Department of Climate Change, Energy, the Environment and Water

Australian Government | National Water Grid | NSW Government

Macquarie-Wambuul Water Security Project

Project update - shortlisted option – Full Business Case

March 2026

Acknowledgement of Country

The Department of Climate Change, Energy, the Environment and Water acknowledges that it stands on Aboriginal land.

We acknowledge the Traditional Custodians of the land and water, and we show our respect for Elders past, present and emerging.

We do this through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

Project background

Investigate options to improve water security and reliability and support a healthy river environment

A $9.35 million Full Business Case, jointly funded by the NSW and Australian Governments to improve water security and reliability for towns across the region, support a healthy river environment and increase drought resilience.

All work is aligned with the Macquarie-Castlereagh Regional Water Strategy, supporting long-term water security over the next 20–40 years.

Project need and problem statements
Severe water security risks for towns during the 2017–2020 Tinderbox drought
High transmission losses when supplying Nyngan and Cobar during drought
General security users faced major disruption due to sudden policy changes
The Macquarie Marshes are extremely vulnerable to reduced water availability

Full business case development process

Long list assessment

- Problem definition
- Case for change
- Options development
- Options assessment and shortlisting
- Stakeholder engagement

Short list assessment

- Detailed assessment and design of shortlisted option
- Environmental & cultural assessment
- Confirmation of preferred sub-option
- Regulatory and policy alignment

Full Business Case

- Cost of preferred option
- Economical and financial assessment
- Delivery model analysis
- Implementation plan
- Final recommendations

Assurance **Review**

- INSW Gateway review

Options assessed

Regional pipeline	Burrendong Dam flood mitigation zone changes	Replace Gin Gin Weir	Other options from the Macquarie-Castlereagh Regional Water Strategy
• A regional pipeline connecting Dubbo to Nyngan and other towns	• Using some of Burrendong Dam's flood mitigation storage to increase water supply	• A new weir to potentially replace Gin Gin Weir, located between Warren and Narromine	• Increasing access to groundwater during drought • Setting aside more water in Burrendong Dam for critical needs

Options assessment - What We Heard

Key themes raised during initial consultations

- Diverse community views regarding preferred options
- Concerns about downstream impacts and extending water delivery during low flows.
- Importance of maintaining connectivity to the Barwon-Darling River.
- Importance of data and monitoring for effective flood management.
- Concerns for environmental impacts to the Macquarie Marshes.
- Importance of maintaining cultural heritage and value of cultural water.
- The value of community education for water efficiency and engagement.
- The value of water allocation and equity processes for future resilience.
- The health toll of experiencing extreme weather events, particularly the impact of the Tinderbox drought on the community.

Communications and engagement snapshot from August 2024 to February 2026

Shortlisting process
How we assessed each option

The value of what we heard has strengthened our understanding of the problem and informed our assessment criteria.

Objective	Description
Primary objective	Increase town water security
Secondary objective	Meets other problem statements • More water for the west • Drought security for industry • No net reduction in the Macquarie Marshes
Value for money	Economic, financial, environmental, cultural and social
Policy and regulatory	Assessment under existing framework
Feasibility and risks	Nature of risks and extent to which can be managed
Environmental impact	Impact on the environmental values
Heritage and cultural impact	Impact on heritage and cultural values

Shortlisting results

Option	Assessment Summary
Regional Pipeline (Dubbo → Nyngan)	Not shortlisted – poor value for money. • Minimal town water benefit in time of extreme event • Very high capital cost
Replacement of Gin Gin Weir	Not shortlisted – limited alignment with project objective • Limited town water benefit • High cost and environmental and cultural heritage impacts • This option primarily addressed asset renewal and operational efficiency
Use of Burrendong Dam's Flood Mitigation Zone	Not shortlisted – economic analysis found environmental impacts and implementation requirements far outweigh any benefit. • Does provide town water security. Drought-resilience benefits would occur only during rare, extreme events. • Returned a negative Benefit Cost Ratio (BCR) and Net Present Value (NPV). The cost of implementing significantly outweigh the benefit. • Hydrological modelling indicates reductions in planned environmental water and reduced flows to the Macquarie Marshes – significant ecological and cultural risks. • Requires significant changes to water-sharing rules and allocation frameworks. • Mixed community feedback – some sectors raising strong concerns about flow regimes, environmental impacts and flooding risks, others in strong support of the option
Improved Groundwater Supplies for Dubbo	Shortlisted – low cost, complementary resilience measure that has application to whole of state. • Provides key regional centre with town water security • No reduction in water to Macquarie Marshes • Technically feasible with expected infrastructure environmental and cultural impacts. • Alignment with statewide groundwater policy development.

Shortlisted Option - Improved use of Dubbo groundwater

Importance of groundwater

Groundwater provides around 30% of Dubbo Regional Council's (Council) water supply on average with reliance increasing substantially during drought.

During extreme drought, and assuming Level 5 water restrictions, Council requires approximately 7,500 ML/year to meet town water needs.

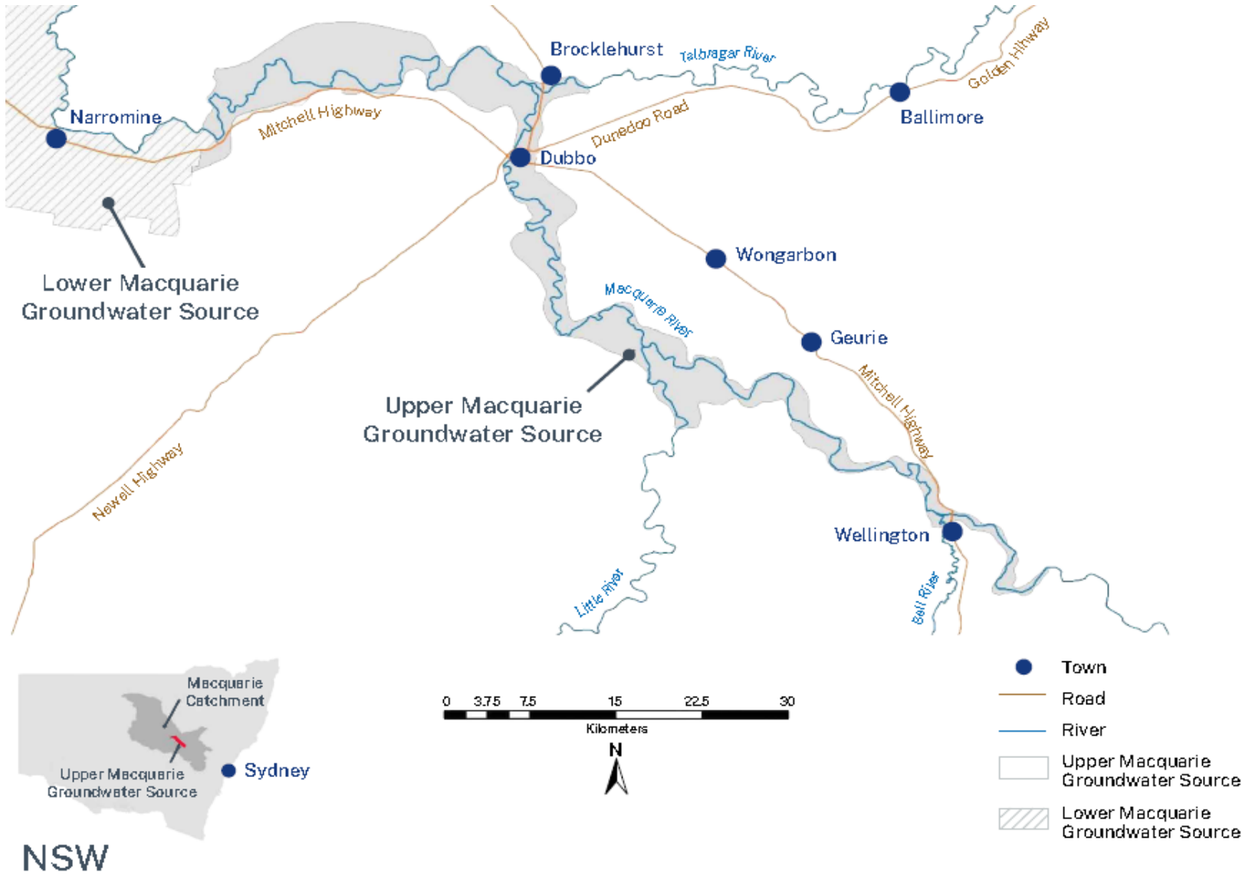
Council's capacity to access additional groundwater during drought has previously been constrained by:

infrastructure limitations,

policy and regulatory restrictions.

Shortlisted Option - Improved use of Dubbo groundwater

Boosting drought resilience



- The assessment confirmed that expanding Dubbo's groundwater access is a viable pathway to improve water security for a key regional town.
- The option directly addresses the primary project objective. Dubbo faces an unacceptable risk of supply failure during extended droughts and groundwater could provide alternative supply.
- Enable Dubbo Regional Council to increase its access to groundwater when Burrendong Dam reaches a critically low level.

Shortlisted Option - Improved use of Dubbo groundwater
Further work to assess viability

Sub-options being assessed

- **Infrastructure investigations** – assessing what new infrastructure may be required, such as expanding the bore network south of Dubbo and constructing a pipeline connecting to the water treatment plant. This work ensures groundwater can be accessed at the scale needed during extreme drought conditions.

- **Licensing and regulatory assessments** – examining how temporary access to additional groundwater could operate during extreme events, including the rules and approvals designed to safeguard the aquifer and ensure any potential effects on other groundwater users are appropriately managed.

Regional application

- There is statewide application of the drought response licencing that would benefit all groundwater dependant towns in the region.
- This would improve water reliability for the town, greatly reduce reliance on the dam and free up surface water for nearby communities such as Nyngan and Cobar.

How can this option be activated to respond to an extreme event?

Full Business Case - timeline and next steps

Project timeline

Mid-late 2025
Shortlisting
We consider your input alongside our initial studies and shortlist the most viable option.

Early 2026
Engage
We will hold a series of online and face-to-face public information sessions in Dubbo, Warren and Nyngan and with First Nations communities to engage with you about the shortlisted option and answer any questions you may have.

Mid 2026
Drafting
We consider your input alongside the detailed studies to prepare the business case.
Inform
We will inform the community of the selected option.

Late 2026
Submission
We finalise the business case.

Next steps - 2026

- Continue assessment of viability of shortlisted option
- Continue consultation
- Confirm preferred approach
- Define trigger points and lead times for activation
- Finalise Full Business Case for assurance review

Questions

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