



## SOUTH AUSTRALIA - ADDITIONAL EFFICIENCY MEASURES CRITERIA ASSESSMENT OUTCOME

<b>Project Reference No:</b>	629771
<b>Outcome:</b>	Compliant with the Efficiency Measures assessment
<b>Date recommended to proceed to public comment</b>	19 March 2021
<b>Date recommended to proceed to the Australian Government's detailed assessment stage</b>	31 May 2021

### Overview

This project is proposing to undertake irrigation efficiency works across two 6.0ha winegrape properties located near Loveday in the SA Riverland region.

The works will generate water savings through the replacement of inefficient drip irrigation at one property which will also have a new pump with variable speed drive installed along with new primary filtration. The second property will have the primary filtration upgraded as part of the project.

The works are expected to improve the productivity of on-farm water use as a result of increasing yields (t/ha) and reducing water inputs (ML/ha) which will result in an increase in annual turnover generated from the properties. In addition to the water savings the upgraded primary filtration will generate significant labour savings as a result of the improved performance of the internal distribution system and the automated flushing of the new units. All goods and services for the project will be sourced from local businesses as such the program investment will deliver direct economic stimulus for the local community.

The project works will also ensure that on-farm irrigation management is as efficient and sustainable as possible and as such has minimal impact on the surrounding environment through irrigation induced drainage accessions.

A conservative water return of 4.1ML, or 0.34ML/ha is expected to be generated from the proposal.

**Part 1 - State Assessment - Efficiency Measures criteria**

**Assessment Approach**

This State Assessment is reliant on the information provided by the applicant. The comments provide a summary of the information provided by the applicant which is deemed relevant by the assessor to demonstrate that the Efficiency Measures – Agreed Criteria have been met.

**Water Savings Substantiation**

The water savings expected to be achieved by the project have been verified by an Independent Approved Irrigation Professional.

The water savings substantiation is provided at Attachment A.

The project is expected to return a conservative 4.1 ML to the environment, with the applicant retaining 6.7 ML of water savings.

<b>Water Saving Component</b>	<b>Area ha</b>	<b>Water Saving (ML/ha)</b>	<b>Estimated Water Saving (ML)</b>	<b>Total volume of Eligible Water Rights offered for transfer (ML)</b>
Irrigation system upgrades	12.0	0.9	10.8	4.1
<b>Total Water Saving</b>			<b>10.8</b>	

Efficiency Measures Criteria	Project Responses to Efficiency Measures Criteria	Adequate Response Y/N	State Assessment
<p><b>Evidence of engagement with community, industry and government agencies during project design (Criteria 9, 6a, 6b)</b></p>	<p>6a. Please refer to attachment B from the Central Irrigation Trust (CIT).</p> <p>6b. The Delivery Partner was engaged by the Australian Government in December 2018. Since this time the Delivery Partner has undertaken extensive consultation on the Water Efficiency Program with key stakeholders within the SA MDB region. Direct engagement with industry and commodity groups, irrigation infrastructure operators, Local Government, Regional Development organisations has occurred on the program.</p> <p>The works proposed through this project are consistent with regional plans and strategies on sustainable land and water management practices and building resilience and adaptability into the irrigated agriculture sector.</p> <p>9a. Please refer to response to 6b.</p> <p>9b. Please refer to response to 5b.</p>	<p>Y</p>	<p>The application has demonstrated that the delivery partner has consulted with relevant industry bodies, relevant Irrigation Infrastructure Operators, local governments and regional development organisations on a strategic regional approach to developing projects under the Water Efficiency Program.</p> <p>The application has also provided evidence that the relevant network operator, the Central Irrigation Trust, is involved in or aware of the project.</p>
<p><b>Potential Direct Water Market Impacts (Criteria 7a, 7b, 7c, 7d)</b></p>	<p>7a. Refer to Attachment B provided by the Central Irrigation Trust confirming the volume of water entitlement owned and the period of ownership.</p>	<p>Y</p>	<p>The application has demonstrated that:</p> <ul style="list-style-type: none"> <li>• The water rights to be transferred as part of the project have been independently verified as a conservative estimate of the water savings that</li> </ul>

	<p>The project has been independently assessed which included the provision of formal quotations to establish the budget for the project. This assessment confirms that only a conservative volume of the assessed water saving has been nominated for transfer to the Australian Government and that additional savings will be retained by the proponent.</p> <p>The water savings are based on industry benchmarks (crop and irrigation system type specific) that have been collated over a long period of time from on-farm water use studies and investigations.</p> <p>7b. Attachment B (Central Irrigation Trust Summary) verifies that the nominated water access entitlement meets the 3 year water ownership requirement.</p> <p>7c. As described in 7a. this project will generate water savings in addition to the volume that has been nominated for transfer to the Australian Government. The majority of the properties annual water requirements are for the production of permanent crops (winegrapes) so the retained savings will reduce demand while increasing supply. This will mean that post project there is a net positive increase in water availability which will ensure there is no direct impact on water reliability as a result of this project, or others given the same outcomes are being achieved with respect to enterprise level water</p>		<p>can be generated and that the project will not transfer more water than the project will save.</p> <ul style="list-style-type: none"> <li>• The water entitlements to be transferred have been held for a minimum of 3 years at the time of application.</li> </ul> <p>The project will generate water savings above the volume returned to the environment and will effectively increase the water available for productive uses in the consumptive pool. The increase in available water will have no direct impact on reliability, and may put downward pressure on water market prices.</p>
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	<p>demand and supply.</p> <p>7d. As described above in 7c. this project will generate a net increase in water supply and together with the small volume that will be returned (4.1ML) will not directly increase the price of water.</p>		
<p><b>Contribution to Proponent Businesses and Irrigation District Viability (Criteria 4a, 4b, 4c)</b></p>	<p>4a. The property is located within the distribution network of the Cobdogla Irrigation Trust which is managed by the Central Irrigation Trust.</p> <p>The existing delivery infrastructure is fully piped and therefore the proposed works will have no impact on the current network configuration, or longer term viability of the network.</p> <p>The proposed works will ensure the internal irrigation infrastructure operates as efficiently as possible and enable the applicant to continue contributing to the on-going network operating costs into the future</p> <p>4b. As outlined in the response to 4a. the property is currently serviced by a fully piped and pressurised supply system and is located within a long established irrigation area which will continue well into the future.</p> <p>The property is also surrounded by other permanent horticulture enterprises that are also serviced by the same irrigation supply network so the system will continue to be used for many years to come to support</p>	<p>Y</p>	<p>The application has demonstrated that:</p> <ul style="list-style-type: none"> <li>• The project will contribute to the longer term sustainability of the business and the irrigation district more generally.</li> <li>• The project is focused on modernising existing inefficient irrigation systems, which will position the business to capitalise on returns for citrus production in the SA Riverland.</li> <li>• The project will contribute to the longer term viability of the property, which will provide benefits across the trust and irrigation district more broadly, consistent with current business plans.</li> </ul>

	<p>existing irrigated enterprises.</p> <p>4c. As has been discussed in both 4a. and 4b. the works are proposed to occur on properties located in the Cobdogla Irrigation Trust which is operated by the Central Irrigation Trust (CIT). CIT has invested significantly in the Cobdogla Irrigation Trust in recent years confirming the commitment to the irrigation district into the future which will be underpinned by viable and adaptable irrigation properties which the proposed works will enable.</p>		
<p><b>Support for Regional Economies (Criteria 5a, 5b, 5c, 5d, 6c)</b></p>	<p>5a. As described in 2a. all materials and labour for this project will be supplied through local irrigation businesses and contractors.</p> <p>The wine grape industry is a primary economic driver of the Riverland region and therefore proposals that invest in securing the continuing viability of irrigated businesses ensures that this contribution will be sustained.</p> <p>5b. Currently the property is operating below regional benchmarks both from a water use and production perspective and the proposed works will address the current limitations with the on-farm irrigation system and the overall productivity (\$/ML) of water use.</p> <p>The on-farm irrigation efficiency works will also assist the proponent to be better</p>	<p>Y</p>	<p>The application has demonstrated that the project will:</p> <ul style="list-style-type: none"> <li>• Support the wine grape industry which is an important sector of the Riverland and SA economy.</li> <li>• Maintain and potentially increase seasonal employment along with engaging local contractors during the redevelopment and construction phase.</li> <li>• Generate benefits for the broader region and not just the applicant through sourcing of local farm input supplies and generating regional employment.</li> <li>• Increase regional and Basin wide productivity through increasing the volume of water available for consumptive uses on the water market.</li> </ul>

	<p>adapted to reduced and/or more volatile water availability in the future which will provide benefits at a local, network and regional scale.</p> <p>5c. As has been mentioned in responses to previous criteria the property is located within the Cobdogla Irrigation Trust and the works are focused on investing in the property to ensure it is sustainable and viable in the longer term.</p> <p>The project does not involve any reduction in held delivery shares within the trust and therefore these fixed charges will continue to be met by the project proponent</p> <p>5d. The proposal will under-pin existing direct employment and also ensure employment along the supply chain via harvesting, processing and distribution of wine grapes is maintained and potentially enhanced.</p> <p>6c. While the project will deliver positive benefits to the proponent these benefits will extend beyond the farm gate through investment in the local community both for the project works and in the longer term.</p> <p>The works will ensure the properties are viable and sustainable into the future and continue to contribute product to local processing facilities which will assist with enhancing the security of jobs along the supply and distribution chains. The project will also generate retained savings for the</p>		
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	proponent which will assist to increase water supply at a local, regional and Basin scale.		
<b>Social and Environmental Benefits (Criteria 2a, 2b, 2c,)</b>	<p>2a. The works proposed through this project will assist the business to significantly improve the productivity of its on-farm water use.</p> <p>The works will directly facilitate an increase in annual revenue that is derived from the existing irrigated crops which will assist with under-pinning the current levels of on-going and seasonal employment.</p> <p>All goods and services will be sourced from within the local region meaning the program investment will deliver a direct economic stimulus. Irrigated agriculture is the primary driver of the Riverland economy and therefore the project will ensure that this important economic contribution continues well into the future.</p> <p>The Riverland region is also very reliant on tourism and the associated recreation activities that the River Murray provides. This project will ensure that irrigation induced impacts on the River Murray and surrounding floodplains and wetlands are minimised and that the ecological and recreational values are maintained and enhanced.</p> <p>2b. As this project is focused on the delivery of on-farm works it is not expected to directly contribute to amenity values within the local community.</p>	Y	<p>The application has:</p> <ul style="list-style-type: none"> <li>• Described the expected socio-economic and environmental benefits of their proposed project, which include: <ul style="list-style-type: none"> <li>○ Increased productivity in terms of return per megalitre for the business and region.</li> <li>○ Improving the business’s long term resilience and viability, which will have flow on benefits to the local, regional and State economies.</li> <li>○ Sourcing of goods and services for the project from local companies, which will add further economic stimulus to the Riverland community.</li> <li>○ Increased regional and Basin wide productivity through increasing the volume of water available for consumptive uses on the water market.</li> </ul> </li> <li>• The proposed works are on-farm and will not affect the amenity value to local communities of weirs, storages and parks.</li> <li>• The project is below the \$4 million threshold for large projects and is not required to address criteria 2c.</li> </ul>

	2c. N/A		
<b>Comply with all relevant laws including work health and safety laws. (Criteria 2d)</b>	<p>2d. The Delivery Partner has well established WHS management procedures in place which have been specifically tailored to the implementation of Australian Government irrigation efficiency programs.</p> <p>The proponent will be required to complete a Risk Assessment specific to the project activities and demonstrate that all required insurance is in place and current prior to the project works commencing and any funds being paid.</p>	Y	The application has demonstrated that the applicant and delivery partner have an understanding of all relevant legislation and/or regulation that will require approval prior to works commencing and that they will comply with all relevant laws including work health and safety laws.
<b>Business Resilience, including Drought and Climate Change Impacts (Criteria 10a, 13a, 12)</b>	<p>10a. Please refer to response to 5b.</p> <p>12a. As described in 7a. the project proposal has been independently assessed and this assessment confirms that a conservative volume of the total water saving is nominated for transfer to the Australian Government. The project works budget has also been substantiated through formal quotations.</p> <p>13a. As has been described in the responses to previous criteria the project works will generate water savings in addition to the volume that is nominated for return to the Australian Government. These retained savings will assist the enterprise to be more resilient during periods of reduced water availability which are expected to be more common, or experience increased volatility into the future.</p>	Y	<p>The application has demonstrated that the project will:</p> <ul style="list-style-type: none"> <li>• Modernise existing inefficient irrigation systems, which will position the business to capitalise on returns for wine grape production in the SA Riverland.</li> <li>• Generate additional water savings that will be retained by the applicant to improve their capacity to better manage periods of reduced water availability.</li> <li>• Provide the enterprise with an increased ability to endure and adapt to future climate variability and water availability by generating productivity improvements and improving profitability.</li> </ul>

	<p>The project works will also enable the business to increase its annual turnover which will assist the applicant to better manage challenges induced by climate variability.</p> <p>The project works will deliver benefits beyond the farm gate as a result of reducing its annual irrigation demand and creating additional supply within the consumptive pool via retained savings.</p>		
<p><b>Cultural Benefits (Criteria 8a, 8b, 8c)</b></p>	<p>8a. The project is expected to generate positive outcomes at a local and regional community scale.</p> <p>The project works will ensure an existing family owned and operated business remains viable and sustainable into the future which is very important given the Riverland region of SA is heavily reliant on a prosperous and high performing irrigated agriculture sector.</p> <p>The transfer of a share of the water savings generated from the project to the Australian Government will also ensure that a portfolio of water is available to e-water managers to assist with the maintenance of priority ecological assets across the Murray-Darling Basin. With tourism and recreation also key drivers of the Riverland and State economies this is an important outcome of the project.</p> <p>8b. The project will engage local contractors to deliver all works which will provide a direct</p>	<p>Y</p>	<p>The application has described the expected cultural benefits of the proposed project, including the strategy for increasing the cultural benefit to participants and their communities through local sourcing of goods, services and labour.</p> <p>The total project value is below \$3 million and is not required to identify cultural heritage sites and manage any impacts in accordance with relevant Commonwealth and State laws.</p>

	<p>economic stimulus within the local community.</p> <p>The Riverland region and the small towns within it are very reliant on a sustainable irrigation industry to drive the local economy. Improvements in water management also assist to deliver flow-on benefits to local and regional environmental assets such as the River Murray, wetlands and floodplains.</p> <p>8c. N/A</p>		
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**In-Principle Recommendation**

The application has adequately addressed the Efficiency Measures – Agreed Criteria and demonstrated that the project will have neutral or positive socio-economic impacts and not have negative third party impacts on irrigation systems, water markets or regional communities. Accordingly, the South Australian Government provides in-principle approval for the project and recommends that the application proceed to the **public comment stage**.

**Part 2 - State Response – Public Comments**

Relevant Public Comments to be responded to	Response to Relevant Public Comments
<p>It is clear this project will have negative socio-economic impacts at a broader regional level as there will simply be less water available for agriculture.</p>	<p>The South Australian Government prefers efficiency measures to recover water for the environment, as they provide real and positive outcomes to irrigation businesses, while supporting communities that would otherwise be hard hit by the reduction in regional productivity or the closure of businesses through water leaving the consumptive pool through buybacks.</p> <p>Unlike water buybacks that remove water from the consumptive pool, efficiency measures increase the volume of water available. Properly constructed efficiency measures projects recover water that is effectively “lost” through evaporation, leaky infrastructure and inefficient irrigation systems or overwatering and is unavailable for use until projects are completed.</p> <p>The water savings for all South Australian on-farm projects have been independently verified as a conservative estimated of water savings. Those water savings were not previously available to the consumptive pool.</p> <p>Additionally, all proponents of on farm projects in South Australia under the efficiency measures program have retained a portion of the water savings generated from their projects. This is increasing supply and putting downward pressure on water market prices.</p> <p>Accordingly, South Australian projects are increasing the water available for consumptive uses across the southern connected Murray-Darling Basin and have not reduced the amount of water available for agricultural use.</p> <p>South Australia continues to encourage participation in on-farm efficiency measures projects to generate positive outcomes for irrigators and regional communities, and is assessing all applications in full accordance with the Murray-Darling Basin Ministerial Council agreed socio-economic criteria.</p>
<p>Any project that decreases the total pool available to food production results in negative outcomes.</p>	
<p>On-farm projects reduce the total amount of water available to agriculture. While this proponent claims they will become more efficient with their water use, agriculture as a whole in the Basin will be worse off as there is simply less for agriculture to use.</p>	
<p>South Australia remains the only State not adhering to the agreed socio-economic criteria.</p>	
<p>Evidence suggests that those who participate in on-farm</p>	<p>Both the ABARE and Aither reports have acknowledged that it is difficult to separate the</p>

projects do require additional water and do enter the water market, thus driving up the price. There is no guarantee that this project will not enter the market.

impact of water recovery from other major trends such as climate change and the significant growth in industries and as such the findings should be treated with caution.

The ABARE report draws heavily on a recent study undertaken by ABARES, available at <https://onlinelibrary.wiley.com/doi/full/10.1111/1467-8462.12396?af=R> This study found that some on-farm program participants subsequently purchased water to increase their irrigated production. The study did not however directly link this to participation in the program and noted that many other demographic and economic factors are likely to influence business decisions. In fact, it is specifically stated that the study did not attempt to define or separately quantify direct and indirect effects of on-farm efficiency measures projects on water prices.

The ABARES study also evaluated many projects that would not meet the criteria agreed by the MDB Ministerial Council and as a result, no conclusions can be drawn between the findings of this study and on-farm efficiency measures projects that have been submitted since these criteria were agreed.

The Aither report appears to treat water recovered through on-farm efficiency measures the same as buybacks. This fails to recognise that on-farm efficiency measures are reducing demand by the same amount and in most cases more than the corresponding reduction in supply.

Accordingly, it would be incorrect to infer that South Australian on-farm projects are directly attributable to increased water use and higher water market prices when they are consistently reducing water demand and increasing supply.

Any expansion of irrigated area and hence water use that occurs post on-farm project is an indirect effect of the program and is likely to be driven by many other complex and interrelated economic and social factors. These indirect impacts are not considered as part of the socio economic assessment.

### **Final Recommendation**

The application has adequately addressed the Efficiency Measures – Agreed Criteria and demonstrated that the project will have neutral or positive socio-economic impacts and not have negative third party impacts on irrigation systems, water markets or regional communities. Accordingly, it is recommended that the application proceed to the Australian Government’s detailed assessment stage.

## Declaration by Independent Approved Irrigation Professional

### A: Project details

Assessor Name: [REDACTED]

Date: 7/10/20

CID No: [REDACTED]

Client name: [REDACTED]  
[REDACTED]

Project Name: [REDACTED]

Project No. [REDACTED]

Submitted by: [REDACTED]

Irrigation Equipment by: [REDACTED]  
[REDACTED]

### B: Project Scope

I declare, as an Independent Approved Irrigation Professional agreed to under the Deed, that:

- a) I have carried out the technical and practical feasibility assessment for the Works; and
- b) I have had no previous involvement in preparing this Project Proposal.

I certify that the Project Works are technically and practically feasible, including that:

- i. the projected water savings they will generate are reasonable and realistic, including being appropriate to the crops, soils, climates, water delivery system and topography of the Eligible Irrigator's Property;
  - a. *Comment: The project proposal is to:*
    - i. *Property 1-replace dripline, upgrade pump/motor including VFD, and upgrade automatic primary filtration system*
    - ii. *Property 2-Upgrade automatic primary filtration system .*
    - iii. *Total project area 12Ha.*
  - b. *The projected water savings of 10.8ML(offer of 4.1ML ,0.34ML/ha) from the upgraded irrigation system components are considered reasonable and realistic for Wine grape production on this property in the Riverland area.*
- ii. the rationale for the water savings assessment is clearly explained;
  - a. *Yes, described in Attachment to application. I agree with the methodology used to calculate the water savings. The water savings that should be achieved from the installation of new dripline, pump and primary filtration upgrades (10.8ML savings from published data) are considered, realistic and achievable.*
- iii. the projected water savings will be achieved while maintaining the agricultural production potential of the Property on which the Works would be completed as part of a Project;
  - a. *A calculated 354ML (358.14ML CIT class 3 entitlement -4.1ML offer) will be retained by the grower for production. This available volume is more than adequate to meet full water requirements of approx. 178ML for the currently planted 25.5 Ha of Wine grapes include on the growers combined water licence over multiple holdings.*
- iv. the engineering solutions they entail are achievable and appropriate to the needs of the Eligible Irrigator and the Property/s;
  - a. *The installation of new drip line, upgrades to pump/motor including VFD and upgraded automatic primary filtration systems will improve irrigation system*

*operation efficiency and reduce labour time. The changes are appropriate to meet the needs of the property and irrigator.*

- v. the projected costs are reasonable and realistic, and within the expected range for that type of infrastructure and scale of installation;
  - a. *Yes, costs are within the range expected for the supply and installation of new drip irrigation tubing, pump/motor and primary filtration (2) components.*

**Signed as the Independent Approved Irrigation Professional for this Project**

██████████

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Name

██████████

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Signature

7/10/20

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Date

# Water Saving Substantiation – WEP Technical Assessment

Project ID: [REDACTED]

Crop Type: Winegrapes

## Project Summary:

The project will involve undertaking integrated irrigation upgrades across 2 x winegrape properties totalling 12.0ha which are located in the SA Riverland region of South Australia. The main component of the project is the replacement of failing drip tube on one property which also include upgrades to the pumping infrastructure and filtration, the second property will undertake a filtration upgrade only.

The works are expected to generate water savings of up to 10.8ML and contribute to the longer term sustainability and profitability of the farming enterprise. A conservative water saving of 4.1ML or 0.34ML/ha is nominated for return.

## Water Saving Methodology:

The system is not operating within design specification due to tube that deteriorated over time and significant number of squirting emitters, on the property that tube is to be replaced it is evident that the system has irregular emitter output which is causing management issues on the property. The project will be installing new 2.35L/hr non-drain pressure compensating tube which will be incorporated with the new pumping and filtration infrastructure to bring the system back to the original design specification.

The current pumping infrastructure is aged and fixed speed, the installation of a new pump set coupled with a VSD and existing automation will provide the irrigator with complete flexibility within their irrigation system. The irrigator will be able to manipulate the system to deliver the exact plant water requirements based of varietal needs reducing over pumping and excessive water use.

The upgrade to the primary filtration system units will be capable of managing varying water quality and is expected to generate water savings through improved system maintenance operations including the ability to auto flush the primary filtration based on pressure differential reducing the amount of water that is used to maintain the performance of the existing and new surface drip irrigation systems. This will ensure the systems are only back-flushing when required which will also have flow on benefits and generate labour efficiencies for internal irrigation system maintenance.

Water Saving Activity	Area (ha)	Water Saving (ML/ha)	Total Water Saving (ML)	Conservative Water Saving (ML)	Conservative Water Saving (ML/ha)
Automatic Flushing Primary Filtration	12.0	0.2	2.4	4.1	0.34
Drip Tube replacement	6.0	1.0	6.0		
New Pump with Variable Speed Drive (VSD)	6.0	5%^	2.4		
<b>Total Water Saving</b>			<b>10.8</b>		

^ 6.0ha x 8ML/ha x 5% = 2.4ML

**Project Budget:**

Project costs have been based quotes provided by [REDACTED] and [REDACTED].

**Irrigation Design:**

Irrigation Designs for the system have been prepared and included as attachments to the project proposal.

**Approvals/Environmental:**

No approvals are required to conduct the works as the works are occurring on private property and the activities will not have an adverse environmental impact on the property or surrounds.

The specific irrigation efficiency improvements will contribute to reducing deep drainage beyond the crop root zone and hence improved salinity outcomes for the River Murray.