



Australia's National  
Science Agency

**GISERA** | Gas Industry Social and Environmental Research Alliance

# Progress report

Review of beneficial reuse and end-use options for brine



# Progress against project milestones

Progress against milestones/tasks are approved by the GISERA Director, acting with authority in accordance with the [GISERA Alliance Agreement](#).

Progress against project milestones/tasks is indicated by two methods: [Traffic light reports](#) and descriptive [Project schedule reports](#).

1. Traffic light reports in the Project Schedule Table below show progress using a simple colour code:

- **Green:**

- Milestone fully met according to schedule.
- Project is expected to continue to deliver according to plan.
- Milestone payment is approved.

- **Amber:**

- Milestone largely met according to schedule.
- Project has experienced delays or difficulties that will be overcome by next milestone, enabling project to return to delivery according to plan by next milestone.
- Milestone payment is withheld.
- Milestone payment withheld for second of two successive amber lights; project review initiated and undertaken by GISERA Director.

- **Red:**

- Milestone not met according to schedule.
- Problems in meeting milestone are likely to impact subsequent project delivery, such that revisions to project timing, scope or budget must be considered.
- Milestone payment is withheld.
- Project review initiated by GISERA Director.

2. Progress Schedule Reports outline task objectives and outputs and describe, in the 'progress report' section, the means and extent to which progress towards tasks has been made.

## Project schedule table

TASK NUMBER	TASK DESCRIPTION	SCHEDULED START	SCHEDULED FINISH	COMMENT
1	Review of literature and existing and emerging innovative technologies and solutions for beneficial reuse or end-use options for brine	February 2023	August 2023	Completed
2	Techno-socio-economic analysis	September 2023	November 2023	Completed
3	Communication and engagement with selected local stakeholders	February 2023	June 2024	Completed
4	Communication and reporting	February 2023	June 2024	Completed

## Project schedule report

### **TASK 1: Review of literature and existing and emerging innovative technologies and solutions for beneficial reuse or end-use options for brine**

#### **BACKGROUND**

Task 1 will involve a detailed review of literature and existing and emerging approaches to beneficial reuse and end-use of brine, which could be applicable to the NGP. A wide range of literature including publicly accessible reports and web-based resources related to CSG extraction in Australia or globally will be reviewed. Scientific journals will also be reviewed to find potential options for brine reuse and end-use, and salt management that may not have been previously considered.

#### **TASK OBJECTIVES**

- 1) Review previous work as published in reports, journals, and web-based resources; and
- 2) Use this information to inform Tasks 2, 3 and 4.

#### **TASK OUTPUTS AND SPECIFIC DELIVERABLES**

A draft report that comprehensively reviews previous work will be prepared. This information will feed into later tasks and the results will be discussed in detail in the final report.

#### **PROGRESS REPORT**

This milestone is complete.

The review of literature and existing and emerging approaches to beneficial reuse and end-use of brine, which could be applicable to the NGP has been completed. This information is now being used for conducting socio-techno-economic analyses of selected options.

## **TASK 2: Techno-socio-economic analysis**

### **BACKGROUND**

A techno-socio-economic analysis (pros and cons) of identified technology/management interventions/options for the beneficial reuse or end-use options for brine from the NGP region will be conducted. This will involve an assessment of technical merits and demerits of each identified option. In addition, the social and economic impact of each option will be evaluated.

### **TASK OBJECTIVES**

The objectives of the project report will be to:

- 1) Provide an overview of technical merits and demerits of current and emerging technologies
- 2) Conduct techno-socio-economic assessment (pros and cons) of identified technology/management interventions/options

### **TASK OUTPUTS AND SPECIFIC DELIVERABLES**

A draft report detailing the techno-socio-economic assessment of identified technology/management interventions/options; that will feed into the final report.

### **PROGRESS REPORT**

This milestone is complete.

Techno-socio-economic analysis of selected options has been completed. These are now being elaborated and written.

## **TASK 3: Communication and engagement with selected local stakeholders**

### **BACKGROUND**

Three workshops will be organised to inform and engage key community stakeholders to understand their perspectives and priorities in relation to produced water and brine.

### **TASK OBJECTIVES**

- First workshop aims at informing selected community stakeholders of the project aim, scope, methods, timing and expected outcomes, and engaging with stakeholders around their perceived information and communication needs.
- Second workshop will discuss and refine the proposed technical, social and economic frameworks that will be used to evaluate each of the potential brine beneficial reuse or end-use options.
- Third workshop will communicate project outcomes and key messages.

## TASK OUTPUTS AND SPECIFIC DELIVERABLES

The feedback from the workshops will be considered and incorporated into the final report.

## PROGRESS REPORT

This milestone is complete.

Two face-to-face workshops were organised during the project life cycle.

- The first workshop was organised in Narrabri on 30 May 2023 and was attended by selected community stakeholders, who were informed of the project aim, scope, methods, timing and expected outcomes. Feedback from the participants of the workshop helped in researching the reuse options for brine.
- The second workshop with selected community stakeholders was organised in Narrabri on 24 November 2023. The socio-techno-nomic assessment of each brine reuse option was discussed and their feedback was received. The feedback was incorporated in the socio-techno-nomic assessment of the brine reuse options for brine.
- A third workshop (web-based session) may be considered, if required, to communicate project outcomes and key messages after the submission of the final project report.

## TASK 4: Communicate project objectives, progress and findings

### BACKGROUND

Communications of GISERA research are an important component of outreach and dissemination of findings to diverse audiences.

### TASK OBJECTIVES

- 1) Communicate project objectives, progress and findings via factsheet(s), reports, presentations and journal article(s), in consultation with GISERA Communications officers. A knowledge transfer session will be organised with key stakeholders at the completion of the project.

### TASK OUTPUTS AND SPECIFIC DELIVERABLES

Communicate project objectives, progress and results to GISERA stakeholders according to standard GISERA project procedures which may include, but not limited to:

- 1) Knowledge Transfer session with Government/Gas Industry.
- 2) Two project factsheets: A factsheet, hosted on the GISERA website, will be developed at the commencement of the project, and another that will include peer-reviewed results and implications will be developed at completion of the project.
- 3) A quarterly report.
- 4) A consolidated report (from tasks 1, 2 and 3) outlining the scope, methods, findings and any suggestions/options for future research.
- 5) Following CSIRO ePublish review, the consolidated report will be submitted to the GISERA Director for final approval.

Following CSIRO ePublish review, a manuscript based on the report will be submitted to an appropriate journal.

## PROGRESS REPORT

This milestone is complete.



- The Knowledge Transfer Session with government and industry stakeholders was conducted on 13 June 2023.
- A fact sheet at project commencement was developed and placed on the GISERA website. A second fact sheet outlining project results is being finalised and will be placed on the website in due course.
- The final report is available for viewing on the GISERA website.

## Variations to Project Order

Changes to research Project Orders are approved by the GISERA Director, acting with authority, in accordance with the GISERA Alliance Agreement. Any variations above the GISERA Director's delegation require the approval of the relevant GISERA Research Advisory Committee.

The table below details variations to research Project Order.

Register of changes to Research Project Order

DATE	ISSUE	ACTION	AUTHORISATION
13/02/24	Delayed as results cannot be presented at third workshop until peer reviewed final report is completed and this will not be until June 2024	Milestone 3 extended from Feb 2024 to June 2024.	
13/02/24	Delayed as additional review and socio-techno-economic analysis is required based on feedback from community workshop and the project team will be engaging an external editor to assist with the final report.	Milestone 4 extended from Feb 2024 to June 2024.	

**As Australia's national science agency and innovation catalyst, CSIRO is solving the greatest challenges through innovative science and technology.**

CSIRO. Unlocking a better future for everyone.

**Contact us**

1300 363 400  
+61 3 9545 2176  
[csiro.au/contact](http://csiro.au/contact)  
[csiro.au](http://csiro.au)

**For further information**

1300 363 400  
[gisera.csiro.au](http://gisera.csiro.au)

GISERA is a collaboration between CSIRO, Commonwealth and state governments and industry established to undertake publicly-reported independent research. The purpose of GISERA is to provide quality assured scientific research and information to communities living in gas development regions focusing on social and environmental topics including: groundwater and surface water, greenhouse gas emissions, biodiversity, land management, the marine environment, and socio-economic impacts. The governance structure for GISERA is designed to provide for and protect research independence and transparency of research.