Chapter 27

Economics

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Chapter 27. Economics

The Secretary's environmental assessment requirements for the Narrabri Gas Project include a requirement to assess the potential economic benefits of the project for the State and region. To assess the broader impacts of the project in terms of economic output, income and job creation at the local, regional and State levels, two detailed assessments were undertaken in response to this requirement, being a cost benefit analysis (refer to Appendix U1) and a macroeconomic analysis (refer to Appendix U2). This chapter summarises the findings of the two assessments.

Project construction is expected to involve a nominal capital investment of $3.6 billion, or around $3.0 billion in real terms, with a net present value of around $2.0 billion when a discount rate of 7 per cent is applied. The project would also involve ongoing operating costs over the 25-year assessment period, totalling a nominal investment of $5.5 billion, or a real investment of around $3.8 billion with a net present value of around $1.6 billion, applying a discount rate of 7 per cent.

The project is expected to generate a net positive economic impact for the economies of the Narrabri LGA, the wider region and NSW, including:

- real economic output of $11.9 billion (around $5.1 billion net present value), including
  - $11.0 billion (around $4.5 billion net present value) in the Narrabri LGA
  - $572 million (around $348 million net present value) in the wider region
  - $384 million (around $295 million net present value) across the rest of NSW
- real income of $6.0 billion (around $2.8 billion net present value), including
  - $526 million (around $250 million net present value) in the Narrabri LGA
  - $690 million (around $396 million net present value) in the wider region
  - $4.8 billion (around $2.1 billion net present value) across the rest of NSW
- establishment of a Gas Community Benefit Fund which would receive an estimated $120 million through the life of the project.
- average direct and indirect employment over the 25-year assessment period of 512 full time equivalent jobs in NSW, including:
  - 127 full-time equivalent jobs in the Narrabri LGA
  - 161 full-time equivalent jobs in the wider region
  - 224 full-time equivalent jobs in the rest of NSW.

The Narrabri gas project would boost the NSW economy and deliver benefits at the local, regional and State level. Positive economic impacts would be leveraged toward local industry with the implementation of the Gas Community Benefit Fund and a procurement and logistics policy to support the involvement of local business and contractors in the project.

27.1 Methodology

The assessment of economic impacts of the project has two components. The first component is a cost-benefit analysis to weigh up the economic costs of the project against its economic benefits. The result of the cost benefit analysis is a benefit–cost ratio that simply states the net economic benefit of the project without accounting for flow-on macroeconomic benefits. The following tasks were undertaken to calculate the benefit–cost ratio of the project:

- quantification of the costs of the project, including
  - capital cost of the construction of the project
  - cost of the operation of the project
  - cost of environmental externalities
- quantification of the benefits of the project, including
  - benefits of revenue from the sale of gas
  - benefits for agricultural production from irrigation of treated and amended water.

The cost benefit analysis was undertaken in accordance with the relevant State and Commonwealth guidelines, being the *Guideline for the use of Cost Benefit Analysis in Mining and Coal Seam Gas Proposals* (NSW Treasury 2000), the *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals* (NSW Department of Planning and Environment 2015) and the *Handbook of Cost-Benefit Analysis* (Commonwealth Department of Finance 2006).

The cost benefit analysis included environmental externalities (costs associated with environmental impacts) such as noise impacts, greenhouse gas emissions and foregone agricultural and forestry production. Costs associated with managing impacts were also accounted for, such as privately negotiated agreements with landholders regarding potential noise impacts, or the cost of implementing a biodiversity offsets strategy (refer to Appendix J1). Environmental externalities that would not differ from the economic base case or were otherwise considered low risk were not quantified in the cost benefit analysis. Such externalities included impacts on Aboriginal heritage that would be readily avoided.

The second component of the assessment of economic impacts was a macroeconomic analysis that looked at the broader impacts of the project in terms of gross regional State product, real income and job creation. The following tasks were undertaken to assess these impacts:

- development of an input-output database and computable general equilibrium model
- interpretation and description of projected economic impacts.

Computable general equilibrium modelling is employed extensively for economic analysis in Australia and has been employed by the Commonwealth for such applications as the Garnaut Climate Change Review (Garnaut 2008) and the Henry Tax Review (KPMG Econtech 2010). The model employed for the macroeconomic analysis enabled an analysis of a broad range of macroeconomic factors that are not readily assessed by other methods, such as input-output analysis.

General equilibrium modelling accounts for various direct and indirect economic contributions, including supply chain impacts and potential impacts on industry such as competition for labour. Furthermore, the computable general equilibrium model employed for the macroeconomic analysis is a dynamic model, meaning the predicted impacts reflect changes in impacts and economies over time, as opposed to other common methods that are only capable of providing static estimates. The computable general equilibrium model was underpinned by a database containing detailed regional and sectoral economic information.

Detailed methodologies for the cost benefit analysis and macroeconomic analysis, including general equilibrium model parameters and limitations, are provided in Appendix U1 and Appendix U2 respectively.

27.2 Existing economic profile

The economic profile of the area with potential to be impacted by the project includes the Narrabri LGA and a wider area of influence that includes the surrounding LGAs of Gunnedah, Liverpool Plains, Tamworth, Uralla, Armidale Dumaresq, Glen Innes Severn, Inverell, Gwydir, Moree Plains, Walgett, Coonamble, Gilgandra, Warrumbungle and Dubbo.

27.2.1 Population profile

Recent estimates by the Australia Bureau of Statistics put the population of Narrabri LGA at 13,685 people. Population growth declined over the last decade but has since shown signs of recovery as a result of growth created primarily by the resources sector. Annual population growth between 2008 and 2013 averaged 0.6 per cent. Annual population growth in the wider region was slightly higher at 0.7 per cent, primarily attributed to the LGAs of Gunnedah, Tamworth, Armidale Dumaresq, Inverell and Dubbo. However, this is markedly less than annual population growth of 1.3 per cent for NSW as a whole.

The NSW Department of Planning and Infrastructure (2013) forecast an annual population decline of 0.4 per cent in the Narrabri LGA. Conversely, the NSW Department of Planning forecast annual population growth of 0.4 per cent in the wider region. In both cases, forecast population growth is lower than the forecast annual growth of 1.2 per cent for NSW as a whole.

Narrabri is the main population centre in the Narrabri LGA. Other population centres in the Narrabri LGA include the towns of Wee Waa and Boggabri and the villages of Baan Baa, Bellata, Edgeroi, Gwabegar and Pilliga. Major population centres in the wider region include Gunnedah, Tamworth, Armidale, Inverell, Moree and Dubbo.

The Narrabri LGA has lower percentage of young people aged 15 to 25 relative to the State average. This age profile is typical of regional areas, as young people leave seeking greater diversity in education and job prospects. Accordingly, the wider region shows a similar age profile to Narrabri, though less pronounced due to Tamworth and Dubbo being major regional population centres. More information on the population of the Narrabri LGA and wider region including family composition, cultural and ethnic composition is provided in Chapter 26.

27.2.2 Industry profile

Agriculture is a key industry in both the Narrabri LGA and the wider region. Cotton is the most valuable crop in the Narrabri LGA, followed by wheat. Cotton is mainly produced around Wee Waa, with irrigation supplied from the Namoi River and the extraction of bore water. Wheat is mainly produced on properties in the vicinity of Bellata and Edgeroi, north of Narrabri. Agriculture in the Narrabri LGA is described in further detail in the agricultural impact assessment (refer to Appendix K).

The Narrabri LGA also contains a number of State forests that form part of the Pilliga, an agglomeration of forested areas covering over 500,000 hectares around Coonabarabran, Baradine and Narrabri. Some of these forests are currently commercially logged. The Narrabri region is also known for its honey production, occurring mainly in State forests and conservation areas.

Despite the predominance of agriculture, these economies are expected to diversify toward the resources sector in the future. The Narrabri LGA is located in a resource-rich geological province known as the Gunnedah Basin and hosts a number of existing coal mines including Boggabri Mine, Maules Creek Mine, Narrabri North Mine and Tarrawonga Mine.

The gross regional product of the Narrabri LGA in 2010 / 11 was $821 million. Contributions to gross regional product by industry are shown in Figure 27-1. As shown, the two major contributors to regional product were agriculture, forestry and fishing ($240 million) and mining ($141 million).

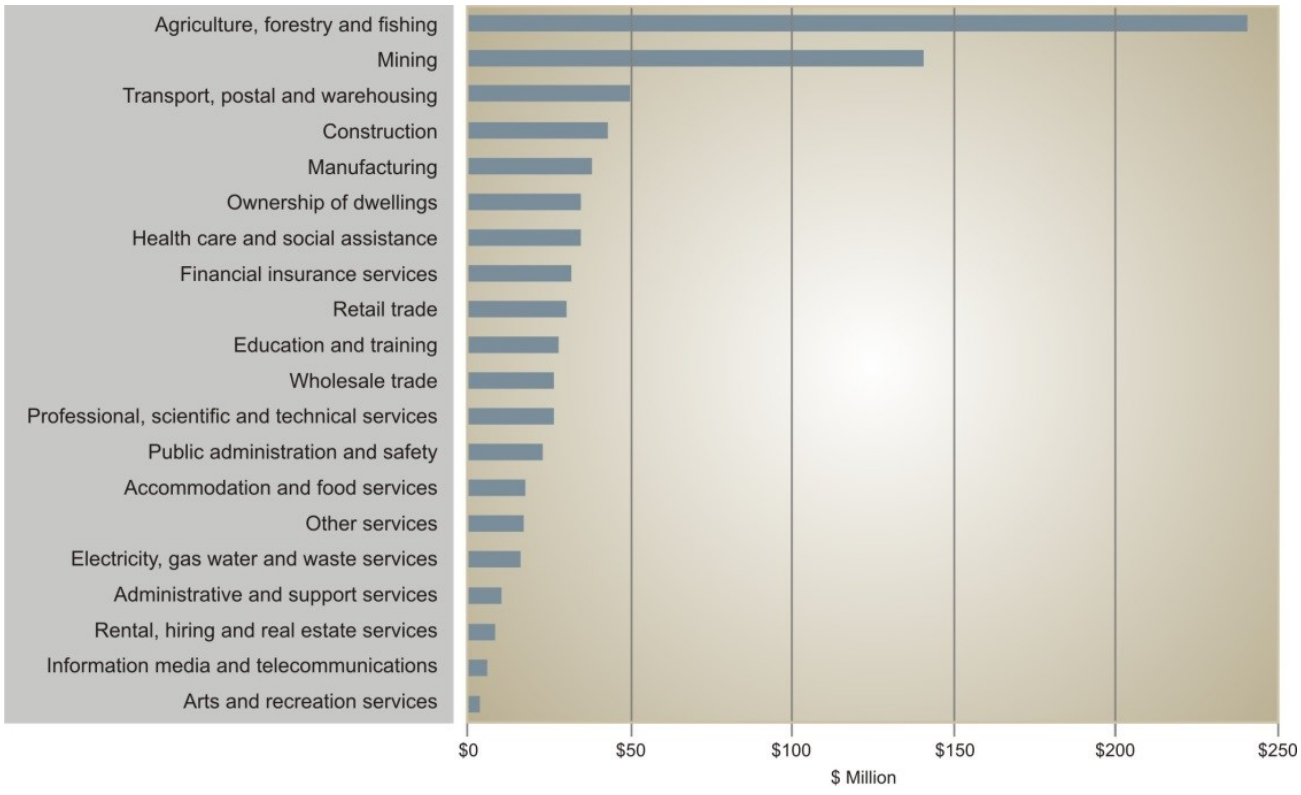

Figure 27-1 Gross regional product by industry in Narrabri LGA

The gross regional product of the wider region in 2010 / 11 is estimated at $10.4 billion. The wider region is defined as the following local Government areas: Narrabri, Armidale Dumaresq, Coonamble, Dubbo, Gilgandra, Glen Innes Severn, Gunnedah, Gwydir, Inverell, Liverpool Plains, Moree Plains, Tamworth Regional, Uralla, Walgett and Warrumbungle.

Contributions to gross regional product by industry are shown in Figure 27-2. Again, the major contributor to this regional product was agriculture, forestry and fishing ($1.32 billion). Mining contributed $514 million, with approximately one-third originating in the Narrabri LGA.

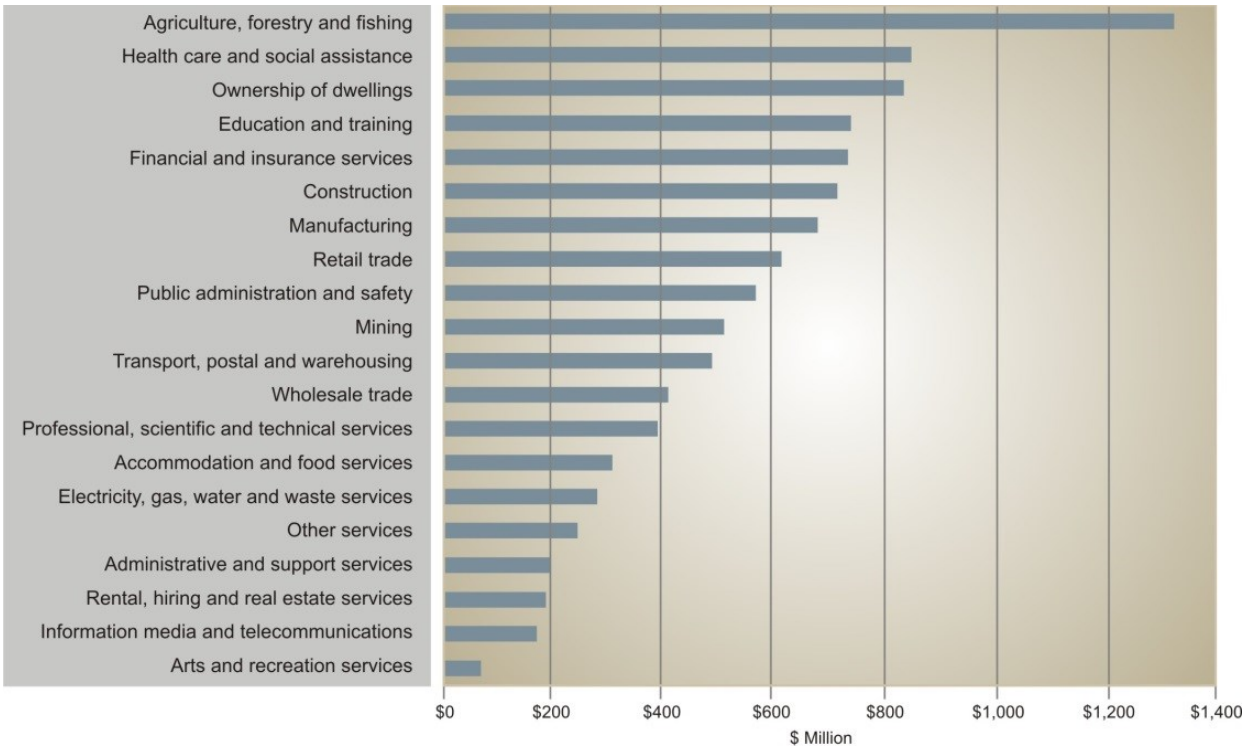

Figure 27-2 Gross regional product in the wider region

27.2.3 Workforce profile

The Narrabri LGA has a workforce of approximately 7,700 people with an unemployment rate of 5.5 per cent. The wider region has a workforce of approximately 123,750 with an unemployment rate of 6.5 per cent. By comparison, the unemployment rate in NSW is approximately 5.8 per cent (Department of Employment 2013).

Employment by industry in the Narrabri LGA from the 2011 Government census is shown in Figure 27-3. The major employment industries in are agriculture, forestry and fishing (21 per cent); retail trade (10 per cent); and health care and social assistance (10 per cent). Within agriculture, forestry and fishing, the primary source of employment is agriculture (83 per cent) with forestry making up less than one per cent. Fishing does not provide employment, while aquaculture employs less than one per cent. The major employment industries in the wider region are also agriculture, forestry and fishing (13 per cent); retail trade (11 per cent); and health care and social assistance (13 per cent).

Although agriculture, forestry and fishing are major drivers of employment in the Narrabri LGA, the proportion of jobs in these industries has trended down since the 2006 Census, while mining trended up to 3.9 per cent by the 2011 Census. Mining employs 1.3 per cent in the wider region.

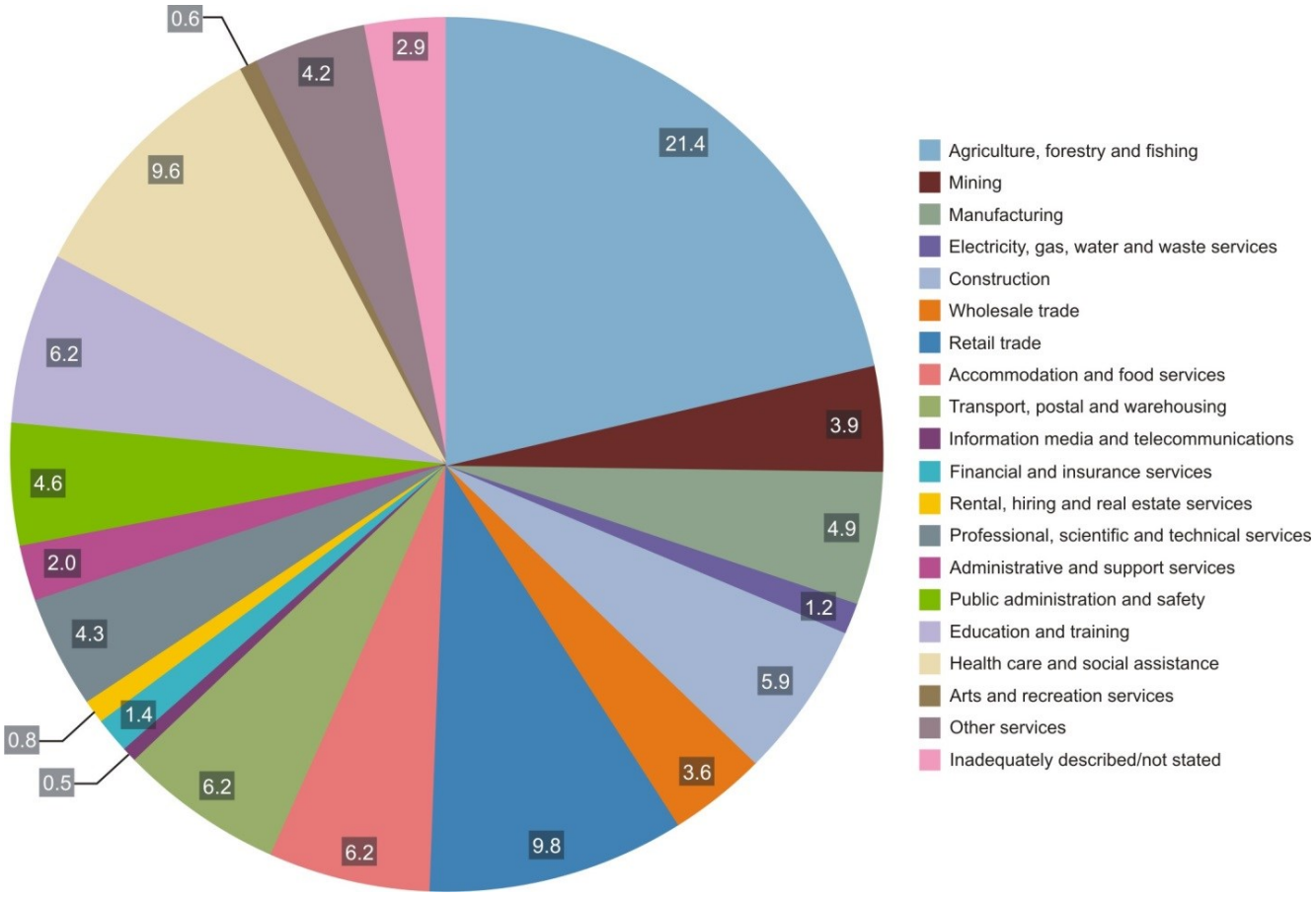

Figure 27-3 Employment industries in Narrabri LGA

The workforce in the Narrabri LGA and wider region is comparably skilled to the NSW workforce—46 per cent of Narrabri residents hold a non-school qualification, compared to 50 per cent in the wider region and 57 per cent in NSW.

Income levels in the Narrabri LGA and across NSW at the 2011 Census are compared in Table 27-1. The median household income in the Narrabri LGA was $982 per week, which was lower than the NSW median of $1,237 per week.

Table 27-1 Household income

	<$ 400 per week	$400-$999 per week	>$1,000 per week
Narrabri LGA	37 %	33.1 %	20.2 %
NSW	36.7 %	29.5 %	25.8 %

Note: Percentages exclude non-respondents

27.3 Cost benefit analysis

27.3.1 Project costs

The project costs quantified for the cost benefit analysis are summarised in Table 27-2.

The major costs are capital and operating costs reflecting expenditure by the proponent to undertake gas exploration and appraisal, construction, operation and rehabilitation. Other costs factored into the cost benefit analysis are foregone agricultural production, foregone forestry production, road upgrades and maintenance, biodiversity offsets, noise and vibration mitigation and the social cost of carbon.

The costs of foregone agricultural production reflect the direct and indirect economic impacts of the project on agricultural land in the project area. The costs equal between 0.08 per cent and 0.09 per cent of the annual value of agriculture in the Narrabri LGA during construction, and approximately 0.06 per cent during operation. The costs associated with the potential reduction in agricultural production are based on the project's agricultural impact assessment. This estimate is considered conservative (that is, greater than likely to occur) as landholders would influence the location of infrastructure and would tend to prefer less productive areas, such as areas adjacent to fence lines.

The costs of foregone forestry production reflect clearing for the construction of the project. These costs are incorporated in capital and operating costs as compensation to the Forestry Corporation of NSW. The Forestry Corporation would retain the right to the timber removed for the project.

The cost of Newell Highway intersection upgrades is included in the project capital cost. Traffic generated by the project has the potential to affect road condition, which can accelerate the rate of ongoing maintenance and renewals incurred by the relevant road authorities. The proponent would monitor and report on evident deterioration of road conditions over the peak construction period and would consult with the relevant road authorities regarding potential maintenance liability where the deterioration is attributable to project activities. Costs associated with maintenance and renewals would likely form a small proportion of the ongoing capital and operating costs of the project. The proportional increase in traffic generated by the project on major roads like the Newell Highway is not expected to significantly impact on the safety or condition of these roads, which are designed to carry heavy vehicles.

The cost of implementing the project biodiversity offset strategy (refer to Appendix J1) through the NSW Government Biodiversity Banking and Offsets Scheme has been included.

The indicative costs of mitigating noise and vibration impacts are also included. These costs would be subject to private negotiated agreements between the proponent and affected landholders.

A carbon price was applied to greenhouse gas emissions in accordance with the *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals*. Options to source electricity considered for the project include on-site gas-fired electricity generation and connection to the NSW power grid. The cost associated with greenhouse gas emissions considered each option.

Table 27-2 Costs over the life of the project

Line item	Value ($ million)[a]
Capital cost of the construction of the project	$2,004.3
Operating cost for the operation of the project	$1,578.0
Cost of decommissioning and rehabilitation	–[b]
Cost associated with the potential reduction in agricultural production	$3.1
Cost of foregone forestry production	–[c]
Cost of maintenance and renewals of public infrastructure	–[d]
Cost of offsetting biodiversity impacts	$43.5[e]
Cost of offsetting noise and vibration impacts	$1.7[f]
Cost associated with greenhouse gas emissions	$267.5[g]
	$164.0[h]

[a] All values presented in 2016 dollars at net present value with a seven per cent per annum discount rate
[b] The cost of decommissioning and rehabilitation is included in the identified capital and operating costs
[c] Compensation to Forestry Corporation of NSW included in capital and operating costs
[d] Upgrade costs included in capital cost; maintenance and renewals may be funded by the Gas Community Benefit Fund
[e] Estimated cost of biodiversity offset package, including ongoing management of offset areas
[f] Estimated cost of noise offsets subject to privately negotiated agreements between the proponent and affected landholders
[g] On-site gas-fired electricity generation
[h] Connection to the NSW power grid.

27.3.2 Project benefits

The project benefits quantified for the cost benefit analysis are summarised Table 27-3.

The major benefit associated with the project would be revenue generated by the sale of gas, which would flow to shareholders, the NSW Government and the Narrabri community. Revenue would flow to the NSW Government in the form of taxes and royalties. The quantified benefits also include agricultural production from irrigation of treated and amended water and compensation payments to landholders and operators for foregone agricultural or forestry production (refer to Appendix K).

To ensure that a reasonable share of revenue flows to the Narrabri community, a Gas Community Benefit Fund would be established which would receive an estimated $120 million through the life of the project.

Table 27-3 Project benefits

Line item	Value ($ million)[a]
Revenue from the sale of gas	$5,403.4
Agricultural production from irrigation of treated and amended water	$0.8
Compensation to landholders[b]	$29.7

[a] All values presented in 2016 dollars at net present value with a seven per cent annum discount rate
[b] Included in the cost benefit analysis as a discrete operational cost

27.3.3 Benefit–cost ratio

The result of the cost benefit analysis is presented in Table 27-4. As shown, the project would generate a net economic benefit of between approximately $1.5 billion and $1.6 billion resulting in a benefit-cost ratio of between 1.39 and 1.43—depending on the electricity option.

Sensitivity analyses confirmed a net economic benefit for a range of scenarios including 10 per cent discount rate, 10 per cent decreased gas production, 10, 20 and 30 per cent reduced gas price, and 10 per cent increased capital and operating costs. The sensitivity analysis showed positive outcomes under all modelled sensitivity analyses with the exception of the project being marginally negative (0.98), with a net loss of $85.2 million, assuming a 30 per cent reduction in gas price.

The cost benefit analysis demonstrates that the project would be beneficial in the majority of cases, even without accounting for the flow-on macroeconomic benefits discussed in Section 27.4.

Table 27-4 Cost benefit analysis

Line item	Value ($ million)[a]
Total cost	$3,898.1[b]
	$3,794.6[c]
Total benefit	$5,433.9
Net present value	$1,535.8[b]
	$1,639.3[c]
Benefit–cost ratio	1.39[b]
	1.43[c]

[a] All values presented in 2016 dollars at net present value with a seven per cent annum discount rate
[b] On-site gas-fired electricity generation
[c] Connection to the NSW power grid

27.4 Macroeconomic analysis

27.4.1 Real economic output and real income

The projected impact of the project on real economic output and real income in the Narrabri LGA, wider region and NSW over the 25-year assessment period are shown in Table 27-5. Real economic output is a measure of productivity whereas real income is a measure of welfare and capacity for consumption.

Table 27-5 Real economic output and real income

Region	Real economic output ($ million)[a]	Real income ($ million)[a]
Narrabri LGA	$4,456	$250
Wider region	$348	$396
Rest of NSW	$295	$2,111
Total	$5,100	$2,757

[a] All values presented in 2016 dollars at net present value with a seven per cent per annum discount rate

As shown, the real economic output of the project is projected to be around $5.1 billion, which is approximately one per cent of gross State product. The project is projected to increase the real economic output of the Narrabri LGA by $4.5 billion, the wider region by $348 million and the rest of NSW by $295 million.

The real income generated by the project is projected to be around $2.8 billion. The project is projected to increase the real income of the Narrabri LGA by $250 million, the wider region by $396 million and the rest of NSW by $2.1 billion. This increase in real income is expected to provide a significant boost to local incomes in the Narrabri LGA.

As shown in Figure 27-4 and Figure 27-5, an initial increase in real economic output and real income would coincide with the initial construction phase, and increase with the value of gas production.

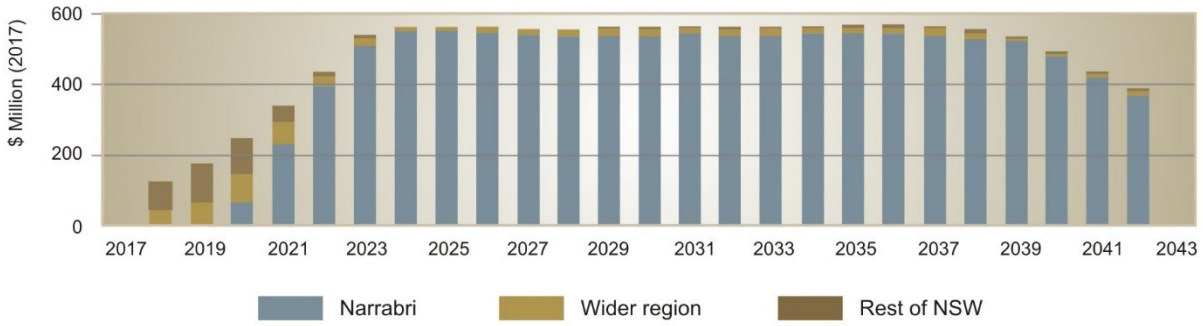

Figure 27-4 Real economic output

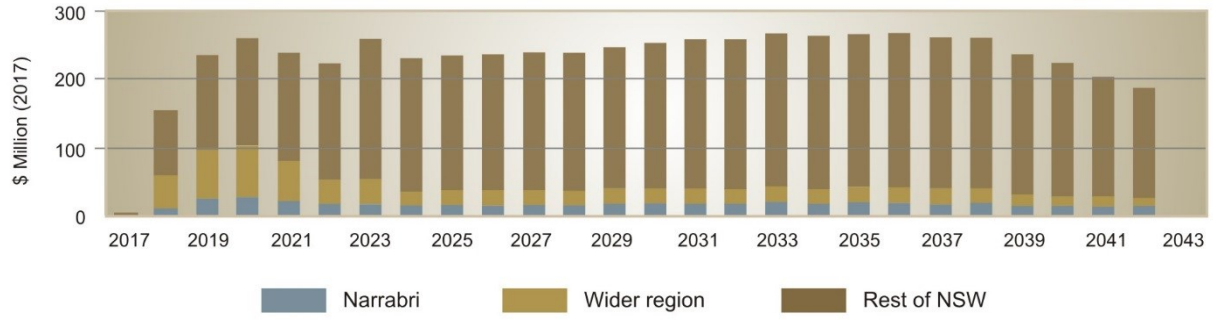

Figure 27-5 Real income

The projected changes against baseline real economic output by industry as a consequence of the project over the 25-year assessment period are summarised in Table 27-6. It is noted that the figures do not represent real economic output generated by the project, rather, the indirect impacts of the project on other industries. Regardless, the project is projected to generate an overall positive change in real economic output. The relatively small reductions in real economic output of agriculture, forestry, mining and manufacturing are considered to be due to competition for labour and increased costs. The increase in real economic output of other industries such as construction and trade are considered to be benefits of project demand and increased real income.

Table 27-6 Changes in real economic output

Industry	Narrabri (%)	Wider region (%)	NSW (%)
Agriculture and forestry	-0.21	-0.04	-0.02
Mining	-0.80	-0.68	-0.04
Manufacturing	-0.64	-0.02	-0.05
Utilities	0.34	0.01	0.00
Construction	1.08	0.34	0.02
Trade	0.67	0.08	0.01
Transport	0.63	0.27	0.00
Services	0.36	0.04	0.00
Total	0.19	0.05	-0.01

27.4.2 Employment

The direct employment provided by the project would include a peak construction workforce of approximately 1,300 jobs, and sustain an ongoing operations workforce of approximately 200 jobs (including around 50 existing jobs).

In addition, the project would generate a number of indirect employment opportunities in the wider economy. These jobs would include engineering and management services, transportation, operational health and safety, and various business services. Projected total direct and indirect employment in the Narrabri LGA, the wider region and in NSW as a whole is shown in Figure 27-6.

From the employment numbers above, the project would generate an average of 127 full-time equivalent jobs in the Narrabri LGA, 161 full-time equivalent jobs in the wider region, and 224 full-time equivalent jobs in the rest of NSW over the 25-year assessment period.

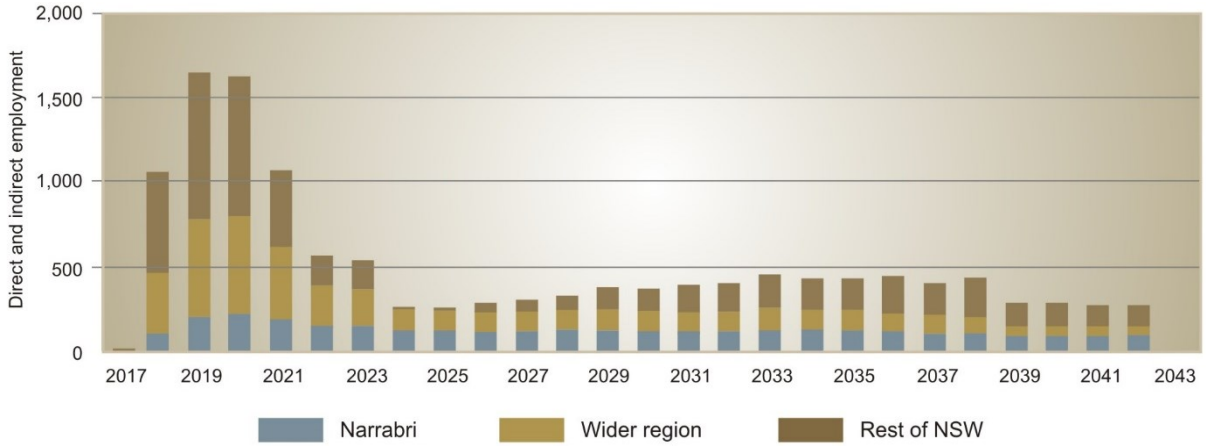

Figure 27-6 Total employment

The projected changes against baseline employment by industry as a consequence of the project over the 25-year assessment period are summarised in Table 27-7. It is noted that the figures do not represent the direct employment generated by the project, rather the indirect impacts of the project in other employment industries. Regardless, the project is projected to generate an overall positive change in employment. The minor reduction in employment in agriculture and forestry, mining and manufacturing is considered to be due to competition for labour and minor cost increases. The more substantial benefits to other employment industries such as construction and trade are considered to be benefits of project demand and increased real income.

Table 27-7 Changes against baseline employment

Industry	Narrabri (%)	Wider region (%)	NSW (%)
Agriculture and forestry	-0.29	-0.06	-0.03
Mining	-0.56	-0.3	-0.04
Manufacturing	-0.32	0.01	-0.04
Utilities	1.19	0.11	0.01
Construction	1.45	0.39	0.02
Trade	1.12	0.14	0.02
Transport	0.63	0.30	0.01
Services	0.91	0.10	0.01
Total	0.49	0.09	0.01

27.4.3 State revenue

The projected impact in real taxes and royalties paid to the NSW Government is shown in Table 27-8. As shown, the project would contribute around $1.1 billion (net present value estimates indicate the amount to be around $1.165 billion) to NSW Government tax revenues over the 25-year assessment period. Projected project royalties are shown as $821 million in real terms; equivalent to around $1.2 billion in nominal terms.

Table 27-8 Projected real State government tax revenues

Payment	Total value 2017 to 2042 ($ million)[a]	Net present value ($ million)[b]
Project company taxes	1,386	456
Project royalties	821	293
NSW payroll taxes	129	60
Other taxes on income	294	120
Other taxes[c]	503	237
Total	**3,133**	**1,165**

[a] All values presented in 2016 dollars

[b] All values presented in 2016 dollars at net present value with a seven per cent per annum discount rate

[c] Includes excise, levies, taxes on international trade, motor vehicle tax and land tax.

To ensure that a reasonable share of revenue flows to the Narrabri community, a Gas Community Benefit Fund would be established which would receive 10 per cent of the estimated $1.2 billion in royalties, or $120 million through the life of the project. The NSW Government has committed that for every two dollars paid by a gas producer into an authorised Gas Community Benefit Fund, the company is entitled to claim a one dollar rebate on its gas royalties, up to a maximum of 10 per cent of the royalty due in each year.

The principal objective of the Fund is the provision of benefit to the local community. The other benefits are to ensure that:

- lasting and mutually beneficial relationships are developed between gas companies and the communities in which they operate;
- local communities are involved in decisions to fund projects in the local communities;
- funding decisions promote community development projects that support local and social enterprise, are transparent and there is accountability for these decisions; and
- efficient, effective and transparent governance and administration arrangements for the Fund.

The voluntary Gas Community Benefit Fund is one initiative under the NSW Government's response to the recommendations made by the NSW Chief Scientist and Engineer (2013 and 2014); being Action 13 of the *NSW Gas Plan* (NSW Government 2014).

27.5 Potential impacts

27.5.1 Real economic output and real income

The project is expected to generate a net positive economic impact on the economies of the Narrabri LGA, the wider region and NSW. The cost benefit analysis shows that the project would generate a net economic benefit of between approximately $1.5 billion and $1.6 billion, even without accounting for flow-on macroeconomic benefits. In terms of these flow-on benefits, the macroeconomic analysis shows that the project would generate a real economic output of around $5.1 billion in the wider economy, which is approximately one per cent of gross State product, and real income of around $2.8 billion. The establishment of a Gas Community Benefit Fund would counteract potential flows of income out of the Narrabri LGA.

27.5.2 Employment

The project would generate an average of 127 full-time equivalent jobs in the Narrabri LGA, 161 full-time equivalent jobs in the wider region, and 224 full-time equivalent jobs in the rest of NSW over the 25-year assessment period. As assessed in Section 27.4.2, the project would provide a net benefit to employment in the Narrabri LGA, the wider region and NSW.

Competition for labour, particularly for skilled labour, generated by the project would be limited by the dispersed nature of recruitment, the relatively modest employment demand, and the availability of labour at a regional scale. As described in Section 27.2.3, the unemployment rate in the region is 6.5 per cent. The workforce during the initial construction phase would be sourced variously from the Narrabri LGA, the wider region, the rest of NSW and (to a lesser degree) interstate. Potential impacts associated with the project workforce, including housing and accommodation, are assessed in Chapter 26.

27.5.3 Other industries

Although the direct economic impact is positive overall, the potential exists for some indirect impacts to local industry, including changes in land use and increased costs. These potential indirect impacts would be generally outstripped by the economic benefits. In addition to the boost to real income generated by the project, through consumption of goods and services, the project would stimulate local industry. Potential benefits to local industry would be leveraged through a procurement and logistics policy (refer to Section 27.6). As construction and operation activities would overlap for the majority of the 25-year assessment period, a diverse range of goods and services would be required that would provide a range of opportunities for local industry.

Competition for land would primarily concern agricultural landholders. During operation the project would occupy approximately 0.05 per cent of agricultural land in the Narrabri LGA. The costs of foregone agricultural production associated with this occupation are estimated to equal 0.06 per cent of the annual value of agriculture in the Narrabri LGA. This estimate is considered conservative as landholders would influence the placement of project infrastructure to minimise impacts on agricultural productivity on their properties (refer to Appendix K).

Loss of potential income on agricultural properties would be offset by compensation agreements with landholders, in accordance with the Santos Landholder and Community Compensation Scheme (Santos 2012). Payments received by landholders under the compensation scheme would include a first year payment equal to 120 per cent of the value of the land, an annual share of the royalty payments, plus ongoing annual payments for the provision of upkeep and monitoring services. A case study of landholder compensation indicated that compensation would clearly recompense landholders for loss in agricultural

production (refer to Appendix K). Agricultural impacts are further assessed in Chapter 17 (Property and land use).

The impact of the project on costs within the Narrabri LGA and wider region is expected to be minor. During the peak construction phase the project is projected to increase the consumer price index by 0.9 per cent in the Narrabri LGA and 0.2 per cent in the wider region. During the operations phase, the consumer price index is projected to remain only slightly higher at 0.4 per cent in the Narrabri LGA and 0.1 per cent in the wider region. Small increases such as these are not expected to be an impediment to industry. For context, the average increase in consumer price index over eight capital cities in Australia between December 2013 and December 2014 was 1.7 per cent (Australian Bureau of Statistics 2015).

27.6 Mitigation and management

The proponent would implement a number of measures to maximise potential benefits and opportunities of the project, while minimising negative economic impacts. These mitigation and management measures are listed in Table 27-9.

The proponent would support local businesses and contractors throughout the construction and operation of the project in accordance with its *Procurement Logistics Policy*. A procurement and contracts officer would work with local businesses to assist them to comply with environment, health and safety standards necessary for participation in the project. It is envisaged that forums currently held annually to support local business and contractor involvement would continue to occur.

A Gas Community Benefit Fund would be established which would receive an estimated $120 million through the life of the project.

Table 27-9 Mitigation and management measures

Issue	Phase	Mitigation/management
Economic impacts	Construction	A procurement and logistics strategy will be implemented.
	Operation	The proponent will contribute to a Gas Community Benefit Fund in accordance with the NSW Gas Plan
	Decommissioning	

27.7 Conclusion

The project is expected to generate a net positive economic impact for the economies of the Narrabri LGA, the wider region and NSW, including:

- real economic output of $11.9 billion (around $5.1 billion net present value), including
  - $11.0 billion (around $4.5 billion net present value) in the Narrabri LGA
  - $572 million (around $348 million net present value) in the wider region
  - $384 million (around $295 million net present value) across the rest of NSW
- real income of $6.0 billion (around $2.8 billion net present value), including
  - $526 million (around $250 million net present value) in the Narrabri LGA
  - $690 million (around $396 million net present value) in the wider region
  - $4.8 billion (around $2.1 billion net present value) across the rest of NSW

- establishment of a Gas Community Benefit Fund which would receive an estimated $120 million through the life of the project.
- peak direct employment of approximately 1,300 jobs during the initial construction phase, and sustaining around 200 jobs through operations (including around 50 existing jobs).
- average direct and indirect employment over the 25-year assessment period of 512 full time equivalent jobs in NSW, including:
  - 127 full-time equivalent jobs in the Narrabri LGA
  - 161 full-time equivalent jobs in the wider region
  - 224 full-time equivalent jobs in the rest of NSW.

The positive economic impacts generated by the project would be leveraged toward local industry with the implementation of the Gas Community Benefit Fund and a procurement and logistics policy.