



Gladstone Ports Corporation

Growth, Prosperity, Community.

Chapter 15 – Economic Impact





15. Economic Impact

Overview

This Economic Assessment was prepared by Economic Associates in accordance with Section 5.1 (Economic Impact) of the ToR (Appendix A). A full copy of the Economic Assessment Report is provided in Appendix Y.

The purpose of this section is to provide an overview of the economic environment that may be affected by the Project and to evaluate, from an economic perspective, the Project's net benefit on the community and its economic impact on the region.

The report by Economic Associates (Appendix Y) addresses the identification and assessment of regional economic values, including:

- ▶ Regional and sub-regional population analysis (historic and projected);
- ▶ Regional and sub-regional employment and labour force analysis (by industry, occupation, participation rate and unemployment), skills and training;
- ▶ Demographic profile (age, family structure, income);
- ▶ Analysis of industrial activity and significance (e.g. number of employing and non-employing businesses by industry);
- ▶ Enterprise activity (business type and number). This would include a description of large scale industrial projects and their effects in the region;
- ▶ Analysis of local and regional residential, commercial and industrial property markets; and
- ▶ Availability and capacity of commercial accommodation within Gladstone to meet the accommodation needs of the construction and operational workforce.

The report also provides an economic assessment of the Project, comprising a cost benefit analysis and an economic impact assessment. The cost-benefit analysis was prepared consistent with Queensland Treasury's Cost Benefit Analysis Guidelines.

Chapter 18 addresses sustainable development (Section 5.2 of the ToR).

15.1 Economic Overview

The population of Gladstone Regional Council is projected to increase from 59,274 persons in 2009 to 98,041 persons in 2031 or by approximately 2.3% per annum. The working age population in Gladstone Regional Council is projected to increase from 2009 to 2031 by 2.3% per annum. However, the working age population as a proportion of the total population is anticipated to decrease. The rate of population growth in Gladstone Regional Council is anticipated to exceed the Fitzroy SD and Queensland averages.

In the 1996 to 2006 period, Gladstone Regional Council recorded a high labour force participation rate relative to Fitzroy SD and Queensland. Gladstone Regional Council has traditionally had a high proportion of employment in the construction industry relative to Fitzroy SD and Queensland. It is anticipated that the Western Basin Dredging and Disposal Project combined with significant working age population growth would contribute to continued growth in construction industry employment in Gladstone Regional Council.



In 2008, there were approximately 70 major projects in Gladstone Regional Council with a combined estimated cost of \$42.6 billion. There are three major projects directly related to the port and a number of mining projects within the area with an estimated cost of \$1.0 and \$4.7 billion respectively.

The Port of Gladstone Western Basin Master Plan (2009) prepared by the Coordinator General identifies a diverse range of existing and proposed industries within the Port of Gladstone's Western Basin that would contribute to the demand for future shipping and port capacity, including cement, coal and chemicals (Refer to Figure 2.5 in Appendix Y). Development of Queensland's LNG industry represents the most immediate need for land and shipping capacity in the Western Basin.

The Port of Gladstone Western Basin Master Plan (2009) was developed assuming a LNG industry size of about 40 to 50 million tonnes per annum (Mtpa). This was determined based on the size and number of announced LNG projects within the Gladstone area (see Table 15-1). It is possible that an industry of greater or lesser size could develop dependent on future market conditions with the size also dependent on physical, regulatory, environmental and commercial factors. Commercial factors are subject to detailed consideration via each project's EIS, as well as commercial considerations by proponents.

Table 15-1 Major LNG projects proposed within the Port of Gladstone Western Basin

Proponent	No. of trains ¹	Production (Mtpa)	Start Date	Status of EIS
Arrow Energy	3	10	2014	Liquefied Natural Gas Ltd (LNGL) received the final Assessment Report on the EIS from the Queensland Government Department of Environmental and Resources Management. The plant will now progress to the development approvals stage. The EIS process has been completed and assessment conditions and recommendations are to be immediately implemented to obtain five specific approvals. Arrow Energy is actively working with the Gladstone Ports Corporation to obtain access to the site so that early site preparations works can commence in October this year.
QGC	3-4	12	2014	QGC Limited, a BG Group business, has released its EIS for the Queensland Curtis LNG Project (QCLNG). The document will be exhibited for public comment for seven weeks as part of a review under Queensland and Commonwealth environmental legislation.
Impel LNG	2	1.5	TBC	IAS has not been submitted.
LNG Limited	2	3	2012	Gladstone LNG Pty Ltd received its EIS assessment report advising that its report is of sufficient standard to allow it to proceed to the final stage. All recommendations, conditions and development approvals contained in the EIS assessment report were as expected and capable of being achieved in 2009.



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Western Basin Dredging and Disposal Project

Proponent	No. of trains ¹	Production (Mtpa)	Start Date	Status of EIS
Origin Energy	4	14	2015	Lodged application seeking significant project status, decision expected mid-April 2009.
Santos	3-4	10	2014	Draft EIS lodged 30 March 2009, formal EIS to be lodged in May for consideration.
Shell	3-4	14	TBC	February media release announcing interest in developing a project. IAS has not been submitted

Note 1: a train is the term used to describe a processing plant that converts CSG to LNG

Source: Coordinator General (2009)

15.2 Employment and Enterprise Activity within the Gladstone Regional Economy

Between 2001-02 and 2007-08, in Gladstone Regional Council the size of the labour force increased at the same rate as Queensland while the unemployment rate decreased at a marginally slower rate than Queensland. The unemployment rate was in higher in Gladstone Regional Council than Queensland in 2007-08. The average labour force participation rate in Gladstone Regional Council between 2001-02 and 2007-08 was 74.2%, below the Queensland average of 76.2%.

There were an estimated 4,023 businesses in Gladstone Regional Council as of June 2007 with the top sectors in terms of the number of enterprises being construction, property & business and agriculture, forestry & fishing.

Fitzroy SD is a major cropping area in Queensland accounting for approximately 20% of land under cropping in Queensland. Major commodities within Fitzroy SD as a percentage of Queensland production include wheat for grain, sorghum for grain, sweet potatoes, herbs, grapes and meat cattle.

15.3 Availability of Accommodation and Housing within Gladstone Regional Council

An analysis of the availability of commercial accommodation in Gladstone Regional Council (see Table 5.3 in Appendix Y) throughout the year indicates that over the last two years the average number of vacant rooms / beds per night in Gladstone Regional Council ranged between:

- ▶ 306-510 hotel / motel rooms and serviced apartments; and
- ▶ 256-457 caravan sites.

The median weekly rent for a two bedroom unit in the former Gladstone LGA was \$220 in the June Quarter 2008, significantly lower than the Queensland median (\$290). The median weekly rent for a three bedroom house in the former Gladstone LGA was \$300 in the June Quarter 2008, marginally lower than the Queensland average of \$310.

In the 1991 to 2008 period there were 17,675 houses, 3,014 units and townhouses and 11,470 vacant land allotments sold in Gladstone Regional Council including:

- ▶ 714 houses sold in 2008 with a median sales price of \$385,000;
- ▶ 101 units and townhouses sold in 2008 with a median sales price of \$287,500; and
- ▶ 310 vacant land allotments in 2008 with a median sales price of \$192,418.



15.4 Results of Cost Benefit Analysis

In preparing the cost benefit analysis of the Western Basin Strategic Dredging and Disposal Project, it was considered appropriate to include the Fisherman's Landing bund within the assessment, given that the Fisherman's Landing area is to be directly serviced by channels and basins created by the Project.

The costs benefit analysis included:

- ▶ Project costs:
 - Capital costs including bund construction, filling and capping and capital dredging works; and
 - Maintenance costs, including bund and earthworks maintenance and regular maintenance dredging of channels and basins.
- ▶ Project benefits, including:
 - Major LNG project-related benefits, such as the willingness to pay for Western Basin harbour services and for land made accessible as a result of the works; and
 - Dredged material disposal savings related to the Fisherman's Landing Reclamation Area.
- ▶ Environmental disbenefits, including:
 - Direct disbenefits resulting from permanent loss of habitat areas; and
 - Indirect disbenefits resulting from turbidity.

The assumptions made with regard to calculation of costs and benefits are provided in more detail in Section 5.1 of the Economic Associates report (Appendix Y).

The results of the cost benefit analysis (summarised in Table 15-2) indicate that the Project would be economically viable (as indicated by the positive net present value) at the target discount rate of 6%. The Project's internal rate of return (i.e. the rate of return at which net present value equals zero) is 12.33%.

Table 15-2 Cost Benefit Analysis Results for Western Basin Dredging and Disposal Project at 6% Discount Rate

Benefits and Costs	Present Value
Costs	
Bund construction & maintenance costs	\$245,681,074
Dredging costs	\$640,658,708
Fisherman's landing costs	\$176,341,210
Total	\$1,062,680,992
Benefits	
Value of harbour services	\$1,855,013,409
Land use benefits	\$1,728,481,484
Fisherman's Landing dredged material disposal cost saving	\$61,678,633
Environmental disbenefits	-\$1,367,770,401
Total	\$2,277,403,124



Benefits and Costs	Present Value
NPV of net benefit	\$1,214,722,132
BCR	2.14
IRR	12.33%

Two sensitivity tests of the cost benefit analysis were undertaken, the first of which related to environmental disbenefits. The main case only values areas of known seagrass at the higher parameter value for seagrass (i.e. \$47,360/ha/yr). Seagrass meadows move year to year. In some years these meadows can be very large and in others, very small. The area impacted by the Project both directly and indirectly that could support a seagrass meadow is difficult to accurately define. As such it is appropriate to undertake sensitivity testing based on an area of potential seagrass meadow as opposed to only the known areas of seagrass. For the purposes of this sensitivity test, it is assumed that the area of potential seagrass meadow is equal to the known areas of seagrass plus approximately half of the remaining benthic areas impacted. The assumed area of potential seagrass meadow impact is indicative. The purpose of this sensitivity test is to provide an indication of the sensitivity of the analysis to the variation of analytical assumptions.

The second sensitivity test related to the willingness to pay for harbour services facilitated by the Project. The main case analysis assumes that the users of the Western Basin would have a willingness to pay for harbour services provided by the Project of approximately \$2.75/tonne. This rate is based on the spread of existing harbour dues paid by harbour users within the Port of Gladstone. This sensitivity test assumes that the willingness to pay for the harbour services provided by the Project was only \$1/tonne.

Table 15-3 summarises the results of the above sensitivity tests of the Project cost benefit analysis and shows that the Project remains economically positive at the test discount rate of 6%.

Table 15-3 Costs Benefit Analysis Results for Sensitivity Tests

	Sensitivity Test: Increased Environmental Disbenefits	Sensitivity Test: Reduced willingness to pay for Western Basin harbor services
Costs		
Bund construction & maintenance costs	\$245,681,074	\$245,681,074
Dredging costs	\$640,658,708	\$640,658,708
Fisherman's landing costs	\$176,341,210	\$176,341,210
Total	\$1,062,680,992	\$1,062,680,992
Benefits		
Value of harbour services	\$1,855,013,409	\$674,550,330
Land use benefits	\$1,728,481,484	\$1,728,481,484



	Sensitivity Test: Increased Environmental Disbenefits	Sensitivity Test: Reduced willingness to pay for Western Basin harbor services
Fisherman's Landing dredged material disposal cost saving	\$61,678,633	\$61,678,633
Environmental disbenefits	-\$2,435,166,164	-\$1,367,770,401
Total	\$1,210,007,361	\$1,096,940,046
NPV of net benefit	\$147,326,369	\$34,259,054
BCR	1.14	1.03
IRR	6.61%	6.19%

15.5 Economic Impact of Constructing the Fisherman's Landing Bund

The economic impact analysis is confined to capital dredging and bund construction works relating to the Fisherman's Landing bund and Western Basin bund expansion. The economic impact analysis is also limited to the first ten years of Project works (2010 to 2019). This section outlines the approach used to estimate the economic impact of the Project.

The economic impact analysis contained in this report presents results which are indicative of the scale of the economic impact resulting from the proposed Project.

Table 15-4 summarises the aggregated cost of capital and dredging works associated with the Western Basin Dredging and Disposal Project incurred between 2010 and 2019. This initial ten year period represents the period of most significant economic impacts resulting from the Project.

Table 15-4 Capital Dredging and Bund Construction Costs of the Western Basin Dredging and Disposal Project, 2010 – 2019

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Western Basin expansion bund construction & maintenance costs	\$30.1	\$30.1	\$30.1	\$30.1	\$30.1	\$30.1	\$30.1	\$30.1	\$30.1	\$30.1
Fisherman's landing bund construction & maintenance	\$41.3	\$41.3	\$16.8	\$51.1	\$18.7	\$18.7	\$1.8	\$1.8	\$1.8	\$1.8
Dredging costs	\$59.0	\$59.0	\$109.0	\$109.0	\$109.0	\$109.0	\$59.0	\$59.0	\$59.0	\$59.0
Total	\$130.3	\$130.3	\$155.9	\$190.2	\$157.8	\$157.8	\$90.9	\$90.9	\$90.9	\$90.9

Source: GHD Pty Ltd



Table 15-5 reports the annual economic impact of the Western Basin Dredging and Disposal Project between 2010 and 2019. Economic impacts are anticipated to be most significant in 2013, representing:

- ▶ \$534.4 million in output (or consumption) impacts, including \$344.2 million in indirect impacts;
- ▶ \$93.4 million in household income impacts, including \$80.2 million in indirect impacts;
- ▶ 1,867 full time equivalent positions, including 1,497 indirect full time equivalent positions; and
- ▶ \$183.2 million in value added impacts, including \$142.5 million in indirect impacts.

Table 15-5 Annual Economic Impact of the Western Basin Dredging and Disposal Project between 2010 and 2019

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Output (\$M)										
Direct	\$130.3	\$130.3	\$155.9	\$190.2	\$157.8	\$157.8	\$90.9	\$90.9	\$90.9	\$90.9
Indirect	\$235.9	\$235.9	\$282.2	\$344.2	\$285.5	\$285.5	\$164.6	\$164.6	\$164.6	\$164.6
Total	\$366.2	\$366.2	\$438.1	\$534.4	\$443.3	\$443.3	\$255.5	\$255.5	\$255.5	\$255.5
Household Income (\$M)										
Direct	\$9.1	\$9.1	\$10.9	\$13.3	\$11.0	\$11.0	\$6.3	\$6.3	\$6.3	\$6.3
Indirect	\$54.9	\$54.9	\$65.7	\$80.2	\$66.5	\$66.5	\$38.3	\$38.3	\$38.3	\$38.3
Total	\$64.0	\$64.0	\$76.6	\$93.4	\$77.5	\$77.5	\$44.7	\$44.7	\$44.7	\$44.7
Employment (FTEs)										
Direct	254	254	304	371	307	307	177	177	177	177
Indirect	1,026	1,026	1,227	1,497	1,241	1,241	716	716	716	716
Total	1,280	1,280	1,531	1,867	1,549	1,549	893	893	893	893
Value Added (\$M)										
Direct	\$27.9	\$27.9	\$33.3	\$40.6	\$33.7	\$33.7	\$19.4	\$19.4	\$19.4	\$19.4
Indirect	\$97.7	\$97.7	\$116.8	\$142.5	\$118.2	\$118.2	\$68.1	\$68.1	\$68.1	\$68.1
Total	\$125.5	\$125.5	\$150.1	\$183.2	\$151.9	\$151.9	\$87.6	\$87.6	\$87.6	\$87.6

15.6 Summary

Gladstone is an expanding region with strong population growth, high labour force participation and low unemployment, albeit marginally higher than the Queensland average. There are also a number of projects underway, committed or under investigation within the region. The Western Basin Dredging and Disposal Project will further extend the development pipeline within the region and facilitate a range of major industrial projects within the Port of Gladstone.

The Western Basin Dredging and Disposal Project is anticipated to support between approximately 890 and 1,500 full time equivalent positions annually throughout the first ten years of Project works. The



labour market has slackened over the past few months resulting in the availability of qualified employees. For positions that are unable to be filled by workers within the region, the existing commercial accommodation appears to have sufficient capacity to accommodate the new workers. In the housing and rental market, housing costs have increased, but no more than in Queensland generally. The median weekly rents for two bedroom units and three bedroom houses are traditionally below the state average. As such, the Project is unlikely to place significant pressure on the housing market.

At the target discount rate of 6%, the Project has a positive net present value and is economically viable. For the main case of the cost benefit analysis, the Project remains economically viable across a spread of discount rates, having an internal rate of return of 12.33%. The Project remains economically viable at the test discount rate of 6% in both sensitivity tests. In the first test, the extent of environmental disbenefits is assumed to significantly increase, and in the second test the willingness to pay for Western Basin harbour services is assumed to fall from \$2.75/tonne to only \$1.00/tonne.

The Project aims to increase the efficiency and expand the capacity of the Port of Gladstone, which is one of the region's most significant pieces of transport infrastructure. Although the Western Basin Dredging and Disposal Project will be a significant Project within the region, the change to the Gladstone economy would be marginal, rather than general.