**Contents**

**Carryover Review Committee**
Final report to The Minister for Water

*October 2012*

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>iv</td>
</tr>
<tr>
<td>1. Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>2. An improved Murray spill rule</td>
<td>3</td>
</tr>
<tr>
<td>3. Aligning carryover and trade rules</td>
<td>5</td>
</tr>
<tr>
<td>4. Tariffs for casual use of storages</td>
<td>7</td>
</tr>
<tr>
<td>5. Opting to return unused allocation to the pool for future allocations</td>
<td>9</td>
</tr>
<tr>
<td>6. Are limits needed on how much entitlement holders can carry over?</td>
<td>11</td>
</tr>
<tr>
<td>7. Carrying over against low-reliability entitlements</td>
<td>13</td>
</tr>
<tr>
<td>8. Low-risk-of-spill declarations</td>
<td>14</td>
</tr>
<tr>
<td>9. Simplifying evaporation accounting</td>
<td>16</td>
</tr>
<tr>
<td>10. Factors impacting on low-reliability allocations</td>
<td>17</td>
</tr>
<tr>
<td>11. Improving understanding of the carryover provisions</td>
<td>19</td>
</tr>
<tr>
<td>12. Goulburn system reserve policy</td>
<td>21</td>
</tr>
<tr>
<td>13. Murray system reserve policy</td>
<td>23</td>
</tr>
</tbody>
</table>

*Attachment 1: Membership of Carryover Review Committee* 25

*Attachment 2: Carryover Review Committee Terms of Reference* 26
In the course of its work over the last nine months, the Carryover Review Committee has become very conscious that there are quite divergent views in the community – sometimes very strongly held.

This is perhaps not surprising, given that carryover was introduced relatively recently and the rules have kept on evolving. At the same time northern Victoria has faced climatic extremes – from years that were the driest ever known, to the vast floods of more recently.

Water unused at the end of a season traditionally reverted to the common pool. Allowing it instead to be carried over proved critical during the drought because it gave individuals the choice about when to use their allocations.

The important proviso was that there was spare space in storages. To ensure this, there was a tight rule at the outset: once the amount carried over plus new allocations reached 100% of a person's entitlement, any further allocations had to be forgone.

The provisions were widened in 2010, with allocations above entitlement now put aside as “spillable water”. They were only lost if the storages actually spilt – rather than potentially when storages were still half full, as happened when allocations leapt to 100% after the Darling floods in early 2010.

With floods breaking the drought and conditions staying wet since, the volumes carried over have been very high, especially on the Murray. It is timely that the Minister for Water has asked for a thorough review of the carryover provisions.

The Carryover Review Committee has brought together a broad group of water users from across northern Victoria. Each of the water service committees in the Goulburn-Murray irrigation district has provided a representative, alongside Sunraysia irrigators, key industry organisations, rural and urban water authorities, and environmental water holders.

Committee members have not taken this responsibility lightly, working through the various issues very carefully. Their understanding of the pros and cons of different choices has grown. The endeavour has been to arrive at solutions that are the right ones, in the interests of all northern Victorians.

In the end consensus has been reached on all but one of the matters the Committee was asked to look at – and that single remaining divergence has been well documented in this report.

While the importance of carryover arrangements has been reinforced, a number of corrections and modifications to the rules have been recommended. Some of these are of critical significance.

Dennis Moon
Chair, Carryover Review Committee
1. Executive Summary

The Carryover Review Committee was established by the Minister for Water in late 2011 to look at whether the major reforms to carryover provisions introduced in the Murray, Goulburn and Campaspe water systems in 2010 were working as they were meant to, particularly in the recent wet years.

The Committee brought together water users and water corporations from across northern Victoria, representing irrigators, environmental water holders and urban water authorities. The membership and the complete terms of reference of the Committee are attached to this report.

The Committee considered these matters over six meetings between January and September 2012, and reached consensus on all but one topic. The key recommendations to the Minister are:

- The spill rule for the Murray system should be changed to a Hume-based spill rule from July 2013. The current Dartmouth spill rule has not worked properly in the recent drought recovery sequence; it has protected carryover at the expense of new allocations to entitlements. As well, making carryover too safe has contributed to other problems related to trade between valleys.

- Some simple controls on trade between valleys should be applied to avoid the need for future sudden trade suspensions.

- Tariffs should be amended to ensure that casual use of storage capacity in the dams always incurs a fee, to the benefit of all entitlement holders.

- A simple facility needs to be established to allow water users, if they do not wish to carry over unused allocation, to return it to the pool for future allocations, or donate it to the Victorian Environmental Water Holder – at no cost.

- Most members of the Committee supported continuing to have no specific restriction on how much unused allocation could be carried over, though three members preferred to have a limit to prevent individuals from carrying over more than their entitlement volume.

- Simpler and clearer communication is critical to improving understanding of the carryover provisions and a number of initiatives are proposed.

Through the course of its consideration of these carryover issues, some core principles came through that guided many of the Committee's key recommendations:

- Unused water can be carried over, but should not displace inflows that support new allocations. This is central to protecting the integrity of Victorian entitlements.

- It is the entitlement that gives security of access up to that volume of water, because it is supported by storage capacity that the entitlement holder pays for each year.

- Carryover and allocations in excess of a person's entitlement are casual use of the storage space which underpins other peoples' entitlements.

- There is no guarantee of access to this water (held in spillable accounts), and it spills to make way for new inflows when the storage space is needed.
The Committee recognised though that while spill rules are the primary protection for resources for new allocations, having a low-risk-of-spill declaration introduces a degree of risk to these resources. Making sure this risk is not unacceptably high is important.

In addition, the Minister asked the Committee to review the amended Goulburn system reserve policy. The Committee noted that the benefits of carryover were based on the capacity to deliver it, particularly in dry years, and that this capacity depended on a system reserve. The Committee therefore recommends that:

- The early reserve policy should remain in place, but the volume set aside should be reduced to account for the current modernisation of the system.
- A similar early reserve policy should be implemented for the Murray system.

A summary of the Committee’s consideration of each of these key recommendations, and other matters considered is provided in this report.
2. An improved Murray spill rule

Recommendation

The Committee recommends that the Murray spill rule be changed to a Hume-based rule from July 2013.

Under this recommendation, any spills from Victoria’s share of Hume or Dartmouth caused by allocation left in these storages at the end of the last water year will be deducted from spillable accounts.

Why is getting the spill rule right critical?

When unused allocation can be carried over, there are two types of impacts:

- Type I (utilisation) impacts – Carryover means that unused allocation is no longer socialised at the end of the year. This is the same effect as if individuals used their allocation during the season, as they are entitled to do. The Committee was of the view that these impacts are acceptable.

- Type II (storage capacity) impacts – Where individuals carry over their water, and storing that extra water prevents storages from capturing the inflows that support new allocations. The Committee resolved that these impacts are unacceptable – excess stored water has to be subject to spills.

The rules defining spills are critical to protect the integrity of existing entitlements – to prevent individuals locking up storage space that is rightly needed to underpin these entitlements.

Spill rules are straightforward in systems like the Goulburn or Campaspe with a single main dam, but on multi-storage systems like the Murray, the spills caused by carryover need to be identified.

Why is the current Dartmouth spill rule wrong?

The current spill rule, based on Dartmouth only, might have been appropriate in many years, but has not worked well in recent seasons as Dartmouth has recovered from very low levels reached in the drought.

Large volumes of carryover after the 2010-11 floods have contributed to spills from Hume, but as these have not been deducted from spillable accounts, new allocations have been impaired.

If we had had a Hume-based rule in place for the Murray since 2010:

- There could have been up to a 24% allocation to low-reliability shares late last season.

- There would only be 500 GL of carryover, rather than 1,400 GL, on the Murray this year. Most of this 500 GL would have spilled from Hume already, high-reliability allocations would already be at 100%, and we would be heading for the possibility of full low-reliability allocations as well.

The Dartmouth spill rule has made the Victorian Murray an artificially secure location to carry over water in recent years. This has contributed to other problems, such as excessive trade in from other valleys and interstate, forcing trade suspensions to protect Murray entitlement holders.

How does the recommended Hume-based spill rule work?

Under the recommended rule, carryover will be deemed to be in Hume first, up to the volume of water that is physically in Victoria’s share at the end of the water year. All spills from Hume in the new season, up to this volume, will be deducted from Murray entitlement holders’ spillable accounts until a low-risk-of-spill declaration is made.
Carryover will only be deemed to be in Dartmouth to the extent that there is more water carried over than was physically held in Hume at 30 June. Spills from Dartmouth that contribute to any spills from Hume during the season will also be deducted from spillable accounts.

Carryover will not be able to accumulate in Dartmouth since, whatever happens during the season, at the end of the season the carryover is re-assessed as being in Hume to the extent of water there, and it will be the first to spill (like on the Goulburn), making sure it does not displace inflows for new allocations.

**Why is this option recommended?**

The Committee considered that logically, this spill rule is the right one for the Murray system because it is reflective of spills actually caused by carryover.

If the water had been used in the year it was allocated instead of being carried over, it would have been delivered firstly from Hume, with additional releases from Dartmouth only as needed. Therefore, any water carried over should be deemed to be firstly in Hume, and only in Dartmouth to the extent the water is not physically in Hume at the end of the year.

The recommended rule will put the priority back to protecting new allocations, and restore Dartmouth as the reserve storage to underpin the reliability of water shares. It will mean that, of the water left in the two main Murray storages at year’s end, allocation carried over will always be the first to spill.

**What other options were considered?**

The Committee considered a number of other options that were not recommended.

One option was to have all Hume spills always come off spillable accounts. However, it was decided that this *all-Hume-spills* rule would be too extreme, as it is not reflective of spills caused by carryover.

- For example, if there was only 300 GL physically in Hume at the end of the year, any new season spills in excess of 300 GL would have always happened, even if people used all of their water and Hume was empty at the end of the year.

The Committee considered that reducing carryover in individual accounts for spills that could never have been harvested would be difficult to justify, particularly to Sunraysia irrigators who generally do not hold low-reliability shares, and value the security of their carryover.

The Committee considered it important that spill rules are defensible to all entitlement holders based on the spills caused by carryover.

Materially, the outcomes may not be much different, but having some carryover in Dartmouth in really dry years will give confidence to water users in making decisions about carryover at crucial times.

Other options included deeming carryover to be in Dartmouth and Hume in differing proportions, but these were all arbitrary rules that would result in some unacceptable impacts in years like the last two.

The Committee ruled out spill rules which include the other Murray storages because this would have added unnecessary complexity:

- Downstream storage at Menindee Lakes and Lake Victoria is primarily used to underpin commitments to South Australia, while water allocated to Victorian entitlements needs to be able to be delivered from the major upstream storage in Hume and Dartmouth.

- Water held in the Snowy scheme storages is simply another source of inflows into Hume.
3. Aligning carryover and trade rules

**Recommendation**

The Committee recommends that efforts be made to see if “tagged allocation trade” can be implemented, as potentially the best long-term way to prevent adverse consequences of water moving between valleys.

In the interim, to avoid the need for sudden trade suspensions, the Committee recommends that simple limits on inter-valley trade be put in place to provide more certainty to the market.

**Why can inter-valley trade cause problems?**

Where rules to manage trade between valleys do not align well with carryover provisions, individuals may move water between valleys to gain advantages for themselves that have adverse repercussions for other entitlement holders.

Trade to the Victorian Murray had to be suspended towards the end of the last two seasons, because the water transferred to back this up was not secure, and this posed unacceptable risks to Victorian Murray entitlements as described below:

- Trade out of the Goulburn, Campaspe and Loddon systems results in water owed to the Murray, and if the river operator does not call out that water in the current season, the water owed to the Murray is at risk of being spilled from Eildon, eroding Murray resources for the new season.

- When water is traded into Victoria from NSW, Victoria takes on the commitment to supply it, and NSW cedes the water to Victoria. However, if our share of Hume and Dartmouth is full, we cannot store this extra water, resulting in an immediate adverse impact to other Victorian Murray users.

(Note that trade into Victoria from South Australia, even if the water originated in NSW, does not affect Murray entitlements. While it increases commitments in Victoria, the matching reduction in our obligation to supply water downstream to SA means that Murray allocations are not affected.)

**How to manage these problems**

While noting that the recent trade suspensions were necessary, the Committee took the view that better ways to manage these risks are needed to allow greater market confidence and minimise interference with water users’ legitimate water management.

The Committee has sought to ensure that appropriate controls on inter-valley trade, aligned well with spill rules on carryover, be implemented to prevent individuals gaming for personal benefit at the expense of allocations to other entitlements.

**Will the new Murray spill rule solve the problem?**

The existing spill rule on the Murray, where all carryover is deemed to be in Dartmouth, has made carryover unduly safe. This has made it very attractive for people to trade water to the Victorian Murray, which has been a major reason for the need to suspend trade.

The new Murray spill rule is the key step to protect Victorian Murray entitlement holders, because:

- It minimises the incentive to trade into the Victorian Murray for carryover.

- It ensures that any water traded into the Victorian Murray for carryover will, along with all other carryover, always spill before inflows for new allocations.
Nevertheless, the problem is not solved completely. Even when carryover provisions are comparable between valleys, seasonal conditions may make it profitable to move water from one valley to another.

The scope for large shifts of water will be increased when the Basin Plan comes into place. Currently there are constraints because of the Victorian rule that limits how much allocation an individual can buy based on what they could feasibly use under their water-use licence.

Victoria is likely to be obliged by the Basin Plan to remove restrictions on who can buy allocation by 2014. So effective alternative controls will be needed to make sure that Victorian Murray resources are not undermined by large scale trades from other systems.

**Why will “tagged allocation trade” help?**

Tagged allocation trade would mean allocation traded in from other valleys, if it wasn’t used in the current season, would be subject to the carryover rules in its valley of origin.

This would prevent NSW allocation being parked here at the expense of Victorian Murray entitlements.

For example, Murrumbidgee allocation would stay tagged as such when it traded to Victoria. If it wasn’t used, it would be carried over in Murrumbidgee storages, the same as it would have if it hadn’t traded.

Many users will not see any changes as a result of tagged allocation trade. A Victorian Murray entitlement holder will still be able to use and trade out of their existing account, and buy Victorian Murray allocation into it.

Only those who wish to buy allocation in from another valley will need to have a separate account for that valley. Water corporations could enhance their systems so that such a customer could set up a default ordering pattern to use their interstate allocation first if they cannot carry it over.

The Committee saw merit in tagged allocation trade as being a better long-term solution, but further work needs to be done with other States to overcome any implementation issues associated with this change. Work will also need to be done to see how trading processes could be streamlined to make them as efficient as possible, and to ensure that tagged allocation trade would not add excessive transaction costs and hinder the allocation market.

**What controls are proposed in the interim?**

Some interim controls are needed while this further work on implementing tagged allocation trade is proceeding. Imposing suspensions is not a very good approach, because there is no warning and they can disrupt people’s water plans.

The Committee supports putting in place the following simple limits, as safeguard measures.

- No trade would be allowed from the Goulburn, Campaspe and Loddon to the Murray if the water owed to the Murray (measured in the inter-valley trade account) exceeds 200 GL.
- No trade would be allowed in from NSW, if the risk of spill from Victoria’s share of storages in the remainder of the season exceeded 50%, or if net trade from NSW in the season exceeds 200 GL.

The interim trade limits act as a safety net. The volume of 200 GL balances the need for a reasonable trade-out volume with control of the impact on Murray entitlement holders.
4. Tariffs for casual use of storages

**Recommendation**

The Committee recommends that charges for spillable water are extended to ensure that all casual use of storage incurs a charge, not just the casual use at the time of a low-risk-of-spill declaration.

**Why tariffs for casual use of storages are important**

Charges for spillable water are important so that casual users of storage pay their fair share of the headworks costs, and all entitlement holders get a tangible benefit for allowing casual use of the storage capacity associated with their entitlements.

These charges also provide an important price signal for individuals to consider if carrying over their unused allocation is the best use of it, rather than using it now or selling it to someone who can use it.

The carryover rules are based around giving entitlement holders secure access to water in the storage space that backs their entitlement and that they in effect already pay for. In addition, spillable water accounts allow individuals to make casual use of additional storage capacity when it is not needed to support other entitlements.

If the additional water in this extra storage space does not spill, it is fair to charge for it, so that those who store more water than their entitlement volume do pay their share of the storage costs.

Contributions from casual users are used to reduce the fixed entitlement storage fees for everyone else’s entitlements in future Water Plans.

The Committee considered that greater transparency over the amount recovered from casual users and how this reduces future prices will improve public understanding and acceptance of this charge.

**Why the current approach to charges needs to change**

The current method for calculating spillable water charges means that casual use of storage above entitlement volume is not always incurring a charge.

This is because charges are currently only raised on the volume stored above entitlement at the time of the declaration (i.e. the volume made available from spillable accounts). However, allocations can rise further after a declaration, and this means that individuals might not be charged for all of the water they store above their entitlement volume throughout the course of the season.

This problem was evident on the Murray in 2011-12, when the low-risk-of-spill declaration was made on 1 July, when allocations were only 21%. Individuals who carried over water were only charged for water they had in excess of their entitlement at the time, even though allocations reached 100% later in the season, pushing more water into casual use.

In contrast on the Goulburn and Campaspe, customers were charged for all their casual use that did not spill, as the declaration was not made until after allocations had reached 100%.

The Committee considered this inequitable and recommends that the method of charging be changed for the coming 2013-14 season, to cover the total volume of carryover plus new allocation that is in excess of entitlement volume and does not spill.
What this change will mean

This change will mean that, in some years, more is collected from casual users and reductions in fixed storage charges will be greater. On the Murray last season, $3.3 million less was collected in casual storage use charges than if all casual use had been charged for. In many years, though, there will be no difference, since a declaration is not made until after allocations peak, as on the Goulburn last year.

The Committee acknowledges that in some years this might mean charges might not be able to be raised until later in the season, possibly until the final allocation date on 1 April, in dry years, but allocations will normally reach a maximum well before then. Charges are currently sent to customers towards the end of the season in any case.

Other matters considered by the Committee

**Account of previous usage.** The Committee discussed whether water that people had already used should be taken into account when assessing how much storage they were using.

The Committee decided that this should not change the charges raised, as they are simply based on the total amount that you have had secured in storage through the course of the season. Each water user has the right to have the full amount stored and discretion over when they actually use it.

Changing the current approach to reduce or avoid casual storage charges if customers use some of their extra water before allocations increase would be technically very difficult and expensive, as we do not have real-time metering, and meters are only read intermittently for many customers.

**Level of charge.** The Committee also discussed the magnitude of the charge for casual use of storage, which is currently set at the bulk water price for low-reliability shares for a particular basin. The reason for this is that it is the most accurate reflection of what storage space costs, as low-reliability shares are not generally backed by additional reserves held in storage by the Resource Manager.

There was some discussion of whether the level of the charge should be higher, but the Committee noted that this is ultimately something to be determined by water corporations, in consultation with their customers, as part of setting tariffs. The Committee commented that the price should reflect a fair share of the costs involved.

**Who pays the charge?** The Committee also discussed the fact that casual storage use charges are raised against water shares, which are the entitlement under which storage fees are collected.

The Committee noted concerns around bills being sent to the buyer of a water share when a water share is traded (or leased), while the extra water was actually held in the seller’s account.

This is really a buyer beware situation, and it is important to provide transparency for both buyers and sellers, so that the appropriate adjustments can be made at settlement, as they are in many other transfers of assets.

The Committee commented that steps being undertaken to educate brokers and solicitors to facilitate the necessary adjustments at settlement need to be matched with education of the customers as well.
5. Opting to return unused allocation to the pool for future allocations

**Recommendation**

The Committee recommends that a facility should be established to enable customers to easily elect to return unused allocation to the pool for future allocations if they do not wish to carry it over. This should be at no cost to the customer.

As an alternative, individuals should also be able to donate unused allocation to the Victorian Environmental Water Holder if they wish to.

**Why is this facility important?**

This idea had strong support from the Committee as an important tool to allow entitlement holders to manage their water more effectively, and opt out of carrying over water if they would prefer not to.

Carryover is automatic, to avoid the administrative complexity of everyone having to apply to carry over each year, but it is important to give customers the option to not carry over water if they don’t think they will need it in the next season. As a side-benefit, they could reduce their exposure to charges for casual storage use.

Irrigators can take account of their enterprise’s requirements and the likely future allocations given seasonal outlooks, and make judgments about how much water they want to carry over to secure next season's supplies and how much they can safely give up. Depending on the risk they are willing to take they might end up with more or less water than they need, subject to new season allocations, but either way irrigators will have a lot of control.

This facility can be made available by autumn 2013, ready for use leading up to the end of the current season.

**How will it work?**

A simple on-line facility on the Water Register website will allow irrigators and other water users to easily direct water back into the pool for future allocations towards the end of the season.

There will need to be an initial process to register a person as authorised to act on behalf of all the holders of an allocation account, with a password for security. This will be the same process as is currently in place for on-line trading on the Water Register website.

- It is important to verify that the right people have applied and for their intentions to be clear - to avoid problems if seasonal conditions change and people want to change their minds.

Once set up, a person will be able to go into the website, and in a couple of clicks complete the deal by:

- Ticking a box to show that allocation is to be relinquished back to the pool – or alternatively be offered to the Victorian Environmental Water Holder.
- Choosing whether to nominate either a specific volume or ‘All remaining tradable allocation’.

*(The customer would be reminded about the need to take their usage into account – it would be a problem if a donation was made, and subsequent usage left the customer with a negative balance.)*
The facility will be a streamlined version of an application to trade allocation, with allocation moved from the customer’s account to an account representing the pool for future allocations – or the Victorian Environmental Water Holder. There will be no need for the customer to fill out all of the usual details on a trade form, as the recipient account ID and other details will be auto-populated behind the scenes. There will be no issues with trading rules as allocation will stay in the trading zone it is in.

As an alternative to doing this on-line, there will also be the option of using a very simple paper form.

The transactions would initially go to relevant water corporations for approval in the normal way. However, DSE and water corporations are looking to move over the next couple of years towards fully automated allocation trade, and these dealings would be at the forefront of this. The Committee supported this mechanism as a precursor to a slicker, more automated trading platform.

The Victorian Environmental Water Holder is enthusiastic about receiving donations. But it may not always be able to use donated water, depending on when and where the donation is made, the amount of it, the seasonal conditions, and the costs involved. If it receives a donation that it is unable to use, it is proposed that it will pass the water on to the communal pool, using the same mechanism.

Note that this mechanism will only be available for the Murray, Goulburn and Campaspe, being the systems that have moved forward from the old 100% rule.

**Any application fees?**

While acknowledging that there is work involved in processing each transaction, and in responding to queries or problems, and that these costs need to be met somehow or other, the Committee was of the opinion that these applications should be free of any fee to the customers.

As any water returned to the pool for future allocations is shared among all entitlement holders, DSE and the water corporations are willing to waive fees in this case. As all entitlement holders benefit, it is reasonable that costs are covered from general revenue. Nonetheless, water corporations asked that the costs involved be monitored over the next few years to ensure that this is not adding additional unfunded costs to their business.

Any water donated to VEWH does not immediately benefit all entitlement holders, although there is a general community benefit from better environmental outcomes. The VEWH is willing to pay the fee for any donations that it accepts, and return any donations it cannot accept to the communal pool.

**Other options considered**

The Committee also considered, and ruled out pursuing an option to allow entitlement holders to elect to revert to the old carryover system – where there was no spillable water, but instead carryover and new allocation beyond 100% of entitlement was automatically forfeited, because:

- This would be a highly complex change, and is not one that could be in place by mid-2013.
- Having two approaches to carryover in one system would be both administratively difficult and potentially very confusing to customers and staff, and could lead to mistakes and grief.
6. Are limits needed on how much entitlement holders can carry over?

Recommendation

The Committee did not reach consensus on this topic, but agreed to advise the Minister that most members supported having no specific restriction on how much unused allocation could be carried over, as at present. However, three members preferred to have a limit to prevent individuals from carrying over more than their entitlement volume (with any new allocations that result in water being held above entitlement volume still going into spillable accounts).

Context of the Committee’s consideration of this topic

The Committee discussed the logic for allowing people to carry over all of their existing unused allocation, which is that it is their water and it is best that they be able to choose when to use it – as long as various levers are set so there is no third-part impact.

While individuals are not currently restricted in how much of their unused allocation they can carry over at the end of the season, access to that water in the new season is still fundamentally centred on the Victorian entitlements that underpin the carryover rules. Customers only have secure access to water up to their entitlement, and any water above this is subject to spills if the storages fill.

Throughout the review process, the Committee recognised the importance of getting the other levers right, which if done correctly would go a long way to addressing the need for limits. In particular:

- Getting spill rules right – to make sure people will lose what they’ve carried over when it is occupying space needed for water for new allocations.

- Aligning carryover and trade rules – to prevent individuals gaming by moving water between valleys to secure their carryover at the expense of allocations to other entitlement holders.

- Making sure that casual users pay their fair share of storage costs when they use empty storage space that underpins other people’s entitlements, and also that the right financial incentives are in place to use water efficiently.

- Providing the option to easily elect to not carry over excess water if customers don’t need it.

The Committee recognised that if these other levers are not right, then not having limits can exacerbate impacts on new allocations. For example, the spill rule not working correctly on the Murray means that carryover into this season is 1,400 rather than 500 GL, and allocations have been impaired.

Summary of discussion

The Committee’s consideration of each of these other levers is discussed in the earlier chapters of this report. The further discussion in the Committee of whether, with these levers in place, the amount individuals can carry over needs to be restricted is summarised below.
Arguments against restricting how much entitlement holders can carry over

Key points made by members of the Committee who opposed restricting carryover included:

- Except in very wet years, a limit will not result in significantly more water being socialised at the end of the year. Water is worth money and people will use or trade it if they are going to lose it.
- As long as the right controls are in place – to protect entitlements and ensure casual users pay their way – then providing more flexibility gives water users more opportunities.
  
  No two businesses are alike and some will value this more than others, particularly irrigators starting out or restructuring their entitlement holdings.
- In the face of uncertain climate, and with a reduced pool of entitlement for consumptive use in the future, any measures that provide additional flexibility for entitlement holders to manage their own risks should be a good thing as long as the right safeguards are in place.
- While not having limits will not provide much benefit in wet years, when the extra water will either spill or be locked up for long parts of the season, it could provide real benefits in dry years when water is most valuable.

One member commented that many of the Sunraysia irrigators forced out of irrigation in recent years were burnt by having to buy allocation at peak prices at the height of the drought, and if they had had other options like carrying over more water from wetter years, their land might still be in production.

A couple of members commented that they had come into the Committee thinking that restrictions were needed, but after working through this process and getting the other controls right are now of the opinion that restrictions are not needed.

Arguments for restricting how much can be carried over

Key points made by those in favour of restricting carryover included:

- Having a limit might reduce reliance on other levers, particularly controls on allocation trade.
- Not having a limit could possibly diminish the incentive to use water, and this could lead to increased prices if not enough water is being put through delivery systems.
- Lessening the need to own entitlements could undermine their value.
- A concern was raised that the environment could bank water and cause spills.
- Another concern was that there are still unknowns, and maybe it is better to have a limit as a safety net now, and unwind it down the track, as it will be hard to bring one in later on if it is really needed.

On the other hand, some members commented that we should be cautious not to over-react to the recent wet sequence, and that we should allow some time to see whether the other, refined levers do the job before committing to restrictions that may not be necessary.

Other options discussed

One member suggested that carryover should only be a drought mitigation tool, and proposed either going back to the old 100% rule or investigating an option to write-off all spillable water in December. These options were not supported by the Committee as they would significantly limit the flexibility available to Victorian entitlement holders.
7. Carrying over against low-reliability entitlements

Recommendation

The Committee supports the current arrangements to allow individuals to carry over any unused allocation against their low-reliability water shares.

This is consistent with the principle that individuals can have secure access to the storage space that supports their entitlements and that they pay storage fees for each year.

Why can you carry over unused allocation against low-reliability shares?

The Committee noted that carryover rules are based around giving entitlement holders secure access to the storage space that backs their entitlements and that they pay storage fees for each year:

- Individuals can use the storage space which backs their own entitlement without interfering with the ability to capture inflows for new allocations to all entitlements.
- Individuals can casually use storage that underpins other people’s entitlements, but this water must make way (spill) for inflows for new allocations. There is no guarantee of when this spillable water can be accessed.

Low-reliability water shares, like high-reliability shares, are supported by storage space, and this is why they incur annual entitlement storage fees.

Allowing entitlement holders to carry over against low-reliability shares is consistent with the core principle that individuals should be able to use that storage space to secure access to the unused allocations that they carry over, no matter how they received that allocation.

What is the benefit of allowing carryover against low-reliability?

Allowing unused allocation to be carried over against low-reliability water shares allows individuals to use the storage space backing their entitlement most efficiently, and secure access to their full high- and low-reliability entitlement volume as early as possible in the season.

If individuals could not carry over against their low-reliability water shares, it would result in more water being locked up in spillable accounts unnecessarily, and less water available to use at the start of the season.

It would limit the ability of low-reliability entitlement holders to make use of the storage space that they pay for.

Is this fair for all entitlement holders?

Under the old rules when carryover was first introduced, there was concern that Sunraysia irrigators were disadvantaged, as losing carryover was linked to allocations, and low-reliability allocations were much less frequent. However, the current rules addressed this issue by ensuring that all entitlement holders only lost water when the storages actually spilled, which is more equitable.
8. Low-risk-of-spill declarations

Recommendation

The Committee recommends that the current 10% level of risk adopted in making a low-risk-of-spill declaration should continue to apply. However, the Committee supports efforts to improve the way this risk is assessed to make sure it incorporates the best available prediction methods.

The Committee does not support the idea of a partial declaration to free up some spillable water earlier in the season, as this would add additional complexity to the carryover provisions for the benefit of only a subset of users. The Committee recognises that this is potentially something that could be worth reconsidering down the track, though if it ever was introduced it should be only in exceptional circumstances.

Context of the Committee’s consideration of this topic

The low-risk-of-spill declaration is made by the Resource Manager when the risk of storages spilling in the remainder of the season is assessed to be less than 10%. It is significant for two important reasons:

Firstly, it determines when water that has been locked up in spillable accounts becomes available for use or trade. This declaration gives security of access to that extra water for the rest of the season, which is particularly important for those who have carried over water and wish to make use of more than their entitlement.

Secondly, given that this additional water is made secure, it means that any subsequent spills will affect resources to support future allocations as they are not deducted from individuals’ spillable accounts.

In this context, the Committee discussed two key questions:

- Should provision be made for the Resource Manager to make a partial declaration to free up access to some spillable water if the risk of spilling all of it is low?

- Should a lower risk threshold be adopted to reduce the chance of future allocations being impacted by late season spills?

Partial declarations to free up access to some spillable water

The Committee initially considered this question when discussing alternative spill rules for the Murray system that would have involved deeming carryover in Dartmouth to a greater degree than the Hume-based rule ultimately recommended. In years when the risk of Dartmouth spilling is low, there could be value in freeing up access to some additional water early in the season.

The Committee also recognised that the same logic could be applied on the Goulburn and Campaspe when some spill was a possibility, but the risk of spilling all of the carryover was low.

The Committee noted that, within some firm bounds, having a partial declaration if it was reasonably safe to do so could add value, and open up opportunities for more water to be used. This could particularly be so on the Murray in wet years, where Hume can remain quite full and declarations may not be made until late in the season, if at all. On the other hand, the Committee considered analysis showing that partial declarations might only be possible in a few years, and then only a month or two before a full declaration.
On balance, the Committee decided that it is better to stick to a single declaration, as now, because:

- Partial declarations would add complexity to the carryover rules, outweighing the benefits, which might only be marginal and for a subset of users with not much entitlement.
- A single declaration maintains the incentive to own entitlements to secure access to water.
- Other options, such as allocation trade and leasing of entitlements to secure access, are available.

The Committee noted that partial declarations could be reconsidered in future, when understanding of the carryover rules improves, but should only ever be resorted to in exceptional circumstances.

**Level of risk adopted and late season spills**

The Committee discussed whether the 10% risk threshold should be revisited in light of the late season spills from Lake Eildon last season. These spills after the declaration resulted in 300 GL of resource to support 2012-13 allocations being lost. This could impair low-reliability allocations later this season.

Taking less risk would reduce the chance of spills impacting on future allocations, but would mean that declarations would often be later.

The Committee commented that it is important to take some risk, otherwise you become too conservative and miss out on opportunities to use the water. The current threshold means that the Resource Manager needs to be 90% confident that there will be no later spills, even in wet years, so spills after a declaration should be rare.

Nonetheless, late season spills do happen, as seen last season, and as often as one year in ten historically. However, late season spills do not necessarily impact on allocations, as all carryover might have spilled earlier in the season, or a declaration might not have been made.

The Committee was of the opinion that the current 10% level of risk should be maintained, but supported efforts to improve the way this risk is assessed to make sure it incorporates the best available prediction methods.

Last season the declaration was made on the Goulburn after a relatively dry spring. While inflows were tapering off, suggesting that storages would start to be drawn down, other climatic indicators suggested that we were headed into a La Nina event and a wet autumn. If these indicators had been incorporated in the assessment, a declaration might not have been made in December.

The Committee supported efforts by DSE and the Resource Manager to try to make the method for assessing the risk of future spills smarter by incorporating the best available climate science.

**Other matters discussed**

The Committee briefly discussed other options to deal with late season spills, such as taking them off spillable accounts in the following season. This was not supported as it would be taking water off different water users, and not necessarily those whose carryover had caused the spill.

Early in the discussion on partial declarations, the Committee considered whether individual irrigators’ accounts on the Murray should reflect the proportion of their carryover in Hume and Dartmouth. This option was rejected because it was unnecessarily complex and not reflective of the fact that individuals do not have defined shares of Hume and Dartmouth, but of the total Murray resource, which is operated as a single system.
9. Simplifying evaporation accounting

Recommendation

The Committee previously recommended a minor change to the way evaporation on water carried over is accounted, to help make the carryover rules simpler to understand for many irrigators.

The Minister endorsed this change in June 2012, and it has already been implemented and is in effect for the current season.

Summary of this change

The Committee supported this minor, but important change to help simplify the carryover provisions for the majority of entitlement holders.

This change means that entitlement holders will now have their full high- and low-reliability entitlement volume available before any water is quarantined in their spillable account, in accordance with the key principles that underpin the carryover rules.

Before this change, a quirk in the way evaporation was accounted for meant that entitlement holders could not make full use of the storage space associated with their low-reliability entitlements.

For example, an irrigator with 200 megalitres (ML) of high-reliability and 100 ML of low-reliability water share who carried over 150 ML, could only have 95 ML of this carryover available against his low-reliability share. This meant that even as allocations to high-reliability reached 100%, he could only have 295 ML available to him, rather than his full 300 ML of entitlement.

This quirk was a hangover from the way evaporation had been accounted for in the Water Register under the old carryover rules first introduced in 2007.

As well as being inefficient, this was inconsistent with how the rules had been explained, and a significant cause of confusion for many entitlement holders in the 2011-12 season.

Rectifying this anomaly was a key step to simplify what was a confusing aspect of the carryover rules. This change will complement initiatives proposed by the Committee to improve understanding of the carryover rules in line with the key principles that underpin them.
Summary

The Committee noted that there is broad public interest in understanding why we have only had low-reliability allocations on the Campaspe in recent years, but not on the Murray and Goulburn systems, despite storages recovering.

The Committee recognised that there is a range of factors that have affected allocations to low-reliability entitlements. A summary of the various factors that can be at play is described below. The Committee considers it important that this information is made available to entitlement holders.

What happened in the 2011-12 season?

Record rainfall and widespread flooding resulted in very low use in the 2010-11 season. Large volumes of unused allocation contributed to high storage levels in the Murray, Goulburn and Campaspe systems as we came into the 2011-12 season. Spills occurred from Lake Eildon, Lake Eppalock and Hume dam, while Dartmouth was still recovering after being drawn right down during the drought.

Allowing individuals to carry over and keep their unused allocation, rather than socialising it at the end of the season, does affect the resources available for initial allocations. In average and dry years, this impact will be small as entitlement holders generally use all of their water if they cannot carry it over. However, in very wet years like those recently experienced the impact can be large.

New season allocations still depend on inflows, and this is where spill rules are critical to make sure that carryover does not displace those inflows that support new allocations from the storages.

On the Campaspe, full allocations to low-reliability water shares were achieved, while on the Murray and Goulburn there were 100% high-reliability allocations, but no low-reliability allocations. The role of inflows and spills in explaining the differences between the three systems is discussed below.

Low-reliability allocations on the Campaspe

On the Campaspe, despite the large volumes of carryover, there were good inflows relative to entitlement volume early in the season. The spill rule worked as expected; these inflows were harvested and displaced water in spillable accounts, with around two-thirds of the total carryover volume spilled. Full low-reliability allocations were announced in October.

What was different on the Goulburn?

On the Goulburn, not all of the water in Lake Eildon belonged to the Goulburn system, with around 300 GL owed to the Murray system in the inter-valley trade account.

Further, despite Lake Eildon being relatively full, inflows were more modest compared to entitlement volume. After significant spills in July, inflows tapered off through spring. While the spill rule was working as expected at this stage, inflows were only sufficient to cause spills of around 200 GL, or one-fifth of the total volume carried over.

These inflows were enough to get to 100% high-reliability allocations, but not to cover all the reserves needed to secure high-reliability in 2012-13 before water could be allocated to low-reliability shares.
Other factors common to all systems, such as the role of minimum inflows in reserves, and usage early in the season, also play a part. These are discussed in more detail later in this section.

Heavy rainfall in late summer and early autumn resulted in flooding and further spills after the low-risk-of-spill declaration. In total around 300 GL spilled between March and June 2012. These spills did not affect allocations in 2011-12 as they mostly occurred after the final allocation date. However, they have affected the resource available for 2012-13 allocations, and could impair low-reliability allocations later this season. This is discussed in more detail in the section on low-risk-of-spill declarations.

What about the Murray?

On the Murray, there were good inflows through winter and spring. However, because of the Dartmouth spill rule, these new inflows were being lost from Hume while water in spillable accounts was kept intact. In total around 700 GL of new inflows was not able to be harvested in Hume during 2011-12, this followed on from several hundred gigalitres of spill from Hume in 2010-11.

The Dartmouth spill rule meant forgoing the chance of a low-reliability allocation late in the season.

While spills of communal resource from Hume were a key influence on seasonal allocations, other storages also played a role. Dartmouth was still recovering. More significantly, the large storages in the Snowy scheme have been even slower to recover from the long drought, and the Snowy scheme was not providing the volume that traditionally secures current and future Murray system allocations.

What other factors play a role?

The Committee also considered other factors that play a role in determining low-reliability allocations.

Assumed inflows. Another factor is the future inflows assumed when deciding what reserves are needed before low-reliability allocations are made. Victoria has a long-standing policy of only budgeting on inflows (up to the end of next season) that we are 99% certain will be exceeded. These inflows complement water in storage to secure full high-reliability allocations in the following year.

The experience of the recent drought has changed our knowledge of the minimum inflows that can be relied on, and so more water is needed in storage to maintain the security of high-reliability shares. This can make a big difference early in some years, with 250-300 GL less in the budget. However, this effect reduces through the season as these minimum budgeted inflows are exceeded 99% of the time. Also, once you retain more water in storage initially, you start the following year in a stronger position.

The recent drought has resulted in a slight reduction in the reliability of low-reliability shares, but this does not affect allocations in all years. This is the cost of maintaining the security of Victoria’s high-reliability entitlements in the face of drier weather.

Use of unregulated flows. The Committee noted that the use of water early in the season also plays an important role in future allocations. This early season use can be supplied from spills, or inflows downstream of the storages, freeing up water in the dams to increase allocations later in the season.

Assuming full utilisation. The Committee also noted that direct comparison with allocations 15 years ago and storage levels now is not possible. With the experience of the millennium drought and reforms over the last two decades to clarify and strengthen entitlements, the old approach of announcing artificially high allocations assuming that not every one will use the water is no longer tenable. Water cannot be allocated if it can’t be supplied.
11. Improving understanding of the carryover provisions

Recommendation

The Committee recognises the need to improve public understanding of the carryover rules. The refinements to the rules will help in this regard, but this needs to be supported by simple and clear explanations of the core principles underpinning the rules, how specific aspects work, and why.

The Committee recommends a range of initiatives to clearly communicate the carryover rules and the outcomes of this review.

The challenges of improving public understanding

The Committee commented that while there is a significant section of water users who understand the carryover rules and the opportunities and limitations they present very well, broader public understanding is still limited.

Improving understanding will be a challenge, as many water users may not want to know all the details, and often will only seek information when they are first affected by the rules.

Information cannot be forced onto irrigators, many will come to it when they need it, and different individuals will seek information from different sources. Websites, fact sheets, newsletters and water corporation staff are one source, but talking in person to industry representatives, farm planners, brokers and neighbours might be the first point of call for many.

Given this, the Committee emphasised the central importance of simple and accessible language so that irrigators can get clear explanations when they need them, and from whomever they ask. Understanding of the rules to date has been hindered by the inability for many water users to get simple explanations of how the rules work and why they work in that way.

The Committee commented that understanding of the carryover provisions will improve if the fundamental principles of the rules are logical and well explained, and the observed outcomes are consistent with these fundamentals.

These principles are:

- Unused water can be carried over, but should not displace inflows that support new allocations. Protecting the integrity of Victorian entitlements gives the community continued confidence to invest.
- It is the entitlement that gives security of access up to that volume of water, because it is supported by storage capacity that the entitlement holder pays for each year.
- Carryover and allocations in excess of your entitlement are casual use of the storage space that underpins other people's entitlements.
- While casual use provides flexibility to many customers, there is no guarantee of access to this water in spillable accounts, and it spills to make way for new inflows when the storage space is needed.

Having these front and centre, and aligning detailed explanations of specific aspects of the rules with these principles will be critical.
The recommendations of this Committee, particularly in getting the Murray spill rule right, and simplifying evaporation accounting, should remove most of the unexpected outcomes of the rules, and build confidence in the rules.

**Key elements of the communication strategy**

The Committee is helping to develop a suite of core, simple information on carryover and the review.

The Committee believes that having this information available at the same time as any publication of the results of the review is important as people will be looking for it then. The matters considered by this review span all the elements of the carryover provisions and align well with explaining the rules.

The Committee has proposed three tiers of information:

- The first level would provide information about the Committee and the review process.
- The second would explain the fundamentals of the rules, the decisions made and the changes.
- Detailed supporting information should be available at the third level for those who are interested.

This information will be available on the water register website, but efforts will also need to be made to disseminate it to those who are touching points in water corporations, industry and the community leaders – like the Water Service Committee representatives on the Committee.

The Committee also recommended developing other opportunities and media to communicate the carryover rules, and supports efforts to develop:

- An interactive carryover calculator tool to allow people to test scenarios to improve their understanding of the rules.
- An animation to explain the fundamentals of carryover both at the resource level and in irrigators’ accounts.
- Opportunities to use modern technology to get information to irrigators in new ways.
  
  A good example of this might be a smart phone app to provide up to date information on carryover and the risk of spill, to help irrigators make water planning decisions, just as many farmers make cropping and watering decisions with the assistance of information provided by the Bureau of Meteorology.

- One Committee member encouraged consideration of social media like twitter, or even just SMS updates of key changes and key milestones during the irrigation season.

These initiatives will be pursued and developed subsequent to the Minister’s announcements, with a view to having them available in the coming months.

**Summary**

The Committee counseled that there is no silver bullet here and it will still take time for many water users to develop a fuller understanding of the carryover provisions. The initiatives described above still need to be backed by the work to build capacity within water corporations, industry bodies and the broader community to answer questions when people come to them. However, the key elements of this communications plan should provide the building blocks to get there over time.
12. Goulburn system reserve policy

Recommendation

The Committee recommends the early reserve policy should remain in place on the Goulburn system, but the volume set aside should be reduced now on account of the modernisation being undertaken.

Why the early reserve policy is needed

The Committee supports an early reserve policy, which is needed to give confidence that distribution systems in the Goulburn can operate on 15 August each year to deliver water to irrigators and towns when they need it.

The recent drought has shown that if we do not set aside any water in reserves until after high-reliability allocations reach 100%, then there are years when water cannot be delivered at the start of the season. This happened in both 2008-09 and 2009-10. Further, modelling of potential drier climate scenarios has indicated that this could be a more frequent problem in the future.

How the early reserve policy applies

Under the policy, some of the reserve that has always existed to support high-reliability shares is now set aside earlier, before allocations reach 100%.

As allocations rise from 30% to 50%, half of the resource improvement is set to reserves, up to a maximum amount of 340 GL. To put this another way, for every megalitre needed to support allocation increases and the associated delivery losses, another megalitre is set to reserves.

Understanding the impact on allocations

The Committee considered the impacts of this policy on allocations at different times of the year.

The effects on high-reliability allocations in August are that:

• In the driest years, opening allocations will be higher. Water that entitlement holders carry over to secure supplies in droughts will always be able to be delivered in August.

• In average years, high-reliability allocations will take longer to rise to 100%, as some water is now held in reserves earlier than previously.

• However, in wet years like the current one there will be no effect as allocations will already be at 100% when the season opens on 15 August.

The effects on the reliability of high-reliability shares are that:

• The number of years with full allocations will decrease from 96 years to 93 in 100.

• Allocations will be higher in the driest years when water is the most valuable.

• Average annual diversions will decrease by less than 3 GL (of an average of 1,600 GL).

There is no impact on low-reliability allocations as no more water is being held in reserve prior to making low-reliability allocations. It is just that some of the existing reserve is set aside earlier.
Does the early reserve work?

The Committee considered analysis showing that this reserve would have made it possible to have an opening allocation in both August 2008 and August 2009 if it had been in place.

Under the modelled drier climate scenario, it enables an early allocation in all 11 years in 100 which without a reserve would have 0% August allocations.

Why the amount set aside in early reserves needs to be revised in light of modernisation

The objectives of the amended reserve policy are to ensure the system can operate in August under all modelled water availability scenarios, while minimising the impact on allocations in sub-100% years.

In line with these objectives, the Committee considered that the amount set aside in early reserves should be cut back as the system is modernised and delivery systems can be operated with less water.

Thus to the extent modernisation reduces the fixed losses associated with starting up delivery systems, the volume set aside in early reserves should be reduced to make sure we are not unnecessarily constraining early season allocations.

When to revise the amount set aside

The Committee agreed that a thorough assessment of the volume needed in the early reserve, and the best way to set it aside, definitely needs to be undertaken once modernisation is complete. This will be necessary as we will then know for certain exactly what the final modernized system will look like, and have the updated models needed to assess the optimal early reserve policy.

However, given we have a reasonable idea of the expected reductions in fixed losses, the Committee considered it sensible to make some reduction to the amount of reserve now.

How much to reduce the reserve by now

Modernisation is currently anticipated to reduce Goulburn system fixed losses by around 70 GL, which is around 20% of the current maximum early reserve.

While modernisation is only partially complete, the Committee formed the opinion that it is safe to cut back the maximum amount set aside in reserve now by the full 70 GL of fixed losses estimated to be saved. With full storages, there is no risk of being caught short next year, and only a very small risk the year after. While we do not know if it will turn dry in coming years, we will be most of the way towards a fully modernised system before we could next face a scenario where water cannot be delivered.

As some mitigation against the marginal risk of adopting this full reduction now, the Committee suggested that at least until modernisation is complete, reserves still start to be set aside once allocations reach 30%, and set aside at the same rate, but the setting aside of reserve simply finishes earlier.
13. Murray system reserve policy

Recommendation

The Committee recommends that, now that the three States have implemented a reserve for the Murray River to ensure the river can operate to deliver critical human needs, Victoria should introduce an early reserve policy equivalent to the one on the Goulburn – to ensure Victoria’s delivery systems can operate.

The same upfront adjustment for modernisation should be made as on the Goulburn.

Why an early reserve for the Murray was not implemented at the same time as on the Goulburn

An early reserve policy was not implemented on the Murray at the same time as the Goulburn because agreement was first required with the other States on a shared reserve to secure river operations for critical human needs.

Modelling at the time indicated that without this shared reserve for the river, Victorian reserves to ensure distribution systems could operate would not be effective. Moreover, there was a risk that Victorian reserves would be borrowed to prop up river operations.

Since 2010, Victoria, New South Wales and South Australia have agreed to set aside a shared reserve of 225 GL for securing the river conveyance water required to deliver critical human needs.

What has the Committee considered?

Victoria had asked the MDBA to model the effectiveness of implementing the same early reserve policy on the Murray as on the Goulburn, with this shared reserve for river operations in place. The Committee reviewed the results of this completed modelling to consider whether an early reserve policy is both needed and likely to be effective.

Why the early reserve policy is needed

As on the Goulburn, the problem of not being able to access water at the start of the season also exists on the Murray. In both 2008-09 and 2009-10, allocations were 0% until September.

Equity issues came to a head, particularly in Murray Valley, when water could only be delivered to some customers in districts. Similarly, the situation in Sunraysia was unpalatable with river diverters able to access all of their water, but district customers subject to rosters and restrictions.

The modelling suggests that under the dry climate scenario, there could be 21 years in 100 with a 0% allocation in August.

How effective is an early reserve policy on the Murray?

The early reserve overcomes the years with 0% allocations under historical conditions that we recently experienced.

In the drier climate scenario, the number of years with 0% allocations in August is reduced from 21 to six. While the early reserve cannot completely solve the problem on its own under a drier climate, adopting complementary contingency measures when needed, like opening with a shorter season, should be enough to ensure water can be delivered in August, as in all but two of those six remaining modelled years, an allocation is possible by September.
The other two years are arguably outliers in the model, as they are both record low years from the recent drought, like 2006-07, but with inflows scaled back even further for the dry scenario. Hence, it is probably reasonable to discount these two extreme modelled years, and trying to cater for them would mean setting aside an unacceptably high volume in early reserves.

**What is the impact on Murray allocations of adopting the early reserve?**

The impacts on Murray allocations to high-reliability shares would be very similar to those described for the early Goulburn reserve in the previous section.

**Will a Victorian reserve just result in more water being borrowed by the other states?**

No. The modelling indicates that average annual Victorian diversions will decrease by less than 2 GL, out of an average of 1,600 GL per year. This indicates that now that the shared reserve for river operations to meet critical human needs is in place, any water Victoria reserves to ensure our distribution systems can run will not be co-opted by the other States.

**How the early reserve policy would apply on the Murray**

As on the Goulburn, the early reserve would be set aside as allocations rise from 30% to 50% at a rate of 1 megalitre to reserve for every 2 ML of resource improvement.

As fixed delivery losses are slightly lower in the Murray system, the MDBA modelling indicated that the maximum volume of early reserve on the Murray would be 298 GL.

The Committee supports adopting the same approach as on the Goulburn to reducing the volume of reserve needed in light of modernisation. This would mean that this maximum volume of 298 GL can be reduced by 80 GL – around a quarter of the modelled maximum reserve volume.

This will mean that the Resource Manager can stop setting aside reserves before allocations reach 50%, when the volume reserved reaches 218 GL.
## Attachment 1: Membership of Carryover Review Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dennis Moon</td>
<td>DSE – Retail Water Entitlements &amp; Markets</td>
<td>Independent Chair</td>
</tr>
<tr>
<td>Joe Banks</td>
<td>DSE – Exec. Director, Water Resources Division</td>
<td>Executive Officer</td>
</tr>
<tr>
<td>Graeme Turner</td>
<td>DSE – Exec. Director, Water Resources Division</td>
<td></td>
</tr>
<tr>
<td>Mark Bailey</td>
<td>Resource Manager (G-MW)</td>
<td></td>
</tr>
<tr>
<td>Richard Anderson</td>
<td>Victorian Farmers Federation</td>
<td></td>
</tr>
<tr>
<td>Denis Flett</td>
<td>Victorian Environmental Water Holder</td>
<td></td>
</tr>
<tr>
<td>Jim McKeown</td>
<td>G-MW WSC (Murray Valley)</td>
<td></td>
</tr>
<tr>
<td>Charlie Gillingham</td>
<td>G-MW WSC (Torrumberry)</td>
<td></td>
</tr>
<tr>
<td>Craig Reynolds</td>
<td>G-MW WSC (Shepparton)</td>
<td></td>
</tr>
<tr>
<td>Peter Hacon</td>
<td>G-MW WSC (Central Goulburn)</td>
<td></td>
</tr>
<tr>
<td>Murray Haw</td>
<td>G-MW WSC (Loddon Valley)</td>
<td></td>
</tr>
<tr>
<td>Bruce Macague</td>
<td>G-MW WSC (Rochester)</td>
<td></td>
</tr>
<tr>
<td>Greg Hutchison</td>
<td>LMW CSAC (Sunraysia pumped districts)</td>
<td></td>
</tr>
<tr>
<td>Andrew Young</td>
<td>LMW CSAC (Sunraysia private diverters)</td>
<td></td>
</tr>
<tr>
<td>Mark McKenzie</td>
<td>CEO Murray Valley Winegrowers</td>
<td></td>
</tr>
<tr>
<td>Fred Tassone</td>
<td>Robinvale &amp; District Table Growers Association</td>
<td></td>
</tr>
<tr>
<td>Terry Court</td>
<td>Goulburn Valley Environment Group</td>
<td></td>
</tr>
<tr>
<td>Chris Corr</td>
<td>Coliban Water</td>
<td></td>
</tr>
<tr>
<td>Graeme Hannan</td>
<td>Goulburn-Murray Water</td>
<td></td>
</tr>
<tr>
<td>Peter Ebner</td>
<td>Lower Murray Water</td>
<td></td>
</tr>
</tbody>
</table>

Representatives from the DSE also provided technical and other support to the Committee:

<table>
<thead>
<tr>
<th>DSE support</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barry James</td>
<td>Water System Modelling</td>
</tr>
<tr>
<td>Seker Mariyapillai</td>
<td>Water System Modelling</td>
</tr>
<tr>
<td>Catheryn Lewis</td>
<td>Water Strategies &amp; Planning</td>
</tr>
<tr>
<td>David Lewis</td>
<td>Retail Water Entitlements &amp; Markets</td>
</tr>
<tr>
<td>Gerry Egan</td>
<td>Retail Water Entitlements &amp; Markets</td>
</tr>
</tbody>
</table>
Attachment 2: Carryover Review Committee Terms of Reference

1. The Committee will look at how the carryover rules are working in relation to the first principles that underpin the entitlement framework. Specifically, the new Committee will be responsible for considering:

   a) An improved Murray spill indicator;

   b) How the spill rule is working on the Goulburn;

   c) The effect of carryover on allocation levels and the distribution of available water between different kinds of entitlement holders, and whether there are any adjustments to the rules needed on this score. This is to include a review of:
      i) system modelling to assess the impact on high- and low-reliability allocations; and
      ii) the equity of how water is carried over against high- and low-reliability entitlements;

   d) Any options to simplify the rules:
      i) to make it easier for entitlement holders to manage their carryover; and
      ii) to make them easier to explain to entitlement holders;

   e) Whether the spillable water charges achieve a fair outcome, and in particular whether they should be levied on a water share holder or the person given back spillable water; and

   f) The accessibility of information on the carryover rules, and on the range of factors as well as carryover that influence water availability under different entitlements – to assist water users’ decisions on how best to manage their water.

2. The Committee will also consider:

   a) A review of the Goulburn system reserve policy; and

   b) Any other matters, relevant to the above terms of reference, that the Committee wishes to consider.