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James Price Point

An economic analysis of the Browse LNG project

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TAI

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Summary

The Western Australian government together with Woodside proposes to build the Browse LNG precinct on James Price Point in the Kimberley region of Western Australia (WA). The evidence to support the state government's claim that the precinct will deliver economic benefits is virtually non-existent. Indeed, a close reading of the scant evidence that is available shows that the development will:

- Have a significant adverse impact on the WA state budget;
- Rely on up to 97 per cent fly-in fly-out (FIFO) workers and employ very few local workers;
- Lead to a reduction in employment in tourism (the region's largest employer); and,
- Significantly drive up the cost of living for the vast majority of local residents who will not be employed, directly or indirectly, by the new development.

Furthermore, the analysis presented in this paper suggests that:

- The project will result in around 3,000 workers losing their jobs across the rest of WA; and,
- The exchange rate will rise further, placing even greater pressures on manufacturing, tourism and agriculture.

Despite the size and stated significance of the Browse development the WA state government has not commissioned any comprehensive economic modelling of the project. While this decision makes an assessment of the economic benefits and costs more difficult, it also makes it impossible for the state government, or the development's supporters, to claim with any certainty that the project will deliver economic or social benefits to the Kimberley or WA communities.

According to the WA government's own economic assessment of the LNG precinct there will be few long term economic benefits for any of the local residents. Most workers will be fly-in fly-out and will be housed in an accommodation camp 60 km north of Broome. Indeed, the Strategic Social Impact Assessment prepared by the Department of State Development is based on the assumption that between 90 and 97 per cent of the workforce will be FIFO between the project's commencement and 2020.

The same assessment also states that during the construction phase the large workforce will use community services such as health and police, yet acknowledges that these services are currently under resourced and the additional demand placed on them by construction workers will see them further degraded.

While the majority of construction workers will be based in the accommodation camp some will choose to live in Broome creating an increase in demand for housing causing prices to rise. The WA government expects inflation in the region to be higher during the construction of the project.

The tourism industry is one of the largest and most important industries in the Kimberley, yet the government's assessment points out that the LNG precinct may reduce the Kimberley's reputation as a world class tourist destination. The construction phase will also put pressure on accommodation as construction workers crowd out accommodation for tourists.

Intriguingly, the WA government is also likely to spend more money supporting the project than it will collect in state taxes. With most of the tax revenue from the project flowing to the

federal government, the WA government's main source of additional revenue will come from payroll tax. While these tax receipts will increase during the relatively short construction phase, they will be quite minor during the operational phase. The WA government has committed to spending $250 million over 30 years on various grants and it will also need to spend substantial funds on upgrading Broome's community facilities. The result of these promised and expected increases in outlays is that the project is likely to be a net loss to the taxpayers of WA.

If the WA government believes it has made the economic case for this project it should explain where this evidence can be found as its own Strategic Social Impact Statement primarily presents evidence which rejects that conclusion.

The WA government's Strategic Social Impact Assessment states:

> *Many of those who oppose the development of the Precinct are concerned about the impacts of the Precinct on the marine and terrestrial environment and the changes it may bring to the identity of Broome. On the other hand, those who support the project generally do so because of beliefs about the economic benefits such a development may bring to Broome and the Kimberley.*[1]

It is, perhaps, ironic that the Browse LNG development has such enthusiastic support from the WA and Commonwealth governments given the complete lack of evidence to support the assertion that the project will deliver net economic benefits to the Kimberley region or the WA economy. While there is little doubt that this development has the potential to deliver substantial profits to the small number of people with a large share of the project's ownership, there is also little doubt that most of those owners live outside of the Kimberley and most likely outside of Western Australia.

[1] WA Department of State Development (2010) p.8

The project

There are considerable gas reserves off the Kimberley coast in Western Australia (WA). With the international gas price at historic highs, there has been increased commercial interest in exploiting these gas reserves. Woodside is the major equity partner in a proposal to build the Browse LNG development at James Price Point around 60 kilometres north of Broome on the Kimberley Coast of WA.

The WA government has decided to structure this development by creating a single multi-user LNG Precinct to process and transport the gas from all local gas projects. The WA government hopes that centralising gas processing and transport will help minimise significant environmental and social impacts when compared with the alternative (having separate processing and transport facilities for each gas project scattered around the Kimberley region).

Assessing economic impact without any modelling

The WA government has released a Strategic Social Impact Assessment (the report), which includes the economic impacts of the proposed precinct. The state government decided not to undertake an economic modelling process because it argued that "no model was determined sufficiently appropriate to accurately quantify the economic impacts of the Precinct."[2]

While no model will perfectly analyse the economic impact of any particular project, it is curious that the WA government decided to undertake no formal modelling at all. Such a decision makes it difficult for the government to make any assertions about the economic impacts of the LNG Precinct.

Having stated that no economic modelling was done, the government's report then says it:

> *seeks to broadly examine and qualitatively analyse the macroeconomic impacts of the expenditure and investment associated with the LNG Precinct, including the impacts on GDP, income, prices and fiscal variables.*[3]

Achieving this goal is extremely difficult without a robust economic modelling exercise. It is also curious that the WA government choose not to model a $45 billion project. When proposed by the private sector, projects of this size almost always undergo a modelling process.

Chapter 3 of the report, 'Economic Impacts' begins with the statement that no modelling framework was good enough to estimate the economic impacts of the Browse project. The next sentence then uses a reference to previous modelling by ACIL Tasman, for a different LNG project, to suggest that the Browse project will have similar positive economic impacts.[4]

Strangely, the report's authors here seem to suggest that the ACIL Tasman model was good for one LNG project but not for the Browse project. If it is good enough for one LNG project then it should be good enough for Browse. If it is not, the report's authors should not reference the ACIL Tasman work.

The ACIL Tasman modelling framework is flexible in design and has previously been used for a number of projects related to large scale LNG projects in WA, the Northern Territory

[2] WA Department of State Development (2010) p.16

[3] WA Department of State Development (2010) p.16

[4] WA Department of State Development (2010) p.16

and Papua New Guinea, and includes a strong focus on regional impacts. The modelling at ACIL Tasman is led by Dr Peter Johnson, whose research on Western Australia's Input-Output tables is later referenced in the government's report to make a case for positive economic impacts from the Browse project.[5] Again, the report's authors imply that the work by Peter Johnson is not good enough to be used to analyse the Browse project, but they deem his previous work on a different project to be suitable to provide evidence to support the Browse project

Other suitable modelling frameworks exist, for example Monash Multiregional Forecasting and Deloitte Access Economics Regional General Equilibrium Model. While not perfect, all are regularly used to estimate the impact of large-scale energy sector investments. The report authors appear confused as to whether economic modelling is appropriate for the LNG precinct; the result is an unstructured selection of reports and results, rather than a comprehensive analysis of the economic effects that the project will have.

The WA government's report also says:

> *It can be expected that development of the Precinct will have a positive net GDP impact. The level of this impact cannot be quantified in the absence of a model that can capture the indirect or flow-on economic impacts.*[6]

Of course it is also possible that the Browse development will have a negative or zero net GDP impact. Without a modelling process it is not possible to say. Certainly there will be winners and losers from the development of such a large project, but the net effect cannot be derived through the intuition of the proponents.

Previous economic modelling of large mining projects has shown that the winners will be overwhelmingly the owners of the project and those workers (mostly FIFO) who are employed by the project. Previous modelling also shows that the losers tend to be locals without any financial ties to the project, and, more broadly, trade-exposed businesses affected by the high exchange rate.[7]

While deciding not to do a modelling exercise because of fears that it would not be particularly accurate, the report authors go on to suggest a number of output multipliers to "gain a perspective on GDP impact."[8] Output multipliers are derived from the Australian Bureau of Statistics (ABS) input output tables. They attempt to show the flow-on effects that spending in one industry has on another industry. For example, additional spending in the car industry is likely to increase demand for steel.

Output multipliers however, were not designed for, or accurate in, predicting macroeconomic effects. As the ABS says:

> *(multipliers) tend to overstate the potential impact of final demand stimulus. The overstatement is potentially more serious when large changes in demand and production are considered.*[9]

The problems of using these multipliers are further compounded by the fact that they are based on data from 1994-95. This is problematic, since the WA economy has gone through large structural changes since then, and so the linkages between the various sectors of the

[5] WA Department of State Development (2010) p.16

[6] WA Department of State Development (2010) p.16

[7] See Denniss (2011) and Grudnoff (2012)

[8] WA Department of State Development (2010) p.16

[9] McLennan (1995) p.4

economy have also changed. It is again strange that, having rejected a modelling exercise, the authors substitute it with methods of analysis that are likely to be even more inaccurate.

The report also references the Chevron (2009) modelling of the Gorgon LNG project to say that the Browse project will have similar strong economic impacts.[10] It is important to note that the Gorgon modelling uses a presentational trick to make the benefits of the project appear large. The Chevron modelling adds up the GDP impacts over the coming decades and then reports it as a single number without noting that these 'benefits' take decades to accumulate. The average annual impact is obviously much smaller.

The WA government's report also says "At this time it is too early to predict with adequate certainty the anticipated investment and expenditure under each scenario."[11] Put simply, if there is no estimate of the direct impacts of the LNG development, then there can be no estimate of the wider economic impacts. If the authors have no feeling for the size of direct impacts, it is curious to compare impacts across other modelling exercises. More so, if there is no estimate of the direct impacts, it is then strange to estimate the amount of new tax revenue (see below).

Impact on government revenue

The Strategic Social Impact Assessment goes into some detail about the expected tax revenue that the project will generate. It notes that most of the tax receipts will flow to the federal government. Most of the tax that does flow to the WA government will be in the form of payroll tax. This, of course, will grow during the construction phase, when 6,000 to 8,000 workers are expected to be employed. Significantly for payroll tax revenue, however, the construction phase is only expected to be a small part of the overall life of the project. Payroll tax revenue will fall quite dramatically during the operation phase, when only 500 to 750 workers will be required.

During the peak year of the construction phase the report estimates that up to $45 million could be collected in payroll receipts.[12] This works out at about $18 per person in WA or 0.16 per cent of the WA government revenue. In subsequent years when the construction employment peak has passed, far less payroll tax will be collected.

Against this 0.16 per cent increase in state government revenue (in the project's peak year) is the cost of upgrading Broome's social infrastructure, as well as the $250 million over 30 years promised by the WA government for land tenure reform on the Dampier Peninsula to establish appropriate tenure for housing, economic opportunities and environmental protection; the establishment of a Kimberley Enhancement Scheme; and an Economic Development, Housing, Education and Cultural Preservation Funds.[13] Given the relatively small tax income that the WA government is expecting from the LNG Precinct, it is likely that the costs to the government of the project will be larger than the revenue the government makes. That is, the project is likely to result in a net loss for the taxpayers of WA.

Impact on employment

The economic impacts of the development will be greatest during the construction phase, when between 6,000 and 8,000 construction workers will be required. Like many projects of this kind, the LNG precinct will have a dedicated accommodation camp near the construction

[10] WA Department of State Development (2010) p.16

[11] WA Department of State Development (2010) p.16

[12] WA Department of State Development (2010) p.17

[13] WA Department of State Development (2010) p.4

site to house the workforce. The WA government report assumes that between 90 and 97 per cent of the workforce will be FIFO in the lead up to 2020.[14] These factors will, of course, greatly reduce any spending in the nearby town of Broome.

The report also notes that "The greatest opportunities for direct and indirect local employment will be during the construction phase of the Precinct."[15] In direct contradiction of this statement, it then goes on to point out that "a high proportion of the construction workforce will be FIFO."[16]

But it gets worse for locals who might see the project as an opportunity for employment:

> *However these opportunities will most likely reduce as the Precinct becomes operational and the requirement for a small and highly skilled operational workforce may be limit direct employment opportunities.*[17]

Long-term jobs for locals are dealt a final blow when the report says

> *The operational workforce is likely to initially operate on a mostly FIFO basis because operators on the new LNG plants usually need between 7 and 10 years experience.*[18]

Impact on housing

The establishment of an accommodation camp is designed to take pressure off demand for housing in Broome and the surrounding area. Despite this, the report is unclear about what effect the construction phase will have on demand for housing. While the majority of construction workers will be FIFO and will be housed in the accommodation camp, the report notes:

> *Industry experience in other Western Australian locations indicates that around 10% of the workforce includes people who have opportunistically moved to the location seeking employment (transient workforce).*[19]

It goes on to warn

> *Whether this percentage will be mirrored in Broome is particularly difficult to estimate because conditions in other locations such as Karratha are very different. Broome has a national and international profile as a tourism destination and it is likely that Broome will be perceived as a more desirable place to move to than Karratha.*[20]

It is, of course, possible that the construction of a huge LNG processing precinct will lessen the attractiveness of Broome as a tourism destination (see below) and in turn help lessen the impact of a transient workforce on housing.

[14] WA Department of State Development (2010) p.22
[15] WA Department of State Development (2010) p.6
[16] WA Department of State Development (2010) p.6
[17] WA Department of State Development (2010) p.6
[18] WA Department of State Development (2010) p.16
[19] WA Department of State Development (2010) p.16
[20] WA Department of State Development (2010) p.16

Impact on social services

The WA government report summarises the current state of social services and facilities in the following terms:

> *The community service sector within Broome is already under considerable pressure and would have significant difficulty in meeting additional demand from any anticipated future population increase.*[21]

The health sector is in similar circumstances:

> *The health sector in Broome, including all hospital, medical and health services, is currently under significant demand and some services are oversubscribed.*[22]

The current situation will only be made worse by an inflated population during the construction phase. Given that the accommodation camp is unlikely to include a hospital, Broome is likely to have to service the medical needs of the accommodation camp as well as those of the broader population.

The project could also have an impact on police services. “Crime rates in the Kimberley are the highest in Western Australia, with Broome police and prison operating at or near capacity.”[23] Despite this situation, the report authors are unsure who would police the LNG precinct.

> *It is not clear if the precinct would be policed from Broome. If this is the case, additional resources will need to be allocated so it does not diminish Broome based service delivery.*[24]

The report paints a picture of a region that is currently stretched and under-resourced. Into this region the WA government is planning to introduce up to 8,000 workers. Without large injections of community sector resources, the result is likely to be a large deterioration of community and health services in Broome and the surrounding region.

As discussed above, the cost of establishing and providing a wide range of community services needs to be seen in the context of the relatively modest amount of additional state government revenue that will be collected even in the project’s peak employment year ($45 million).

Impact on the tourism industry

Tourism is a significant and important industry for Broome and the surrounding region. It was important enough that a separate Tourism Impact Assessment was prepared as part of the Strategic Social Impact Assessment. It found that an LNG precinct “may have a negative impact on the Kimberley’s reputation and destination image.”[25] And “a FIFO workforce may reduce the availability of short-term visitor accommodation and have the potential to impact negatively on the tourism values, character and the appeal of Broome.”[26]

[21] WA Department of State Development (2010) p.6
[22] WA Department of State Development (2010) p.6
[23] WA Department of State Development (2010) p.7
[24] WA Department of State Development (2010) p.7
[25] WA Department of State Development (2010) p.7
[26] WA Department of State Development (2010) p.7

The Kimberley is renowned as a high-value tourism destination because of its unique cultural and environmental attributes, attributes that are enhanced by its relative remoteness from major development. There is little doubt that the employment and other economic benefits from the tourism industry will be diminished by the Browse development.

Impact on local business

A potential economic advantage of the Browse development for locals is that during the construction phase their businesses may win tenders to carry out the construction of the precinct the Strategic Social Impact Assessment states:

> *An objective of Government in establishing the Precinct is to provide opportunities for local employment and economic development. The opportunity for the region's small manufacturing and construction base to contract for supply of Precinct goods and services is likely to generate flow-on benefits including an increase in both business income and in the capacity of local businesses to deal with large clients and projects.*[27]

The manufacturing industry in the Kimberley is very small and the report does note that:

> *Under present circumstances it is understood that Broome experiences difficulties in acquiring employees across all sectors.*[28]

Any expansion of business because of the construction of the precinct would also have to be undertaken with an awareness of the transient nature of the work.

> *While construction and start-up phases would inevitably support major injections into the regional economy, particularly through the opportunities created for local businesses, the benefits of these economic impacts would be tempered by the relatively quick decline in demand as construction comes to an end. It is important that locally established businesses are aware of, and have strategies to manage a relatively fast reduction in demand for their services.*[29]

The report here highlights one of the major problems that face any business and employment opportunity created by the precinct. The nature of the project is such that it will create a yo-yo economy, where there will be massive swings in demand. Demand for local services will increase rapidly, only to disappear just as quickly. There is little benefit that the community can gain from this pattern of activity in the long term.

The construction of the precinct may in fact have negative impacts on local business. As the report notes:

> *Resource competition with other sectors of the Broome economy such as light industry and tourism may result in a reduction in income from those sectors. Labour may be reallocated to higher paying jobs associated with the Precinct, leaving the other sectors with either higher costs or reduced output.*[30]

This crowding out of local business is highly likely, given the small size of the Broome economy and its limited capacity to expand rapidly.

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[27] WA Department of State Development (2010) p.17

[28] WA Department of State Development (2010) p.18

[29] WA Department of State Development (2010) p.18

[30] WA Department of State Development (2010) p.18

Due to the high level of geographic segregation in the form of the accommodation camp, and the fact that large sections of the workforce will be flown in, the economic benefits of the project are not likely to flow to a large proportion of the local population. There will, however, be cost of living impacts (see below).

Impact on inflation

The construction of the Browse precinct is likely to cause inflation in the Broome region. In the words of the WA government report,

> *The supply constraints contributing to inflation are more likely to be significant at a local level. As indicated by the Regional Prices Index, prices in the Kimberley are around 16.9% higher than in Perth. This high index number is indicative of existing supply constraints, particularly in the area of housing. In a supply constrained environment, marginal changes in demand can have significant price impacts.*[31]

The increase in prices will be felt by all residents, not just those earning the higher than average incomes associated with the construction project.

Impact on the exchange rate

Another important effect that the project will have is on the exchange rate. The exchange rate in Australia is currently at historically high levels, primarily due to the increase in the value of mining industries exports. The purpose of the LNG precinct is to liquefy natural gas for export; the development will increase Australia's exports and put further upward pressure on exchange rates.

The current high exchange rates are having strong negative effects on Australian industries that are exposed to international markets, such as manufacturing, agriculture and tourism. As the Australian dollar has risen in value, these industries have faced falling prices and revenue. The WA government's report does admit that the project could lead to an increase in the Australian dollar, with a resulting impact on other industries such as manufacturing.[32]

The report also notes that exchange rate movements are difficult to model. The unstated conclusion seems to be that because we can't measure exchange rate movements, we don't have to worry about their effects. This, of course, is nonsense. The manufacturing industry has seen large falls in employment in recent years. These substantial losses need to be weighed against the benefits of any projects that are likely to put upward pressure on the exchange rate.

Projected job destruction

The WA government's report is based on a number of scenarios. Three of the scenarios (Scenario 2, Scenario 3A and Scenario 3B) are considered the most likely. These scenarios would require a peak workforce of between 6,000 and 8,000 workers. The advent of such a large workforce requirement in an already constrained labour market will have negative effects for other employers in other parts of WA. The extremely tight labour market for large. remote construction projects means that new projects do not create many new jobs, but rather 'poach' workers from other industries and other construction projects.

[31] WA Department of State Development (2010) p.19

[32] WA Department of State Development (2010) p.20

This effect is evidenced by the China First mine, another proposed remote greenfield construction project of a similar size to the LNG Precinct. A modelling exercise was undertaken for the China First mine; this exercise found that there were significant costs for the broader economy.[33] These consequences were found to include the following:

- 3,000 jobs will be lost, primarily across Queensland, particularly in manufacturing, agriculture and tourism.
- As a result of the development inflation will rise.
- Small and medium-sized businesses will face higher bills for payroll and rent, which will result in some of them shutting down.
- Housing affordability will decline for those who are not employed in the new mine.

The China First modelling, using generous assumptions, found that the China First project is likely to destroy one job for every two jobs in creates. If these generous assumptions are relaxed, the number of jobs destroyed is likely to be far higher. For example, the China First modelling did not include additional job destruction from the exchange rate appreciation associated with the development. The China First modelling also assumed that there were 3,000 unemployed skilled mine construction workers who were willing to work at the remote mine site.

To consider the effect that the WA LNG precinct will have on employment, we can use the modelling from the China First mine which shows, under generous assumptions, that one job will be destroyed for every two created. The LNG precinct is expected to have between 6,000 and 8,000 workers. This means it is likely to crowd out at least 3,000 to 4,000 jobs elsewhere. If we include exchange rate effects, and the fact that there is unlikely to be a large, available workforce with the skills to construct large mining projects in remote areas, then the job destruction could be far greater than 3,000 to 4,000.

The proponents of large resource projects in Australia have fallen into the habit of implying that the number of jobs involved in building a project is just the tip of the employment benefit iceberg. In fact, it is uncontroversial among economists to suggest that when a project requires workers with specific skills and the unemployment rate is at historic lows, the 'jobs created' in the development come largely at the expense of 'jobs destroyed' in other parts of the economy.

Economists refer to the way that jobs growth in one industry cannibalises employment in another as 'crowding out'. As Dr David Gruen, Executive Director of the Macroeconomic Group at the Commonwealth Department of the Treasury, said recently at a Senate Estimates Committee hearing:

> *In a well-functioning economy like ours, with unemployment close to its lowest sustainable rate, it is not the case that individual industries are creating jobs, they are simply re-distributing them.*[34]

Conclusion

The WA government's Strategic Social Impact Assessment states:

[33] For an economic analysis of the China First mine, see Denniss (2011)

[34] Gruen (2012)

> *Many of those who oppose the development of the Precinct are concerned about the impacts of the Precinct on the marine and terrestrial environment and the changes it may bring to the identity of Broome. On the other hand, those who support the project generally do so because of beliefs about the economic benefits such a development may bring to Broome and the Kimberley.*[35]

It is paradoxical that the Browse LNG development has such enthusiastic support from the WA and Commonwealth governments, given the complete lack of evidence to support the assertion that the project will deliver net economic benefits to the Kimberley region or the WA economy. On the other hand, there is little doubt that this development has the potential to deliver substantial profits to the small number of people with a large share of the projects ownership.

But there is also little doubt that many of those owners live outside of the Kimberley, outside of WA and, most likely, outside of Australia.

Furthermore, in its effort to outline the potential economic benefits of the Browse development, the WA government has effectively provided a comprehensive description of the adverse economic consequences for the Kimberley and WA communities, including lower levels of employment in other industries, higher costs of living, greater pressure on community services and a net cost to the WA budget.

[35] Department of State Development (2010) p.8

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