

Gloucester Coal Seam Gas Project

The Gloucester Basin: An emerging CSG supplier to the NSW market

For further information, please contact your community relations representative on 1800 810 680 (free call) or info@gloucestergas.com.au.

The Gloucester Coal Seam Gas Project

The Gloucester Coal Seam Gas Project is a joint venture between Lucas Energy Pty Ltd, a division of listed infrastructure and resources company AJ Lucas Group Limited, and Molopo Australia Limited.

The joint venture holds the petroleum exploration licence (PEL) for the Gloucester Basin.

The project is for the development of coal seam gas (CSG) including the installation of gas wells, construction of a Central Processing Facility and a high-pressure pipeline to transport the gas.

To date, we've been exploring to understand the area's coal geology and the potential for commercial production of coal seam gas.

In February 2008, the following initial project reserves were booked:*

1P (Proved)	14.9 BCF
2P (Proved & Probable)	170.2 BCF
3P (Proved, Probable & Possible)	359.2 BCF
Contingent Resource	166.2 BCF

Project overview

The concept plan covers three areas:

1. The field area
2. Corridor for the gas pipeline
3. Site for a Central Processing Facility

Approvals approach

A. Prepare and submit:

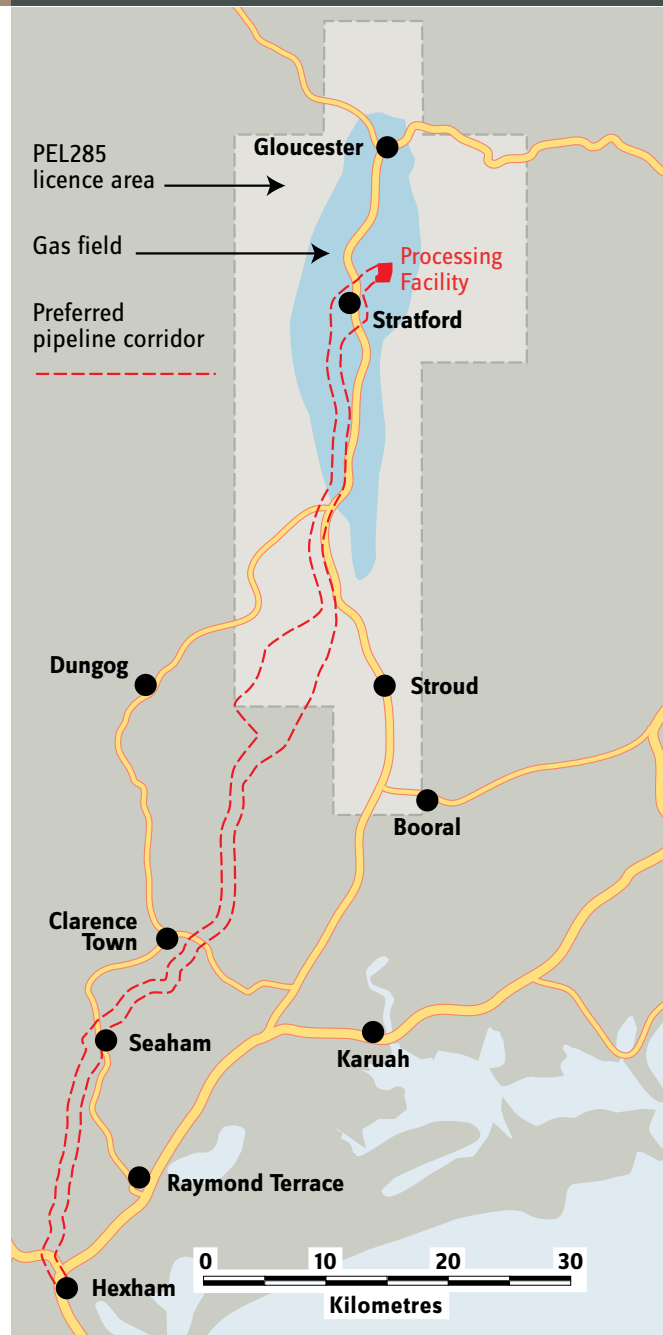
Concept plan for the proposed development seeking concurrent project approval for:

- Field development
- The gas pipeline
- A Central Processing Facility

B. Receive the Department of Planning's requirements for the concept plan and project application

C. Prepare and submit one environmental assessment covering each component to allow concurrent assessment.

*Initial Reserves Certification 100% (NSAI Feb 2008)



This community information fact sheet has been produced by the Gloucester Coal Seam Gas Project:
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Above: The Stratford Pilot Project area.
 Below: A CSG wellhead in place.
 Bottom: CSG drilling rig.



Benefits of the project

The concept plan proposes to commercially develop the coal seam gas resources of the Gloucester Basin to benefit of the region and the state. In particular, to meet the state's future energy needs.

The project is an important development of New South Wales's resources because:

- New South Wales currently imports approximately 90% of its natural gas from other states;
- Natural gas has been identified as the optimum transition fuel for power generation in response to climate change; and
- The Gloucester Basin is located close to markets, in particular the fast growing region of Newcastle and the Hunter.
- The proposed development will provide an important and significant new energy source for New South Wales.

The proposed development is expected to have limited long term impacts upon either the environment or future land use, because:

- Field development after drilling has a small footprint on land;
- The proposed pipeline will be buried and after construction and rehabilitation will have minimal impact upon the subject land; and
- Gas production is environmentally clean compared to coal, which it may displace, particularly for electricity generation.

We therefore believe the substantial project benefits clearly outweigh any perceived negative effects.



Rationale for the project

The Lower Hunter is the sixth largest urban area in Australia and a major economic centre for NSW. It is growing fast and is expected to keep growing, with an energy demand growing accordingly.

The Lower Hunter Regional Strategy plans for the region's land use over the next 25 years.

Among other provisions it includes:

- 115,000 new homes for a projected population growth of 160,000 people;
- 66,000 new jobs;
- A focus on attracting new investment and capital to NSW to promote job creation; and
- Alternative forms of energy to address the state's needs.

Environment

CSG exploration and production activities have a relatively small environmental footprint.

Disturbance of the natural environment is limited to construction of access tracks, small well sites, buried gas reticulation pipelines, and water management systems.

CSG is a relatively 'clean' energy source compared to other hydrocarbons, burning much more efficiently than coal or oil and generating approximately 40% less greenhouse emissions than conventional electricity generation.

With society's environmental focus shifting and climate change becoming a key concern, the environmental advantages of gas over other fuels has become apparent.

Gas is clean burning and results in virtually no atmospheric emissions of sulphur dioxide or particulate matter and generates virtually no solid waste.

The project is being assessed under Part 3A of the Environmental Assessment Act 1979. Preparation of the Environmental Assessment will include comprehensive studies in relation to all environmental impacts including flora and fauna, cultural heritage, water management and groundwater.

Community Consultation

The Project is committed to establishing and maintaining open two-way communication with the local community and other interested stakeholders.

Engineering and environmental consulting firm GHD has been engaged to assist with the community consultation for the Project.

The community consultation will aim to ensure that stakeholders' issues and questions are identified up-front in the process and carefully considered during project planning and preparation of the Environmental Assessment.

Consulting has already begun with landholders, state and local government, local community and industry groups, and other interested parties.

A Community Consultative Committee (CCC) is being formed for the project, made up of community representatives, local and state government authorities and project representatives.

What is coal seam gas?

Coal seam gas (CSG) is a natural gas found in coal seams. It is a safe energy source formed as a by-product of the natural conversion of plant material to coal and consists mainly of methane (CH₄).

CSG is a naturally odourless and colourless gas that is used like other forms of conventional gas to power heaters, stoves and hot water systems in homes and businesses.

CSG is also used as a direct source of power for industry and as a fuel for electricity generation.

How is the gas extracted?

Coal seam gas is recovered by drilling a well (borehole) into the coal seam and fracturing it with high-pressure water and sand.

Water is then pumped out, leaving the sand in the small fractures. The sand keeps the fractures open, allowing gas to flow from the coal seam to the well.

An operating coal seam gas field involves a network of gas production wells connected to a buried pipeline system that transports the gas and produced water to a central processing facility before sending it on to the market.



Field development

Stage 1

Initially approximately 60 wells to be completed

- 90 -100 locations to be permitted
- 600m spacing (approx 86 acres)

Polyethylene gathering lines

- Large diameter low pressure gas gathering with separate water lines
- North-South trunk network
- Potential extensions North and West

No nodal compression as part of Stage 1. Not required until Southern development (Wiesmantel or Sth Craven)

Well site area

- Well pad hardstand area will be approximately 60m x 60m during drilling
- Area fenced during drilling operations
- On completion, pad area reduced to approximately 15m x 15m hardstand and remaining land restored
- Wellhead secured with fencing (approx 10m x 6m)

Field development layout

Set up as 'pods'

- 15-30 wells per pod
- Two trunk lines running North-South
- Gathering lines connect to trunk lines

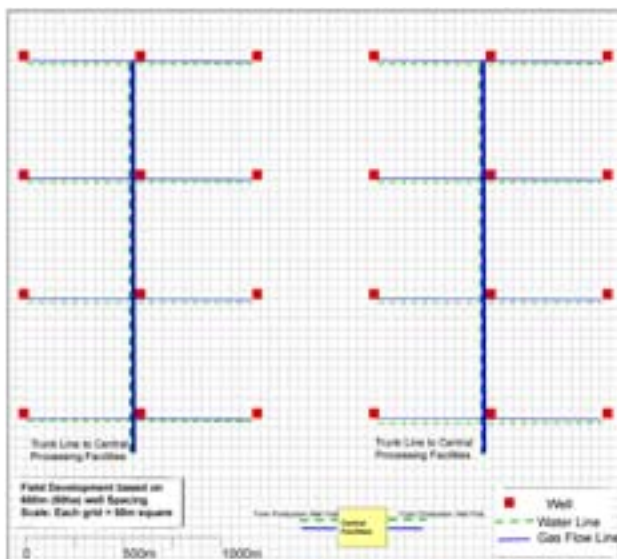
Well locations

- Approx 600m spacing
- Sited in consultation with landowner
- Adjacent to existing fences and tracks where possible
- Site selection criteria will be developed as part of the environmental assessment

Gathering line location

- Adjacent to existing fence lines and tracks
- Single trench for water and gas

Field development: illustrative layout 24 well pod



Pipeline overview

- Approx 98 km long
- Affects approximately 230 land parcels and 150 landowners
- Buried high pressure steel pipeline

Two options

- Throughput only
- Including storage

Route selection

- Initial desktop analysis for constraints using geographic information system
- Aerial inspection
- Ground checking where necessary
- Use existing utility corridors wherever possible
- 55km of 98km within existing infrastructure corridors
- Landowner consultation well advanced

Central processing facility

Two sites currently being investigated for the CPF:

- Tiedeman's property
- Future industrial land near Stratford Mine

Consists of

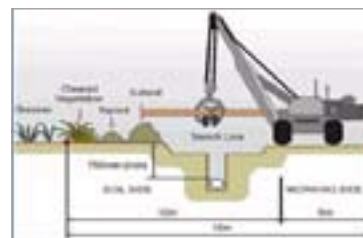
- Initially 4-5 reciprocating compressors (approx 3000HP)
- Up to 6-7 compressors as project develops
- Dehydration unit
- Water treatment facility

Designed for 60 TJ/day capacity

- Initial installed compression 41 TJ/day
- Outlet 10200 kPa or 15300 kPa

Pipeline construction

- Production rate of 1km / day laid
- Approximately 100 personnel
- Construction period of approx 4-5 months
- Typically 25m—30m workspace
- Reduced workspace within environmentally sensitive areas like creek crossings
- Final easement will be 15-20m



Above: Reduced workspace

Below: Typical workspace

