

Murrumbidgee Inter-Valley Trade account (IVT)

Objective

The aim of this fact sheet is to present the fundamentals of the Murrumbidgee Inter-Valley Trade (IVT) account operation.

Market sensitive information

This paper does not propose any amendments to the existing operation of the IVT, trade rules or trade strategies, and therefore does not constitute a 'water announcement' or market sensitive information.

What is the IVT?

In the Southern Connected Basin, water can be traded between the Murrumbidgee, NSW Murray, NSW Lower Darling, Victorian and South Australian regulated river water sources¹. The Inter-Valley Trade account (IVT) reflects the **net balance** of surface water volume that has been temporary traded or tagged traded **out** of the Murrumbidgee Regulated River water source at any point in time and that is therefore still owed to the Murray as a result of those trades. All categories of licence permitted to trade can affect the IVT balance.

Murrumbidgee trade

When water is temporarily traded from the Murrumbidgee to the Murray, the Murrumbidgee water user's account is immediately debited and the Murray water user's account is simultaneously credited.

MDBA's River Murray Operations (RMO), who operate the Murray, meets the immediate increased demand in the Murray with Murray water in the first instance, with a view to 'calling out' the physical Murrumbidgee water later. This is effectively a 'borrow' of Murray water to fulfil the trade until 'payback' from the Murrumbidgee is physically delivered at a later date.

How the IVT works

The IVT account reflects the volume of undelivered Murray water in the Murrumbidgee at any point in time. It is effectively the water physically owed to the Murray, and callable when needed, to reflect prior paper trade.

Trade influences the IVT balance in the following ways:

- When water is temporary traded **out** of the Murrumbidgee the IVT account balance **increases**.
- When water is temporary traded **into** the Murrumbidgee the IVT account balance **reduces** (also known as back-trade)

Physical delivery of water – effectively paying off the borrow - also **reduces** the account balance:

- When water is physically delivered from the Murrumbidgee to the Murray the IVT reduces. The delivery volume is measured at Balranald, near the confluence with the Murray.
- Water is very occasionally physically delivered from the Murray to the Murrumbidgee (into Billabong Creek) using Murray Irrigation Limited infrastructure, subject to agreement. This increases the IVT.

¹ Schedule D of the Murray Darling Basin Agreement and its Protocols set out the zones between which trade is permitted. Refer to Appendix A for details.

- Water can be physically transferred between the Murray and Murrumbidgee systems through the Snowy Scheme. Conditions are rarely suitable and cooperation from Snowy Hydro Limited is required. Such transfers have been arranged in extraordinary circumstances in the past. Transfers are given effect by adjusting the Murrumbidgee or Murray Required Annual Release (RAR). Depending on the direction of the transfer this will increase or decrease the IVT. This is not a preferred approach, as Snowy Hydro Ltd has no legal obligation to perform these transfers.

IVT operating limits

The IVT account is operated between lower and upper volumetric limits. Once the account balance reaches either limit, and moves beyond the acceptable operating range, trade is closed. The limits are in place to address physical constraints and avoid potential impacts on water availability to water users not involved in trade (called 'third party impacts'). Trade is intended to operate without impact to third-parties. Exceedance of the limits has different implications for third-parties. Exceedance of the lower limit (a negative IVT balance) produces an immediate third-party impact. Exceedance of the upper limit (greater than 100GL) produces an increasing risk of third-party impact. This is explained further below.

Lower Limit (0 GL)

The lower operating limit is set at 0 GL. This means that there is no water owed from the Murrumbidgee to the Murray. At this point, if any trade were to occur from the Murray to the Murrumbidgee, then the IVT balance would become negative, meaning water would be 'owed' instead from the Murray to the Murrumbidgee. There can be no circumstance permitted where the Murray 'owes' the Murrumbidgee water, because water cannot be readily delivered uphill from the Murray to the Murrumbidgee to repay this debt. Therefore when the IVT reaches the lower limit of 0 GL, trade **into** the Murrumbidgee is closed. Trade **into** the Murrumbidgee is reopened when a positive IVT account balance of 15 GL is achieved through trades occurring **out** of the Murrumbidgee.

Upper Limit (100 GL)

The upper operating limit is 100 GL. A large IVT balance means that the Murrumbidgee owes the Murray a large volume of water to repay trades. This (Murray) water is occupying Murrumbidgee storage space waiting to be physically delivered when River Murray Operations calls out the water. The upper limit therefore establishes that no more than 100 GL of water can accrue as undelivered trade water.

It has been set to minimise third party impacts during very wet or very dry conditions. Under wet conditions, large volumes of Murray water in Murrumbidgee storages can prevent inflows from being captured and stored for the benefit of Murrumbidgee water users. The Murray water can prevent an allocation increase to Murrumbidgee water users. Additionally, if the IVT portion of the storage is determined to be spilled by NSW water managers then Murray water users lose some of their resource and are adversely affected. (Spill rules are discussed later in more detail).

Under very dry conditions significant transmission losses can occur when large volumes of IVT water need to be delivered from Murrumbidgee storages through the length of the system to the Murray. Such losses are socialised within the Murrumbidgee system, meaning reduced water availability for Murrumbidgee water users. Effectively non-trade water users are required to contribute proportionally much more water during very dry conditions to the delivery of trade water. In other words, the 100 GL limit is set to limit the exposure of third-party water users to the 'cost' of high transmission losses associated with trade water delivery to the Murray in very dry times.

The 100 GL limit represents approximately five per cent of general security allocations in the Murrumbidgee system and is viewed as an acceptable level of risk to third parties. Once the upper limit is reached, trade out of the Murrumbidgee system is closed. Trade out of the Murrumbidgee is reopened when the IVT balance is reduced to 85 GL by trades occurring into the Murrumbidgee or physical delivery of water from the valley.

Trade closures and openings

The following statements summarise the trade closure rules described previously:

- **Trade into the Murrumbidgee:** closes when the IVT balance is zero and reopens when the IVT balance increases to 15 GL.
- **Trade out of the Murrumbidgee:** closes when the IVT balance is 100 GL and reopens when the IVT balance reduces to 85 GL.

Interstate temporary trade to or from the Murrumbidgee closes each year on the 30th April, regardless of the IVT balance. This is to allow accurate assessment of Murrumbidgee's available water determination (AWD) for the following water year, and protects NSW water users from the uncertainty of a potentially large liability to deliver trade water over the following water year.

Currently, all other temporary trade related to the Murrumbidgee closes on the 31st May.

Callouts by MBDA River Operations

MBDA River Murray Operations uses the IVT accounts (Goulburn and Murrumbidgee) to meet River Murray System demands efficiently by reducing the amount of water required for releases from headwater storage. Rivers operators see the IVT accounts as effectively extra 'Murray' storages that can be used when needed to meet demands. Actual deliveries of IVT water occur mostly between October and April. During this time, IVT delivery is of particular importance in assisting meeting peak summer and autumn demands downstream of the Barmah Choke as it can help overcome channel capacity limits at points in the River Murray System.

Initial plans for the likely need to 'call out' IVT water are put forward each water year by the MBDA and then refined in liaison with basin states throughout the year, as actual deliveries are arranged and take place. Plans respond to factors such as volumes and directions of trades, prevailing and forecast inflow conditions and overall demand requirements.

Details on how and where IVT deliveries are made and accounted for are documented in the River Murray System Operations Reference Manual.

Tagged trading

Tagged trading adds some complexity to the IVT. Tagged trading is a dealing that occurs when a licence holder within a valley nominates to extract the allocation under their entitlement in a different water source. For example, a licence in the Murrumbidgee may establish a tag to a pump in the Murray, such that Murray water is used but the Murrumbidgee account is debited. Water ordered under tagged licences count towards the IVT balance, in a similar way to temporary trade between two locations.

Under Clause 12.23 of the Basin Plan, water ordered under a tagged 'water access entitlement' is subject to the same restrictions as temporary trade. Therefore orders under a tagged licence are subject to the restrictions of the upper and lower IVT limits. However, it is currently interpreted that subclause 12.23(2) creates an exemption for 'water access entitlement' where a tag was established prior to 22 October 2010. This means that some orders may legally be allowed to push the IVT account outside its upper and lower limits. As discussed above, this has the potential to cause impacts on Murrumbidgee water users.

Spills of the IVT

When a spill occurs from a Murrumbidgee storage it could be seen as a spill of the IVT or of Murrumbidgee water. The decision as to which spills is currently discretionary. Water managers base this decision on relative water availability in the NSW Murray or Murrumbidgee: if Murrumbidgee had greater availability then it would be deemed more appropriate for the Murrumbidgee water to spill meaning a loss of resource to Murrumbidgee water users; conversely if the Murray had greater availability then a decision to spill the IVT would be made

which could result in a loss of resource for the NSW Murray. IVT spill management is currently being reviewed as part of the multilateral Flexible Trade Adjustment project, including the codification of existing spill practices.

Historic and recent operation

Figure 1 (overleaf) displays the IVT balance at the beginning of each water year since 2004. It also shows the factors that influence the IVT account balance, including: trade out of the Murrumbidgee; trade into the Murrumbidgee; tagged trade to and from the Murrumbidgee; physical payback to the Murray via Balranald or the Snowy; and physical payback to Murrumbidgee via Murray Irrigation infrastructure.

Historically, trades have occurred in and out of the valley, generally allowing the IVT account balance to fluctuate within the normal operating range.

Under severe water shortage conditions during the Millennium drought, the water sharing plans were suspended and the IVT trade limits were relaxed to allow relatively small volumes of water to be sold to generate survival cash flow for families, and to allow the accumulation of purchased water sufficient to support some cropping.

When water recovery began, the massive IVT balance that accrued from about 2007 to 2010 was discharged by negotiating with Snowy Hydro Limited the delivery of a large volume of IVT water from the Murrumbidgee to the Murray through the Snowy Scheme and into the upper Murray. By 2010-11 the IVT balance was restored to within its normal operating range and the trade limits re-instated.

In 2018, the IVT balance was reduced below the lower IVT limit, to approximately -18 GL as a result of non-standard tagged trade. Since that time, trade from the Murrumbidgee to the Murray has increased the IVT balance and at December 2018 the IVT balance is approximately 2GL.

Legislative context

In NSW, the trade of water between valleys in the Southern Connected Basin is controlled by the following legislation:

- Schedule D of the Murray Darling Basin Agreement (the Agreement), and its Protocols
- The trade rules in Chapter 12 of the Basin Plan
- The WSP for the Murrumbidgee Regulated River Water Source (2016)
- The WSP for the NSW Murray and Lower Darling Regulated Rivers Water Sources (2016)
- The Access Licence Dealings Principles Order 2004

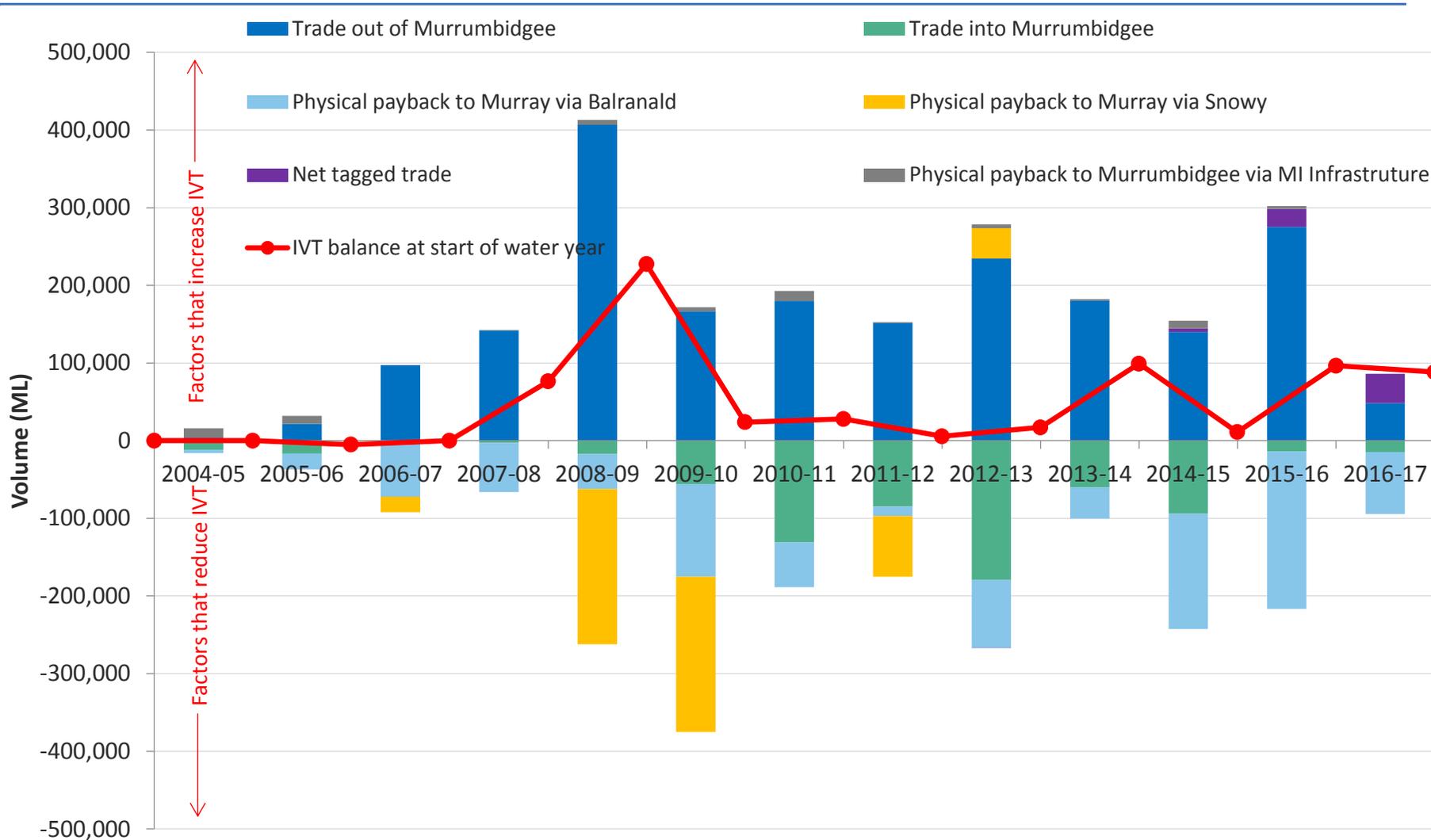


Figure 1 - IVT account balance at the start of each water year (in red) as well as the factors that influence the IVT account balance, including: trade out of the Murrumbidgee; trade into the Murrumbidgee; tagged trade to and from the Murrumbidgee; physical payback to the Murray via Balranald or the Snowy; and physical payback to Murrumbidgee via Murrumbidgee Irrigation infrastructure. Positive values increase the IVT account balance, whilst negative values reduce the IVT account balance

Jurisdictional responsibilities

The following organisations have jurisdictional responsibilities in relation to the IVT:

- **DoI Water** is responsible for developing and enforcing the rules relating to the IVT as detailed in the relevant WSPs and Access Licence Dealing Principles Order 2004. The rules seek to maintain an active trade market whilst protecting third parties and the physical riverine environment.
- **WaterNSW** is responsible for administering temporary trades and orders against tagged licences. WaterNSW maintains a running calculation of the IVT balance which is published on its website.
- **MDBA's RMO** is responsible for efficient River Murray operations and 'calling' IVT water when most useful to the Murray. RMO's primary responsibility is therefore to effectively and efficiently manage the Murray system operational requirements and risk. However, while meeting this responsibility, RMO must consider actions that will keep State trade open whilst balancing the need to water in the IVT to overcome potential shortages at times of peak demand. Therefore RMO will consider using IVT to meet Murray needs, in preference to calling water from the upper Murray storages, if either source of water would efficiently meet the required demand and if the IVT balance is close to the upper limits. However, RMO will not 'call' such IVT water if there is a risk that it will not be useful to the Murray.
- **The MDBA** is responsible for administering Schedule D of the Agreement and for auditing compliance with the Basin Plan trade rules.

Appendix 1

Table A 1 Permissible trades to and from the Murrumbidgee, based on ‘Schedule D Permissible Transfers Between Trading Zones Protocol 2010’ under the Murray-Darling Basin Agreement. Note that other valleys have their own limits which may prevent trade with the Murrumbidgee at any time.

Zone	Transfer permitted TO:	Transfers permitted FROM:
Murrumbidgee	Permanent, temporary and tagged trade permitted to: <ul style="list-style-type: none"> • Vic Murray above Barmah Choke • Vic Murray from Barmah Choke to SA border • NSW Murray above the Barmah Choke • NSW Murray below the Barmah Choke • South Australian Murray 	Permanent, temporary and tagged trade permitted from: <ul style="list-style-type: none"> • None
	Back trade only, and no tagged trade, to: <ul style="list-style-type: none"> • Greater Goulburn (Vic) • Lower Goulburn (Vic) • Campaspe (Vic) • Lower Campaspe (Vic) • Part Loddon (Vic) • Lower Broken Creek (Vic) • Lower Darling 	Back trade only, and no tagged trade, to: <ul style="list-style-type: none"> • Greater Goulburn (Vic) • Lower Goulburn (Vic) • Campaspe (Vic) • Lower Campaspe (Vic) • Part Loddon (Vic) • Vic Murray above Barmah Choke • Lower Broken Creek (Vic) • Vic Murray from Barmah Choke to SA border • NSW Murray above the Barmah Choke • NSW Murray below the Barmah Choke • South Australian Murray • Lower Darling