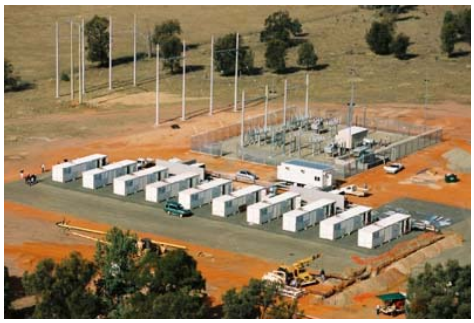
Executive Summary
of the

Narrabri Coal Seam Gas Utilisation Project

PEL 238, Gunnedah Basin
New South Wales

Part 3A Environmental Assessment

(Project Application 07_0023)



April, 2008

INTRODUCTION

This *Environmental Assessment* is submitted by Eastern Star Gas Limited ("the Proponent") on behalf of the Gunnedah Gas Joint Venture ("the Joint Venture"), which comprises Eastern Star Gas (65%) and Gastar Exploration Ltd (35%) in support of its project application for the Narrabri Coal Seam Gas Utilisation Project ("the Project"). The Project is an important component in the further development of the Joint Venture's key objectives, which include the expansion of gas production in Petroleum Exploration Licence 238 ("PEL238") which will contribute to the reduction of NSW's dependence upon gas imported from the Gippsland Basin (Victoria) and the Cooper Basin (South Australia) for supply of its residential, commercial and industrial needs.

The *Environmental Assessment* covers both the construction and operational phases of the Project and provides an assessment of the key environmental issues relevant to the Project.

BACKGROUND

The Joint Venture has completed stages one to three of a five stage program for the development of Coal Seam Gas (CSG) resources located within PEL 238, near Narrabri, NSW (**Figure 1**). Stages one through three have involved the systematic evaluation of the CSG reservoir, corehole drilling, the testing of various well completion techniques and subsequent gas production testing at the Bohena and Bibblewindi CSG Pilots. The recent core drilling program has been specifically formulated to establish a base of marketable gas reserves and has assisted in the completion of the initial reserves certification of 1300PJ and 185PJ of 3P and 2P gas reserves respectively in early 2008.

A key component to the certification of gas reserves in this manner is the need to demonstrate gas production from the pilot wells to establish the production curves, the reliability of the gas reservoir and flow characteristics. Therefore, with the long term production of CSG underway at the Bohena and Bibblewindi CSG Pilots, the utilisation of gas produced during this phase has been proposed as a means to avoid the wasteful and environmentally undesirable venting of pilot production gas and to make economically rational use of the gas whilst the project continues to mature. The Narrabri Coal Seam Gas Utilisation Project is effectively a component of Stage 3 as the 12 wells currently on production testing are yet to reach maturity.

The project will involve gathering and delivery of production test gas to the Wilga Park Power Station which will, in turn, be expanded from 11 MW to 40 MW. The budgeted cost for expansion of the power station and installation of gas gathering and flow line facilities to deliver gas to the power station exceeds $46 million.

COMMONLY USED ACRONYMS AND SYMBOLS

BCF	Billion cubic feet (of gas) – equivalent to 1 PJ
CSG	Coal Seam Gas
DECC	Department of Environment and Climate Change
DoP	Department of Planning
DPI-MR	Department of Primary Industries – Mineral Resources
GGS	Gas Gathering System
kPa	Kilopascal – Pressure = 1000 pascals
MW	Megawatt – Electrical Output = 1 million watts
PAL	Petroleum Assessment Lease
PEL	Petroleum Exploration Licence
PJ	Petajoules – a unit of energy equivalent to 10^{15} joules
WPPS	Wilga Park Power Station
2P	Proven and Probable (Gas Reserves)
3P	Proven, Probable and Possible (Gas Reserves)

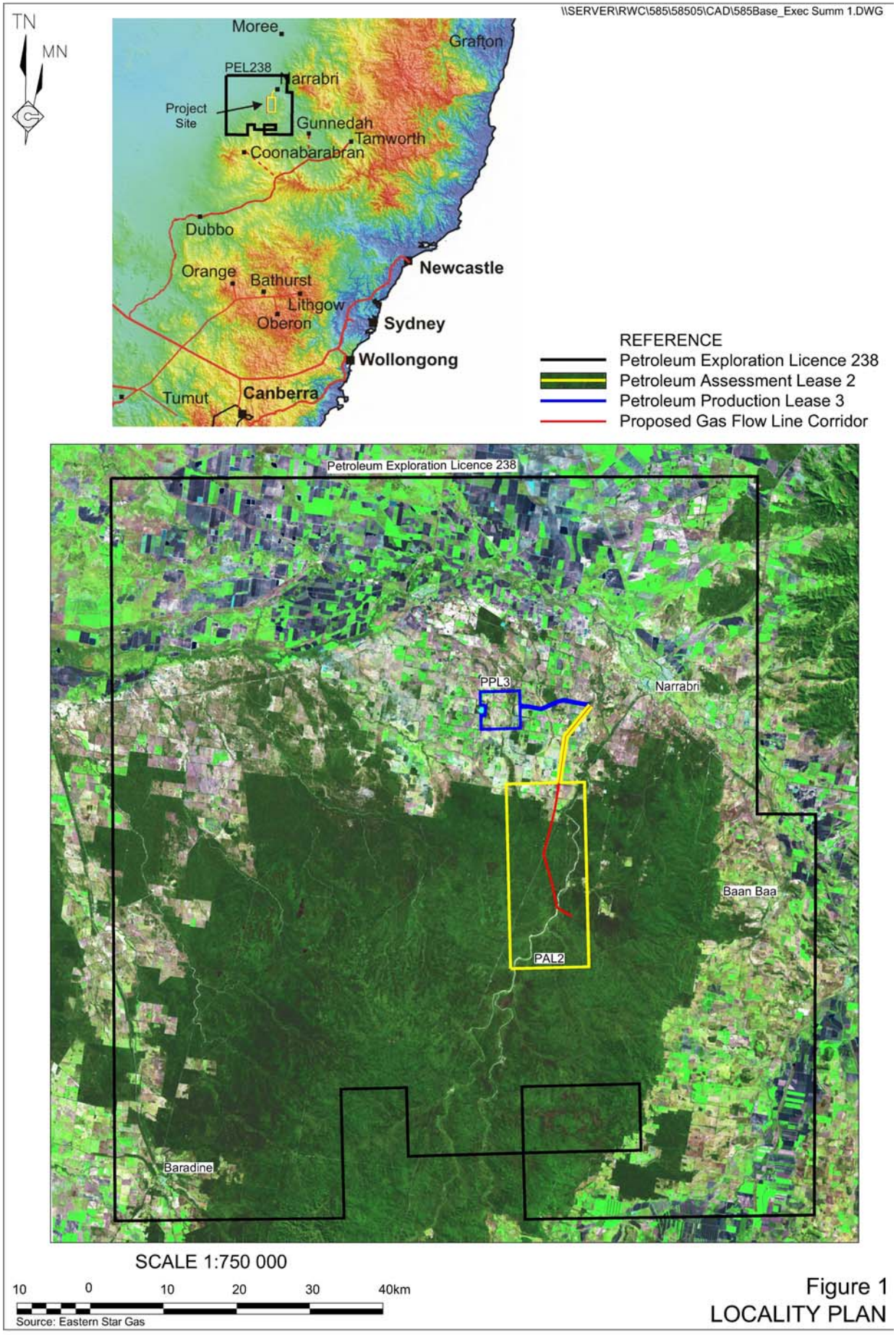


Figure 1
LOCALITY PLAN

THE PROJECT

The Narrabri CSG Utilisation Project comprises four main components, the locations of which are illustrated in **Figure 2**.

1. A gas gathering system at the Bibblewindi and Bohena CSG Pilots.

   The gas gathering system will comprise a network of small diameter (200mm) pipes transporting gas from individual wells to an inlet hub and gas compression facility. The system will collect gas from nine wells at the Bibblewindi CSG Pilot and three wells at the Bohena CSG Pilot.

2. Gas compression facilities at the Bibblewindi and Bohena CSG Pilots.

   Each gas compression facility will be trailer-mounted and increase gas pressure from approximately 100kPa to 1 000kPa.

3. A 32km long buried gas flow line.

   The flow line will be located within a 20m wide corridor although a width of only 10m will be required for all construction activities.

4. The expansion of generating capacity at the existing Wilga Park Power Station.

   The power station will be expanded to a capacity of 40MW through the installation of ten 3MW gas driven reciprocating engine generators. The power station will supply electricity into the 66kV network through a substation adjacent to the power station.

CONSTRUCTION ACTIVITIES

The Project construction activities will involve the following.

1. Installation of the GGS and gas flow line in both Forestry lands and cleared agricultural lands.
2. Crossing of Bohena Creek.
3. Crossing of the Newell Highway and Shire Roads.
4. The expansion of the existing Wilga Park Power Station facility.

The installation of the gas gathering system and gas flow line will involve the following activities.

- Surveying the Gas Flow Line Corridor.
- Vegetation Clearance.
- Topsoil Stripping and Stockpiling.
- Trench Surveying.
- Trenching.
- Flow Line Jointing.
- Pipe Hydrotesting.
- Backfilling and Rehabilitation.

The expansion of the Wilga Park Power Station would involve the following activities:

- Site surveying.
- Importation and compaction of approximately 1 500m^3 of suitable base material to create the compound surface within the extended site.
- Excavation, construction / installation of all subsurface pipe work.
- Construction of concrete foundations for all generators and new buildings.
- Construction of all new buildings.
- Progressive placement and connection of all new generators.
- Installation of upgraded transformers and related electrical equipment.
- Erection of a perimeter fence.

Construction activities would be undertaken between 7:00am and 6:00pm, 7 days per week.

PROJECT OPERATIONS

The operation of the GGS and gas flow line does not require any specific operational activities on behalf of the Proponent. Once the GGS connects the CSG wells to the gas flow line inlet and compression unit, operation is automatic. The main operational focus will be monitoring of the CSG wells and the compression units.

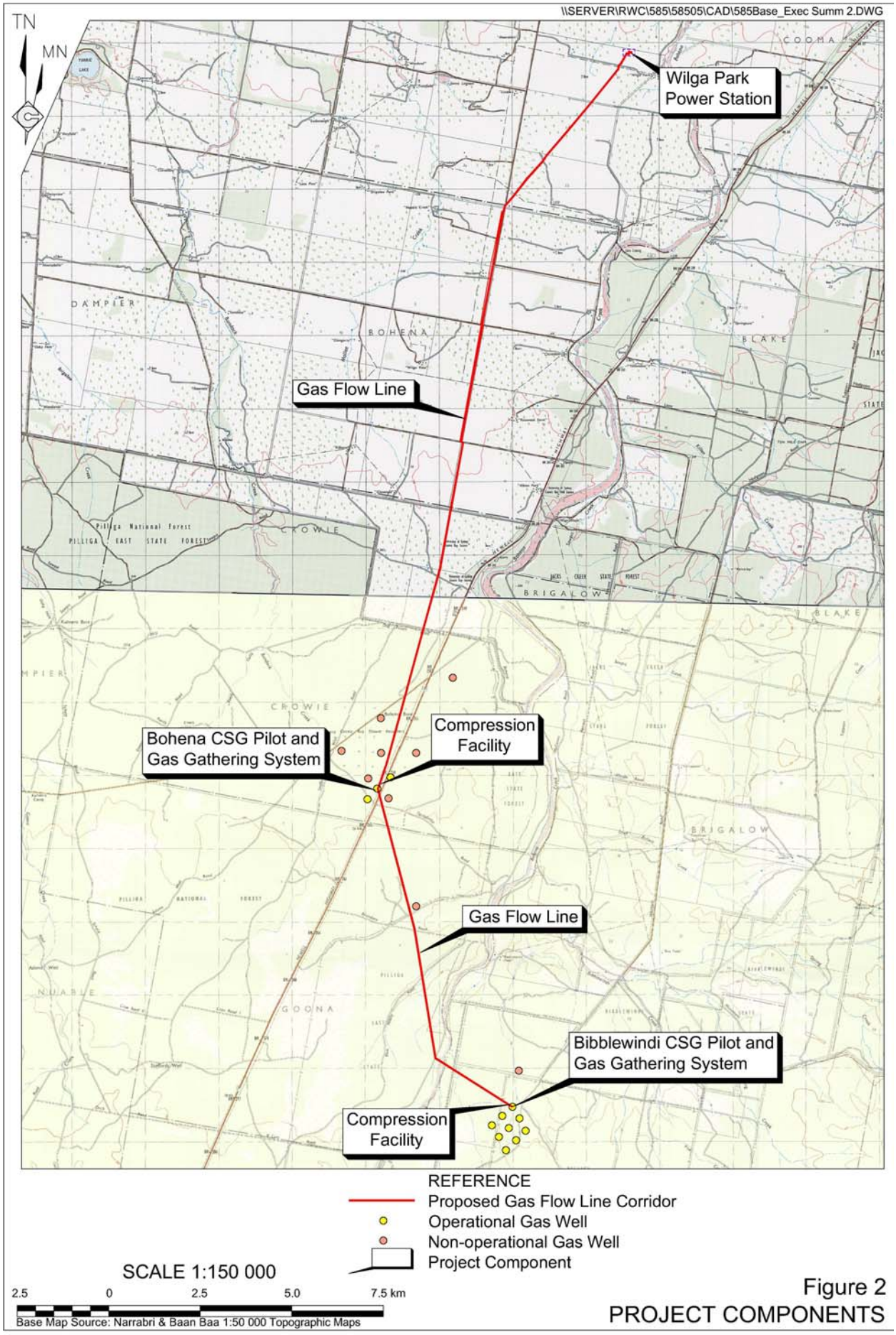


Figure 2
PROJECT COMPONENTS

The operation of the power station involves predominantly monitoring and planned maintenance activities on the gas driven engines. The Proponent employs two full time power station attendants to complete all activities associated with the operation of the facility.

ENVIRONMENTAL SETTING

The Project Site for the Narrabri Coal Seam Gas Utilisation Project is located in two distant areas, namely:

(a) forested lands within the Bibblewindi and Pilliga East State Forests; and

(b) cleared agricultural lands.

The route of the gas flow line corridor was selected with due consideration of land use, environmental, cultural heritage and available access. The exact location was negotiated with each respective land owner.

The proposed Wilga Park Power Station expansion would occur on and adjacent to the existing facility on cleared, freehold lands. The selected site makes best use of current power station infrastructure and minimises the overall area impacted by the expansion.

Ecological assessments undertaken for the Project identified the following.

- Six vegetation communities including the Brigalow Endangered Ecological Community occur within the Study Area.
- Fourteen Threatened flora species are considered likely to occur within the locality though none were detected during field surveys.
- Nine Threatened fauna species were recorded during field surveys of the Study Area.
- No critical habitats Threatened ecological fauna communities or populations occur within the Study Area.
- With the implementation of recommended mitigation measures, there would be no significant impacts on any Endangered Ecological Communities, critical habitat, Threatened flora or fauna species or population.

No Aboriginal cultural heritage sites were located within the gas flow line corridor. The corridor traverses comparatively flat topography grading gently to the north with only one substantial natural drainage feature at Bohena Creek.

IMPACT ASSESSMENT

The design of the Project and the inclusion of a range of mitigation measures and safeguards have assisted to minimise the overall impact of the Project upon the local environment. The following conclusions have been drawn in the assessment of the various environmental features within and surrounding the Project Site.

- **Greenhouse Gas and Air Quality Impacts**

  The net benefit the Project presents to a measurable reduction in greenhouse gas impacts has been described. The utilisation of CSG produced from the Bibblewindi and Bohena CSG Pilots represents an environmentally responsible method of consumption in light of the relative impact of atmospheric venting of this resource. Air pollutant levels are predicted to remain below DECC criteria for fugitive dust emissions and stated SO_2 and NO_2 emission limits. The emission of CO_2 from the combustion of CSG at the Wilga Park Power Station will result in a minor increase in the current State and National emission inventory.

- **Flora and Fauna**

  Modification and alteration of native vegetation and habitat for faunal species has been reduced to the smallest extent possible in light of the project design components and rehabilitation objectives. No threatened species have been identified as likely to be impacted by the Project.

- **Soils and Land Capability**

  The impact on the Project Site's soils and land capability have been adequately described and mitigated to acceptable levels. Any losses in these terms would be temporary and manageable given the safeguards employed to protect its inherent value to the rehabilitation process.

- **Aboriginal Heritage**

  The Project will not impact on any known places or items of Aboriginal heritage significance within the Project Site. The Proponent has outlined a range of safeguards, controls and mitigation measures that will reduce the risk of impact on previously undiscovered places and items of Aboriginal heritage significance.

- **Noise Impacts**

  Whilst the Project will generate industrial noise in excess of current background levels, these levels will remain within stated DECC criteria for all construction and operational activities.

- **Traffic**

  Traffic levels along the Newell Highway would not increase significantly. Localised traffic increases on forestry and Shire roads for the duration of the construction phase are likely; however, they are not expected to result in any significant issues with the safe and efficient flow of traffic in and around the Project Site. Adequate traffic management planning will ensure that no public road is closed at any time during the construction phase of the Project.

- **Visual Amenity**

  The Project would result in a short to medium term (3-5 year) alteration of the visual amenity along the southern section of the flow line corridor where clearing will be undertaken in both the Bibblewindi and Pilliga East State Forests. The visual impact of the Project on the cleared agricultural lands is consistent with the land use type and does not represent a significant departure from the ongoing operation of cropping and grazing enterprises across this environment.

- **European Heritage**

  The Project will not impact on any known places or items of European heritage significance within the Project Site. The Proponent has outlined an extensive range of safeguards, controls and mitigation measures that reduce the risk of impact on previously undiscovered places and items of significance.

- **Potential Land Use Conflicts**

  The Proponent has negotiated with each of the land owners along the proposed gas flow line corridor and in all cases, except one, has reached a satisfactory agreement to avoid any unacceptable impacts upon the land uses of the land within and adjoining the corridor. The only case where agreement has not been amicably reached is currently going before an Arbitrator appointed by Minister of Mineral Resources.

- **Socio-economic Considerations**

  The impact of the Project on the local and regional socio-economic environment has been determined as positive, with measurable increases in direct and indirect employment opportunities and the utilisation of the region's extensive network of retail and industrial service providers.

  The Project, as an integral part of the Joint Venture's objectives for development of CSG resources in PEL238, would also have significant economic benefits to NSW through the generation of royalty revenue and the establishment of additional, gas fired electricity generation capacity.

- **Conclusions**

  The Narrabri Coal Seam Gas Utilisation Project presents a feasible option for the consumption of gas produced from within PAL2. The Project has been designed to address the key issues raised by all levels of Government, landholders affected by the Project and the wider community.

  The Project provides a pathway for the consumption of CSG produced during the extended testing of CSG wells in preference to the venting of gases to atmosphere. In addition to the environmental benefits offered by the Project, the construction and operation of the project would result in a significant economic boost to the Narrabri Region.

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Note: A complete copy of the Environmental Assessment for this Project can be viewed on the following websites.

- www.planning.nsw.gov.au
- www.rwcorkery.com