Second Review of the Water for the Environment Special Account

Report to Commonwealth Minister for Water Resources as required under Section 86AJ of the Water Act 2007

December 2021
Letter to the Minister

20 December 2021

The Hon Keith Pitt MP
Minister for Resources and Water
House of Representatives
Parliament House
Canberra ACT 2600

Dear Minister

Report on the second review of the Water for Environment Special Account

As the panel appointed to conduct the second independent review of the Water for the Environment Special Account (WESA), we are pleased to present you with our report. This review was undertaken by the same panel as the first review and focused on the period between now and when we completed that review in February 2020.

We conducted the second review in line with the scope defined in our terms of reference, and the provisions under 86AJ of the Water Act 2007.

To assist in reaching our findings, we conducted targeted consultations with Basin state and territory governments via videoconferencing. We did not undertake broad public consultation, largely because of the short time between the reviews, and the challenges of effective consultation during the pandemic.

The panel acknowledges the support the Department of Agriculture, Water and the Environment provided to us throughout the review. We also acknowledge Natalie Hoy of Clarity Thought Partners, whose critical thinking and analysis underpin our report; Rod Carr and Stuart Maclachlan of Marsden Jacob Associates who provided analysis on the efficiency measures; and Peter Boettcher of Indec Pty Ltd who provided analysis on the constraints measures.

The report sets out our findings and their rationale. As the efficiency and constraints measures programs to deliver the WESA’s required outcomes are still active, these findings reflect the programs’ implementation as at December 2021.

We would be pleased to meet with you to discuss the report and its findings.

Yours sincerely,

Simon Lewis AO PSM
Panel Chair

Sally Farrier
Panel member

Merran Kelsall
Panel member
Terms of reference

Purpose and context

1) The Hon Keith Pitt MP, Minister for Resources and Water has initiated a second independent review of the Water for the Environment Special Account (WESA) in accordance with section 86A of the Water Act 2007 (the Act).

2) This second review follows the first independent review of the WESA, which was tabled in Federal Parliament on 4 September 2020 and is available on the Australian Government’s Department of Agriculture, Water and the Environment (DAWE) website at: https://www.agriculture.gov.au/water/mdb/policy/wesa-review

3) This second review also follows Minister Pitt’s announcement on 3 March 2021 to close the Water Efficiency Program for any further projects and launch a new approach to recovery of the 450 gigalitres of additional environmental water through the new Off-farm Efficiency Program.

4) It will be conducted by an independent review panel and consistently with Part 2AA of the Act and these Terms of Reference which set out the scope of the review.

Scope of the review

5) The second review will complement the first review by focussing on the period between now and when the first review was completed and consider whether the amount standing to the credit of, and to be credited to (i.e., the amount available in the WESA and to be made available in the WESA in the future), the WESA is sufficient to:

   a) increase, by 30 June 2024, the volume of the Basin water resources that is available for environmental use by 450 GL; and

   b) ease or remove constraints identified by the Murray-Darling Basin Authority (MDBA) on the capacity to deliver environmental water to the environmental assets of the Murray-Darling Basin (Basin).

6) In conducting this review, the panel will also consider:

   a) the progress that has been, and is anticipated to be, made towards increasing the volume of the Basin water resources that is available for environmental use, and

   b) whether the design of projects in relation to which payments have been made under section 86AD is likely to be effective in increasing the volume by 450 GL of the Basin water resources that is available for environmental use.

Second review report

7) The panel is to provide the Minister a written report of the second review by late 2021.
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1 Summary

The Water for the Environment Special Account (WESA) was established under the Water Act 2007 (the Water Act) to enhance the environmental outcomes that can be achieved by the Basin Plan 2012. It sets aside $1.775 billion in Commonwealth funding for the period 1 July 2014 to 30 June 2024 to:

- Increase the volume of Murray–Darling Basin (Basin) water resources available for environmental use by 450 gigalitres (GL), and
- Ease or remove constraints on the capacity to deliver water to the environmental assets of the Basin.

Under the Intergovernmental Agreement on Implementing Water Reform in the Murray–Darling Basin (Intergovernmental Agreement), $1.575 billion of the WESA funding is allocated to recovering the 450 GL through efficiency measures programs. The remaining $200 million is allocated to a constraints measures program. As at 30 June 2021, most of the funds were unspent.

The Water Act requires 2 independent reviews of the WESA to be conducted to report on progress and advise whether the amounts credited or to be credited to the WESA are sufficient. This report presents the conclusion and findings of the second of those reviews. It was conducted by the same panel as the first review. We reached the conclusion by applying broadly the same methodology as we used for the first review, with updated analysis.

All references to GL in the report mean GL long term average annual yield (LTAAY) unless otherwise indicated. (Appendix A explains LTAAY.)

1.1 Panel’s conclusion and findings

As for the first review, the panel’s overall conclusion is that neither the 450 GL of water recovery through efficiency measures nor the constraints measures will be delivered by 30 June 2024. The rate of progress will be such that the amounts allocated to the WESA should be sufficient to cover expected expenditure on the measures up to that date.

In the 2 years between the first and second reviews, the Australian Government repositioned the efficiency and constraints measures within a broader investment package focused on the Basin’s communities, rivers and wetlands. As part of this, it replaced the Water Efficiency Program with the Off-farm Efficiency Program (OFEP) as the vehicle for recovering the 450 GL. The constraints measures program did not change in the period. However, the program reporting requirements were strengthened, and the authorising environment for the NSW constraints projects became more supportive.

Consistent with these changes, we observed more momentum in both the efficiency measures and constraints measures programs than in our first review. However, momentum does not immediately translate to outcomes. Overall progress was not sufficient for us to conclude that either program will be delivered by 30 June 2024.
The following sections outline the findings that support our conclusion. Box 1 sets out what we considered in reaching these findings.

1.1.1 450 GL will not be recovered by 30 June 2024 and WESA funds should be sufficient to cover cost of expected water recovery

The panel finds that:

- **It is not possible to reach the 450 GL target through the current efficiency measures program—the OFEP—even if the WESA’s time and budget limits were removed.** This is because:
  - Only 2.6 GL has been recovered or contracted to be recovered through previous efficiency measures programs
  - Analysis commissioned for this review indicates that the technical potential for further recovery through the OFEP is 330 GL at most, due to the program's focus on off-farm efficiency projects and limited funding for on-farm projects.

- **It is possible to recover up to an additional 60 GL through the OFEP by 30 June 2024.** This reflects our consideration of the following:
  - The briefing provided by the Australian Department of Agriculture, Water and Environment (the department), which indicates that it expects 70–100 GL to be recovered through the OFEP by 30 June 2024
  - Analysis commissioned for this review, which suggests up to 60 GL could be recovered through the OFEP by 30 June 2024.

- **The WESA funds for efficiency measures are sufficient to cover the estimated cost to recover an additional 60 GL through the OFEP.**

- **Putting aside program and timing limitations, the estimated cost to recover the full 450 GL through efficiency measures is between $3.4 billion and $10.8 billion.**

These findings are consistent with those of our first review. However, we are now more confident that around an additional 60 GL could be recovered by 30 June 2024. Also, the estimated cost to recover this volume is higher than for our first review. The increase in confidence and costs is due to a combination of factors. One is the OFEP’s more flexible funding formula, which allows projects to be funded at a higher premium to traded entitlement prices than was possible under the previous program. This means the OFEP can attract the larger off-farm projects that generally have a higher cost per GL recovered. Another factor is the NSW Government’s more active support for further water recovery through off-farm efficiency projects in that state.

1.1.2 Constraints measures program will not be delivered by 30 June 2024 and WESA funds should be sufficient to cover expected expenditure

The panel finds that:

- **Two of the 6 constraints projects could possibly be delivered by 30 June 2024, but it is not possible for the other 4 projects to be implemented by this date:**
The Basin states responsible for the 4 projects are not scheduled to deliver detailed feasibility studies for the projects until late 2022 or early 2023. Given the nature of these projects, this leaves insufficient time for full implementation by mid-2024.

- The WESA funds for constraints measures are sufficient to cover the additional costs expected to be paid from this account by 30 June 2024.
- However, the total cost to deliver the constraints and supply measures program is likely to exceed the total allocated funding from all sources.

At the program level, these findings are broadly in line with those of the first review. However, there is now more certainty about the time required to deliver some of the constraints projects. In addition, while the estimated cost of the projects remains highly uncertain, it now appears likely the total cost of the constraints and supply measures programs will exceed the total funding available for these measures.

**Box 1 Basis for the panel’s findings**

Our supporting findings (sections 1.1.1 and 1.1.2) reflect our consideration of:

- Analysis commissioned for this review, information provided by the Australian Department of Agriculture, Water and Environment, views provided by Basin state officials and Murray-Darling Basin Authority and published information.
- Current social, political, market and climatic conditions in the Basin, and how these may affect interest in and delivery of the efficiency measures and constraints measures programs.
- Our assumptions, for the purposes of the review, that the legislated provisions of the WESA and the current arrangements and accountabilities for the efficiency measures and constraints measures programs will not materially change before 30 June 2024.

We recognise that the provisions and arrangements for implementing these programs and the broad implementation environment could change—as occurred in the period between our first review and this second review. For this reason, our findings are not ‘predictions’. Rather, they highlight the size of the gap between where the programs appear to be heading and what they are required to deliver under the WESA provisions of the Water Act.

### 1.2 Report structure

The rest of this report provides more detailed discussion of our review, findings and supporting analysis:

- Chapter 2 explains the panel’s approach to address our terms of reference.
- Chapter 3 outlines the key context for the review.
- Chapters 4 and 5 discuss our findings and supporting evidence on recovering 450 GL of water for the environment and easing constraints to deliver water for environmental assets, respectively.
2 Panel’s approach to the review

The terms of reference for this second review of the WESA are consistent with those for the first review and reflect the provisions in the Water Act. They require the panel to review whether the funds allocated to the WESA are sufficient, by 30 June 2024, to:

- Increase the volume of Basin water resources available for environmental use by 450 GL, and
- Ease or remove the constraints identified by the Murray–Darling Basin Authority (MDBA) on the capacity to deliver environmental water to the environmental assets of the Basin.

In reaching our findings on these matters, the terms of reference require us to consider the progress that has been made and is anticipated to be made towards recovering the 450 GL, and whether the design of projects funded by the WESA to date is likely to be effective in recovering this volume.

The following sections outline the methodology we used to address these terms of reference, and the process we used to collect and analyse information.

2.1 Our methodology

The panel applied broadly the same methodology for the second review as we did for the first review. We updated our analysis to reflect the progress made and anticipated to be made by 30 June 2024, and the changes to the efficiency measures and constraints measures and their implementation environment since we completed our first review (February 2020). However, we did not conduct a broad consultation process as we did for the first review. This was largely due to the short time between the reviews, and the challenges of effective consultation during the pandemic.

In relation to the 450 GL, we examined:

- **Whether it is technically possible to recover 450 GL through efficiency measures.** As our first step, we considered whether sufficient water savings opportunities still exist to recover an additional 450 GL through efficiency measures. We commissioned analysis to estimate the total volume of efficiency gains it is technically possible to recover in the Basin through efficiency projects, irrespective of cost, location of recovery, and time (total technical potential).

- **Whether it is technically possible to recover 450 GL through the OFEP.** Under the OFEP, the bulk of the available funding is allocated to off-farm projects, with only limited monies available for on-farm projects (see section 3.4.3). To understand the effect of this, we commissioned analysis to estimate how much additional water could technically be recovered through the program (technical potential through the OFEP).

- **How much of technical potential through the OFEP could be recovered by 30 June 2024.** To gauge this, we considered the impact of key factors that are limiting actual recovery. We sought advice on those factors and commissioned analysis to estimate their combined impact on the technical potential under the OFEP. We also considered the
progress that has been made towards recovering the 450 GL to date, and the department’s view on the progress that might be made in the remaining available time.

- **Whether the funds remaining in the WESA for efficiency measures are sufficient to 30 June 2024.** We commissioned analysis to estimate the cost to recover the volume that could be recovered through the OFEP by 2024. We then compared the results of the analysis to the available WESA funds.

- **Whether the total WESA allocation for efficiency measures would be sufficient to recover the required 450 GL by 30 June 2024 if this were possible.** We commissioned analysis on the estimated cost to recover 450 GL through efficiency projects under a range of scenarios.

In relation to the constraints measures, we examined:

- **Whether it is possible to deliver the constraints measures program by 30 June 2024.** We commissioned analysis on the progress towards and current status of the 6 constraints projects. We also considered the views of the department and the Basin state officials we spoke to on progress to date, and the MDBA progress reports.

- **Whether the WESA allocation for constraints measures is sufficient to 30 June 2024.** We considered whether the balance of this allocation is sufficient to cover expected expenditures from the WESA on the constraints projects up to 30 June 2024, based on the information provided by the department.

- **Whether the total funds available for constraints and supply measures is sufficient to deliver these measures.** Because additional funding from other sources is available for 5 of the 6 constraints projects (as they are also designated supply projects, see section 3.1), we compared the estimated cost to deliver all constraints and supply measures to the total available funding for these measures.

### 2.2 Sources of information and analysis

The panel requested information, commissioned analysis, engaged with selected stakeholders, and reviewed publicly available information. We:

- Requested background information and a submission from the department addressing the terms of reference and related issues. The department provided background information throughout the review, and a formal briefing in November 2021.

- Held virtual meetings with Basin state and territory officials, to hear their views on progress since our first review and the risks and barriers to delivery by 2024.

- Commissioned analysis in relation to the 450 GL from Marsden Jacob Associates (Marsden Jacob), including that outlined in section 2.1. To inform this work, Marsden Jacob reviewed information provided by the department, and consulted a range of potential project proponents across the Basin. For its quantitative analysis, it drew on a range of datasets, including from the Australian Bureau of Statistics, Australian Bureau of Agricultural and Resource Economics and Sciences, the Bureau of Meteorology, state government water registers, and WaterFlow™. (For more information, see Water for the Environment Special Account—2nd independent review.)
Commissioned analysis from Indec Pty Limited (Indec) on the progress towards and current status of the 6 constraints projects. Indec conducted a desktop assessment of the projects. It used information provided to it by the Australian and Basin state governments, and drew on its earlier work assessing the suite of constraints and supply projects. It also consulted directly with government officials. (For more information, see Constraints Measures Status Update October 2021 for Second WESA Review.)
3  
Context for the review

As Chapter 1 noted, the purpose of the WESA is to set aside funding for efficiency measures and constraints measures to enhance the environmental outcomes that can be achieved by the Basin Plan. As the broader context affects actual and perceived progress, the following sections briefly explain:

- Water recovery under the Basin Plan
- Provisions in the WESA
- The efficiency and constraints measures programs
- The roles of the Australian and Basin state governments, and
- Key developments and changes since the panel’s first review.

3.1  
Water recovery under the Basin Plan

The Basin Plan sets limits on how much surface water and groundwater can be taken from Murray-Darling Basin water resources to ensure enough remains to sustain natural ecosystems. These limits are known as sustainable diversion limits (SDLs).

To meet the SDLs, the plan requires 2,750 GL of surface water to be recovered from the consumptive pool across the Basin to achieve specific environmental outcomes (the original ‘bridging the gap’ target). However, the required recovery was reduced by 70 GL as a result of the Northern Basin Review. It can be further reduced by 605 GL to 2,075 GL, subject to implementation of supply measures in the southern Basin to allow equivalent environmental outcomes with less water.

In addition, the Basin Plan provides for an additional 450 GL of surface water to be recovered through efficiency measures for enhanced environmental outcomes. This additional recovery is being funded by the WESA.

Figure 1 provides an overview of required water recovery under the Basin Plan, including the 450 GL through the efficiency measures funded by the WESA.
Figure 1 Required water recovery under the Basin Plan

3.2 Water for the Environment Special Account

The WESA was established by the Australian Parliament through an amendment to the Water Act in 2013. It sets aside $1.775 billion of Commonwealth funding for efficiency and constraints measures programs. The Australian Government’s commitments in relation to this funding are detailed in the Intergovernmental Agreement. Under this agreement:

- $1.575 billion is allocated to recovering 450 GL through efficiency measures programs.
- $200 million is allocated to easing priority constraints through a constraints measures program.

The Water Act and the Intergovernmental Agreement specify that these funds are to be used over the 10 years from 1 July 2014 to 30 June 2024. After this time, the WESA cannot pay any funds towards efficiency projects or constraints projects. Any change to this condition would require amendment to legislation.

In its response to the panel’s first review of the WESA—which found that neither the 450 GL nor the constraints measures program would be fully delivered by June 2024—the Australian Government indicated that it does not support amending the Water Act and Basin Plan to extend the WESA end date.

Final funding payments for efficiency projects are generally made after the project is completed and the contracted volume of entitlement is transferred to the CEWH. However, in briefing the panel, the department advised that it may be possible for projects that are in progress but will not be completed at 30 June 2024 to receive their final payment before completion. For this to occur, the contracted volume of entitlement would need to be registered as available for Commonwealth use in the relevant catchment by 30 June 2024 (as outlined in section 86AJ of the Water Act).
3.3 Efficiency measures programs

WESA-funded efficiency measures programs provide Commonwealth funding for eligible efficiency projects on an entitlement holder’s property in return for a share of the water recovered. These projects typically involve replacing existing water delivery infrastructure with new infrastructure that reduces the overall volume of water needed.

Funding contracts for efficiency projects require entitlement holders to transfer the entitlement for an agreed volume of the expected efficiency gain to the CEWH at a specified stage of the contract—generally either at the start of the project or when the efficiency gain is realised.

Since the WESA was established, the department has implemented 4 efficiency measures programs:

- South Australian pilot of the Commonwealth On-Farm Further Irrigation Efficiency (COFFIE) program, which opened in September 2016 and closed in October 2018
- Murray–Darling Basin Water Infrastructure Program, which opened in July 2018 and closed in December 2018
- Water Efficiency Program (WEP), which opened in July 2019—just before the panel’s first review—and closed in March 2021
- The Off-farm Efficiency Program (OFEP), which opened in October 2021—just before the panel started this second review. Box 2 provides further details about this program.

Box 2 The Off-farm Efficiency Program

The OFEP includes 3 funding streams:

- **State Led Off-farm**, with $1.33 billion available to Basin state governments to fund the delivery of eligible off-farm projects in their state or territory
- **State Led On-farm**, with $60 million available to Basin state governments to fund the delivery of eligible on-farm projects in their state or territory
- **Off-farm Efficiency Grants Program**, with $150 million available to water delivery networks or similar organisations in the Basin states to deliver eligible off-farm projects.

Under the 2 State Led streams, representatives of Basin state governments work with project proponents to apply for funding. Basin states assess projects’ socio-economic impacts. The department assesses the applications and, if approved, the funding is provided to the state through a schedule to the Federal Funding Agreements – Environment. The state government is then responsible for delivering the project in line with performance milestones set out in the schedule.

Under the Off-farm Efficiency Grants program, owners or operators of water delivery infrastructure submit applications directly to the Australian Government’s Business Grants Hub. Basin state governments assess and provide advice on the proposed projects’ socio-economic impacts, and the department assesses the applications. If approved, the funds are provided directly to the project partner, who is responsible for delivering the project.
### 3.4 Constraints measures programs

In 2013, the MDBA developed a Constraints Management Strategy that identified key areas in the Basin where options for addressing constraints need to be investigated (MDBA 2013). Broadly in line with this strategy, Basin governments agreed to deliver an integrated package of constraints measures. The current constraints measures program includes 6 constraints projects:

- Lower Darling River (NSW)
- Murrumbidgee River (NSW)
- Murray River, from Yarrawonga to Wakool Junction (NSW and Victoria)
- Murray River, from Hume and Yarrawonga (NSW and Victoria)
- Goulburn River (Victoria)
- River Murray in South Australia (South Australia).

Broadly, the constraints projects aim to overcome some of the barriers impacting the capacity deliver environmental water to environmental assets—for example, by modifying bridges or river crossings, acquiring easements on private land, or changing river operating rules.

Five of the constraints projects were also designated ‘supply measures projects’ in the SDL adjustment mechanism program. These constraints-and-supply projects can also be funded from Commonwealth funding for supply measures until 30 June 2024. The sixth constraints-only project—Goulburn River—is being funded solely from the $200 million WESA allocation.

### 3.5 Roles of Australian and Basin state governments

The Basin water reforms, including the efficiency and constraints measures, are being led by the Australian Government and delivered in partnership with Basin state governments. As the Australian Government agency with water policy and program functions, the Department of Agriculture, Water and the Environment is responsible for administering the funds in the WESA and authorising payments for efficiency measures and constraints measures programs. Responsibility for developing and delivering these programs is shared by the Australian Government with Basin state and territory governments, in accordance with the Intergovernmental Agreement and other service agreements (Figure 2).
3.6 **Key changes since the first review**

In the 2 years since the panel completed the first review of the WESA, several developments in relation to the efficiency measures and constraints measures programs have occurred, as well as changes in the broad environment in which these programs are being delivered.

### 3.6.1 Developments on efficiency measures

Key developments in relation to the efficiency measures program include a stocktake of potential off-farm infrastructure projects; the repositioning of the efficiency measures program within the Murray–Darling Basin Economic Development Package; and the opening of the OFEP as the vehicle for recovering the 450 GL.

#### Stocktake of off-farm infrastructure projects

In December 2019, the MDB Ministerial Council asked the department for a stocktake of potential off-farm infrastructure projects that could capture water efficiencies. In June 2020, it broadened the stocktake to include off-farm infrastructure projects that could provide regional stimulus, contribute to agricultural productivity, and/or result in water savings.

In July to August 2020, the department consulted with the Basin states, irrigation infrastructure operators and private irrigation districts about possible off-farm projects, including those that could contribute to the 450GL water recovery target. Its stocktake report identified around 50 concept proposals for efficiency projects that could potentially be funded by the WESA and contribute towards recovering the 450 GL.
Murray–Darling Basin Economic Development Package
In September 2020, the Australian Government released the Murray–Darling Communities Investment Package. This package repositions the efficiency measures within a broader strategy to benefit the Basin’s communities, rivers and wetlands.

Opening of the Off-farm Efficiency Program
As section 3.3 discussed, in March 2021, the Australian Government closed the WEP to new applications and announced a new Off-farm Efficiency Program to recover water towards the 450GL target. The OFEP was formalised through the 2021-22 Budget, and the department released the framework for the program for consultation in August 2021. The State Led Off-farm stream was opened to applications in October 2021, and the other funding streams were opened shortly after. Table 1 summarises the key differences between the OFEP and the WEP in the context of the panel’s review.

Table 1 Key differences between the OFEP and the WEP for this review

<table>
<thead>
<tr>
<th>Water Efficiency Program</th>
<th>Off-farm Efficiency Program</th>
<th>Impact of change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project types eligible for funding and allocation per type</strong></td>
<td>Funding available for 5 project types: On-farm irrigation Off-farm irrigation Urban water Industrial water Metering</td>
<td>$1.33B available for State Led Off-farm projects (including irrigation network, industrial, urban, stock and domestic) $150M for Off-farm Efficiency Grants $60M for State Led On-farm projects</td>
</tr>
<tr>
<td><strong>Project funding formula</strong></td>
<td>Funding capped at 1.75 times the market price of the entitlement to be recovered (the market multiple)</td>
<td>No explicit funding formula—Department assesses cost of infrastructure involved, benefits to community, value for money and other factors</td>
</tr>
<tr>
<td><strong>Project application and delivery arrangements</strong></td>
<td>For projects costing &lt;$1M, entitlement holders and states could apply For projects &gt;$1M, 3rd party delivery partners contracted by the Commonwealth could apply on behalf of entitlement holders</td>
<td>For State Led Off-farm and On-farm projects, states apply on behalf of entitlement holder For Off-farm Efficiency Grants, entitlement holders apply States may choose to contract 3rd party delivery partners</td>
</tr>
<tr>
<td><strong>Socio-economic impact test</strong></td>
<td>Tested after project application by relevant state government or the Commonwealth, depending on state</td>
<td>Tested before project application by the relevant state government</td>
</tr>
<tr>
<td><strong>Funding mechanism</strong></td>
<td>Funding provided through contract between applicant and the Commonwealth, using a procurement approach</td>
<td>Funding provided through existing Commonwealth funding mechanisms, including the Federation Funding Agreement—Environment</td>
</tr>
</tbody>
</table>
3.6.2 Developments on constraints measures program

Key developments in relation to the constraints measures include an independent assessment of the status of the supply and constraints measures; the signing of a stage 1 funding agreement for the Victorian constraints projects; and an accelerated delivery funding agreement with NSW covering some constraints sub-projects.

Assessment of the status of supply and constraints measures

The committee advising the Basin Officials Committee on the SDL adjustment mechanism program proposed an independent assessment of progress and program-level risks to the program. As section 3.1 noted, this program includes the constraints projects as well as the supply projects.

In early 2021, the department commissioned Indec to conduct this assessment. Indec found that all 6 constraints projects were ‘at risk’ of not being fully delivered by 30 June 2024. It recommended the ‘at risk’ projects be reset as a package to deliver a more positive outcome by 30 June 2024. It also recommended project governance and management be improved across all projects and on an integrated basis—including by requiring the Basin states to report on progress against each project using a specified dashboard.

Signing of stage 1 funding agreement for Victorian projects

In May 2021, a stage 1 funding agreement for the Victorian constraints projects was signed. Stage 1 agreements have now been established for all 6 projects to fund activity to September 2022.

Signing of accelerated delivery funding agreement with NSW

As part of the Murray–Darling Communities Investment Package, the Australian Government announced it would work with the states to accelerate implementation of supply and constraints measures at risk of non-delivery by 30 June 2024. It subsequently signed an accelerated delivery funding agreement with the NSW Government for 2 components of the Yarrawonga to Wakool Junction constraints project—the Mid-Murray Anabranches Constraints Demonstration Reach and the Koondrook-Perricoota Flow Enabling Works. Accelerated delivery agreements include funding for Stage 1 (feasibility) and Stage 2 (implementation) in a single agreement.

3.6.3 Changes in the broad implementation environment

At the time of the panel’s first review, most areas of the Basin were experiencing drought conditions, water storage levels were low, and entitlement market prices were increasing. We were told by various stakeholders that the history of rising water prices was a disincentive to participation in the WEP (the WESA-funded efficiency measures program at the time), under which project funding was linked to current market prices.

Since then, as a result of rainfall, storage levels in both the northern and southern Basin have recovered substantially. The aggregate storage levels in the southern Basin are currently at close to capacity (Figure 3). Although volatile, the trajectory in entitlement prices appears to have flattened off (Figure 4).
Anecdotally, the improved water security outlook has provided increased financial headroom for potential participants to consider investing in water efficiency. Given what we were told in our first review, the flattening price trajectory may also encourage participation.

Figure 3 Southern Basin storage levels, 2005 to 2021

Source: Waterflow™

Figure 4 Southern Basin entitlement market prices, 2012 to 2021

Source: Marsden Jacob and Waterflow™ analysis
4 Increasing environmental water by 450 GL

To review whether the amount credited or to be credited to the WESA for efficiency measures is sufficient to recover the additional 450 GL by 30 June 2024, the panel considered the information outlined in Box 3. On this basis, we found that:

- It is not possible to reach the 450 GL target through the current efficiency measures program (the OFEP), even if the WESA’s time and budget limits were removed
- It is possible to recover up to an additional 60 GL through the OFEP by 30 June 2024
- The WESA funds for efficiency measures are sufficient to cover the estimated costs to recover an additional 60 GL through the OFEP
- Putting aside program and timing limitations, the estimated cost to recover the full 450 GL through efficiency measures is between $3.4 billion and $10.8 billion.

These findings are consistent with those of our first review. However, we are now more confident that around an additional 60 GL could be recovered by 30 June 2024. Also, the estimated cost to recover this volume is higher than for our first review. The increase in confidence and costs is due to a combination of factors. One is the OFEP’s more flexible funding formula, which allows projects to be funded at a higher premium to traded entitlement prices than was possible under the previous program. This means the OFEP can attract the larger off-farm projects that generally have a higher cost per GL recovered. Another factor is the NSW Government’s more active support for further water recovery through off-farm efficiency projects in that state.

Box 3 Panel’s considerations in reviewing recovery of 450 GL

Our findings on whether WESA allocation of $1.575 billion is sufficient to recover 450 GL through efficiency measures by 30 June 2024 reflect our consideration of:

- Analysis commissioned from Marsden Jacob for this review
- Information provided by the department on progress made and anticipated to be made through efficiency measures programs, and expenditure on those programs to date
- Information provided by Basin state officials in discussions with the panel.

They also reflect our assumptions for the purposes of this review, including that:

- Payments from the WESA cannot be made after 30 June 2024, including to honour funding commitments for efficiency projects that are in progress but not completed at that date. The department told us it may be possible to bring forward final payments for such projects, provided the contracted volume of entitlement is registered and available for use by the CEWH by 30 June 2024. However, we considered there was insufficient clarity around this possibility to factor it into our analysis
- The design of the Off-Farm Efficiency Program (Box 3) and the arrangements and accountabilities for the efficiency measures (section 3.3) will not materially change prior to 30 June 2024
- The arrangements and accountabilities of the Australian and Basin Governments for the efficiency measures (section 3.3) will not materially change, and additional approaches for recovering the 450 GL (such as buybacks) will not become available.
The following sections discuss each of our findings in more detail. Figure 5 provides an overview of the analysis underpinning our finding on the volume recoverable through the OFEP by 2024.

**Figure 5 Analysis of volume that could be recovered through the OFEP by 30 June 2024**

4.1 **It is not possible to reach 450 GL target through OFEP**

The panel found it is not possible to reach the 450 GL target through the current efficiency measures program—even if the WESA’s time and budget limits were removed—because:

- Only 2.6 GL has been recovered or contracted to be recovered through previous efficiency measures programs
- Analysis commissioned for this review indicates that the technical potential for further recovery through the OFEP is only 330 GL at most, due to the program’s focus on off-farm efficiency projects and limited funding for on-farm projects.

4.1.1 **Only 2.6 GL recovered or contracted under previous programs**

In the 7 years between the establishment of the WESA in 2014 and the closing of the WEP in 2021, only 2.6 GL of the required 450 GL was recovered or contracted to be recovered (Table 2). An additional 1 GL has been recovered for the environment through a project funded by a non-WESA source, the National Water Grid Authority, but is not yet registered with the CEWH.
Table 2 Volume recovered or contracted through previous WESA efficiency measures programs (as at 30 June 2021)

<table>
<thead>
<tr>
<th>Program</th>
<th>Term</th>
<th>No. projects</th>
<th>GL recovered</th>
<th>GL contracted</th>
<th>Total GL</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Australian pilot of the Commonwealth On-Farm Further Irrigation Efficiency (COFFIE) Program</td>
<td>September 2016 to October 2018</td>
<td>66</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Murray–Darling Basin Water Infrastructure Program a</td>
<td>July 2018 to December 2018</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Water Efficiency Program</td>
<td>July 2019 to March 2021</td>
<td>28</td>
<td>0</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>TOTAL recovered or contracted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
</tbody>
</table>

a This program was paused 5 months after its launch, while the MDB Ministerial Council agreed on socio-economic criteria for the program, then was redesigned and relaunched as the Water Efficiency Program incorporating the criteria

Source: Department of Agriculture, Water and the Environment

4.1.2 Technical potential for further recovery through OFEP is 330 GL at most

We define technical potential as the potential for further water recovery through efficiency measures across the Basin, irrespective of the cost of recovery, the location of the recovery (and thus its ability to be used by the CEWH to enhance environmental outcomes), and the time required for recovery. We asked Marsden Jacob to:

• First estimate the total technical potential, taking into account only the types of projects eligible for funding from the WESA
• Then estimate the technical potential through the OFEP, factoring in the program’s eligibility criteria and focus on off-farm projects.

This analysis indicates that while the total technical potential for further water recovery is up to 675 GL, the technical potential through the OFEP is around half this volume—up to 330 GL (Figure 6).

Total technical potential for further recovery in the Basin is up to 675 GL

To estimate the total technical potential, Marsden Jacob first established the size of the consumptive pool that can theoretically be drawn from to recover water through efficiency measures across the Basin. This pool includes all surface water entitlements currently on issue, other than environmental holdings. When converted into LTAAY values, it is equal to around 8,600 GL.

It then estimated how much of this 8,600 GL is technically available in each region of the Basin to be recovered through all project types currently eligible for WESA funding. To form this estimate, it considered:

• The water efficiency projects that have already been undertaken in each region, and the extent to which further efficiency projects might be possible
• The volume of entitlements on issue in each region, and the impact of recovering further entitlements.
Second Review of the Water for the Environment Special Account

Figure 6 Total technical potential compared to technical potential through OFEP

This analysis resulted in an estimated technical potential for further recovery of up to 675 GL. As Figure 6 shows, around half of this potential (350 GL) comes from on-farm projects, and around a quarter (185 GL) from irrigation network projects.

The estimated technical potential is slightly larger than Marsden Jacob calculated for the first review (650 GL). The main reason is that stock and domestic projects, which are eligible for funding under the OFEP, were not eligible under the previous program (the WEP).

NSW stock and domestic water rights are part of basic landholder rights, not separately identifiable or tradeable entitlements. Therefore, for a stock and domestic water project to be funded by the WESA, the NSW Government would need to agree to convert the volume to be recovered into separate water entitlements that can be transferred to the CEWH. The NSW officials we spoke to indicated that this was possible.

Marsden Jacob’s discussions with stakeholders indicated that the technical potential for water recovery through stock and domestic projects may be larger than the volume included in its estimate, if delivery system (river) efficiency improvements are factored into calculations. However, because the NSW conversion process is uncertain, it limited its estimate for this review to a maximum of 20 GL.

Technical potential for further recovery through the OFEP is around half this volume

As section 3.4.3 discussed, the OFEP allocates the bulk of the $1.54 billion in funding available under the program to off-farm projects. The project types eligible for this funding include irrigation network, urban and industrial, and stock and domestic projects. Only $60 million is allocated to on-farm projects.

To estimate the impact of the program’s focus on off-farm projects, Marsden Jacob calculated that around 5 GL could be recovered from on-farm projects costing $60 million. It then reduced the technical potential for further recovery from on-farm projects from 350 GL to 5 GL. This resulted in technical potential for further recovery through the OFEP of up to 330 GL.
4.2  It is possible to recover up to an additional 60 GL through OFEP by mid-2024

The panel found it is possible to recover an additional 60 GL through the OFEP by the WESA's end date based on our consideration of:

- The department’s briefing, which indicates it expects around 70–100 GL to be recovered through the program by 30 June 2024
- Analysis commissioned for this review, which suggests up to an additional 60 GL could be recovered through the program by 30 June 2024.

4.2.1  Department expects 70—100 GL to be recovered through OFEP by 30 June 2024

The panel asked the department for its view on the volume potentially recoverable for the environment from funded and prospective projects under the OFEP. The department advised that the maximum potential recovery from known potential projects was around 178 GL.

Of this maximum potential, 15.9 GL is already contracted to be recovered (from Victoria's Goulburn-Murray Water project). The remainder represents the department's estimate of the volume recoverable from potential projects identified in the stocktake exercise (section 3.6.1) and through its discussions with Basin states and other stakeholders.

The department acknowledged that implementation of the potential projects and the associated recovery volumes are not certain. Only one potential project has been brought forward for funding to date (the NSW Murrumbidgee Irrigation project). The others are still in the concept or feasibility stage. In addition, for funding to be approved:

- Projects need to show that they meet the OFEP eligibility criteria (including the socio-economic criteria) and the requirements of the Water Act and the Public Governance, Performance and Accountability Act 2013 (including demonstrating that they provide value for money)
- Urban and stock and domestic projects need to provide assurance that the volume of contracted recovery can be converted into entitlements that can be transferred to the CEWH.

Therefore, based on currently available information, it considered the realistic recovery volume by 30 June 2024 was in the range of 70–100 GL (including the contracted 15.9 GL) (Table 3).
Table 3 Department’s list of potential water recovery opportunities by 30 June 2024

<table>
<thead>
<tr>
<th>Potential project proponent</th>
<th>Project type</th>
<th>Estimated water recovery</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria’s Goulburn Murray Water</td>
<td>Irrigation network modernisation</td>
<td>15.9</td>
<td>Already funded and contracted</td>
</tr>
<tr>
<td>Queensland Mallawa Irrigation</td>
<td>Irrigation network, various</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>NSW Gunbar Water Private Irrigation District</td>
<td>Irrigation network, pipeline extension</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NSW Hay Private Irrigation District</td>
<td>Irrigation network</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NSW Murrumbidgee Irrigation</td>
<td>Irrigation network, various</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>NSW Trangie Nevertire Cooperative Ltd</td>
<td>Irrigation network, modernisation completion</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NSW Civil and Earth</td>
<td>Stock and domestic, Basin-wide system upgrade</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>SA government</td>
<td>Urban, various stormwater harvesting</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>ACT government</td>
<td>Urban, various</td>
<td>11.6</td>
<td></td>
</tr>
<tr>
<td>Basin governments</td>
<td>On-farm, various</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal expected in 6 months</strong></td>
<td></td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>NSW Bringan Irrigation Trust</td>
<td>Irrigation network, upgrade</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NSW Moira Private Irrigation District</td>
<td>Irrigation network, system reconnection</td>
<td>15</td>
<td>Application possible in 12 months</td>
</tr>
<tr>
<td>NSW Romani Joint Water Supply</td>
<td>Irrigation network, system modernisation</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NSW West Corurgan Private Irrigation District</td>
<td>Irrigation network, system modernisation</td>
<td>15</td>
<td>Application possible in 12 months</td>
</tr>
<tr>
<td>NSW Civil and Earth</td>
<td>Stock and domestic, Basin-wide system upgrade</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>NSW government</td>
<td>Stock and domestic, various</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>NSW government</td>
<td>Urban, various</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Victorian government</td>
<td>Irrigation network, various small scale</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal possible in 12 months</strong></td>
<td></td>
<td>77</td>
<td>Application highly unlikely</td>
</tr>
<tr>
<td>NSW Jemalong Irrigation Ltd</td>
<td>Irrigation network, various</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>NSW Marthaguy Irrigation Scheme</td>
<td>Irrigation network, seepage and evaporation</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSW Murray Irrigation Ltd</td>
<td>Irrigation network, various</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>NSW Narromine Irrigation Board of Management</td>
<td>Irrigation network, system upgrade</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NSW Western Murray Irrigation</td>
<td>Irrigation network, peak flows improvement</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NSW Tenandra Scheme</td>
<td>Irrigation network, matching scheme capacity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to future demands</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal, highly unlikely</strong></td>
<td></td>
<td>34</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>178</td>
<td></td>
</tr>
</tbody>
</table>

Source: Department of Agriculture, Water and Environment
4.2.2 Analysis for this review indicates up to an additional 60 GL could be recovered through OFEP by 2024

To form our own view on how much of the 330 GL of technical potential for further recovery through the OFEP could be realised by 30 June 2024, the panel considered Marsden Jacob’s advice on the factors limiting the realisation of this potential. For the purposes of this analysis, we characterised these factors as:

- The current support and enthusiasm for further water recovery through efficiency measures—particularly by Basin state governments, as the OFEP sets aside most of the funding available for projects supported and brought forward by these governments
- The attractiveness of the OFEP to potential participants—particularly whether the trade-off between the costs and benefits of participation is commercially attractive to the entitlement holders
- The restriction on payment of WESA funds to efficiency projects that need to be completed by 30 June 2024—given there is now only 2.5 years remaining to this date.

Marsden Jacob estimated the impact of these limiting factors on the technical potential for further recovery under the OFEP on a region-by-region basis (and as a point-in-time exercise). In relation to the current support and enthusiasm, it considered announcements by Basin state governments in response to the OFEP, and other stakeholder comments in the public domain. It noted the NSW Government has called for projects to improve the efficiency of off-farm water infrastructure to recover water in the Basin, and Water Infrastructure NSW is working with eligible industry applicants to identify existing and new project opportunities. It also noted Murray Irrigation has indicated it does not support further recovery from efficiency projects in its irrigation network.

In relation to the OFEP’s attractiveness to potential participants, it took account of the program’s more flexible approach to project funding (Table 1). It also considered the location and likelihood of potential projects in the department’s list of opportunities (Table 3).

In relation to the restriction on payment of WESA funds after mid-2024, it considered that off-farm projects generally take several years to complete. It also considered that construction is usually done during winter periods to minimise impacts on operations, and final funding payments are usually not made until a project is complete.

It also reviewed the equivalent analysis it undertook for the first review. In addition, it tested the results of its region-by-region estimate by examining the department’s list of potential water recovery opportunities. It then assessed the potential volume recoverable from these opportunities by 2024 (Box 4).

Based on these streams of analysis and testing, Marsden Jacob estimated that only up to 60 GL of the 330 GL technical potential for further recovery under the OFEP could be recovered by 30 June 2024 (Figure 7).
Box 4 Marsden Jacob’s analysis of the department’s list of potential projects

In analysing the department’s list of water recovery opportunities, Marsden Jacob:

• Considered the information on each project provided in the department’s briefing to this review, including the project proponent, project type, and estimated volume recovery
• Interviewed some potential project proponents to understand their views on the likelihood of progressing to application, the estimated water recovery, and the feasibility of completing the project by 30 June 2024
• Reviewed publicly available information to compare the estimated project recovery volumes to the potential project participant’s entitlement holdings
• Checked whether any recovery from these holdings would be required to contribute to an unmet local ‘bridging the gap’ target (which has a higher priority than the 450 GL target)
• Applied its own knowledge and expertise on the water market, water recovery under the Basin Plan, and historical costs and timeframes for the different types of efficiency project.

Based on this, it estimated the potential volume recoverable from these opportunities by 2024. It assumed zero GL could be recovered from the projects the department considers unlikely to be brought forward for funding. The department indicated that the potential proponents of these projects have indicated they have no interest in or appetite for participating in water recovery.

For the remaining projects, Marsden Jacob reduced the department’s estimated potential volume from irrigation network projects in line with its view some of these projects are unlikely to be funded or implemented because the estimated volume to be recovered:

• Is likely to be required to contribute to a local ‘bridging the gap’ target
• Represents a material proportion of the project participant’s total water entitlement holding.

It reduced the estimated potential volume from urban projects to reflect its view that some of the potential projects will prove too costly to be funded under the OFEP, even with the relaxed funding formula.

It reduced the estimated potential from stock and domestic projects to reflect its view that the absence of an agreed legislative process to convert NSW stock and domestic access allowances into tradeable entitlements will discourage some potential projects from progressing to application.

Source: Marsden Jacob

Figure 7 Technical potential through OFEP compared to possible recovery by 30 June 2024

Source: Marsden Jacob analysis
The panel considered Marsden Jacob’s analysis, the department’s view and supporting information, the views expressed in our meetings with Basin state officials, and the findings of our first review. Based on this, we found that it is possible to recover up to an additional 60 GL through the OFEP by 30 June 2024.

The panel also considered whether the design of projects funded by the WESA to date is likely to be effective in increasing the volume of environmental water by 450 GL. On this question, the panel notes that projects funded under previous efficiency measures programs were effective in increasing this volume, but by a very small amount—just 2.6 GL from 94 projects.

We expect that projects funded under OFEP should recover more water per project. As section 3.6.1 noted, the OFEP’s flexible funding formula opens participation to more costly projects that can recover larger volumes. However, as section 4.1.2 discussed, these projects cannot increase the volume of environmental water by 450 GL, as the technical potential for further water recovery under the OFEP is 330 GL at most.

4.3 WESA funds should be sufficient to recover 60 GL

The panel’s finding that $1.54 billion credited or to be credited to the WESA for efficiency measures is sufficient to cover the cost to recover 60 GL by 30 June 2024 is based on our consideration of:

- The department’s view that this balance is sufficient to cover projects likely to recover around 100 GL under the OFEP (including the 15.9 GL currently contracted to be recovered from the Goulburn-Murray Water project at a cost of $177.5 million)

- Marsden Jacob's analysis that indicates this balance is sufficient to recover 60 GL under the OFEP (including the 15.9 GL currently contracted) under a range of water recovery and cost scenarios.

The panel asked the department to supply information on the cumulative planned, actual and projected expenditure on WESA-funded efficiency measures by the WESA end date. This information shows that actual expenditure as at 30 June 2021 was only $56 million, compared to anticipated expenditure of $1.4 billion (based on pro rata legislated appropriation). However, projected expenditure increases from this date, and the department anticipates the full $1.575 billion to be expended by 30 June 2024 (Figure 8). The projected expenditure reflects:

- Known expenditure on the project currently funded under the OFEP ($177.5 million for contracted recovery of 15.9 GL)

- Forecast expenditure on projects to recover an additional 54.1–84.1 GL (in line with the department’s total expected recovery through the OFEP of 70–100 GL).
The panel asked Marsden Jacob to estimate the cost to recover an additional 60 GL through the OFEP, taking into account the contracted cost and GL to be recovered from the Goulburn-Murray Water project ($177.5 million and 15.9 GL). Given the OFEP does not include a fixed funding formula (Table 1), Marsden Jacob estimated the cost of the uncontracted 44.1 GL under 3 scenarios:

- **Low cost**, which assumed projects would be funded for 1.75 times the prevailing market entitlement price
- **Medium cost**, which assumed projects would be funded for 2.75 times the prevailing market entitlement price
- **High cost**, which assumed projects would be funded for 3.75 times the prevailing market entitlement price.

For each scenario, it calculated the cost when the ratio of general security to high security water entitlement recovered was 25:75, 50:50 and 75:25. It used the southern Basin volume weighted average price (VWAP) for the relevant entitlement type as at November 2021, and converted this into LTAAY terms. The resulting prices were $3,300 per ML LTAAY for general security, and $7,400 GL LTAAY for high security.

As Figure 9 shows, Marsden Jacob’s estimated cost to recover 60 GL under each scenario is less than the $1.54 billion credited or to be credited to the WESA for efficiency measures. This suggests these funds are sufficient to cover expenditure on these measures up to 30 June 2024.
4.4 Estimated cost to recover 450 GL is between $3.4 billion and $10.8 billion

The panel also asked Marsden Jacob to estimate the cost to recover the full 450 GL through efficiency measures, noting that this was not possible through the OFEP, but would provide a theoretical point of reference for the overall cost. For this exercise, Marsden Jacob used the same low, medium, and high scenarios to illustrate the potential range for this cost. The calculation did not account for the specific volume and cost of entitlements recovered or contracted to date, given the theoretical nature of the exercise. It did test that incorporating these specific costs did not materially affect the calculations.

As for its analysis of the cost to recover 60 GL, it calculated a range of costs that reflected different assumptions about the ratio of general security to high security entitlement recovered. It used the southern Basin volume weighted average price (VWAP) for the relevant entitlement type as at November 2021.

As Figure 10 shows, this analysis indicates the cost to recover 450 GL under these scenarios ranges from $3.4 billion to $10.8 billion. For each market price scenario, the lowest cost occurred when the ratio of general security to high security entitlements was 75:25. However, Marsden Jacob observed it is more likely that actual recovery will include a lower ratio of general to high security entitlements (ie, 50:50 or 25:75). In addition, the low cost scenario was based on a funding multiple of 1.75. Marsden Jacob’s analysis of historic government-funded efficiency programs indicates that, on average, previous efficiency projects have been funded for around 2.25 times the prevailing market prices.
Figure 10 Estimated cost to recover 450 GL through efficiency measures

Source: Marsden Jacob analysis
5  Easing constraints on delivering environmental water

To review whether the amount credited or to be credited to the WESA for constraints measures is sufficient to deliver the 6 constraints by 30 June 2024, the panel considered the information and analysis outlined in Box 5. On this basis, we found that:

- Two of the 6 constraints projects could possibly be delivered by 30 June 2024, but it is not possible for the other 4 projects to be implemented by this date
- The WESA funds for constraints measures are sufficient to cover additional costs expected to be paid from this account by 30 June 2024
- However, the total cost to deliver the constraints and supply measures program is likely to exceed the total allocated funding from all sources.

At the program level, these findings are broadly in line with those of the first review. However, there is now more certainty about the time required to deliver some of the constraints projects. In addition, while the estimated cost of the projects remains highly uncertain, it now appears likely the total cost of both the constraints and supply measures will exceed the total available funding for these measures.

The following sections discuss each of the above findings in more detail. Figure 11 provides an overview of the 6 constraints measures projects.

Box 5  Panel’s considerations in reviewing constraints measures

For our second review of whether the WESA allocation of $200 million is sufficient to deliver the constraints measures program by 30 June 2024, we considered on:

- Analysis commissioned from Indec for this review on the status of each individual constraints project, taking account of the progress made since its March 2021 assessment on behalf of the Sustainable Diversion Limit Adjustment Mechanism Implementation Committee
- Information provided by the department on the constraints program’s status, estimated costs, available funding, and expected expenditure
- The views expressed by Basin state officials in discussions with the panel
- Publicly available information, including from the MDBA’s progress reports.

For the purposes of this review, we assumed:

- Payments from the WESA cannot be made after 30 June 2024 to honour funding commitments for contracted constraints projects
- The current roles, accountabilities and approach for delivering the constraints measures program will continue without material change.
5.1 It is possible that 2 constraints projects could be delivered by 30 June 2024

To assess whether the 6 projects in the constraints measures program will be implemented by 2024, the panel engaged Indec to assess the progress and status of each project. Indec conducted desktop assessments, using the same dashboard scorecard approach as for its previous assessment of the SDL adjustment mechanism program in March 2021 (see section 3.6.2). It relied on information provided by the Australian and Basin state governments.

Indec found that in the 7 months since its previous assessment, there had been substantial progress in the constraints measures program, including:

- **A mobilisation of resources to advance the NSW projects across community engagement, policy and technical areas, and a funding agreement with the Commonwealth to accelerate delivery of some sub-projects of the NSW elements of the Yarrawonga to Wakool Junction project. Indec attributed this to a change in the authorising environment in NSW—including the relaunch of Murrumbidgee and NSW elements of the Yarrawonga to Wakool Junction and Hume to Yarrawonga projects as the Reconnecting River Country program in August 2021. This program is being implemented by the newly formed Water Infrastructure NSW.**

- **Progress in Victoria, including the establishment of a Stage 1 funding agreement with the Commonwealth to deliver the feasibility studies for the Goulburn project and the Victorian elements of the Yarrawonga to Wakool Junction and Hume to Yarrawonga projects.**

In light of this progress, Indec found that it is possible for the River Murray in SA project and the Goulburn project to be implemented by 30 June 2024. However, it is not possible for the other 4
projects to be implemented by this date. The states responsible for these 4 projects are not scheduled to deliver detailed feasibility studies until late 2022 or early 2023. Indec considers that, given the nature of these projects, this leaves insufficient time for full implementation by mid-2024. (Indec’s assessment of each project are summarised in Table 4).

We considered Indec’s assessments, and the most recent publicly available SDL adjustment mechanism program status dashboard (Figure 12). We noted that Indec’s assessments of the possibility of delivering the projects by 30 June 2024 appear more optimistic than the SDL dashboard. To some extent, the difference in optimism reflects the progress that has occurred in the period between the 2 assessments (the dashboard relates to the period ending June 2021, whereas Indec’s findings are as at October 2021). It may also reflect that, for the purposes of the panel’s review, Indec assessed whether it was ‘technically possible’ for the constraints projects to be completed by 30 June 2024, as opposed to the ‘likelihood’ that they will be completed by this date.

We also considered the views expressed by the Basin state officials we met with, and the information and advice provided by the department. The department’s view of the Goulburn project’s prospects of completion by mid-2024 is less optimistic than Indec’s. The department also noted that significant issues need to be resolved ahead of any Stage 2 (implementation) funding agreements for the constraints projects. These include:

- Responsibility for funding ongoing operations and maintenance expenses for any assets built as part of these projects (eg, bridges)
- Linking payments for constraints projects that are also supply projects to progress towards the recovery of 450 GL through efficiency measures, and
- Responsibility for managing any shortfall in the 605 GL SDL offset from the supply projects (including those that are also constraints projects) if the MDBA undertakes a reconciliation of these measures in 2024, as provided for under the Basin Plan.

Given these differing views and analysis, the panel considers that it may be possible to deliver 2 constraints projects by 30 June 2024, but it is not possible for the other 4 projects to be implemented by this date. In addition, 1 of these—the Lower Darling project—may not ever be delivered as originally contemplated.
<table>
<thead>
<tr>
<th>Project (state responsible)</th>
<th>Indec’s assessment of status as at October 2021</th>
<th>Indec’s assessment of possibility of delivery by 30 June 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Darling (part of the Menindee Lakes supply project, NSW)</td>
<td>NSW has rescoped the Menindee Lakes project to focus on delivering local and regional environmental benefits. This focus is inconsistent with the original aims of the Lower Darling constraints project</td>
<td>Not possible. The constraints components (as originally intended) are unlikely to be delivered in the foreseeable future, due to the rescoping of the Menindee Lakes project</td>
</tr>
<tr>
<td>Murrumbidgee (NSW)</td>
<td>NSW is engaging with the community on what can be done by 2024 and in the longer term to help remove the identified constraints</td>
<td>Not possible. NSW is scheduled to deliver the strategic business case by early 2023. This leaves insufficient time for full implementation by mid-2024.</td>
</tr>
<tr>
<td>Yarrawonga to Wakool Junction (NSW and Victoria) a</td>
<td>NSW is engaging with the community on what can be done by 2024 and in the longer term to help remove the identified constraints. It has reached an agreement with the Commonwealth for 2 acceleration projects (the Koondrook–Perricoota Forest flow enabling works, and the Mid-Murray Anabranches project, which are subsets of this constraints project). These acceleration projects are expected to support community engagement around the constraints</td>
<td>Not possible. NSW is scheduled to deliver the strategic business case by early 2023. This leaves insufficient time for full implementation by mid-2024.</td>
</tr>
<tr>
<td>Hume to Yarrawonga (NSW and Victoria)</td>
<td>NSW is engaging with the community on what can be done to progress this project, by 2024 and in the longer term. Victoria has reached an agreement with the Commonwealth for the Stage 1a (feasibility) phase. In both states, activities are underway to examine and address major project issues, and deliver a feasibility study (Victoria) or strategic business case (NSW)</td>
<td>Not possible. Victoria is scheduled to deliver the feasibility study by late 2022, and NSW the strategic business case by early 2023. Even with the best available resources, planning and goodwill, this leaves insufficient time to fully implement the project by mid-2024</td>
</tr>
<tr>
<td>Goulburn (Victoria)</td>
<td>Victoria has recently reached a funding agreement with the Commonwealth for Stage 1 (feasibility). This will enable a detailed feasibility study to be delivered through a codesign methodology in collaboration with key community stakeholders</td>
<td>Possible. Victoria is scheduled to deliver the feasibility study by September 2022. Subject to its findings, and with proactive planning and coordination between the Victorian and Commonwealth governments, delivery by 30 June 2024 is possible</td>
</tr>
<tr>
<td>River Murray in SA (SA)</td>
<td>This project has recently been delayed by a lack of clarity in the funding agreement between SA and the Commonwealth. SA submitted a proposed variation in May 2021, but agreement with the Commonwealth has not been reached</td>
<td>Possible. Subject to a revised funding agreement and the maintenance of project continuity, delivery by 2024 is expected</td>
</tr>
</tbody>
</table>

a NSW was responsible for developing the business case for this project. However, as implementation will involve measures on both sides of the Murray, Victoria shares responsibility for delivering the project. Indec’s assessment of the project’s status did not include the Victorian elements of the project.

Source: Indec analysis
5.2 WESA funds sufficient to cover expected constraints costs up to 30 June 2024

The panel’s finding that the $185.8 million credited or to be credited to the WESA for constraints measures should be sufficient to cover expected constraints expenditure from this account to 30 June 2024 is based on the department’s advice and our consideration of its forecast expenditure.

In its briefing to the panel, the department indicated that, as at 30 June 2021, $14.2 million of the WESA funds had been expended. Of this, $4.5 million was spent on developing the initial business cases for the projects, and the remainder on activities to date under Stage 1 funding agreements.

The department also indicated that the balance of $185.8 million has been fully committed or notionally reserved to fund:

- Remaining activities under Stage 1 funding agreements ($43.8 million)
- Activities under accelerated project delivery funding agreements ($61.4 million)
- Expected activities under Stage 1 and Stage 2 funding agreements for the Goulburn project and the next phase of the River Murray in SA project ($80.6 million).

Figure 13 shows cumulative actual expenditure as at June 2021 and the department’s projected expenditure from the WESA up to 30 June 2024. In 2021-22, payments in existing funding agreements and those expected to be finalised are forecast to be $64 million. Payments in 2022-23 and 2024 include pro rata estimated expenditure on the Goulburn project.
The WESA funding reserved for the Goulburn project reflects the current estimated cost of this project. This estimate is based on the initial ‘concept’ business case developed in 2017 and is therefore uncertain. The department considers the cost could increase when the detailed feasibility study is delivered in 2022. It noted that the 4 funding proposals for accelerated delivery of supply and constraints it has received to date have shown an average cost increase from the business case estimate of 130%. On balance, given there is still considerable uncertainty about whether the Goulburn project will be fully implemented by 30 June 2024, we consider the funds in the WESA to be sufficient.

5.3 Cost to deliver all constraints and supply projects likely to exceed available funds

Putting aside the deadline of 30 June 2024, the panel considers the total funds available for all projects in the SDL adjustment mechanism are unlikely to cover the total cost of successfully delivering these projects.

This finding is based partly on information provided by the department (Table 5), which shows the current estimated cost of the constraints and supply measures programs is around $145 million higher than the available funding from all sources.

The cost estimates in Table 5 are largely based on concept business cases for projects developed in 2016 and 2017. Both the department and Indec emphasised the low certainty of these estimates. The department also noted the cost of the accelerated sub-projects within the Yarrawonga to Wakool Junction constraints project had increased significantly since the 2016-17 estimate—in one case by 240%.
Table 5 Current available funding and estimated costs for constraints and supply measures

<table>
<thead>
<tr>
<th>Description</th>
<th>$’million</th>
</tr>
</thead>
<tbody>
<tr>
<td>WESA funding for constraints measures</td>
<td>200</td>
</tr>
<tr>
<td>Sustainable Rural Water Use and Infrastructure Program funding for supply measures</td>
<td>1,004</td>
</tr>
<tr>
<td>Menindee Lakes Water Savings Project funding (incl. Lower Darling constraints project)</td>
<td>156</td>
</tr>
<tr>
<td><strong>Total funding for constraints and supply measures</strong></td>
<td>1,360</td>
</tr>
<tr>
<td>Estimated costs of supply measures (incl. Menindee Lakes Water Savings Project and Lower Darling constraints project)</td>
<td>868</td>
</tr>
<tr>
<td>Estimated costs constraints measures (excl. Lower Darling constraints project)</td>
<td>638</td>
</tr>
<tr>
<td><strong>Total cost of supply and constraints measures</strong></td>
<td>1,505</td>
</tr>
<tr>
<td><strong>Funding deficit</strong></td>
<td>-145</td>
</tr>
</tbody>
</table>

*a* Estimates for constraints projects are upper cost estimates from business cases or concept proposals, updated to include current contracted costs. More accurate cost estimates from these projects are expected at or near the end of Stage 1 activities

*b* Number does not add due to rounding

Source: Department of Agriculture, Water and the Environment

The panel considered this information. We also looked at the movement in construction prices since 2016, when the initial project cost estimates were prepared. The ABS index for heavy and civil engineering construction prices shows an increase of around 14% over this period.

Based on these considerations, we consider the project cost estimates are likely to increase when the project scope becomes clearer and more precise costings become possible, particularly given the multiple stakeholders and varied nature of the projects.
Appendix A: Difference between GL LTAAY and GL of entitlement

LTAAY is a method used to standardise the calculation of expected water recoveries from the 150 different water access entitlement categories and across catchments in the Basin. For example:

- 100 GL of NSW Murrumbidgee high security entitlement represents 97.7 GL LTAAY, whereas
- 100 GL of Victorian Goulburn low reliability entitlement represents 58.3 GL LTAAY.

LTAAY is relevant for measuring progress of water recovery towards meeting the sustainable diversion limits set out in the Basin Plan.

The panel notes that MDBA and Basin state governments use the term long term diversion limit equivalent (LTDLE) rather than LTAAY. This measure is used to calculate the average annual yield for Basin resource units, based on the LTDLE factors agreed by the Ministerial Council.

We understand that LTAAY and LTDLE are interchangeable for the purpose of this review.
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerated project</td>
<td>A sub-project within a constraints project which the Commonwealth and relevant State have agreed will be implemented ahead of the rest of the project, and for which funding for Stage 1 (feasibility) and Stage 2 (implementation) is combined in a single agreement</td>
</tr>
<tr>
<td>Appropriation</td>
<td>Law made by the Australian Parliament that authorises the expenditure of government funds. The Australian Government cannot spend money without an appropriation</td>
</tr>
<tr>
<td>Basin</td>
<td>Murray–Darling Basin</td>
</tr>
<tr>
<td>Basin Plan</td>
<td>Basin Plan 2012 (Cth)</td>
</tr>
<tr>
<td>Basin states</td>
<td>State and territory governments in the Murray Darling Basin: Queensland; New South Wales; the Australian Capital Territory; Victoria; and South Australia</td>
</tr>
<tr>
<td>Constraints projects</td>
<td>Projects that aim to overcome some of the physical barriers that impact delivering water in the system. Constraints projects can include changes to physical features such as crossings and bridges. They can also change river operating practices and rules. They could allow water managers more flexibility in releasing and moving water through the system</td>
</tr>
<tr>
<td>Department</td>
<td>Australian Government Department of Agriculture, Water and the Environment</td>
</tr>
<tr>
<td>Efficiency projects</td>
<td>Activities that change water use practices and save water for the environment. Projects can include upgrading irrigation systems, lining water delivery channels or installing water meters, along with water productivity improvements in manufacturing or irrigated agriculture, or changes to urban water management practices to reduce water use. Efficiency projects aim to provide 450 GL more water for the environment. These projects need to have positive or neutral socio-economic impacts on Basin communities and industries</td>
</tr>
<tr>
<td>Intergovernmental Agreement</td>
<td>Intergovernmental Agreement on Implementing Water Reform in the Murray–Darling Basin</td>
</tr>
<tr>
<td>LTAAY</td>
<td>Long Term Average Annual Yield. LTAAY is a method used to standardise the calculation of expected water recoveries in the Murray–Darling Basin from different water access entitlement categories and catchments. All water recovery targets in the Basin Plan are expressed in GL LTAAY</td>
</tr>
<tr>
<td>Market multiple</td>
<td>The cost of water yield to the Australian Government compared with the prevailing market price for the same entitlement at the time of the project approval</td>
</tr>
<tr>
<td>Ministerial Council</td>
<td>Murray–Darling Basin Ministerial Council</td>
</tr>
<tr>
<td>Panel</td>
<td>Independent panel appointed by the Minister to conduct the first WESA review</td>
</tr>
<tr>
<td>WSA</td>
<td>Water for the Environment Special Account, as described in Part 2AA of the Water Act 2007 (Cth)</td>
</tr>
<tr>
<td>SDL</td>
<td>Sustainable diversion limit. Limits of water that can be taken from the Basin’s water resources for consumptive uses as specified in the Basin Plan</td>
</tr>
<tr>
<td>SDL adjustment mechanism</td>
<td>Mechanism in the Basin Plan to adjust sustainable diversion limits in the southern Basin. It requires a suite of efficiency projects, constraints projects and supply projects to be implemented.</td>
</tr>
<tr>
<td>Supply projects</td>
<td>Improved ways to manage the Basin’s rivers to more efficiently deliver water. Supply projects complement efficiency projects by increasing the supply of consumptive water while achieving equivalent environmental outcomes. Examples of supply measure projects include environmental works, such as building or improving river or water management structures and changes to river operating rules.</td>
</tr>
<tr>
<td>Water Act</td>
<td>Water Act 2007 (Cth)</td>
</tr>
</tbody>
</table>