks:<sup>22</sup>

- Murrumbidgee gravity-fed irrigator
  - high security IR holder
  - general security IR holder.
- Large Area Supply Wah Wah (excluding Integrated Horticulture Supply (IHS)) (LAW)
  - general security IR holder.
- IHS-pressurised
  - high security IR holder.

IHS customers are required to pay 75 per cent of the electricity charges that MI is charged. The remaining 25 per cent is shared among remaining MI customers. Electricity usage charges depend on several factors, including the level of water pressure and the time period of electricity use (peak/off peak periods). The electricity charge calculated for the 2018–19 typical irrigator bill analysis is a weighted average of peak, shoulder and off-peak times across all IHS pump stations.

Further assumptions for calculating typical irrigator bills include that irrigators<sup>23</sup>:

- general security and high security entitlement holders in gravity fed networks have one medium meter and pay this charge once
- Large area supply (LAW) general security pricing group pays a landholding fee and do not have a metering connection charge
- Integrated horticulture supply (IHS) customer groups have one small meter outlet connected and thus pay the outlet charge once.

The 2018–19 typical irrigator bill analysis for a customer in each of MI's four irrigation networks includes the following charges listed on MI's schedule of charges.

- Fixed charges:
  - landholding charge (LAW-GS only)
  - access charge (per connection/meter type small to extra-large)

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<sup>22</sup> Murrumbidgee Irrigation's previous typical irrigator bill were calculated for 6 pricing groups. The gravity fed groupings were split between small area (high and general security) and large area (high and general security) so as to reflect the pricing differences on the size of landholdings and location.

<sup>23</sup> The ACCC liaised with Murrumbidgee Irrigation during 2018 regarding the assumptions used in the calculation of the revised typical irrigator bills.

- customer account (one per account and only applied to the gravity fed networks and the IHS network)
- delivery entitlement charge (charged per delivery entitlement)
- government bulk water recovery charge - fixed (levied per ML of 'water entitlement' (IR) held).
- Variable charges:
  - usage charge - normal usage (levied per ML of water delivered)
    - A transitional rebate of \$2.08 was applied for customers in the LAW network. Murrumbidgee Irrigation advised that this rebate will not apply from the 1 July 2019.
  - government bulk water recovery charge - usage (levied per ML of water delivered)
  - IHS energy charges (IHS only) (levied per ML of water delivered).

MI released two schedules during 2018–19. The only difference between the schedules was small increases in government charges and adding Gunbar to the access, network and usage charges table on page two of the schedule.

The government bulk water recovery (fixed) charge and the government bulk water recovery charge (usage) recovers WaterNSW, DPIE and MDBA fixed and usage charges imposed on MI and passed on to customers.

The typical irrigator bill analysis makes the following assumptions to separate the WaterNSW, DPIE and MDBA charge components for the relevant MI government charges:

- High security customers:
  - The average fixed Government charge on MI's schedules was \$0.04 less than the combined charges of WaterNSW, DPIE and MDBA while the variable Government charge was \$0.03 less. MI stated on both schedules that 'where the rates invoiced to MI differ from those published below, we will pass through the actual invoiced charges'. On this basis, no adjustments have been made to any charge and actual government charge amounts have been used in the creation of typical irrigator bills.
- General security customers:
  - The 'average fixed Government charge on MI's schedules was \$0.03 less than the combined charges of WaterNSW, DPIE and MDBA while the variable Government charge was \$0.03 less. As noted above, actual government charge amounts have been used in the creation of typical irrigator bills.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.12 Hay Private Irrigation District, New South Wales**

The ACCC's analysis to create a typical irrigator bill assumes one irrigator in Hay Private Irrigation District's (Hay) network who:

- has a property over 4 hectares and incurs an administration fee for that property size
- has one 12 ML outlet connected to its farm.

The 2018–19 typical irrigator bill analysis includes the following charges listed on Hay’s schedule of charges.

- Fixed charges:
  - access fee – general (levied per ML of ‘water delivery entitlement’ (WDR) held)
  - bulk water charges – WaterNSW (levied per ML of ‘water delivery entitlement’ (WDR) held)
  - bulk water charges – DEIP (levied per ML of ‘water delivery entitlement’ (WDR) held)
  - outlet charge – 12 ML outlet (levied per outlet)
  - administration charge small holding – 1ML/day outlet size (levied per property).
- Variable charge:
  - irrigation usage charge – (levied per ML of water delivered).

The typical irrigator bill analysis makes the following assumptions regarding WaterNSW, DPIE and MDBA charges:

- Government fixed charges:
  - WaterNSW, DPIE and MDBA fixed charges used are those listed on Hay’s schedule of charges under the one Bulk Water Charges (\$3.06). The charge amount is exactly the same as the total of WaterNSW’s component (\$1.15/ML), MDBA charge (\$3.70/ML) and DPIE charge (\$1.31/ML). No adjustments were necessary and the Hay’s Bulk water charge was split into three charges.
- Government usage charges
  - Hay does not list any usage charges for the three Government charges. These charges for the Murrumbidgee Valley were WaterNSW usage charge (\$3.44/ML), DPIE usage charges 0(\$0.90/ML) and the MDBA charge (\$0.32/ML) or \$4.66 in total. Typically, these Government usage charges were included in Hay’s delivery charge. The \$4.66 total has been deducted from Hay’s delivery charge and three Government usage charges added to the calculated bill.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.13 Jemalong Irrigation Limited, New South Wales Lachlan**

Jemalong Irrigation Limited (Jemalong) released two charge schedules during 2018–19 and there was a number of changes to charges between the two. Where there were differences between the two schedules, an average was calculated for 2018–19.

The 2018–19 typical irrigator bill analysis for Jemalong Irrigation Limited (Jemalong) includes the following charges listed on its schedule of charges.

- Fixed charges:
  - fixed access charge (levied per ML of ‘delivery entitlement’ (WDR) held)
  - government fixed charge (levied per ML of ‘water entitlement’ (IR) held)
  - conveyance fixed charge (levied per ML of ‘delivery entitlement’ (WDR) held).

- Variable charges:
  - usage charge (levied per ML of water delivered)
  - government usage charge (levied per ML of water delivered).

Jemalong's listed government charges (fixed, conveyance and usage) recover both WaterNSW and DPIE fixed and variable charges imposed on Jemalong and passed through to its customers. The typical irrigator bill analysis makes the following assumptions to separate WaterNSW and DPIE fixed and variable charge components:

- Government fixed charges:
  - the actual DPIE fixed charge listed on WaterNSW schedule of charges (\$1.42), is fully passed through to Jemalong's customers. The difference between the actual DPIE fixed charge and the government fixed charge is the WaterNSW fixed charge component of the government fixed charge (\$2.84) minus the relevant ICD rebate (\$0.42 per ML of IR).
- Conveyance fixed charges:
  - the components of Jemalong's conveyance fixed charge (\$0.94) are separated using a ratio of the actual WaterNSW<sup>24</sup> and DPIE fixed charges. The WaterNSW component of the conveyance fixed charge is \$0.63/ML and the DPIE component is \$0.31/ML.
- Government usage charges:
  - the components of Jemalong's listed government usage charge are separated using a ratio calculated with the sum of the actual WaterNSW and DPIE usage charges. This ratio is then applied to the government usage charge to determine the amount of the charge recovering the WaterNSW usage charge component and the amount recovering the DPIE usage charge component of the government usage charge.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.14 Narromine Irrigation Board of Management, New South Wales Macquarie**

The 2018–19 typical irrigator bill analysis for Narromine Irrigation Board of Management (Narromine), includes the following charges listed on its schedule of charges.

- Fixed charges:
  - Narromine access fee (levied per ML of 'delivery water entitlements' (WDR) held)
  - WaterNSW fixed charge (levied per ML of 'water entitlement' (IR) held)
  - DPIE fixed charge (levied per ML of 'water entitlement' (IR) held)
  - metering charge (levied per property)
  - administration charge (levied per account).
- Variable charges:

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<sup>24</sup> The WaterNSW charge used here is \$2.84 /ML. That is, it does not include a deduction for the ICD rebate mentioned above.

- Narromine variable charge (levied per ML of water delivered)
- WaterNSW (State Water Corporation) usage charge (levied per ML of water delivered)
- DPIE usage charge (levied per ML of water delivered).

The analysis assumes that the irrigator:

- operates one property, incurring the metering charge once
- operates one account, incurring the administration charge once.

The typical irrigator bill analysis makes the following assumptions regarding WaterNSW and DPIE fixed and variable charge components:

- Government fixed charges:
  - Narromine's DPIE (\$1.69/ML) and WaterNSW (\$2.97/ML) fixed charges are fully passed through to its customers. The Government fixed charges listed on Narromine's schedule are the same as the regulated Government charges for the Macquarie Valley.
- Government usage charges:
  - Narromine's DPIE (\$1.82/ML) and WaterNSW (\$14.34/ML) usage charge is the same as the regulated WaterNSW charges for the Macquarie valley.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.15 Buddah Lake Irrigators' Association, New South Wales Macquarie**

Buddah Lake Irrigators' Association (Buddah Lake) is a joint water supply scheme. The 2018–19 typical irrigator bill analysis includes the following charges listed on Buddah Lake's schedule of charges:

- Fixed charges:
  - operating and maintenance fee (OMF) (levied per 1250 ML WDR per month, see below).
- Variable charge:
  - water charge (levied per ML of water delivered).

Buddah Lake's OMF includes the recovery of fixed WaterNSW and DPIE charges imposed on Buddah Lake and passed through to its customers, as well as costs for its own off-river operations.

Similarly, Buddah Lake's water charge fee includes the recovery of variable WaterNSW and DPIE charges imposed on Buddah Lake and passed through to its customers.

The typical irrigator bill analysis makes the following assumptions to separate the WaterNSW and DPIE charge components within each of the two relevant Buddah Lake charges.

- Government fixed charges:

- OMF is a fixed charge and was listed in the schedule of charges as a monthly fee for a defined volume of WDR. To enable comparisons across off-river IOs, the fee was adjusted to per ML per annum amount for inclusion in the off-river typical irrigator bill. This occurred through converting the monthly charge to an annual one (\$1500 monthly fee multiplied by 12 months = \$18 000) and dividing it by the amount of WDRs to which the annual OMF charge relates (the relevant volume of WDR is assumed to be 1250 ML, based on previous Buddah Lake’s schedules of charges). The OMF per ML of WDR is \$14.40/ML.
- The ACCC assumes that the actual WaterNSW (\$2.97/ML) and DPIE fixed charges (\$1.69/ML) for the New South Wales Macquarie valley are fully passed through to Buddah Lake customers as part of the OMF. The difference between the sum of the actual WaterNSW and DPIE fixed charges (\$4.66/ML), and the total OMF per ML (\$14.40/ML) is assumed to be Buddah Lake’s fixed off-river infrastructure charge (\$9.74/ML).
- Government usage charges:
  - The WaterNSW (\$14.34/ML) and DPIE (\$1.82/ML) usage charges are fully passed through to Buddah Lake’s customers. These charges were deducted from Buddah Lake’s variable water charge of \$30/ML and this is now (\$13.84/ML).

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### 3.3.16 Trangie-Nevertire Irrigation Scheme, New South Wales Macquarie

Trangie-Nevertire Irrigation Scheme (Trangie-Nevertire) is a joint water supply scheme. The analysis assumes one irrigator in the Trangie-Nevertire network who does not incur supplementary water or contract pumping surcharges.

The 2018–19 typical irrigator bill analysis for Trangie-Nevertire includes the following charges listed on Trangie-Nevertire’s schedule of charges.

- Fixed charges:
  - Operating and maintenance (levied per ML of ‘delivery entitlement’ (WDR) held)
  - Government (WaterNSW & DPIE) fixed charge (levied per ML of water access licence share held).
- Variable charges:
  - Trangie-Nevertire pumping charge (levied per ML of water delivered ‘at farm gate’)<sup>25</sup>
  - Government (WaterNSW and DPIE) usage charge (levied per ML of water delivered at the farm gate).

The typical irrigator bill analysis makes the following assumptions:

- Government fixed charges:
  - a fixed charge per ML of delivery entitlement (i.e. WDR) as set out in Trangie-Nevertire’s schedule of charges (\$15.84/ML per annum)

<sup>25</sup> Trangie-Nevertire’s schedule of charges specifies variable charges both ‘at river’, and ‘at farm gate’. The farm gate charges include an additional amount to recover costs associated with assumed average off-river conveyance losses of 17 per cent relative to volumes delivered.

- the WaterNSW and DPIE charge of \$4.66/ML of WDR on Trangie-Nevertire's schedule equal exactly the regulated WaterNSW (\$2.97/ML) and DPIE (\$1.69) charges for the Macquarie valley. The only adjustment was the splitting out of both charges.
- Government usage charges:
  - a usage charge (Trangie-Nevertire pumping charge 'at farm gate') of \$22.24/ML
  - a division of the State Water usage charge at farm gate (\$17.76/ML) into WaterNSW and DPIE components. These are based on the regulated charges for WaterNSW in the Macquarie valley (\$14.34/ML) and for DPIE (\$1.82/ML), 'grossed up' to account for the distribution losses allowed for in Trangie-Nevertire's charges.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.17 Tenandra Irrigation Scheme, New South Wales Macquarie**

Tenandra Irrigation Scheme (Tenandra) is a joint water supply scheme. The 2018–19 typical irrigator bill analysis for Tenandra includes the following charges listed on its schedule of charges:

- the OMF – bottom scheme (levied per 'delivery share' held, see below)
- outlet fee (levied per outlet)
- outlet usage fee (levied per outlet used each year)
- pumping charge (levied per ML of water delivered)
- WaterNSW and DPIE fixed charges (levied per ML of share of WAE held). Note that these charges are not listed on Tenandra's charging schedule. However an examination of actual irrigator bills from this network shows that these government charges are listed separately on these bills.

Tenandra's OMFs is levied 'per delivery share'. The schedule states that the scheme's delivery entitlements are 20 ML of water delivered each year of delivery share. As such, the ACCC has applied a conversion factor of 1:20 (=0.05) to convert fixed charges from '\$ per delivery share' to '\$ per ML of WDR held'.

Tenandra's schedule does not list out the WaterNSW and DPIE charges passed through to customers:

- Government fixed charges:
  - charges including WaterNSW (\$2.97/ML) and DPIE (\$1.69/ML) are added separately to typical irrigator bills.

Government usage charges:

- included in the pumping charge.

As Tenandra released two schedule of charges during 2016–17 and maintained the same charges for 2017–18 and 2018–19, this analysis uses a weighted average of the two schedules.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

Tenandra does not have a website and therefore a 2018–19 schedule of charges is not available online.

### **3.3.18 Marthaguy Irrigation Scheme, New South Wales Macquarie**

Marthaguy Irrigation Scheme (Marthaguy) is a joint water supply scheme. The 2018–19 typical irrigator bill analysis includes the following charges listed on Marthaguy’s schedule of charges:

- Fixed charges:
  - OMF (levied per ML of WDR held)<sup>26</sup>
  - WaterNSW general security (levied per ML of share of WAE held)
  - DPIE general security (levied per ML of share of WAE held)
  - Macquarie River Food and Fibre (levied per ML of share of WAE held)
  - New South Wales Irrigators’ Council (levied per ML of share of WAE held).
- Variable charge:
  - Marthaguy pumping charge (levied per ML of water delivered).

The WaterNSW and DPIE fixed charges listed on Marthaguy’s schedule of charges are used for the ACCC’s typical irrigator bill analysis for Marthaguy as they equal the regulated WaterNSW and DPIE charges for the Macquarie valley.

While Marthaguy’s schedule does not show the variable charges for WaterNSW and DPIE, its pumping charge does include those charges. The 2018–19 WaterNSW charge was \$14.34/ML and DPIE was \$1.82/ML.

While the ACCC has made adjustments to the fixed government charges, they were not included in the final typical irrigator bills. As noted in section 3.3, the New South Wales Government announced on 14 August 2018 that it was waiving the fixed charge component of general security licence holders for the 2018–19 reference year. These changes however do allow us to measure the impact from the waiving of these fees for general security entitlement holders from what their bill would have been if these fees were included.

### **3.3.19 Mallowa Irrigation Limited (formally St George Water Supply Scheme) Sunwater Queensland**

As way of background, on 1 July 2018 the ownership and management of Sunwater’s St George Water Supply Scheme was transferred from the Queensland Government owned corporation to the irrigator owned entity Mallowa Irrigation Limited (Mallowa).

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<sup>26</sup> Marthaguy’s schedule of charges does not specify units for charges. The ACCC has assumed that WPM and on-river infrastructure fixed charges are passed through based on customers’ share of the jointly-held water access entitlement (WAE), while off-river infrastructure fixed charges are levied based on customers’ water delivery rights. However, since the typical irrigator bill analysis assumes customers hold an equivalent amount of water delivery right and share of the jointly held WAE, this assumption has no effect on typical irrigator bills.

The analysis applies the conversion of IR to an equivalent farm size because SunWater levies its drainage charge based on farm size in hectares.<sup>27</sup>

The 2018–19 typical irrigator bill analysis includes the following charges listed on Sunwater's schedule of charges:

- Fixed charge:
  - drainage charge (levied per hectare of irrigation land).
- Variable charges:
  - allocation water – bulk water charge – part B (levied per ML of water delivered)
  - allocation water – channel distribution – part D (levied per ML of water delivered).

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<sup>27</sup> The ACCC has assumed 0.4 hectares per ML, following consultation with SunWater.

## 4. Water planning and management spending and charges

### *Background*

This chapter relates to the analysis presented in chapter 6 of the Water Monitoring Report 2018–19 which covers water planning and management (WPM).

Basin state departments and water authorities undertake water planning and management activities to plan for and manage water resource sustainability. They are important because they:

- promote the long term sustainability of the resource, and maintain the health of natural ecosystems by minimising the impacts of water extraction
- are necessary to manage the impacts of past, current and future patterns of water extraction
- relate directly to the hydrology of surface and groundwater systems
- protect the integrity of the entitlement system and the security of users' authorised access to water.

Charges to recover the cost of these activities are imposed on water users by Basin state departments and water authorities.

This chapter sets out the assumptions and background information for chapter 6 of the Water Monitoring Report 2018–19:

- Section 4.1 describes the ACCC's approach to monitoring WPM activities and regulated WPM charges
- Section 4.2 provides information on the limitations affecting the collection and reporting of WPM data in the Murray–Darling Basin
- Section 4.3 presents an explanation of Basin states' and water authorities approach to WPM activities and charging, including the responsible entities, the activities undertaken and how charges are determined.

### **4.1 ACCC approach to monitoring water planning and management activities and charges**

The ACCC sends annual requests for information (RFIs) to five Basin State departments and four water authorities responsible for publishing information under the Water Charge (Planning and Management Information) Rules 2010 (WCPMIR).<sup>28</sup>

These RFIs seek information on the regulated water planning and management (WPM) charges imposed on water users and the revenues collected from each charge, as well as the WPM activities undertaken and the associated costs of each activity. The ACCC also collects information on WPM charges from information published by Basin state departments and water authorities where this was publically available to reduce the regulatory burden on these entities.

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<sup>28</sup> These are rules relating to charges for water planning and water management activities in the Murray–Darling Basin, and requiring the publication of the charge details and the process for determining the charge. Note that the Water Charge Rules replaced the Water Charge (Planning and Management Information) Rules 2010 on 1 July 2020.

The ACCC received the following information from the Basin state departments and water authorities:

- the quantity (either the number of times or volume) on which the charge was imposed, and the revenue raised from all WPM charges
- cost data and related categories for all WPM activities undertaken in Victoria, South Australia and New South Wales and the ACT.

Upon receipt of the RFI responses, the ACCC classifies each WPM charge according to the following definitions: transactions charge, water access right charge (either variable volumetric, fixed volumetric or non-volumetric), or broad-based levy. These charge definitions are explained in the glossary.

Conversely, for WPM activities, the ACCC asks relevant agencies to categorise each WPM activity into one of the seven categories specified in the National Water Initiative (NWI) as they have the best understanding of the work involved with each activity.<sup>29</sup> While individual activities do not always fit neatly into just one of these categories, the ACCC classifies each activity as only the category that fits best to avoid duplication and ensure consistency with previous reports. Reporting agencies also provide a breakdown of their WPM expenditure by capital, operating and corporate costs. The ACT is unable to break down costs by these cost types.

The ACCC maintains records of the data collected from RFI responses over time so that trends and changes between years can be identified, assessed and detailed in the report. Where notable shifts are identified, the ACCC seeks further information from the relevant agencies to clarify or explain the changes. Spending and revenue data from previous years is converted to real 2018–19 dollars.

Information from the 2018–19 RFIs was used to report on WPM spending, revenue and, where possible, the extent of cost recovery for WPM activities in the MDB. Due to data limitations (section 6.2), the ACCC was not able to provide estimates of the rate of WPM cost recovery for Victoria and Queensland.

Under section 91(2) and 91(3) of the *Water Act 2007* (the Water Act), regulated water charges are those charges that relate to MDB resources, infrastructure carrying MDB water resources or water access rights, irrigation rights or water delivery rights in relation to MDB water resources. However, the definition does not extend to charges for urban water supply activities beyond the point at which the water has been removed from a Basin water resource.<sup>30</sup> As such, the Water Act does not regulate water resources that are either outside the MDB or which relate to urban water supply and the WCPMIR do not apply in these circumstances.

## 4.2 Water planning and management data limitations

The WPM data provided to the ACCC by reporting authorities faces a number of limitations, such as a number of agencies reporting that WPM data is not collected based on MDB boundaries. New South Wales Department of Planning, Industry and Environment (DPIE) reported that supplied WPM expenditure data is not actual data, but rather derived based on Independent Pricing and Regulatory Tribunal (IPART) endorsed drivers. The costs for each activity is provided to IPART for review as well as what proportion is to be recovered from

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<sup>29</sup> The WPM activity categories in the NWI are: water reform strategy and policy, water planning, water management, water monitoring and evaluation, information management and reporting, water administration and regulation and water industry regulation. See *National Water Initiative Pricing Principles*, 2004, appendix B, pp. 19–21, <http://www.agriculture.gov.au/SiteCollectionDocuments/water/national-water-initiative-pricing-principles.pdf>, viewed 17 February 2020.

<sup>30</sup> *Water Act 2007*, section 91(3).

users through DPIE charges. IPART then makes a determination on the proportion which is to be recovered from users with the remaining percentage funded by the NSW government.

Victoria's Department of Environment, Land, Water and Planning (DELWP) has reported it is unable to disaggregate data for expenditure on WPM activities incurred specifically within the MDB, and so supplies state-wide WPM spending data. The Queensland Department of Natural Resources, Mining and Energy (DNRME) has informed the ACCC that it is unable to provide cost data as the MDB forms only a small proportion of Queensland's total water and it cannot separate MDB-specific data from state-wide data.

For New South Wales WPM revenue data, the ACCC has where possible, limited charge revenue to just that collected from within the MDB. However, this is not possible for several charges (such as water application fees and metering charges). Additionally, based on the data provided, the ACCC is not able to separate MDB specific data for most charges before 2015-16.

DELWP has reported that while most of its WPM revenue can be allocated to the MDB, it is unable to accurately specify revenue from its largest charge, the Environmental Contribution levy, to users in the MDB. DELWP provided the ACCC with the total amount paid towards this levy by all Victorian water corporations operating at least partly in the MDB, but because some of these corporations also operate outside the MDB, the figures may be overstated.

New South Wales also reported that inconsistent handover and reporting processes associated with the division of WPM responsibilities between DPIE and WaterNSW (explained in the Water Monitoring Report 2016-17) may affect the accuracy of WPM cost and revenue data for 2016-17 and 2017-18.

Finally, in collecting and querying the 2017-18 WPM data, the ACCC received a number of revisions to data submitted in previous years by Basin states and water authorities. For this reason, some WPM data reported in the Water Monitoring Report 2018-19 may not align with that included in previous years' reports.

### **4.3 Basin states' approaches to water planning and management spending and charging**

Basin state departments and water authorities, at least partially, recover the cost of their WPM activities through charges imposed on water users. This section sets out:

- the entities that collect WPM charges and undertake WPM activities in each Basin state
- the types of WPM activities undertaken in each Basin state
- how WPM charges are determined in each Basin state.

#### **4.3.1 New South Wales**

In New South Wales, WPM activities are primarily undertaken by DPIE and WaterNSW. This follows the transfer of a number of functions from the Department of Industry to WaterNSW in 2016-17 (see section 3.1.1 of the Water Monitoring Report 2016-17). WaterNSW collects WPM charges on behalf of DPIE in addition to collecting its own fixed and variable water access right charges. Additionally, responsibilities for granting and managing water licences and approvals are shared between WaterNSW and the recently formed Natural Resources Access Regulator (further information can be found in section 7.1.1 of the 2017-18 Water Monitoring Report). Both DPIE and WaterNSW provided a breakdown of the costs of their WPM activities by NWI activity to the ACCC. The analysis in the 2018-19 report does not include the information regarding WPM charges imposed by NSW Land Registry Services or the Natural Resource Access Regulator.

WPM charges in New South Wales for 2018–19 were set by of the following entities:

- IPART sets the maximum charges that can be applied for the monopoly services WaterNSW delivers on behalf of the DPIE.<sup>31</sup> These charges include:
  - fixed access (based on water entitlement held) and variable (based on actual water usage) water management charges for each valley to recover a percentage of DPIE's WPM costs in the relevant valley or system
  - transaction charges including 'fees to cover the assessment and processing costs of applications for access licences, water supply work approvals, water use approvals and access licence dealings lodged under the *Water Management Act 2000* [NSW]'.<sup>32</sup>
- IPART also set maximum regulated charges for allocation trade processing and certain other WPM activities undertaken by WaterNSW for 2018–19. WaterNSW carries out these activities as part of its water licence conditions. The ACCC set maximum charges for these activities from 2014–15 to 2016–17.
- The relevant Minister sets fees relating to registration of water licences, trades, approvals and other registry functions.<sup>33</sup> The New South Wales Water Register is administered by WaterNSW but the Water Access License Register is maintained by the New South Wales Land Registry Services.<sup>34</sup>

### 4.3.2 Victoria

In Victoria, there are a number of entities that are involved in WPM activities. DELWP manages groundwater, catchments and waterways, infrastructure, water saving and re-use projects, flood management, governance and water legislation. The funding of these activities largely comes from the Victorian Environmental Contribution. The Victorian Environmental Contribution is set by the Victorian Minister for Water, under a Ministerial Order-in-Council pursuant to the *Water Industry Act 1994* Victoria, as a fixed percentage of the revenue raised from the allowed revenue of water authorities (5 per cent of revenue from urban water authorities and 2 per cent of revenue from rural water authorities respectively).<sup>35</sup> DELWP also collects WPM revenue through charges for services provided by the Victorian Water Register (VWR) and salinity management charges imposed in salinity management zones.

Under the *Water Act 1989* (Vic), local water authorities (Goulburn–Murray Water (GMW), Lower Murray Water (LMW) and GWMWater) are the approval authorities for water share trades and similar dealings, such as transferring, dividing, consolidating, issuing and cancelling a water share, and for approving the trade of water allocations. Most of these

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<sup>31</sup> The DPIE WPM charges that IPART set include: the fixed volumetric charges (charged per ML of entitlements); variable volumetric charges (charged per ML of based on water usage); a minimum annual charge for water license holders; meter reading/assessment charges relating to water users with privately owned meters in unregulated rivers and groundwater sources, ancillary service charges (related to metering); and transaction charges relating to application fees for issuing and amending water access licenses, performing water allocation assignments and works approvals. See IPART, *Review of prices for the Water Administration Ministerial Corporation—Final Report*, June 2016, pp. 9-18. <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-legislative-requirements-water-bulk-water-water-administration-ministerial-corporation-nsw-office-of-water-pricing-review-commencing-1-july-2016/final-report-review-of-prices-for-the-water-administration-ministerial-corporation-from-1-july-2016.pdf>, viewed 20 February 2020

<sup>32</sup> WaterNSW, 'Application fees', <https://www.waternsw.com.au/customer-service/water-licensing/applications-and-fees>, viewed 17 February 2020.

<sup>33</sup> *Water Management Act 2000* (NSW), section 114

<sup>34</sup> WaterNSW, 'NSW Water Register', <https://waterregister.waternsw.com.au/water-register-frame>, viewed 17 February 2020; NSW Land Registry Services, 'Water access licence register', [http://www.nswlrs.com.au/land\\_titles/public\\_registers/water\\_access\\_licence\\_register](http://www.nswlrs.com.au/land_titles/public_registers/water_access_licence_register), viewed 17 February 2020.

<sup>35</sup> These revenues exclude revenue from bulk water services, bulk sewerage services, metropolitan drainage and water services and certain other revenue sources.

transactions must be registered with the VWR to take effect.<sup>36</sup> Maximum application fees for these approvals are set by the Victorian Minister for Water under the Water (Resource Management) Regulations 2007. These are set in terms of dollars or fee units. Fee units are set in accordance with the *Victorian Monetary Units Act 2004*.

In 2018–19, GMW collected its WPM revenue entirely through transaction charges levied in the MDB. GMMWater gathered its revenue from a combination of water access right charges (variable and non-volumetric) and transaction charges levied in the MDB. LMW's WPM revenue was raised through a combination of transaction charges and fixed and non-volumetric water access right charges.

These local water authorities also undertake various other miscellaneous WPM activities. These miscellaneous services are part of a range of prescribed services under the Water Industry Regulatory Order for non-infrastructure related services and under the Water Charge (Infrastructure) Rules (WCIR) for infrastructure related services, and are subject to price regulation by the Essential Services Commission Victoria.<sup>37</sup>

The VWR processes the lodgement of water share dealings approved by local water authorities. Maximum application fees for these lodgements are set by the Minister under the Water (Resource Management) Regulations 2007. These are set in terms of fee units in accordance with the *Victorian Monetary Units Act 2004*.

Further activities are delegated to catchment management authorities and the Victorian Environment Protection Authority. These catchment management authorities receive funds from local water authorities for the purpose of salinity management. The charges<sup>38</sup> which raise these salinity management funds are set in accordance with the Victorian Government's *Policies for Managing Water-Use Licences in Salinity Impact Zones*. These charges were set in 2006–07 and have increased in line with the consumer price index since that time.<sup>39</sup>

### 4.3.3 South Australia

The Department of Environment and Water (DEW) performs the majority of WPM activities in South Australia along with various local Natural Resources Management (NRM) Boards. The South Australian Murray–Darling Basin Natural Resources Management Board is responsible for WPM in the South Australian MDB.

The South Australian Government replaced the Natural Resources Management Act 2001 (SA) with the Landscape South Australia 2019 (SA) on 21 November 2019.<sup>40</sup> This new Act will transfer responsibility for WPM activities and charges from the existing natural resource management boards to eight new regional landscape boards. The Government has claimed that the new Act will decentralise decision making, land and water levy increases to be capped at CPI, and from 2022, communities will be able elect three of the seven members of the regional landscape boards.

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<sup>36</sup> Transfer of water allocations must be approved by the local water authority. The transfer does not need to be lodged with the Victorian Water Registrar to take effect.

<sup>37</sup> Essential Services Commission (Victoria), *Price Review 2013: Rural Water Businesses – Final Decision*, June 2013, p.67, <https://www.esc.vic.gov.au/sites/default/files/documents/318948ed-1c0f-4849-b81f-7ae4809f154d.pdf>, viewed 17 February 2020

<sup>38</sup> For GMW, these salinity charges are the 'operation and maintenance charge' and the 'capital charge'. For LMW, these salinity charges are the salinity disposal fees and the 'Operations and Maintenance Charge'. See GMW, '2018/19 Prices', [https://www.g-mwater.com.au/downloads/gmw/Pricing\\_List/20180703\\_GMW\\_2018\\_Pricing\\_List\\_web.pdf](https://www.g-mwater.com.au/downloads/gmw/Pricing_List/20180703_GMW_2018_Pricing_List_web.pdf) viewed 17 February 2020; LMW's 2018–19 schedule of charges is no longer available online.

<sup>39</sup> Minister for Water, Environment and Climate Change, *Policies for Managing Water-Use Licences in Salinity Impact Zones*, pp. 5-8, [https://waterregister.vic.gov.au/images/documents/water\\_use\\_licences\\_in\\_salinity\\_impact\\_zone\\_policies.pdf](https://waterregister.vic.gov.au/images/documents/water_use_licences_in_salinity_impact_zone_policies.pdf), viewed 17 February 2020.

<sup>40</sup> Department for Environment and Water (SA), *Natural resources management – Changing NRM in South Australia*, 2020, <https://www.environment.sa.gov.au/topics/natural-resources-management>, viewed 13 January 2020

The Minister (currently the South Australian Minister for Environment and Water) determines WPM charges under the *Natural Resource Management Act 2004* (SA) and Natural Resources Management (General) Regulations 2005 (SA). This includes an individual NRM Water Levy for each NRM Board area in South Australia, transaction fees and metering charges. In the MDB, the NRM Levy is charged based on the volume of each class of water access entitlement held, making it a fixed volumetric water access right charge, but also includes a minimum charge, giving it a non-volumetric component. The NRM water levy may be calculated on a different basis in each NRM area.

#### **4.3.4 Queensland**

Most WPM activities in Queensland are carried out by the Department of Natural Resources, Mines and Energy (DNRME). SunWater also undertakes some of these activities as part of its water licence conditions.

Regulated WPM charges are determined by the Queensland Government as per Schedules 12, 13 and 14 of the Water Regulation 2016 made under the *Water Act 2000* (Qld):

- Schedules 12 and 13 cover meter-related charges as well as fees for various applications, lodgement and other miscellaneous fees including: fees to amalgamate or subdivide water allocations,<sup>41</sup> a fee to create separate titles for water allocations, a water licence application fee, a fee to lodge in the registry an instrument that changes ownership of a water allocation or an interest in a water allocation and search fees.
- Schedule 14 covers water harvesting charges applying throughout Queensland (i.e. including MDB and non-MDB areas).

DNRME reports WPM revenue relating to the following types of regulated charges:

- surface and groundwater management area fees (both water access entitlement and usage)
- water licence fees (including transaction revenue from the stakeholders trading, amalgamating and cancelling water allocations)
- metering charges
- print outs of titles relating to water allocations
- registration of instrument fees
- other transaction charges.

DNRME has advised the ACCC that it is unable to separate MDB-specific WPM activities from its state-wide spending.

#### **4.3.5 Australian Capital Territory**

In the ACT, the Chief Minister, Treasury and Economic Development Directorate, the Territory and Municipal Services Directorate, the Environment, Planning and Sustainable Development Directorate (EPSDD), the Environment Protection Authority and ICON Water all undertake WPM activities. The EPSDD provided a breakdown of the costs of WPM activities to the ACCC by NWI category. The EPSDD is unable to break down costs between operating, capital and corporate costs.

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<sup>41</sup> Note: in Queensland, the term 'water allocation' refers to a water access entitlement. .

WPM charges are set by the relevant Minister (currently the Minister for Environment and Heritage) under section 107 of the *Water Resources Act 2007* (ACT). The Water Resources (Fees) Determination 2017 (No 1) sets out the level of regulated WPM charges for 2017–18.<sup>42</sup> The ACT Government's total WPM revenue for 2017–18 is based on revenue collected from:

- the water abstraction charge
- various transaction charges.

The water abstraction charge is applied to urban water usage and rural water usage; the charge comprised 99 per cent of the reported revenue. The majority of the revenue collected under the water abstraction charge was received from urban water users rather than rural users (irrigators).

#### **4.3.6 Murray–Darling Basin Authority**

WPM activities are carried out by the Murray–Darling Basin Authority (MDBA). However, the MDBA did not impose any regulated WPM charges in 2018–19 (and has not imposed charges over the period for which the ACCC has been monitoring regulated charges). Under the Murray–Darling Basin Agreement, the Commonwealth and Basin states share responsibility for funding the MDBA's 'joint programs', which include WPM and infrastructure related activities (section 2.4 below and section 6.3 of the Water Monitoring Report 2018–19).

### **4.4 Murray Darling Basin Authority joint program contributions**

The ACCC collected data on Basin jurisdictions' contributions to the MDBA's joint program funding from the MDBA's 2018–19 annual report, rather than through the RFI process followed for WPM data.<sup>43</sup> As with WPM data, joint program funding data is maintained over a number of years to provide insight into trends over time. To maintain consistency with the data reported in the MDBA's annual reports, joint program funding is reported in nominal terms in the Water Monitoring Report 2018–19.

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<sup>42</sup> Water Resources (Fees) Determination 2017, see <https://www.legislation.act.gov.au/View/di/2018-171/20180701-69103/PDF/2018-171.PDF>, viewed 20 February 2020.

<sup>43</sup> MDBA, Annual report 2018–19, <https://www.mdba.gov.au/sites/default/files/pubs/mdba-annual-report-2018-19.pdf>, viewed 18 February 2020.