Chapter 7. Victoria’s water entitlement framework and trade
7. Victoria’s water access and trading framework

This Chapter outlines Victoria’s water entitlement framework and addresses Basin Plan requirements relating to groundwater trade. This Chapter meets Part 8 of Chapter 10 of the Basin Plan.

7.1 Victorian water entitlement framework

The volume of water authorised to be taken in Victoria is specified in a water entitlement or allowed for under a statutory right. The Victorian water entitlement framework is designed to ensure that individual entitlements to water are explicit, enforceable and, in appropriate circumstances, tradable.

A strong regulatory framework is an essential element in the management of water resources. The Victorian Water Act introduced in 1989 represented a fundamental change to the management arrangements for water in Victoria. It set out the framework for water resource management and provided for a secure system of rights and entitlements.

This legislation and a subsequent reform agenda produced major changes to the way water is managed in Victoria. This included the conversion of poorly defined rights to bulk entitlements, the process to trade water, the ability to separate water from land titles and the recognition of the needs of the environment.

The Victorian Water Act provides rights to water for domestic and stock use and Traditional Owner use, and water entitlements for both consumptive and environmental purposes. Consumptive uses include the supply of urban drinking water, irrigation, industrial uses and power generation. Environmental uses include delivery of water to important environmental sites such as wetlands and water flowing in waterways.

Entitlement holders are responsible for managing their own water needs as well as the risks of any water scarcity.

Existing entitlements are protected by the statutory framework which ensures the amount of water that can be taken is capped and makes it an offence to take water without authorisation. It also supports water access by allowing users to trade entitlement and allocation, which gives them the flexibility to manage their individual water needs.
7.2 Water rights and entitlements

The Victorian Water Act establishes the statutory rights and entitlements that apply in Victoria. These are supported by provisions which make it an offence to take water from a specified water source, including a waterway or aquifer, unless authorised to do so under the Act.

Authorised forms of take are set out in the Act:

- under a right (section 8 or section 8A),
- under an entitlement issued in accordance with the Act, or
- by another authorisation allowed for under the Act

Statutory rights and entitlements under the Victorian Water Act are referred to as 'water access rights' under the Commonwealth Water Act and Basin Plan. A water resource plan must identify the types of water access rights (rights or entitlements) available in the water resource plan area to authorise the take and storage of water. The relevant water access rights in Victoria's North and Murray water resource plan area are outlined in Table A and Table B of Victoria’s North and Murray Index Table.

Basin Plan also requires a water resource plan to include an obligation on the holder of a water access right (statutory rights or entitlements) to comply with the conditions on their water access right.

Figure 7-1 and Table 7-1 show the ways water may be taken and used in accordance with the Victorian Water Act in Victoria’s North and Murray water resource plan area.

The holder of a water access right must comply with the conditions specified in the water access right instrument.

Note: The types of conditions that may be imposed on a water access right are identified in Tables A and B attached to Victoria’s North and Murray Index Table for surface and groundwater respectively.

<<end of accredited text for s10.08(2) of the Basin Plan>>
Figure 7-1: Take and use of water in Victoria’s North and Murray water resource plan area
## Table 7-1: Take and use of water in Victoria’s North and Murray water resource plan area

<table>
<thead>
<tr>
<th>Use</th>
<th>Method of take</th>
<th>Entitlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Domestic and stock</td>
<td>Take from a waterway (surface water) or from an aquifer (groundwater).</td>
<td>• Statutory right – section 8 of the Victorian Water Act for domestic and stock purposes</td>
</tr>
<tr>
<td>2 Traditional Owner</td>
<td>Take from a waterway (surface water) or from an aquifer (groundwater).</td>
<td>• Statutory right – section 8A of the Act for Traditional Owner groups to use water for traditional purposes, where there is a relevant agreement</td>
</tr>
<tr>
<td>3 Environmental</td>
<td>Take from a waterway or instream take (surface water)</td>
<td>• Bulk entitlement, environmental entitlement or water share held by Victorian Environmental Water Holder, Murray-Darling Basin Authority and Commonwealth Environmental Water Holder (held environmental water)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Where applicable rules-based water including minimum flows for rosters and bans set out in management plans (planned environmental water)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Other water that contributes to the environment including above cap water and system water</td>
</tr>
<tr>
<td>4 Any</td>
<td>Rain collected from roofs</td>
<td>• Exempted from requirement to hold entitlement. People or businesses may collect and store water that falls on their roof without seeking authorisation to collect, store and use that water</td>
</tr>
<tr>
<td>5 Any</td>
<td>Interception by a farm dam or ‘runoff dam’ (surface water)</td>
<td>• Statutory right – section 8 of the Victorian Water Act for domestic and stock purposes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A take and use licence issued under section 51 of the Victorian Water Act</td>
</tr>
</tbody>
</table>
| 6 Irrigation or commercial: surface water | Take from a waterway or channel where there is a dam controlling flow (regulated surface water system), and take from a waterway where there is no dam controlling flow (unregulated surface water system) | • Water share if take is from a system which is a declared water system  
• A take and use licence issued under section 51 of the Victorian Water Act  
• Supply by agreement                                                                                                                                 |
| 7 Any              | Take from an aquifer (groundwater)                                             | • Statutory right – right to water under section 8 of the Act for domestic and stock use  
• Take and use licence issued under section 51 of the Victorian Water Act |
| 8 Plantation       | Interception                                                                   | • Currently outside the entitlement framework                                                                                  |
7.2.1 Statutory rights

Sections 8 and 8A of the Victorian Water Act provide for statutory rights to take water that apply without the need to obtain further authorisation from the Minister. These rights allow a person to take and use water in certain circumstances and under certain conditions. They are available only in the circumstances and for the specific uses as set out in the Victorian Water Act and there are limitations on who may exercise this right.

These are rights referred to as ‘basic rights’ in the Commonwealth Water Act and Basin Plan.

Basin Plan requires the water resource plan to identify how much water is taken for each type of water access right. While the volume of water taken under these rights is not tightly regulated as with entitlements, it is limited by the scope of the right (explained below). How the volume of water taken under statutory rights (basic rights) is outlined in Table 9-4 of Chapter 9 and Table 6 of the Methods Report at Appendix C.

7.2.1.1 Domestic and stock rights

Domestic and stock rights, also known as section 8 rights, provide the right in specified circumstances for a person to take water for their personal use for the purposes established in the Victorian Water Act.

Specified circumstances include, take from a farm dam or where a person has access to the water because they occupy the land adjacent to a waterway and that waterway has remained the property of the Crown, or they occupy a bore from which the water may be taken.

Water taken for domestic and stock purposes may only be used for:

- household purposes
- pets
- cattle or other stock
• on the land around a house and outbuilding, to a maximum of 1.2 ha for fire prevention purposes with water from a spring or soak or dam
• watering a kitchen garden

With the exception of water used on land for fire prevention purposes which may be taken as set out above, water may be taken from a:

• spring
• soak
• dam
• waterway
• groundwater

Broadly speaking, a ‘kitchen garden’ for this purpose is a domestic garden from which no produce is sold. Use for commercial purposes such as dairies, piggeries, feedlots, poultry or intensive or commercial use is excluded.

7.2.1.2 Traditional Owner rights

Section 8A of the Victorian Water Act provides that any member of a Traditional Owner group who has a natural resource agreement with the relevant conditions under the Traditional Owner Settlement Act 2010 may take and use water from a waterway or bore for traditional purposes in accordance with an authorisation order made under that Act. Traditional purposes mean providing for the personal, domestic or non-commercial communal needs of the group members.

An authorisation order may include the terms and conditions relating to the right to take and use water under this provision. As at August 2018, only the Dja Dja Wurrung Clans Aboriginal Corporation may use this right to access water within Victoria’s North and Murray water resource plan area in accordance with the authorisation order.

7.2.2 Water entitlements

The statutory entitlements provided for under the Victorian Water Act are:

• bulk entitlements
• environmental entitlements
• water shares
• take and use licences (also called section 51 licences)
• registration licences

All water entitlements are recorded in the Victorian Water Register, which provides an authoritative record of the entitlement volumes and associated transactions, including allocations and trade. Useful information for water users about water entitlements and related arrangements can be found on the Victorian Water Register website.

These entitlements are referred to as ‘water access rights’ in the Commonwealth Water Act and the Basin Plan.

Protection of the resource and of existing entitlement holders is supported by safeguards in the Victorian Water Act including:

• offences for unauthorised take of water
• requirements relating to notification regarding new entitlements
• matters for consideration when dealing with applications for new entitlements or amending entitlements
• processes for consultation before amending entitlements
• a cap on the total amount of water that may authorised – including, for example, a permissible consumptive volume
• in the case of bulk entitlement, provision for either House of Parliament to disallow the creation of a bulk entitlement

Basin Plan requires the water resource plan to identify how much water is taken for each type of water access right. How the volume of water taken under each type of entitlement or form of take is calculated is outlined in Table 9-4 of Chapter 9 and Table 6 of the Methods Report at Appendix C. The volume of take measured or estimated is outlined in Table 15-1.

7.2.2.1 Bulk and environmental entitlements

**Bulk entitlements**

Under the Victorian Water Act, the Minister for Water may make an order granting a bulk entitlement to allow the holder to take a volume of water subject to conditions specified in the bulk entitlement.

A bulk entitlement may only be held by a water corporation, the Minister administering the Conservation, Forests and Land Act 1987, a generation (power) company within the meaning of the Electricity Industry Act 2000, or the Victorian Environmental Water Holder (VEWH).

In northern Victoria, bulk entitlements have been granted to water corporations, the VEWH and power companies. In unregulated systems, bulk entitlements have been granted to water corporations that supply water to urban water users and power companies. In regulated systems ‘source’ bulk entitlements have been granted to Goulburn-Murray Water (GMW). These give GMW the right to harvest water and the obligation to deliver water to primary entitlement holders. These primary entitlement holders include water share holders, other bulk entitlement holders such as urban water corporations and the VEWH.

A bulk entitlement does not have a specified term or period and is therefore an ongoing entitlement. A bulk entitlement may be issued subject to conditions and obligations.

These typically provide for the:

• rate, location and conditions of take
• obligations to release environmental and passing flows
• metering, accounting, financial and reporting obligations

The general structure of all bulk and environmental entitlements is described in Figure 7-2. However, all entitlements are unique as each one needs to reflect the nature of the system in which it is held.
Holders of bulk entitlements and environmental entitlements explained in this section have specific powers and responsibilities.

They:
- may take or order water to be delivered in accordance with their entitlement
- must comply with the conditions of their entitlements, which include obligations to release or provide for passing flows
- may apply to the Minister for an amendment to their bulk or environmental entitlement
- may be required to contribute to funding the operation of the supply system
- must undertake risk management
- may be required to carry out long-term planning to make sure there is sufficient supply to meet future demands

**Environmental entitlements**

The Minister for Water may, by instrument, allocate water under an environmental entitlement to the Victorian Environmental Water Holder. The VEWH is a corporate body established under Part 3AA of the Victorian Water Act.

The purposes of environmental entitlements are to:
- contribute to the environmental water reserve
- improve the environmental values and health of water ecosystems, including their biodiversity, ecological functioning and water quality
- assist other uses that depend on good or improved environmental condition

See Chapter 12 for more information.

As with a bulk entitlement, the Minister for Water must consider the matters set out in the Victorian Water Act in considering whether or not to allocate an environmental entitlement.
These include:

- any adverse effect that the allocation or use of water under the entitlement is likely to have on existing authorised uses of water in the water system
- the conservation policy of the government
- the maintenance of the environment water reserve in accordance with the environmental water reserve objective
- whether the proposed source of water is within a heritage river area or natural catchment area within the meaning of the Heritage Rivers Act 1992, and any restriction on the use in the area under that Act
- any relevant sustainable water strategy
- any other matter the Minister thinks fit to take into account

Environmental entitlements and bulk entitlements can be amended and traded. This process is explained in Section 7.2.3.

### 7.2.2.2 Individual arrangements for access to water

**Water shares**

Unbundling was the process of separating water rights from land rights, when entitlements previously called water rights or take and use licences were converted into three separate rights, water shares, delivery shares in districts or extraction shares on waterways and water-use license or water use registration. This was done for northern Victoria by a declaration of water systems on 1 July 2007 which resulted in existing water rights being converted into:

- a share of the available water in the water system: a water share
- authorisation to use water on land: a water-use licence for irrigation or water-use registration for uses other than irrigation
- authorisation to divert water: a works licence (issued under section 67 of the Victorian Water Act) to divert water directly from a waterway or a delivery share (provided as a delivery determination under section 222 of the Victorian Water Act) to divert water from a water corporation’s irrigation district infrastructure

A water share is a legally recognised and ongoing entitlement to a share of the water available in a declared water system. Water shares have been issued in most of the regulated surface water systems in northern Victoria. The volume of water that may be taken in any year will depend on the allocation in relation to a water share, and any carryover that applies.

Decisions about allocations are made by an Authority appointed by the Minister under the Victorian Water Act. This is Goulburn-Murray Water for the Murray, Goulburn, Loddon, Campaspe, Broken and Bullarook systems.

Decisions about allocations are based on a range of factors, including mainly the amount of water available in the system and by considering any future estimated inflows. This is discussed in more detail in Section 7.2.2.5.

Water shares can be high-reliability or low-reliability. The reliability relates to the level of security and how allocations are made in relation to water shares. Allocations are made against high-reliability water shares before low-reliability water shares. The rules in relation to when allocations are made to the water shares are described in the respective system bulk entitlements.
Features of a water share include:

- the name or names of the holder
- the volume, for example 100 ML
- its water system, such as the Goulburn or Murray, and the zone for which the water share is issued if that system is divided into zones
- its class of reliability, for example high-reliability or low-reliability
- identification of the water corporation responsible for providing the services regarding the water share

In Victoria anyone can own a water share, but take and use of water under a water share is subject to any provisions under the Victorian Water Act. Provisions may limit where water may be used, the place from which water may be taken, or the times or rate at which water may be taken (as specified in a water use licence, water use registration, works licence or delivery share). Details of water shares are stored in the Victorian Water Register.

Delivery shares or extraction shares are required to provide access to water particularly during times of congestion. A delivery share is an entitlement to have water delivered to land in an irrigation area. It gives the holder access to a share of the available capacity in the channel or piped network that supplies water to their property.

A water-use licence or water-use registration is an entitlement to irrigate a specific parcel of land, water-use licences are for to apply irrigation water on land and water-use registration are for any other purpose. These licences are tied to the land and are automatically transferred to the new owner if the land is sold.

A works licence authorises the construction, alteration, operation, removal or decommissioning of any works on a waterway. These may include conditions relating to when works may be used and restrictions or conditions including to protect the environment and third parties.

**Take and use licences**

A take and use licence, also known as a section 51 licence, is an entitlement issued for a fixed term to take and use surface water or groundwater from a specified source: a waterway, catchment dam, spring, soak or aquifer. The maximum licence term is 15 years or 30 years for power generation companies. A take and use licence can be renewed.

In northern Victoria, take and use licences authorise access to water from undeclared surface water and groundwater aquifers. They are also used to access water in the undeclared Coliban Water regulated surface water system.

In Victoria’s North and Murray water resource plan area, the Minister for Water has delegated licensing responsibilities to Goulburn-Murray Water, Lower Murray Water and Coliban Water. The relevant water corporation issues take and use licences unless it has a conflict of interest. If there is conflict of interest the Minister will make the decision about the licence application.

Most Victorian unregulated surface water systems, and groundwater management areas and water supply protection areas have a cap or a limit placed on the total volume of water that may be licensed for extraction within a given period (typically one year). This includes the taking of water for urban drinking water, irrigation and industrial uses.

When the relevant water corporation considers an application for the issue of a licence, it must consider a range of matters including those set out in section 40 of section 53 of the Victorian Water Act.
These include:

- the existing and projected availability of water in the area
- any applicable permissible consumptive volume
- any adverse effect that the allocation or use of water under the entitlement is likely to have on existing uses of water, or a waterway or aquifer
- maintenance of the environmental water reserve
- the need to protect the environment

Licences are issued and managed by water corporations in line with the Ministerial Policies for Managing Take and Use Licences (DEPI, 2014). These policies set out matters and actions the Minister asks delegates to consider or carry out. Policies have also been issued for protecting high-value ecosystems that depend on groundwater when water corporations are considering applications for take and use of groundwater (DELWP, 2015).

Each licence is subject to conditions. A standard set of conditions is included in all licences and additional customised conditions may also be included in a licence.

Take under a take and use licence is also subject to any other provisions of the Victorian Water Act. These may limit the place from which water can be taken and the times or rate at which it can be taken, as specified in a section 67 works licence. A works licence must be held if a person requires works to access water through infrastructure, like a pump on a waterway or bore.

The Minister may revoke a licence if, in the Minister’s opinion, there has been a failure to comply with any of the licence conditions. However, the Minister must give three months’ written notice and specify the reasons for doing this.

Take and use licences can be transferred (traded) permanently or temporarily. An application to transfer a take and use licence will be assessed against the same criteria as the issue of a licence. Consideration of an application include any potential effects on third parties like the environment, as well as any trading rules that may apply. See Figure 7-7 for the considerations that apply to the transfer of a take and use licence. See also Section 7.4 for discussion of groundwater trade under Basin Plan.

Information about take and use licences is recorded on the Victorian Water Register (see Section 7.3.2).

**Registration licences**

A registration licence authorises take and use from a dam, spring or soak. Registration licences were issued between 1 July 2002 and 30 June 2003 and recognised historical water use. A registration licence is perpetual and does not attract a licence fee. It is attached to land and can only be transferred on the sale of land. As noted, a registration licence cannot be traded, except with the sale of the land, but may be converted into a take and use licence if the holder wants to trade.

**7.2.2.3 Other supply arrangements**

**Urban water supply**

Individuals who are supplied by urban water corporations are not required to obtain an entitlement or to exercise a right under the Victorian Water Act to take water for use in their homes. Urban reticulated water supply is managed by water corporations. A water corporation with a water district must supply water to the owners of all serviced properties. The water to meet this obligation is sourced from the urban water corporation’s bulk entitlement or water shares owned by water corporations.
Where a serviced property is supplied by a water corporation, permanent water saving rules or water restrictions which limit specified outdoor uses, such as garden watering, can be imposed during times of water shortage to reduce demand.

Supply by agreement

A water corporation may decide to enter into contractual arrangements known as a supply by agreement to supply water to customers where, for example, there are properties that are not designated as serviced properties. This is a contractual arrangement which may specify a range of matters including the volume of water, flow rates, quality, period of time and the purpose for which the water will be used. The water supplied under these supply by agreements is sourced from the water corporation’s bulk entitlement or water share or take and use licences.

7.2.2.4 Above cap and system water

In addition to individual water entitlements, there is a large amount of other water in rivers, ‘above cap’ water and system water. Above cap water is the water that is left in the system which is in excess of the water which is authorised to be taken under the Victorian Water Act. System water is defined in bulk and environmental entitlements and may support reliability, water quality, or delivery of individual water entitlements, for example passing flows or defined losses. Both above cap and system water can have multiple benefits including supporting system reliability, environmental values and deliverability. How this water contributes to achieving environmental outcomes or objectives is outlined further in Section 12.4.3.

Each system has system specific rules, defined in bulk entitlements, which reflect historic operations, the needs of users, interactions with other systems and the environment.

Above Cap

Above cap water is the water which is left over after passing flows have been met and all take under an entitlement or right has been extracted. In unregulated systems, this is most of the flow in the river that remains after water users have extracted water available under their entitlements or right. In regulated systems this is the flow in the river which is not allocated under entitlements and is not meeting a requirement downstream. This may occur when storages spill and there is not sufficient airspace in storages or consumptive demand downstream to make use of this water. Because of the connectivity of systems in northern Victoria, water has a high chance of being regulated either in Victorian tributaries or the River Murray. However, unless rain falls directly on the storage the water will have some period of not being regulated. Note that under the Risk Assessment (see Appendix B) risks to above cap water were assessed as "uncontrolled water". The risks to this water was assessed separately for environmental, consumptive, and other economic uses (see Chapter 5 and Appendix B for more detail).

System water

System water is all the water that is described in the bulk entitlements which is not specifically for environmental or consumptive use. This water will likely have a specific purpose, for example water for passing flows, water to cover delivery losses in irrigation districts or water reserves for release to mitigate water quality impact from water quality events. Different systems prescribe different portions for the system water and will depend on the complexity of the system and the arrangements as described in the bulk entitlements. System water may go by other names as specific to the use of the water. In some instances this water might be specifically for the environment and is therefore planned environmental water under the Basin Plan (see Section 12.4.2.2). Risks to system water were assessed in the Risk Assessment (see Appendix B). The risks to this water were assessed separately for environmental, consumptive and other economic uses.

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1. Serviced properties (section 144) and water districts (Part 6A, section 122GA) are declared under the Victorian Water Act.
7.2.2.5  Specific water access arrangements under entitlements

Access arrangements are an important tool used by water managers to protect passing flows when conditions are dry. Restricting take in these times protects environmental values and section 8 and 8A rights. As section 8 rights include domestic use this type of use is protected as part of critical human needs in Victoria (see Chapter 10 for more info).

Rosters, bans and restrictions

In undeclared regulated or unregulated water systems, conditions in some bulk entitlements preserve baseflows in rivers, and rosters, bans and restrictions are used to ration take and use licence holders’ access to water in dry conditions. Bulk entitlements usually have a passing flow clause, which describes a base level of water that cannot be taken for consumptive use.

Take and use licences authorising access to surface water include conditions that enable restrictions and bans to protect the environment and support water sharing during periods of low flow. Restriction rules are developed and documented in statutory management plans in water supply protection areas or communicated in local management plans in other areas.

Seasonal determinations

Seasonal determinations are a method to manage variable water availability year to year and share available water between all entitlement holders, including water share holders, other bulk entitlement holders and environmental entitlement holders in accordance with rules defined in bulk and environmental entitlements. A seasonal determination determines the amount of water available for use in the water system for that season.

In northern Victoria, Goulburn-Murray Water is appointed as the Authority responsible for making seasonal determinations for the seven declared water systems.

Seasonal determinations are made at the start of each water year based on the total water in storage and a forecast of inflows during the year, minus an estimate of the total water required to operate that system over the year and water already committed, including carryover and water held in inter-valley transfer accounts. Seasonal determinations are revised regularly throughout the year and increases to allocations are made based on current operational data such as actual deliveries, losses and inflows, and revised forecasts for the remainder of the season.

Building system resilience – lessons from the Millennium Drought

The unprecedented dry conditions of the Millennium Drought, particularly during 2006–07, resulted in several years when there was not enough water to supply the full range of competing uses in the systems. It also exposed the potential that following consecutive dry years, there may not be enough water to operate the large regulated systems in northern Victoria and supply customers, even if they have carried over water for use.

As a result, many changes were introduced to build system resilience to dry conditions. These included changes to how water resource managers forecast inflows and allocate and use the system operating water, and more conservative reserve rules to provide greater certainty that water could be delivered early in the season. These reforms have continued to support the development of high-value irrigated agriculture in Victoria.
Carryover

Surface water carryover

Carryover was initially introduced in the Goulburn and Murray regulated systems in northern Victoria in 2007 as an emergency drought response measure. Carryover arrangements allow water not used in a water season to be taken and used into the next water season. The central principle behind carryover is that unused water may be carried over by individuals to the next year, but must not displace inflows that support new allocations. Carryover is designed to maximise the water available in the early part of the season and is available to holders of both high and low-reliability water shares and bulk and environmental water holders. It allows the holder more flexibility to hold, use or trade water when it’s of the greatest value to their business, and to prepare for water shortages.

The Victorian Water Act enables the Minister for Water to make a declaration in relation to a water system, allowing for carryover in that system. A declaration provides that water not used in one water season may be taken and used, that is ‘carried over’, in the next water season subject to any rules or conditions determined by the Minister for Water.

The Minister has made rules about how users can carry over water so that carryover does not have a negative impact on other entitlement holders or the environmental water reserve. In the Goulburn, Murray and Campaspe systems when entitlement holders carry over water and store water allocation in excess of their full entitlement volume, this is recorded in a spillable water account from which deductions are made if spills occur in the system.

In the Loddon, Broken and Bullarook systems where the storages are smaller, carryover is limited to 50 percent of the entitlement volume for each water share.

In all systems five percent of the carryover volume is deducted to cover water that evaporates when it is stored in the dam through the new water season.

Carryover is not available on the Ovens system where dams are too small to support storage of water for carryover.

Groundwater carryover

The Minister has made declarations for the carryover of groundwater in some groundwater management areas. Groundwater carryover operates on the same principles as for surface water. The declaration enables the licence holder to carry over a fixed percentage of their unused licence volume to the following year.

In northern Victoria the percentages range from 20 to 30 percent, depending on the groundwater management area. There is no deduction for losses or evaporation for groundwater.

7.2.3 Protecting entitlement reliability

The volume and reliability of existing entitlements to surface water and groundwater may be eroded if additional entitlements are granted. The Victorian Water Act provides significant safeguards to protect the integrity of water shares, bulk and environmental entitlements and take and use licences.

These safeguards include:

- offences for unauthorised use of water
- formal statutory processes that must be followed to:
  - issue a new water share
  - issue a new or amend a bulk entitlement (see Figure 7-4)
- issue a new or amend an environmental entitlement (see Figure 7-5)
- issue a new take and use licence
- amend conditions of a take and use licence under a water supply protection area management plan

• a cap on the total amount of water that can be authorised for extraction in Victoria’s North and Murray water resource plan area from a surface water system is limited by the sustainable diversion limits (SDLs) set by the Murray-Darling Basin Authority

• a cap on the total amount of groundwater that can be authorised for extraction in Goulburn-Murray water resource plan area is limited by the SDLs set by the Murray-Darling Basin Authority and where a groundwater system has been declared by the Minister by an Order published in the Government Gazette (section 22A) is limited by the permissible consumptive volumes which also cap the total volume of water available to issue under a take and use licence

• requirements for notification to be given to other entitlement holders when the Minister is considering an application to grant or amend a:
  - bulk entitlement (section 38 of the Victorian Water Act)
  - environmental entitlement (section 48D of the Victorian Water Act)
  - take and use licence (section 49 of the Victorian Water Act)

• considerations which the Minister must regard when considering an application to issue or amend an entitlement (for example, sections 33J, 53, 40 and 48F of the Victorian Water Act), including:
  - any adverse effect that the allocation or use of water under the entitlement is likely to have on existing authorised water users
  - the maintenance of the environmental water reserve

• provision for either House of Parliament to disallow a bulk entitlement

The Victorian Water Act requires an application to be made to the Minister for the issue or amendment of a bulk or environmental entitlement. Further, the Act outlines the consultation steps and matters to consider before an entitlement can be amended.

A bulk entitlement may be amended by order on application to the Minister made by the Authority holding a bulk entitlement or another Authority with the support of another Minister. Bulk entitlements are amended in the same manner as they are granted. The process to grant or amend a bulk entitlement is set out in Part 4, Division 1 of the Victorian Water Act. This process must be followed before a bulk entitlement can be created or an amendment can be made. The Act prevents the Minister from issuing a direction about how the Victorian Environmental Water Holder is to manage its environmental entitlements.

Applications for new, or major amendments to, bulk and environmental entitlements can take up to two years to be approved. The Act provides procedural safeguards to minimise the influence of vested interests and to address the technical challenges in explicitly and exclusively specifying rights to water resources that move through river drainage basins and groundwater systems.

A minor amendment may be made to a bulk entitlement by notice, using a streamlined process where the proposed amendment would:

• correct a mistake in the description of any element of the entitlement
• make a minor variation arising from practical operations
• vary or impose a new obligation on a resource manager or storage manager
• make any other amendment that does not impact on another person’s entitlement to water and does not adversely affect the environmental water reserve
Bulk entitlements may be traded permanently (transferred under section 46D of the Victorian Water Act) and water held under a bulk entitlement can be temporarily traded (assignment of allocation under section 46 of the Victorian Water Act). Temporary trades require approval by the Minister for Water or the Minister’s delegate and the Authority whose works will be used to deliver the water. Permanent trade of bulk entitlement must be approved by the Minister and this approval is not delegated.

As with bulk entitlements, environmental entitlements are ongoing and can be traded permanently (transferred under section 48OA of the Victorian Water Act) or water held under an environmental entitlement can be temporarily traded (assignment of allocation under section 48L of the Victorian Water Act). Temporary trade (assignment of allocation) of environmental entitlements needs approval by the Minister and the Authority whose works will be used to deliver the water.

Figure 7-4 shows the processes set out in the Victorian Water Act that must be followed to grant a new bulk water entitlement or make a major amendment to an existing one. The process is similar for environmental entitlements (see Figure 7-5).

7.2.3.1 Qualification of rights

In extreme events further described in Chapter 10, the Minister may qualify any water entitlement. This is an emergency measure which allows the Minister for Water to intervene by declaring a water shortage and qualifying rights and entitlements in a water system. This allows the Minister for Water to temporarily overrule some or all the water sharing arrangements in a system.

Section 33AAA of the Victorian Water Act allows the Minister to qualify rights temporarily following a declaration of a water shortage. This power has been used during severe droughts, for example to reduce passing flow obligations to make sure town water demands can be supplied under Stage 4 restrictions.

The Department of Land, Environment, Water and Planning (DELWP) has issued guidelines for exercising these powers and expects that qualification of rights will only be done in extraordinary and unforeseen circumstances (DELWP, 2016).

The Minister may also permanently qualify rights to water under section 33AAB of the Victorian Water Act. Permanent qualification of rights can be declared only on completion of a long-term water resource assessment. Assessments are to be reviewed every 15 years.
Authority applies to Minister for a Bulk Entitlement or for an amendment of a Bulk Entitlement

The Minister must provide copy of application to:
- Minister responsible for Catchments, Forests and Lands Act 1987
- Planning Minister
- Statutory Authorities (Water Authorities and Catchment Management Authorities)

The Minister must advertise in a manner deemed fit and may invite submissions on the application

OR

Require the applicant to advertise in a manner specified by the Minister and may invite submissions on the application

The Minister must assess the likely effects of granting application must be assessed in line with section 40 of the Victorian Water Act

The Minister may appoint panel to investigate effects (modeling and environmental assessment), consider submissions and consult. Consensus approach (can take more than a year)

The Minister must consider all application, and must not approve an application if it is likely to have significant adverse effect on authorised uses of water or the environment

The Minister must publish the approved Order in Government Gazette

Either House of Parliament may disallow the Order within 18 sitting days

Figure 7-3: Process in the Victorian Water Act to amend a bulk water entitlement
7.3 Water markets and trade

Water markets provide an equitable and efficient way to access and share finite water resources. The Victorian water markets are based on a cap and trade system.

Water trading is the process of buying and selling water entitlements or transferring access to water held under entitlements (allocation). Water trade has long been used as a tool in Victoria to facilitate the efficient use of water resources. While unofficial trade was likely occurring as early as the 1940s, official temporary trades first occurred in 1987 and official permanent trades first occurred in 1991–92.

Trading zones are an important feature of water markets. They define areas within which water may be freely traded, traded sometimes and never traded.

Trading rules describe when and how entitlement and allocation can be traded between different trading zones. Trading rules seek to facilitate trade wherever possible whilst minimising the impact of the trade on other uses and the environment. The rules reflect the hydrologic links between the systems and the circumstances in which trades can happen. The rules differ depending upon the region. The Trading Rules for Declared Systems (DSE, 2007), made under the Victorian Water Act, came into effect on 1 July 2007. Trade of take and use licences in unregulated systems is managed by the relevant rural water corporation in accordance with the ministerial Policies for Managing Take and Use Licences (DEPI, 2014) which set out some rules for
trade. The trade of groundwater licences is also subject to the Policies as described further in Section 7.4.2.

More information about water trading in Victoria is provided on the Victorian Water Register website.

7.3.1 Market design and rules

Figure 7-5 shows the Victorian Government’s approach to the design and operation of water markets. The Government balances oversight and consistency with an ability to design each water market to be the most suitable for its purpose and based on the context and characteristics of water resources and market participants.

The Victorian Government establishes market arrangements to apply to all participants who seek to buy and sell water. These participants can include individual entitlement holders, market brokers and intermediaries and organisational entitlement holders, such as water corporations, environmental water entitlement holders and private organisations. Roles and responsibilities in water markets in Victoria are described in Table 7-2.

<table>
<thead>
<tr>
<th>Market pre-conditions</th>
<th>Defining rules</th>
<th>Market operation and efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPS</strong></td>
<td><strong>ENTITLEMENT</strong></td>
<td><strong>PARTICIPANTS</strong></td>
</tr>
<tr>
<td>Understand water resources and systems to establish caps</td>
<td>Clearly define entitlements and associated reliability</td>
<td>Define market operation and trading rules to apply to all participants</td>
</tr>
</tbody>
</table>

**Definition of the total resource available with established caps on water use, and how it could change over time**

**Clearly defined tradeable entitlements and the characteristics of these water entitlements**

**Market rules, understood by market participants, that:**

- Manage the potential impacts on other water users and the environment
- Set the boundaries of the market
- Define acceptable behaviour by market participants
- Lessen limitations on who can participate and promote a greater number of market participants
- Consider the potential for market distortion via participants misusing market power
- Document administrative processes for effecting trade and the enforcement of trade

**Sit within the broader institutional and governance framework for resource managers, policy-makers and regulators with clear roles and responsibilities and no conflicts of interest**

**Include market mechanisms that are familiar to participants, such as contract forms and exchange mechanisms, and ensure that any market reform does not impose a disproportionate share of the cost burden on certain stakeholders**

**Ensure administrative processes are simple and transaction costs are low and in proportion to the value of the trade, known in advance and include:**

- Robust registers of water entitlements and accounting mechanisms for water trading and use
- Monitoring and compliance arrangements

**Share reliable and timely information to allow buyers and sellers to make informed decisions and assist in building literacy and capacity of market participants**
### Table 7-2: Roles and responsibilities in water markets

<table>
<thead>
<tr>
<th>Entity</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victorian Minister for Water</td>
<td>• overall responsibility for elements of market design including compliance with all national and interstate regulations and rules to deal with any potential impacts on third parties or the environment</td>
</tr>
</tbody>
</table>
| Murray-Darling Basin Authority      | • ensure compliance with Murray-Darling Basin Plan  
• aim to remove artificial barriers to trade  
• prevent insider trading and discrimination on who can trade                                      |
| Australian Competition and Consumer Commission | • fair trading provisions  
• consumer appeals for unfair trading                                                                                      |
| Productivity Commission             | • independent advice to the Federal Government regarding the Murray-Darling Basin Plan and progress towards achieving the objectives and outcomes of the National Water Initiative |
| Water corporations (where appropriate) | • responsible (delegated authority) for assessing applications for trade of water shares and take and use licences  
• compliance with regulations and rules  
• governing water market transactions  
• disclosure of true and accurate information  
• must comply with Murray-Darling Basin Plan trading rules  
• must comply with Water Resource Plans |
| Market intermediaries or brokers    | • subject to consumer law that outlines protections for buyers and sellers  
• compliance with regulations and rules governing water market transactions  
• disclosure of true and accurate information                                                                 |
| Buyers and sellers                  | • compliance with regulations and rules governing water market transactions  
• disclosure of true and accurate information  
• must not illegally take water above the volume or conditions specified on their entitlement |
| Victorian Environmental Water Holder | • must comply with Murray-Darling Basin Plan trading rules  
• compliance with regulations and rules governing water market transactions  
• disclosure of true and accurate information                                                                 |
| Commonwealth Environmental Water Holder | • must comply with Murray-Darling Basin Plan trading rules  
• compliance with regulations and rules  
• disclosure of true and accurate information                                                                 |
7.3.2 The Victorian Water Register

The Victorian Water Register provides water users with essential information about water entitlements, seasonal determinations, trade and transfers. The Water Register is the authoritative record of water entitlements and facilitates the transactions that underpin Victoria’s water markets.

All water entitlements in Victoria’s North and Murray water resource plan areas are recorded on the Victorian Water Register, which provides the Government with the point of control for the state’s water entitlement and allocation system. It is a public register of all water-related entitlements in Victoria and was designed and built to record water entitlements with integrity and provide crucial information for managing Victoria’s water resources. Important attributes of the register are shown in Figure 7-6.

The Water Register holds statewide surface water and groundwater entitlement records and information about ownership, transfers and, where relevant, allocations to bulk entitlements, environmental entitlements, water shares in declared systems, licences to take and use water and supply by agreements. It also records ownership and details about water-use licences, water-use registrations and works licences.

The Victorian Water Register also hold data related to volumes of water taken or diverted under an entitlement. For Basin Plan purposes this is actual take data. The data on the Victorian Water Register will inform actual take reporting to inform SDL reporting. See Chapter 9 and Appendix C for more information. The methods for determining actual take and are outlined in Table 6 (for surface water) and Table 11 (for groundwater) in Appendix C.
### VICTORIAN WATER REGISTER

- central to Victorian water management
- provided for under the Victorian Water Act
- supports the State’s entitlement framework
- governed by a partnership between DELWP, the Water Registrar and water corporations

### FEATURES OF THE VICTORIAN WATER REGISTER

- good governance
- all entitlements recorded
- conditions recorded
- trading rules consistently applied
- standard processes consistently applied
- standard application fees
- predictability
- probity, integrity, trust

### REGISTER OF WATER ENTITLEMENTS

- attributes of the entitlements
- mortgages (water shares)
- changes to entitlements

Records information relating to:

- allocations
- usage
- trades
- carryover

Also holds information on:

- works licences
- water use licences and registrations (in declared systems)
- delivery shares (in declared systems)

The Register is linked, but separate to, water corporation water ordering and billing systems

### COMMERCIALY ACCEPTED ACCOUNTING STANDARDS

- governance structure for processing all transactions
- internal controls on processing
- every transaction recorded on register and is auditable
- all transactions linked back to the application form and approvals providing a rigorous audit trail.
- water accounts regularly reconciled and audited
- searchable, in real time, publicly available reports and market information

### CUSTOMER FOCUSED WITH ONLINE CAPABILITIES

Facilitates the market, reduces transaction costs, reduces transaction times and improves accuracy, transparency and accountability.

---

**Figure 7-6: Key attributes of the Victorian Water Register**
7.4 Water Markets and the Basin Plan

The Basin Plan seeks to encourage more efficient use of water through trade which allows water to move to areas of higher-value use. Although Basin State governments primarily manage water markets, the Basin Plan provides the framework in which states operate in. The MDBA prepared Basin Plan water trading rules, these rules address three broad aspects of market operations, reducing restrictions on trade, improving transparency and access to information and maintaining market integrity and confidence.

The Basin Plan sections 12.06-12.15 outline the bounds around the expectation that all water resources are able to the traded free of certain restriction. This includes expectations that trade should not be restricted based on the right, the class of person, the purpose for which the water is being used, where the water is being used, whether the water will be carried over, whether the system is over-allocated, the level of use of the water and whether trade would be made conditional on water delivery rights.

The Murray-Darling Basin has a number of water markets not all are as mature and developed as the regulated surface water market in the southern connected basin. Differences occur in water markets due to the type of entitlements, the users, the connectivity to other systems, and the maturity of the markets.

In Basin Plan there are additional rules relating to surface water (see Section 7.4.1) and groundwater (see Section 7.4.2).

7.4.1 Surface water trade requirements for Basin Plan

Water trading of surface water in Victoria’s North and Murray water resource plan area is covered in Chapter 12 of the Basin Plan, which sets out the Basin Plan surface water trading rules that came into effect in Victoria on 1 July 2014. The Basin Plan does not require general surface water trading arrangements to be included in water resource plans.

In accordance with section 12.19 of the Basin Plan, Victoria has provided evidence to the MDBA regarding restrictions on trade in surface water systems which are necessary and in accordance with section 12.18 of the Basin Plan.

7.4.2 Groundwater trade requirements for Basin Plan

Chapter 12 of the Basin Plan prohibits groundwater trade unless certain conditions are met. These conditions are set out in sections 12.24, 12.25 and 12.26 of the Basin Plan. These conditions are:

- sufficient hydraulic connectivity between the two locations (sections 12.24(a), 12.25(a) and 12.26(a) of the Basin Plan)
- resource condition limits in the SDL resource unit specified in any water resource plan will not be exceeded as a result of the plan (sections 12.24(b), 12.25(b) and 12.26(b) of the Basin Plan)
- the entitlements traded have substantially similar characteristics of timing, reliability and volume, or measures are in place to ensure the entitlement traded will maintain its characteristics of timing, reliability and volume (sections 12.24(c)(i), 12.24(c)(ii), 12.25(d)(i), 12.25(d)(ii), 12.26(d)(i) and 12.26(d)(ii) of the Basin Plan)
- measures are in place to account for trade (sections 12.25(c) and 12.26(c) of the Basin Plan)
- measures are in place to address the impact, as a result of trade, on water availability in relation to a water access right held by a third party (sections 12.24(d), 12.25(e) and 12.26(e) of the Basin Plan)

The requirements under section 12.24-12.26 are also supplemented by the requirements in sections 12.06-12.15 of Basin Plan discussed in Section 7.4. Victoria’s North and Murray Water
Resource Plan identifies the circumstances in which groundwater trade may be permitted in the Goulburn-Murray water resource plan area to meet the above conditions.

Part 8 of Chapter 10 of the Basin Plan requires water resource plans to set out the circumstances in which trade is permitted between two locations within an SDL resource unit, between SDL resource units or between groundwater and surface water SDL resource units.

There is a range of factors that impacts on whether a trade can occur between two locations, and because of this Victoria does not propose to establish trading zones within the Goulburn-Murray water resource plan area under Victoria's North and Murray Water Resource Plan.

Table 7-3 below identifies where trade may occur. However, each application to trade is subject to an assessment which includes consideration of a site-specific hydrogeological resource assessments relevant to the trade and the consideration of the matters listed in response to sections 10.37, 10.38 and 10.39 of Basin Plan where relevant. These matters are outlined below and form part of Victoria’s North and Murray Water Resource Plan.

**Table 7-3: Groundwater trading for Basin Plan Implementation**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Goulburn-Murray: Sedimentary Plain</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Goulburn-Murray: Highlands</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Goulburn-Murray: deep</td>
<td>×</td>
<td>×</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Goulburn-Murray: Shepparton</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 7.4.2.1 Assessing groundwater trade

In northern Victoria groundwater entitlements are issued as take and use licences, also referred to as section 51 licences (see Section 7.2.2.2). Take and use licences may be traded permanently or temporarily. Trades must comply with the Victorian Water Act and rules in the ministerial Policies for Managing Take and Use Licences (DEPI, 2014) and any management plan that applies in the area. Victoria’s trading rules and entitlement framework dictates where groundwater trade can occur, in northern Victoria trading also occurs in line with the requirements of Chapter 12 of the Basin Plan.

Chapter 12 of the Basin Plan contains requirements relating to the trade of water within the Murray-Darling Basin. In addition to prescribing the conditions that must be satisfied before permitted groundwater trade (discussed below), Chapter 12 of the Basin Plan also requires trade to be free of certain restrictions. The Victorian Water Act meets the requirements of sections 12.06 to 12.15 of the Basin Plan. Although section 40(1)(I) of the Victorian Water Act does require consideration of purpose of use of water and the potential impacts the proposed use may have on water resources and third parties, this does not result in a restriction on trade in contravention of section 12.08 of the Basin Plan. There is no discrimination based on individual water access right holder or a specific industry of commercial users in Victoria.
In northern Victoria, Goulburn-Murray Water and Lower Murray Water are delegated by the Minister for Water to issue licences for bore construction and licensing of groundwater under the Victorian Water Act.

The management of groundwater resources aligns with the Victorian groundwater management framework, groundwater basins and groundwater catchments are shown in Figure 2-3.

The Victorian Water Act sets out a number of key considerations that must be taken into account when assessing an application for the transfer (trade) of a take and use licence. Included in this assessment is:

- Considerations relating to section 53 of the Victorian Water Act for the issue or transfer of a take and use licence which ensure the person to whom the water is being transferred has authorisation to take that water from the system
- Considerations relating to section 62 of the Victorian Water Act to transfer the licence from one party to another
- Considerations relating to section 67 of the Victorian Water Act relating to the construction, alteration or operation of a bore where the conditions relating to an existing bore may need to be amended or the person to whom the water is being transferred requires a new bore
- Considerations under section 74 of the Victorian Water Act for the transfer of a works licence where the trade of water also relates to the transfer of ownership of a bore

In determining whether a transfer (or trade) of a groundwater take and use licence can occur the hydrogeological setting must be assessed before the transfer can proceed. Regardless of whether the ability to trade has already been established between two locations via a previously approved trade, a hydrogeological assessment will always be undertaken in respect of each individual trade (either based on previous or new technical analysis). One component of this assessment is whether there is sufficient hydraulic connectivity between the two locations to support the transfer or trade. Hydrogeological assessments are discussed in more detail below at Section 7.4.2.2.

In addition to assessing the hydrogeological context in which the proposed trade is going to take, a water corporation will also consider the following matters:

- availability of water in the system – consistent with section 40(1)(b) of the Victorian Water Act
- impact of the extraction and the use of the bore on neighbouring features including the impact on waterways where there is groundwater/surface water connectivity or impacts on groundwater dependent ecosystems (including priority environmental assets and priority ecosystem functions)
- the need to protect the environment including, the maintenance of the environmental water reserve which includes held and planned environmental water (see Chapter 12 for discussion on environmental watering)
- management of the aquifer
- any statutory management plans in place
- the impact of the proposed water use on other existing users in the system

Figure 7-7 identifies how the considerations prescribed under the Victorian Water Act relating to the transfer (trade) of a take and use licence (groundwater) aligns with Basin Plan requirements.
Transfer of take and use licence (trade of water access rights) considerations

A person may apply for the temporary or permanent transfer of a take and use licence (section 62)

Assessment of sufficient hydraulic connectivity between the two locations in accordance with Victoria’s North and Murray Water Resource Plan [sections 12.24(a), 12.25(a), 12.26(a) of the Basin Plan]

Section 53 matters apply to the determination of the application to transfer the licence (section 12.24 / 12.25 / 12.26 of the Basin Plan considerations also apply)

In considering the application, section 53(1)(b) requires consideration of matters in section 40(1)(b)-(m) of the Victorian Water Act

Section 53(1)(e) of the Victorian Water Act also provides the Minister may consider any other matters

- existing and projected availability of water in the area - s.40(1)(b)
- (if any) the permissible consumptive volume for the area - s.40(1)(ba)
- any water to which the applicant is already entitled - s.40(1)(e)
- existing and projected quality of the water in the area - s.40(1)(c)
- the purpose for which the water is to be used - s.40(1)(l)
- any adverse effect that the allocation or use of water is likely to have on other users, the aquifer - s.40(1)(d)
- the need to protect the environment including the riverine and riparian environment - s.40(1)(g)

Maintaining the nature of the entitlement
- protects timing, reliability and volume [12.24(c), 12.25(d), 12.26(d)]

No negative impact on the resources
- protects resource condition limits [12.24 (b), 12.25(b), 12.26(b)]

No negative impact on other users (including the environment)
- protects resource condition limits [12.24 (b), 12.25(b), 12.26(b) and water availability for other users 12.24(d), 12.25(e), 12.26(e)]

WHERE A TRANSFER IS APPROVED IT IS RECORDED IN THE VICTORIAN WATER REGISTER [SECTION 12.25(C) AND 12.26(C)]

Figure 7-7: Determining the transfer of a take and use licence
The matters required by Basin Plan to be considered when determining whether a trade of groundwater should be approved are:

- sufficient hydraulic connectivity (see Section 7.4.2.2)
- resource condition limits (see Section 7.4.2.3)
- accounting for trade (see Section 7.4.2.4)
- maintaining characteristics of what is traded (see Section 7.4.2.3)
- managing impacts on third parties (see Section 7.4.2.3)

These matters are required to be met for trades within a groundwater SDL resource unit, between two groundwater SDL resource units and trades between a groundwater SDL resource unit and a surface water SDL resource unit.

### 7.4.2.2 Sufficient hydraulic connectivity in Victoria’s North and Murray water resource plan

Basin Plan requires sufficient hydraulic connectivity to be demonstrated prior to the approval of a transfer of a take and use licence for groundwater. Sufficient hydraulic connectivity is considered to exist in a groundwater system through which groundwater may flow, which has discrete boundaries and which has areas of groundwater recharge and discharge. It may include a single aquifer, a group of connected aquifers, or groundwater and surface water elements in conjunction, that are connected by a groundwater flow path.

For the purpose of Basin Plan, a water resource plan must identify the locations between which there is sufficient hydraulic connectivity or the method by which sufficient hydraulic connectivity will be identified. In Victoria, before determining whether the trade of groundwater resources should be permitted, an extensive assessment is undertaken which includes among other things, an assessment of sufficient hydraulic connectivity. However, the existence of sufficient hydraulic connectivity is not the only factor in determining whether a person can trade between the two identified locations.

Details about factors related to impacts of taking groundwater (ie more specific than the matters spelt in sections 53 and 40 of the Victorian Water Act) include:

- impacts on other uses, including the environment, from drawdown and potential loss of access
- loss of connection with surface water systems (eg loss of baseflow)
- potential subsidence and acid sulphate soils

In addition to sufficient hydraulic connectivity, the Victorian framework requires a number of other requirements to be met before a trade can be approved. Victoria does not propose to establish trading zones within the Goulburn-Murray water resource plan area under Victoria’s North and Murray Water Resource Plan because they do not currently exist and the work has not been done to set them up.

Understanding groundwater availability, movement and connectivity is complex. Below is a summary of the current understanding of connectivity within the plan area.

All groundwater units present in Victoria’s North and Murray water resource plan area are hydraulically connected to adjacent groundwater units. The groundwater systems operate within the single overall Goulburn-Murray groundwater basin, and as such they have been managed as connected systems. The high level of connectivity has been investigated over many years and has guided management plan development and the sustainable management of the resource over the long term.
Victoria considers sufficient hydraulic connectivity in terms of the Goulburn-Murray region on the following basis:

- groundwater resources are hydraulically connected, across catchments within the Goulburn-Murray: Sedimentary Plain SDL resource unit
- groundwater resources are hydraulically connected between adjoining groundwater catchment areas in the Goulburn-Murray: Highlands SDL resource unit
- groundwater resources are hydraulically connected, between the Goulburn-Murray: Sedimentary Plain and the Goulburn-Murray: Highlands SDL resource units within groundwater catchments
- groundwater resources are hydraulically connected within the Goulburn-Murray: Shepparton Irrigation Area SDL resource unit

The above assessment of connectivity identifies where trade may generally occur but each individual trade is subject to site specific hydrogeological resource assessments undertaken by the licensing authority. In circumstances where sufficient hydraulic connectivity is not established an application for a transfer (trade) of a take and use licence may be refused.

7.4.2.3 Resource condition limits

In all groundwater management units, a permissible consumptive volume (PCV) has been declared that sets a cap on the total volume of water that may be licensed. The exception is the Upper Ovens River Water Supply Protection Area Water Management Plan where there is conjunctive management of groundwater and surface water. PCVs are declared by the Minister for Water through an Order published in the Government Gazette under section 22A of the Victoria Water Act. Where a water supply protection area is declared the statutory management plan may identify limits on extraction for that declared area where no PCV is in place.

Licences may not be issued or transferred if the permissible consumptive volume or limit under a statutory management plan will be exceeded as a result of the issue of the licence or the transfer of the licence.

Where the transfer of a take and use licence would cause the resource condition limit (cap on entitlement take) to be exceeded the applicant would be advised that the trade cannot occur. This may result in a negotiation to bring the volume down to a level which is below the resource condition limit, this advice would be given by the water corporation processing the trade.

This circumstance will only arise where trade is occurring between groundwater management units which have individual resource condition limits separate from the overall SDL for the relevant SDL resource unit in the Goulburn-Murray water resource plan area.

7.4.2.4 Accounting for trade

Basin Plan requires that all trades be accounted for. In Victoria all water share, bulk entitlement, environmental entitlement and licence transfers are recorded on the Victorian Water Register. This includes all approved groundwater trades. See Section 7.3.2 above for more detail on the Victorian Water Register.

7.4.2.5 Maintaining characteristics of the what is traded

The Victorian Water Act provides for a groundwater trade (whether temporary or permanent) to be made by a transfer of the licence. It requires traded licences to maintain their essential characteristics such as volume, term and conditions (noting that groundwater licences do not have the characteristic of high or low reliability).

In the Upper Ovens River Water Supply Protection Areas Water Management Plan surface water and groundwater from Zone 1 are managed conjunctively. In these areas a 20 percent reduction
is imposed on downstream transfers (trades) from an all year licence. The reduction in licence volume from the seller to the downstream buyer is implemented to account for evaporation, seepage and other losses which would occur in the system between the seller's upstream extraction point and the buyer's downstream extraction point. The rule is applied uniformly in the Upper Ovens River water supply protection area because the impact of taking water from the surface water system or the groundwater system is essentially the same, even though there may be time lag effects in relation to groundwater extractions. Therefore, the rule will apply to groundwater to groundwater trades and groundwater to surface water trades. The application of this rule ensures that levels of take remain within the resource condition limit across the management area.

For the purposes of Basin Plan this is consistent with the application of a conversion rate as described in section 10.39(2) of the Basin Plan (see Section 7.4.2.10).

Timing for extractions is not a condition on take and use licences for groundwater. It is understood that for the purposes of Basin Plan, changes from all-year licence to winter-fill will constitute a change to the timing characteristics of a water access right. This typically does not occur, except in the unique circumstance under the Upper Ovens River Water Supply Protection Area Water Management Plan which only permits trade to an upstream water user (noting that groundwater and surface water are treated as the same under this Plan) who can take under winter-fill licence. This is because water is not available under the resource condition limit under an all-year authorisation to take upstream without impacting on reliability of water for other users or without increasing the risk of adverse impacts on the environment. The upstream trading rule, which results in a winter-fill licence, ensures that there are no undesirable upstream impacts on summer flows that may affect the reliability of water users upstream. It also improves the reliability for water users downstream during the summer months and it reduces adverse environmental impacts upstream, where summer flows are likely to be less than at the downstream location. Trade in line with the Upper Ovens River Water Supply Protection Area Water Management Plan is relevant to section 10.39 of the Basin Plan as it relates to trade of groundwater to surface water and vice versa (see Section 7.4.2.10).

7.4.2.6 Managing impacts on third parties

When assessing a trade the authorising authority also considers any impact of the proposed trade would have to other users in the system and the environment. The impact is considered at the following scales:

- neighbour
- local
- regional

If an application does not meet the requirements as a medium or high risk, or cannot prove that it meets the requirements, then the application will be refused. However before the water corporation formally refuses the application first they would speak to the applicant to determine whether the applicant wishes to do further resource assessments at their own cost to provide justification for the trade, or if the applicant wishes to alter the proposal so as not mitigate the impact of the trade.
**Neighbour**

The neighbouring scale assessment considers drawdown impacts to neighbouring features typically within one to two kilometres of the pumping bore. See Figure 7-9.

Impacts are determined using a groundwater interference assessment tool developed by Goulburn-Murray Water with support from DELWP to model drawdown at neighbouring features like bores (third party holders of a water access right) and groundwater dependent ecosystems (including priority environmental assets and priority ecosystem functions) and stream depletion (surface water impacts). The assessment applies a risk-based approach that includes a probabilistic analysis to improve certainty in the analysis.

![Image of groundwater pumping and drawdown](image)

**Figure 7-8: Impacts of groundwater pumping on neighbouring features**

**Local scale**

Local scale assessment considers impacts of cumulative pumping at the management zone or ‘hot spot’ scale from a few km² to 10km² (see Figure 7-10).
Impacts are considered in a resource management plan through a limit on licence volume within a management zone, or a rule on the density of licence volume within a defined area around a licensed bore to manage groundwater drawdown levels. For example, in the Lower Campaspe Valley water supply protection area, groundwater licence volume is limited within management zones, and through rules on the density of licence volume (see Figure 7-10).

**Management zones**

<table>
<thead>
<tr>
<th>MANAGEMENT ZONE VOLUME LIMITS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echuca Zone: 9.6 GL/yr</td>
</tr>
<tr>
<td>Bamawm Zone: 29.0 GL/yr</td>
</tr>
<tr>
<td>Elmore-Rochester Zone: 18.3 GL/yr</td>
</tr>
<tr>
<td>Barnadown Zone: 8.3GL/yr</td>
</tr>
</tbody>
</table>

Licence volume is limited to 7,500 ML/yr within a 4 km radius of a licence holder’s bore.

Each triangle in the figure below represents a bore licensed to extract 3,000 ML/yr.

The blue triangle has 9,000 ML/yr within a 4 km radius and therefore cannot permanently trade any additional water to the licence.

The red and grey triangles only have 6,000 ML/yr within a 4 km radius of their bores, so they may trade in up to 1,500 ML/yr permanently.
Regional scale

Regional scale assessment considers the impact on sustainability of the resource at a catchment or basin scale from 10 km² to 100 km².

Impacts are considered in resource management plans through a cap on total licensed volume called through the permissible consumptive volume (described above). An application to trade cannot be approved if it would cause the PCV to be exceeded (see Section 7.4.2.3).

7.4.2.7 Basin Plan considerations before approving groundwater trade

Before a groundwater trade can be approved the Basin Plan requires specific circumstances to be met, how these relate to the Victorian Water Act is describe in Figure 7-11, and further explained in Section 7.4.2.8 to Section 7.4.2.10.
## CONSIDERATIONS BEFORE APPROVING GROUNDWATER TRADE

<table>
<thead>
<tr>
<th>BASIN PLAN</th>
<th>WATER RESOURCE PLAN</th>
<th>VICTORIAN WATER ACT</th>
</tr>
</thead>
</table>
| sufficient hydraulic connectivity 12.24(a), 12.25(a), 12.26(a) BP | sufficient hydraulic connectivity must be demonstrated in:  
• a hydrogeological resource assessment for 10.38 BP and 10.38 BP  
• a statutory management plan approved under s.32A of the Victorian Water Act for 10.39 BP | for each trade hydrogeological resource assessment considers:  
• topography  
• aquifers / aquitards  
• groundwater levels (current, long term, seasonal and aquifer interactions)  
• groundwater flow  
• neighbouring environmental features (waterways and groundwater dependent ecosystems)  
• groundwater quality  
• impacts of proposed pumping  
this assessment may be supported by any hydrogeological investigation undertaken by proponent to support application |
| Resource Condition Limit 12.24(b), 12.25(b), 12.26(b) BP | relevant permissible consumptive volume declared under section 22A of the Victorian Water Act must not be exceeded | matters to be taken into account include:  
• existing and projected availability of water (section 40(1)(b))  
• the relevant permissible consumptive volume declared under section 22A of the Victorian Water Act (section 40(1)(ba)) |
| must account for trade 12.25(c), 12.26(c) BP | trade is recorded on the Victorian Water Register | all trades must be recorded on the Victorian Water Register |
| maintain characteristics of the water access right 12.24(c), 12.25(d), 12.26(d) BP | the volume to be traded must be specified, noting that in Victoria measures are in place to ensure that the water access right to be traded will maintain its characteristics of timing, reliability and volume | The Victorian Water Act provides for a groundwater trade (whether temporary or permanent) to be made by a transfer of the licence. It requires traded licences to maintain their essential characteristics such as volume, term and conditions (noting that groundwater licences do not have the characteristic of high or low reliability). |
| measures to address impact on water availability to third party water access right holders 12.24(d), 12.25(e), 12.26(e) BP | where regard has been had to any adverse effect that the trade is likely to have on existing authorised users of water measures are in place to address any adverse effect | matters to be taken into account include:  
• impacts on other users (including the environment and waterways) (section 40(1)(d)(i))  
• the needs of other potential applicants (section 40(1)(m)) |

Figure 7-11: Basin Plan considerations before approving groundwater trade
Trade within a groundwater SDL resource unit

To meet the requirements of section 10.37 of the Basin Plan, Victoria’s North and Murray Water Resource Plan must identify the circumstances in which trade is permitted to ensure that the conditions of section 12.24 of the Basin Plan are met.

Groundwater trade may take place between two locations within an SDL resource unit in the Goulburn-Murray water resource plan area as long as:

- there is sufficient hydraulic connectivity between the two locations
- it does not cause the sum of total entitlement volume to exceed the permissible consumptive volume in the groundwater management unit or exceed any cap that applies to the management zone where it exists
- it does not cause unacceptable groundwater interference or water quality impacts to environmental or consumptive users in the local area

The SDL resource units within the Goulburn-Murray water resource plan area shown in Table 7-3. How the conditions under section 12.24 of the Basin Plan are met under Victoria’s framework is outlined above in Section 7.4.2.2 to Section 7.4.2.6. The specific circumstances in which trade may be permitted under Victoria’s North and Murray WRP within a groundwater SDL resource unit is outlined in the accredited text provided below.

It is considered that trade between two locations within a single SDL resource unit within the Goulburn-Murray water resource plan area would be supported on the basis of sufficient hydraulic connectivity. Each SDL resource unit has been established based on hydrogeological and terrain similarities. However, as identified above, each trade is subject to a site specific hydrogeological resource assessment that will determine whether that particular trade can occur. This assessment will demonstrate whether there is sufficient hydraulic connectivity between the two locations.

In some instances, where a statutory management plan has been approved for a water supply protection area the assessment of connectivity will be outlined in that plan.

Trade is permitted within the Goulburn-Murray: Highlands SDL resource unit, the Goulburn-Murray: Sedimentary Plain SDL resource unit, the Goulburn-Murray: Shepparton Irrigation Region SDL resource unit and Goulburn-Murray: deep SDL resource unit as described in Table 7-3 and in Section 7.4.2.2 and Section 7.4.2.3 subject to meeting the requirements of the accredited text in response to section 10.37 of the Basin Plan (see below) and the requirements under the Victorian Water Act.

Trade is permitted for the Goulburn-Murray: Shepparton Irrigation Region SDL resource unit. Within this SDL resource unit trade is permitted. However, if someone wants to increase their groundwater licensed volume they can apply for a new entitlement volume, rather than trading because the resource is not yet fully allocated. Increased groundwater use is encouraged to manage rising groundwater tables which are causing salinity issues and because the permissible consumptive volume for this area has not been reached.

The circumstances prescribed in Victoria’s North and Murray Water Resource Plan satisfy the requirements under section 10.37 of the Basin Plan are outlined in the accredited text below.

1. Trade between two locations within a single SDL resource unit in the Goulburn-Murray water resource plan area is permitted in the following circumstances:
   a. if the two locations are within the same geology as defined by the SDL groundwater unit where sufficient hydraulic connectivity is demonstrated by the relevant hydrogeological resource assessment or statutory management plan approved under section 32A of the Water Act 1989 (Vic) as appropriate; and
b. if the relevant permissible consumptive volume declared under section 22A of the Water Act 1989 (Vic) is not exceeded; and

c. if the volume to be traded is specified, noting that in Victoria measures are in place to ensure that the water access right to be traded will maintain its characteristics of timing, reliability and volume; and

d. where regard has been had to any adverse effect that the trade is likely to have on existing authorised users of water and measures are in place to address any adverse effect.

2. Figure 7-7 of Victoria’s North and Murray Comprehensive Report depicts the process for determination of a transfer (trade) of a take and use licence under the Water Act 1989 (Vic) and demonstrates how the conditions set out in section 12.24 of the Basin Plan align with the Victorian framework. Reference to the Water Act 1989 (Vic) in Figure 7-7 of Victoria’s North and Murray Comprehensive Report does not form part of the response and is included for reference only.

3. References to sections of the Water Act 1989 (Vic) do not have the effect of importing the sections referenced into the accredited material but are included for reference only.

Note 1: Section 12.27 of the Basin Plan clarifies that the requirements of Chapter 12 of the Plan, including trade within a groundwater SDL unit (section 12.24 of the Basin Plan), trade between groundwater SDL units (section 12.25 of the Basin Plan), and trade between groundwater and surface water (section 12.26 of the Basin Plan) are not intended to prevent a restriction being imposed on a trade of a water access right under State water management law because a person has committed an offence or failed to pay fees or charges. State water management law includes the Water Act 1989 (Vic) and regulations and other instruments made under that Act.

Note 2: permissible consumptive volumes declared under section 22A of the Water Act 1989 (Vic) have the effect of setting a resource condition limit for the resource to which the declaration applies.

Note 3: See response to section 10.18 (3) which applies a rule under paragraph (1) of that response relating to the consideration of risks to high value groundwater dependent ecosystems relating to the transfer of a take and use licence. This rule applies the Ministerial Guidelines for groundwater licensing and the protection of high value groundwater dependent ecosystems (Minister for Water, 2015). See the discussion in response to Part 4 in Column 5 of Victoria’s North and Murray Index Table for more information on the application of this policy and the rule.

7.4.2.9 Trade between two groundwater SDL resource units

To meet the requirements of section 10.38 of the Basin Plan, Victoria’s North and Murray Water Resource Plan must identify the circumstances in which trade is permitted to ensure that the conditions of section 12.25 of the Basin Plan are met. The circumstances must relate to trade between two groundwater SDL resource units within the Goulburn-Murray water resource plan area (see Table 7-3). How the conditions under section 12.25 of the Basin Plan are met under Victoria’s framework is outlined above in Section 7.4.2.2 to Section 7.4.2.6.

Current research indicates that there is potential for trade between the Goulburn-Murray: Sedimentary Plain SDL resource unit and the Goulburn-Murray: Highlands SDL resource unit as...
they are hydraulically connected at the upgradient Goulburn-Murray: Highlands SDL resource unit at their common boundaries. For example, the fractured rock aquifers in the Goulburn-Murray: Highlands SDL resource unit are hydrogeologically connected to the Sedimentary Plain aquifers present at the boundary with the Highlands and continue where the Sedimentary Plain aquifers overlie the fractured rock in the Goulburn-Murray: Sedimentary Plain SDL resource unit.

Due to the connectivity between these two SDL resource units, trade between the Goulburn-Murray: Sedimentary Plain SDL resource unit and the Goulburn-Murray: Highlands SDL resource unit may occur, if sufficient hydraulic connectivity is proved. This may occur during the development of a statutory management plan also it must be assessed through the relevant hydrogeological resource assessment for each individual trade.

Groundwater trade occurs between the Goulburn-Murray: Sedimentary Plain SDL resource unit and the Goulburn-Murray: Highlands SDL resource unit according to rules established in groundwater management plans. In 2017-18 there were 31 permanent transfers between these two SDL resource units amounting to almost 2,400 ML.

Trade does not occur:

• into or out of the Goulburn-Murray: deep SDL resource unit does, given the poor hydraulic connectivity between this unit and the overlying aquifer layers

• Goulburn-Murray: Shepparton Irrigation Region SDL resource unit as the objective of the Shepparton Irrigation Region groundwater management area plan is to encourage groundwater extraction to provide salinity and shallow watertable control

The circumstances prescribed in Victoria's North and Murray Water Resource Plan that satisfy the requirements under section 10.38 of the Basin Plan are outlined in the accredited text below.

1. Trade between two groundwater SDL resource units within Victoria's North and Murray water resource plan area is permitted in the following circumstances:
   a. the two locations are within the Goulburn-Murray: Sedimentary Plain SDL resource unit and the Goulburn-Murray: Highlands SDL resource unit and sufficient hydraulic connectivity between the two locations has been demonstrated by the relevant hydrogeological resource assessment or statutory management plan approved under section 32A of the Water Act 1989 (Vic) where appropriate; and
   b. if the relevant permissible consumptive volume declared under section 22A of the Water Act 1989 (Vic) is not exceeded; and
   c. if the volume to be traded is specified, noting that in Victoria measures are in place to ensure that the water access right to be traded will maintain its characteristics of timing, reliability and volume; and
   d. where regard has been had to any adverse effect that the trade is likely to have on existing authorised users of water and measures are in place to address any adverse effect.

2. Where trade occurs in the above circumstances it will be recorded on the Victorian Water Register.

3. Figure 7-7 of Victoria’s North and Murray Comprehensive Report depicts the process for determination of a transfer (trade) of a take and use licence under the Water Act and demonstrates how the conditions set out in section 12.25 of the Basin Plan align with the Victorian framework. Reference to the Water Act 1989 (Vic) in Figure 7-7 of Victoria's North and Murray Comprehensive Report does not form part of the response and is included for reference only.
4. References to sections of the Water Act 1989 (Vic) do not have the effect of importing the sections referenced into the accredited material but are included for reference only.

**Note 1:** Section 12.27 of the Basin Plan clarifies that the requirements of Chapter 12 of the Plan, including trade within a groundwater SDL unit (section 12.24 of the Basin Plan), trade between groundwater SDL units (section 12.25 of the Basin Plan), and trade between groundwater and surface water (section 12.26 of the Basin Plan) are not intended to prevent a restriction being imposed on a trade of a water access right under State water management law because a person has committed an offence or failed to pay fees or charges. State water management law includes the Water Act 1989 (Vic) and regulations and other instruments made under that Act.

**Note 2:** Permissible consumptive volumes declared under section 22A of the Water Act 1989 (Vic) have the effect of setting a resource condition limit for the resource to which the declaration applies.

**Note 3:** See response to section 10.18 (3) of the Basin Plan which applies a rule under paragraph (1) of that response relating to the consideration of risks to high value groundwater dependent ecosystems relating to the transfer of a take and use licence. This rule applies the Ministerial Guidelines for groundwater licensing and the protection of high value groundwater dependent ecosystems (Minister for Water, 2015). See the discussion in response to Part 4 in Column 5 of Victoria's North and Murray Index Table for more information on the application of this policy and the rule.

Trade is not permitted into or out of the Goulburn-Murray: Shepparton Irrigation Region or Goulburn-Murray: deep SDL resource units in the Goulburn-Murray water resource plan area.

<<end of accredited text for s10.38(1) of the Basin Plan>>

### 7.4.2.10 Trade between surface water and groundwater SDL resource units

To meet the requirements of section 10.39 of the Basin Plan, Victoria’s North and Murray Water Resource Plan must identify the circumstances in which trade is permitted to ensure that the conditions of section 12.26 of the Basin Plan are met. The circumstances must relate to trade between surface water and groundwater in Victoria’s North and Murray water resource plan area. How the conditions under section 12.26 of the Basin Plan are met under Victoria’s framework is outlined above in **Section 7.4.2.2 to Section 7.4.2.6**.

Trade between surface water and groundwater areas is permitted by the Victorian Water Act, subject to the Act, the policies, including Policies for Managing Take and Use Licences (DEPI, 2014), and any rules in a statutory management plan that apply to the area. This policy supports trade within unregulated surface water and groundwater systems.

**Clause 27A**  

**Trade within unregulated surface water and groundwater systems**

1. In developing or amending a local management plan, there may be particular circumstances where rural water corporations may develop system-specific trading rules and

2. Where any system-specific water trading rules are developed for inclusion in a local management plan, the executive director responsible for water entitlements in the Department must be consulted before the local management plan is implemented.

Trade between surface water and groundwater is permitted where there is a high degree of connection recognised for between the two resources. As at April 2019 in the Goulburn-Murray...
water resource plan area, Goulburn-Murray Water has published 17 groundwater management area and water supply protection area plans, but only the Upper Ovens River water supply protection area Water Management plan (GMW, 2012) has been developed as a combined surface water and groundwater plan which allows trade between surface water and groundwater systems. Under the Upper Ovens River Water Supply Protection Area Water Management Plan groundwater and surface water is conjunctively managed. This means all surface water and groundwater in Zone 1 is treated as the same.

Groundwater in the river alluvium in this area is in the Goulburn-Murray: Sedimentary Plain SDL resource unit, and extensive dredging upstream of Myrtleford has resulted in a highly permeable aquifer that is highly connected to the Ovens River. The groundwater and river systems are closely connected and the area has a long history of impacts to the watertable from surface water extraction and stream depletion through excessive pumping of groundwater close to the river.

Because of this, groundwater discharge to the river is significant for maintaining base flow during periods of low rainfall, and trading rules for groundwater extraction from the alluvial material are the same as for surface water in the adjacent stream. The water supply protection area has two groundwater management zones. Zone 1 covers the extent of the highly permeable river alluvium and associated hillslope colluvium. Zone 2 comprising the less conductive fractured bedrock that has a relatively poorer hydraulic connection to the stream systems.

The licence transfer (trade) rules adopted are consistent with surface water licence transfers these are:

• an application to transfer upstream may be approved with winter-take conditions
• a licence to transfer downstream may be approved with a 20 percent reduction in the licence volume

The Upper Ovens River Water Supply Protection Area Water Management Plan applies a surface water trading rule whereby a loss factor of 20 percent is applied for downstream trades of all-year licences. The effect of this 20 percent loss factor is that as part of the permanent or temporary downstream transfer of a licence to take water from unregulated water systems (including groundwater under this Water Management Plan), the Minister (or delegate) may impose a condition in the Upper Ovens River Water Supply Protection Area Water Management Plan area that the buyer is only entitled to receive less than 80 percent of the licence volume transferred by the seller.

The reduction in licence volume from the seller to the downstream buyer is implemented to account for evaporation, seepage and other losses which would occur in the system between the seller's upstream extraction point and the buyer's downstream extraction point.

Without this deduction the buyer would be taking a greater net volume of water out of the system than the seller. Meaning the effect of the rule is to maintain the relative volume of the water access right (licence) between upstream and downstream users given the difference between availability. Without this rule the buyer would have a negative impact on the overall resource availability for all entitlement holders including potential adverse impacts on the environment. This is a general rule to manage potential impacts on water availability for all licence holders and is in line with section of 12.18(b) of the Basin Plan.

The rule is applied uniformly because the impact of taking water from the surface water system or the groundwater system is essentially the same, even though there may be time lag effects in relation to groundwater extractions. Therefore, the rule will apply to groundwater to groundwater trades and groundwater to surface water trades. The application of this rule is to ensure that levels of take remain within the resource condition limit across the management area.

There has not been any trade between surface water and groundwater outside of the Upper
Ovens River water supply protection area. It is reasonable to expect that in the future there may be other opportunities for trade between surface water and groundwater, but further work needs to be done to understand the opportunities.

The circumstances in Victoria’s North ad Murray Water Resource Plan that satisfy the requirement under section 10.39 of the Basin Plan are outlined in the accredited text below.

1. Trade between a groundwater SDL resource unit and a surface water SDL resource unit within Victoria’s North and Murray water resource plan area is permitted in the following circumstances:
   a. the trade occurs in areas considered to have sufficient hydraulic connectivity as recognised in a statutory management plan approved under section 32A of the Water Act 1989 (Vic); and
   b. if the relevant permissible consumptive volume declared under section 22A of the Water Act 1989 (Vic) is not exceeded; and
   c. if the volume to be traded is specified, either:
      i. noting that in Victoria measures are in place to ensure that the water access right to be traded will maintain its characteristics of timing, reliability and volume; or
      ii. where provisions are made in a statutory management plan for significantly hydraulically connected groundwater and surface water resources, rules for unregulated surface water may also apply to the connected groundwater resource to account for system loses or third-party impacts; and
   d. where regard has been had to any adverse effect that the trade is likely to have on existing authorised users of water and measures are in place to address any adverse effect.

2. Where trade occurs in the above circumstances it will be recorded on the Victorian Water Register.

3. Figure 7-7 of Victoria’s North and Murray Comprehensive Report depicts the process for determination of a transfer (trade) of a take and use licence under the Water Act 1989 (Vic) and demonstrates how the conditions set out in section 12.26 of the Basin Plan align with the Victorian framework. Reference to the Water Act 1989 (Vic) in Figure 7-7 of Victoria’s North and Murray Comprehensive Report does not form part of the response and is included for reference only.

4. References to sections of the Water Act 1989 (Vic) do not have the effect of importing the sections referenced into the accredited material but are included for reference only.

Note 1: Section 12.27 of the Basin Plan clarifies that the requirements of Chapter 12 of the Plan, including trade within a groundwater SDL unit (section 12.24 of the Basin Plan), trade between groundwater SDL units (section 12.25 of the Basin Plan), and trade between groundwater and surface water (section 12.26 of the Basin Plan) are not intended to prevent a restriction being imposed on a trade of a water access right under State water management law because a person has committed an offence or failed to pay fees or charges. State water management law includes the Water Act 1989 (Vic) and regulations and other instruments made under that Act.

Note 2: Permissible consumptive volumes declared under section 22A of the Water Act 1989 (Vic) have the effect of setting a resource condition limit for the resource to which the declaration applies.
Note 3: See response to section 10.18 (3) which applies a rule under paragraph (1) of that response relating to the consideration of risks to high value groundwater dependent ecosystems relating to the transfer of a take and use licence. This rule applies the Ministerial Guidelines for groundwater licensing and the protection of high value groundwater dependent ecosystems (Minister for Water, 2015). See the discussion in response to Part 4 in Column 5 of Victoria’s North and Murray Index Table for more information on the application of this policy and the rule.

<<end of accredited text for s10.39(1) of the Basin Plan>>

In response to section 10.39(2) the way in which a conversion rate will be determined is set out in the following accredited text.

1. In accordance with section 10.37(2)(b) of the Basin Plan Victoria may determine a conversion rate which applies on the transfer of a take and use licence in an unregulated surface water system in Victoria’s North and Murray water resource plan area.

2. In Victoria’s North and Murray water resource plan area a where a conversion rate is determined it will be done in the following way:
   a. under a statutory management plan approved under section 32A of the Water Act 1989 (Vic) for a water supply protection declared under section 27 of the Water Act 1989 (Vic);
   b. applied in accordance with the prescriptions identified in the relevant statutory management plan referred to under (a) above;
   c. made available through the publication of the relevant statutory management plan referred in (a) on the relevant water corporation website.

3. References to sections of the Water Act do not have the effect of importing the sections referenced into the accredited material but are included for reference only.

<<end of accredited text for s10.39(2) of the Basin Plan>>

Under Basin Plan this loss factor meets the characteristics of a “conversion rate” for the purposes of section 10.39(2) of the Basin Plan. The way in which a conversion rate will be determined from time to time and made generally available is outlined (as required under section 10.39(2)(b) of the Basin Plan) is outlined in the accredited text of Column 3 of Victoria’s North and Murray Index Table in response to section 10.39(2) of the Basin Plan.