

30 Aug 2013



Mr Ian Blayney, MLA
Chairman, Economics and Industry Standing Committee
laeisc@parliament.wa.gov.au

Dear Mr Blayney

Inquiry into the economic implications of floating liquefied natural gas operations

Thank you for your invitation to provide a submission to the Economics and Industry Standing Committee's inquiry into the implications of Floating Liquefied Natural Gas (FLNG) for Western Australia.

This is a critical issue for WA's economic future and we welcome the Committee's intentions. However, FLNG cannot be viewed in isolation. Developments in other parts of the energy sector need to be taken into account so that we can understand domestic energy needs, and maximise export opportunities. Without this broader consideration we risk making policy prescriptions in isolation of necessary actions across the energy supply chain to improve domestic energy security and WA's long term economic prosperity.

FLNG presents WA with a range of opportunities. Highest amongst these is the opportunity to create long term jobs in the operation and export of LNG. As global energy demand continues to grow, WA can become an even more significant energy supplier. In addition, regional towns can grow in response to FLNG as supply bases and homes for workers, with significant potential benefits for small businesses and infrastructure in WA's regions. Finally, Perth can also benefit, as it becomes a hub for resource and energy sector activity and innovation.

But FLNG will also bring challenges. These include fewer opportunities for the construction and manufacturing sectors, specific skill shortages, infrastructure constraints, and the need for alternative sources of domestic gas. The submission that follows deals substantively with these issues, making the following recommendations:

- Industry and government should work together to increase information about the opportunities available to local suppliers to the LNG sector and help improve the competitiveness of local suppliers;
- Industry, government and education institutions must invest in the training and supply of skilled staff for the oil and gas sector, and wider resources sector;
- The Federal and State Government must utilise revenue from the LNG sector to make significant investments in economic and social infrastructure in WA;
- The State Government should continue to support the Gas Bulletin Board and Statement of Opportunities, and other measures to improve transparency and liquidity in domestic gas markets, and the development of unconventional gas reserves; and
- The federal and State Government should make a concerted effort to reduce regulatory and taxation burdens on businesses.



By addressing these issues, WA will have the best chance of making the most of the opportunity presented by FLNG.

Once again, I thank you for the opportunity to provide a submission to this inquiry. If you have any further questions please contact Drew Pearman, Senior Policy Adviser (08 9365 7720, drew.pearman@cciwa.com).

Yours sincerely

John Nicolou
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Chief Economist



Legislative Assembly, Economics
and Industry Standing Committee:
Inquiry into the Economic
Implications of Floating Liquefied
Natural Gas Operations

Submission by the Chamber of
Commerce and Industry of Western
Australia

1. About CCI

CCI is a not-for-profit, member-based organisation providing quality, cost-effective advocacy, information, services and support for over 8 500 member businesses. Our Vision is for WA to be a world-leading place to live and do business. We strive in the pursuit of free enterprise with our goal to make WA the most business friendly state in the nation. Our members cover all sectors of the economy, and the full energy supply chain.

2. Context

This inquiry is a timely opportunity to understand and consider the importance of our significant reserves of gas and the export of Liquid Natural Gas (LNG) for WA's economic future. Floating LNG (FLNG) represents a significant opportunity for WA to be at the forefront of an emerging technology that is likely to be pivotal for the world's future energy supply. While this inquiry is focused on FLNG and its specific implications, it can't be viewed in isolation. Developments in other parts of the energy sector need to be taken into account so that we can understand domestic needs, and maximise export opportunities. Only by doing this will we be fully able to address concerns about the opportunity costs of FLNG, domestic energy security and WA's long term economic prosperity.

The development of WA's gas reserves has played an important and changing role in the economic development of WA. CCI's 2007 paper *Meeting the Future Gas Needs of Western Australia*, set out a comprehensive history of the development of the sector and agenda for reform to ensure we continue to exploit the reserves for domestic and export purposes. Since that paper was released the sector has developed considerably.

Today exports are the dominant driver with 70 to 75 per cent of all gas exported or consumed by the LNG industry in 2010-11¹. LNG exports represented almost \$12 billion, or around 10 per cent of WA's exports in 2011-12,² and as major projects come on line in the next few years this will increase substantially. LNG projects make up \$123 billion of the \$247 billion project pipeline in WA, including projects under construction, committed and under consideration.³ Annex A outlines LNG projects currently in the pipeline.

At present, it is estimated the LNG sector in Western Australia currently supports around 30,000 workers.

Demand for LNG is set to continue to grow at about 2.1 per cent per annum up to 2030, on the back of increased global energy needs. Both onshore and floating LNG projects present significant export opportunities for the state,

¹ IMO 2013. Gas Statement of Opportunities – July 2013.

² BREE 2013. Resources and Energy Quarterly. June Quarter 2013.

³ Deloitte Access Economics Investment Monitor.

with WA expected to underpin Australia's position as the world's second largest exporter of LNG later this decade.⁴ But international competition is also growing.

3. Future opportunities from FLNG

It is estimated that 72 per cent of Australia's conventional gas reserves are located off the WA coast.⁵ This presents a significant platform to secure economic opportunities for WA and develop long term jobs. But we will only benefit from these resources if we allow them to be exploited.

In WA, the current suite of land based LNG projects (see Annex A below) is approaching completion and the production phase. The next wave of investment is clearly being directed towards FLNG projects – with the Prelude, Scarborough, and Browse projects all committed to or considering FLNG. Many of the reserves associated with these projects were discovered decades ago and it is only with the advent of floating technology that their exploitation has become viable. WA therefore has a unique opportunity to develop world-leading FLNG technology in support of the industry, particularly in long term operations and capitalise on significant opportunities.

- **Long term and sustainable jobs** are the strongest opportunity associated with the development of FLNG. According to research conducted by ACIL Tasman for the WA State Training Board, significant increases in demand for gas plant operators are expected as LNG and FLNG projects begin operations.⁶
- **Regional towns**, for example Broome, are also likely to benefit significantly as supply bases for FLNG. Small businesses are particularly likely to benefit as workers live in or fly-in fly-out to (and increasingly from) regional towns and increasingly make use of local services. New and upgraded infrastructure will be required including ports, airports and roads, as well housing and social infrastructure to help regional towns grow.
- **Perth also has significant potential to benefit** as major FLNG project developers and operators establish national, regional and global headquarters in Perth, driving further business activity in the state's capital. This will be complemented by the development of leading academic and research institutions for the resources sector further embedding WA and WA businesses in global supply chains as FLNG technology is utilised elsewhere.⁷

Importantly, many gas fields may not be exploited at all if businesses are inhibited from making individual investment decisions. Such an approach would come with significant opportunity costs for local businesses, workers

⁴ Australian Government 2012. *Energy White Paper 2012: Australia's Energy Transformation*.

⁵ Australian Gas Resource Assessment

⁶ ACIL Tasman 2013. *Crowding out: competition for skilled labour in WA*.

⁷ Committee for Perth 2013. *Perth as a global minerals and energy resources hub*.

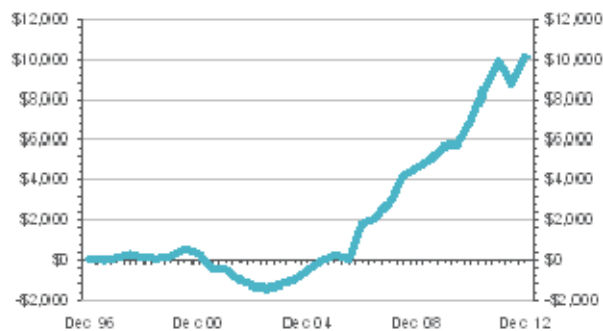
and for government revenue. And the significance of these opportunities should not be underestimated. The long term operation and export of FLNG, represents a significant opportunity for WA to lead the world, and many businesses can benefit from first-mover advantage by partnering in this development.

4. WA's competitiveness

The significant growth seen in the WA resources sector, including the development of the LNG sector, has not come without problems. There has been a significant rise in production costs for resource companies driven particularly by elevated wages in the State. The chart below shows that with the start of the resource sector investment boom, average weekly earnings in WA have increased to be now \$10,000 more than the Australian average. While these figures reflect the wider economy, wage costs have clearly increased as demand from resources projects has increased, diminishing labour productivity.

WA Wage Costs

Average Weekly Earnings, Difference between WA & Australia

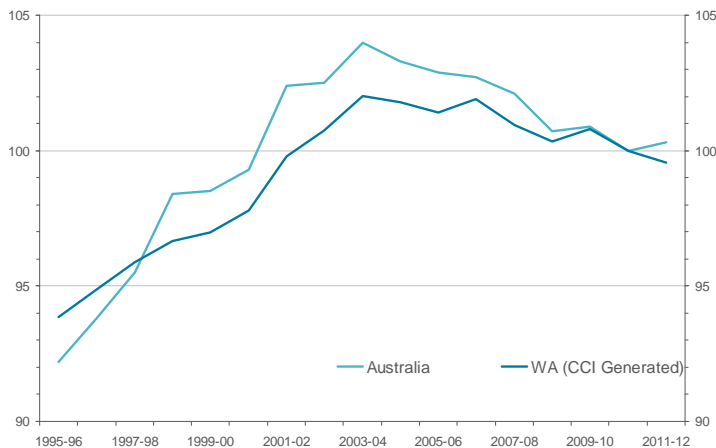


Source: CCI Calculations based on ABS Cat. 6302.0

In addition to labour costs, input costs and the tax burden are increasing, and onerous red tape and regulation further add to the cost base for many businesses. As a result CCI research has shown declining productivity in WA since the beginning of the investment boom.

Multifactor Productivity

WA v Australia, Index; 2010-11 = 100



Source: CCI Calculations based on ABS Cat. 5220.0, 6101.0, 5206.0

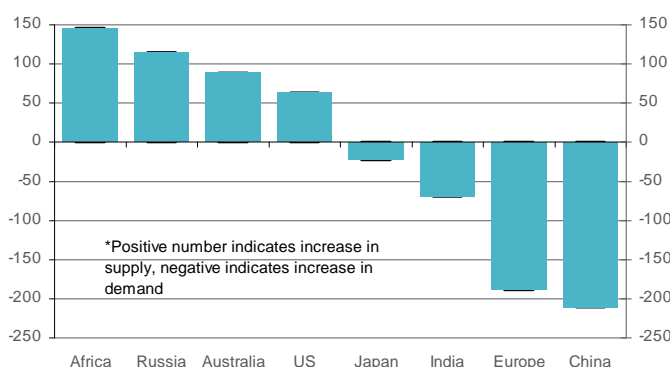
The impact of the high cost of doing business in the State has been reflected in the delay or deferment of major investment projects. Energy and Mining Executives are increasingly concerned about the complex and fluid regulation; the threat of new taxes; and the availability of labour and talent.⁸ It also represents a significant threat to projects under consideration – including LNG and FLNG projects.

As a result, the gap between Australia’s costs and those of key emerging competitors is of increasing concern. McKinsey and Company estimate the breakeven landed costs of Australian conventional gas (from WA and the NT) to Japan at US\$11.9 / mmbtu, much higher than costs in Canada (US\$9.2 – 9.5) and Mozambique (US\$9 – 10 / mmbtu).⁹ Without significant efforts to address these differences we risk missing out on opportunities to exploit our gas reserves, and for governments to earn revenue.

These factors are even more important given that international competition is increasing. As shown in the chart below, the International Energy Agency expects significant new suppliers of gas to begin exporting over the next 20 years.¹⁰ LNG produced in Africa and the US, as well as LNG and piped gas from Russia, are increasingly competitive. Many of these supplies are not expected to begin delivery until after 2020, providing WA with a window of opportunity to meet growing demand first, but only if we can reduce costs and become more competitive. At the same time, LNG customers (e.g. Japan) are looking to these markets to decouple LNG prices from crude oil prices.¹¹ As a result of the shale gas revolution, US domestic gas prices have been as low as one-eighth of Japanese prices in 2012¹², providing a strong incentive for new suppliers and new pricing arrangements.

Net Gas Supply, Forecast*

Selected Regions/Countries, Change Between 2010 & 2035



Source: International Energy Agency

5. Challenges associated with FLNG

⁸ Accenture 2011. *Managing Capital Projects as a Business*.

⁹ McKinsey and Company 2013. *Extending the LNG boom: Improving Australian LNG productivity and competitiveness*.

¹⁰ International Energy Agency 2013. *World Energy Outlook*.

¹¹ See <http://www.platts.com/latest-news/natural-gas/tokyo/japans-meti-minister-to-press-us-doe-chief-to-27217945>

¹² IEA 2012. *World Energy Outlook 2012*.

While there are a number of opportunities associated with FLNG, it also raises a number of challenges.

5.1 Local content

FLNG will deliver fewer opportunities for local suppliers, particularly in the construction sector, than would be the case for land based LNG processing.

CCI's Project Connect lists contract and procurement opportunities for major projects in WA. While FLNG opportunities are still in the early stages, analysis shows significantly fewer opportunities for local construction and suppliers in FLNG projects. Opportunities in the relatively short lived construction phase are likely to be limited to construction and services associated with onshore supply bases and some subsea works. But there are ongoing opportunities for local content providers and workers.

While smaller than the construction opportunities associated with land based LNG processing, the long term opportunities are broadly similar. Offshore activities, operations and maintenance all provide significant, long term and ongoing opportunities for WA businesses. To make the most of these we need a sensible and measured approach to local content.

In 2011 CCI set out a detailed *Local Content Policy Position* with a range of principles, which we believe still apply with the growing importance of FLNG. These emphasise fair and open markets over efforts to protect local industry from competition. The principles are:

- The importance of free trade and open markets;
- That local industry becomes internationally competitive and their operations are as efficient and effective as possible;
- That local business is provided with information about procurement opportunities; and
- WA businesses should be afforded 'full, fair and reasonable' opportunities to quote and tender for public and private sector contracts in WA.

At the federal level, the *Australian Jobs Act 2013* adds significantly to compliance costs for major LNG projects, by mandating Australian Industry Opportunity Officers be employed by project developers. While aimed at improving local content outcomes, the policy is unlikely to have any significant benefit and will only serve to reduce WA's competitiveness.

Instead of a focus on industry protection, government's focus should be on:

- **Increasing information about the opportunities available to local suppliers;** and
- **Helping improve the competitiveness of local suppliers.**

There are already programs in place that have been effective in increasing local content in major resource projects which can and are being used for FLNG (see Annex B – Industry Capability Network and Project Connect). These activities have helped to deliver \$43 billion in locally awarded contracts (across all projects) since July 2011.

Businesses in the sector can also benefit by working with local businesses to build capability across supply chains. This early engagement is key to improving capital and labour productivity, and will help ensure producers and suppliers are well integrated when operations commence.

5.2 Workforce shortages

Nationally, the oil and gas industry over the next five years is expected to create 100,000 jobs. By 2025, this figure is expected to be closer to 150,000 jobs.¹³ These figures incorporate both land and floating LNG, and include a significant short term construction workforce.

Where significant differences arise between land based and floating LNG, is in the construction workforce. The floating LNG processing facilities will largely be constructed in other markets with significant shipbuilding capabilities. This will remove the need for a significant workforce in constructing a land based processing facility. Analysis by ACIL Tasman for the WA State Training Board recognises that fewer jobs will be required in the heavy engineering and construction sector as a result of lower local content with the next phase of resource projects (particularly FLNG, but also as mining investment slows).¹⁴

Even though fewer short-term positions will be required, large numbers of workers will be required on an ongoing basis and significant workforce challenges will continue for WA.

In the future, for LNG and FLNG projects, ACIL Tasman's analysis points to critical shortages of Chemical, Gas, Petroleum and Power Generation Plant Operators from 2012, with the shortages growing significantly from 2017 onwards.¹⁵ Even with sustained high levels of 457 migrants, WA is projected to have a shortage of these skills of over 1,000 workers in 2022 – particularly for the mining¹⁶ and manufacturing sectors.

In addition, shortages in other relevant occupations include: geologists and geophysicists, and mining engineers. These roles, particular plant operators, represent long term positions as FLNG plants operate and deliver exports for decades to come. These requirements are effectively the same whether plants are land based or floating. But without significant improvements in labour mobility and flexibility, high labour costs will continue to hamper our productivity and competitiveness.

¹³ Perth Will Be Home To Global Oil And Gas Innovation, Rudd Government Campaign Media Release, August 2013.

¹⁴ ACIL Tasman 2013. Crowding out: competition for skilled labour in WA.

¹⁵ ACIL Tasman 2013. Crowding out: competition for skilled labour in WA.

¹⁶ ABS classification of the mining sector, includes oil and gas exploration and extraction.

Despite these concerns, workforce opportunities are a key and ongoing benefit for WA from FLNG projects. But more can be done to ensure we are equipped with a workforce to meet future needs.

Investment in the supply of skilled staff is the key mechanism to reduce pressures on the industry and assist in the development of innovative solutions. In particular, a focus on the following occupation groups would help alleviate pressures expected for LNG projects:

- chemical, gas, petroleum and power generation plant operators;¹⁷
- geologists and geophysicists;¹⁸ and
- mining engineers.¹⁹

In addition further **collaboration between education, training and research institutes, and the business community** could greatly improve our capacity to deliver skilled staff, and to develop businesses associated with FLNG technology. An example of this investment is the Australian Centre for Energy and Process Training at Challenger Institute of Technology. The Centre is a collaboration between industry and State and Federal governments, and led by an Industry Management Board comprising representatives from leading companies to develop strategic training direction to meet the industries need.

In addition, the recently announced \$60 million National Floating Systems Research Centre in Perth created in partnership between the Federal Government, industry, CSIRO, the University of Western Australia and Curtin University, provides a strong base to build skills and capabilities. This investment provides the impetus to take the existing skill set from the mining and oil and gas sector to generate workforce solutions for the FLNG industry.

While investment in skills and providing opportunities for Australians should be a priority, **migration is also likely to be a key source of labour**. The Commonwealth's temporary migration program plays an important role in allowing employers to source the additional skills required to meet short and longer term labour and skills demands. Having a responsive migration program driven by employer demand can reduce the 'heat' in the economy during periods of economic expansion. The program can, if flexible, have a positive impact and assist employers in the oil and gas industry.

5.3 *Royalties and taxation*

While the majority of FLNG projects will be in Commonwealth waters, there are some reserves in state waters which will add to state revenue. We need to be mindful of the opportunity costs to revenue of any policy developed response to FLNG. This is potential revenue that could be used to invest in future infrastructure, or to improve the competitiveness of WA by lowering the taxation burden.

¹⁷ ANZSCO Code 3992. Includes Gas or Petroleum Operators.

¹⁸ ANZSCO Code 2344.

¹⁹ ANZSCO Code 2336. Includes Petroleum engineers.

But whoever collects revenue, it is **vital that significant government investment is made in infrastructure in WA** to help business and the community respond to the pressures of significant growth. Of the \$24 billion newly allocated to infrastructure in the 2013-14 Federal Budget, only six per cent was allocated to WA. This is well below our share of the national population of 11 per cent. As the engine room of the national economy, future investment in WA off the back of royalty and Petroleum Resource Rent Tax (PRRT) revenue, is vital to help secure future private investment.

5.4 *Domestic gas*

The development of FLNG has also raised some concerns about domestic access to gas. Future supplies of domestic gas are projected with a high degree of uncertainty. In a low supply scenario from the Department of Mines and Petroleum, supplies are expected to be increasingly tight as we approach 2022.²⁰ However, more recently the first WA Gas Statement of Opportunities projects significant excess domestic gas processing capacity for the same period.²¹ Given this discrepancy, it is clear more information is needed to make judgments about domestic gas supplies. We therefore believe **the Gas Bulletin Board and Statement of Opportunities need time to be further refined and improved**, before making judgments about the domestic gas market.

Nonetheless, in the absence of FLNG, there are other opportunities which can be exploited with a view to domestic gas supplies. The recent completion of the Devil Creek domestic gas plant, and soon to be completed plants (Macedon, Gorgon, Wheatstone), will all add to domestic gas processing capacity. Domestic gas capacity, which does not necessarily equate to supply, is projected to grow from 947 TJ per day to 1,052 TJ per day in 2022.²² These developments were spurred on by positive policies, particularly changes to gas specifications, rather than blunt instruments like the reservation policy as advocated in CCI's 2007 gas paper, and demonstrate how suppliers will react to market signals. Furthermore, the *Natural Gas (Canning Basin Joint Venture) Agreement Act 2013* demonstrates a growing confidence in unconventional gas supplies in the Canning Basin, which could be further complemented by unconventional gas supplies in the Perth Basin. There is still room for more positive policies to encourage more domestic supplies of gas to be considered. These include, an upcoming review of joint marketing arrangements and the emergence of a private short term trading market for domestic gas.²³

5.5 *Reducing burdens on business*

Governments at the State and Federal level need to embark on a concerted effort to reduce the burdens on businesses, to help ensure WA is as competitive as possible.

²⁰ Department of Mines and Petroleum.

²¹ IMO 2013. *Gas Statement of Opportunities - July 2013*.

²² IMO 2013. *Gas Statement of Opportunities - July 2013*.

²³ See for example <http://www.gastrading.com.au/>

For large projects, the approvals process remains a significant burden. A recent draft report by the Productivity Commission found that major project approvals processes have significant scope for improvement.²⁴ The sector in particular is subject to more than 150 pieces of legislation for upstream oil and gas, and more than 50 regulatory agencies. A delay of just one year can add in the order of \$700 million to a large oil and gas project. In particular, the report recommends the establishment of a 'one project, one assessment, one decision framework', as opposed to the current plethora of regulators, decision makers and approvals required.

Of particular relevance to the state government, CCI supports the report's recommendations to **make greater use of strategic assessments, and to negotiate a bilateral agreement with the Commonwealth to reduce duplication**. While COAG has committed to reduce duplication in project approvals, no concrete steps have been taken to date. This should be a priority for both levels of government. Implementation of these recommendations would significantly reduce the cost of doing business in WA and help improve the competitiveness of FLNG, LNG and other projects.

For local suppliers and service providers, **wider efforts to reduce the regulatory burden** are needed to give them the flexibility to take up opportunities. In the lead up to the state election CCI outlined a range of priorities for reducing the regulatory burden on business across the state.²⁵ These focus on a more structured approach to reducing the red tape burden, and while some positive steps have been taken, this agenda needs to be fully implemented to ensure local businesses are able to compete in providing services for LNG and FLNG projects.

This could also be complemented by **wider efforts to reduce the taxation burden**. McKinsey and Company estimate taxation differences are responsible for up to one third of the cost gap between international LNG production and Australian production.²⁶ In particular Australia's higher corporate tax rate and the multiple burdens of royalties and PRRT, make Australia less competitive than Canada. An overarching and cooperative approach to taxation reform is needed between state and federal governments.

²⁴ Productivity Commission 2013. *Major Project Development Assessment Processes: Productivity Commission Draft Report*.

²⁵ CCI 2013. *State Election 2013: Building the economy, growing business and creating jobs*.

²⁶ McKinsey and Company 2013. *Extending the LNG boom: Improving Australian LNG productivity and competitiveness*.

Annex A – LNG projects in the WA project pipeline

Proponent	Value (\$ million)	Project	Commenced	Expected completion	Phase
Gorgon joint venture (Chevron Australia (47%) / Shell (25%) / ExxonMobil (25%) / Osaka Gas (1.25%) / Tokyo Gas (1%) Chubu Electric Power (0.417%))	52000	Gorgon LNG project (15.6 mtpa) (three liquefaction trains) , Barrow Island	Nov-09	Early 2015	Under construction
Chevron Australia (73%) / Apache (13%) / Kuwait Foreign Petroleum Exploration Company (7%) /Shell (6.4%)	29000	Wheatstone LNG project, based on gas in the Carnarvon basin and processing at Ashburton North	Jan-12	2016	Under construction
Shell (67.5%) / Inpex Oil & Gas (17.5%) / Kogas (10%) / CPC Corp (5%)	12000	Prelude LNG project - floating LNG platform, Browse Basin	2012	2017	Under construction
North West Shelf Consortium (Woodside / BP / Shell / BHP / Chevron / MIMI)	5000	North Rankin Redevelopment (NR2) - construction and installation of a new gas platform, North Rankin B (NRB) and modifications at North Rankin A (NRA)	Mar-08	2013	Under construction
BHP Petroleum (71.43%) / Apache (28.57%)	1470	Macedon gas field (1-2 trillion cu ft)	2010	2013	Under construction
Woodside (33.34%) / BP (16.67%) / ChevronTexaco (16.67%) / BHP (16.67%) / Japan Australia LNG (16.67%)	2500	Greater Western Flank Project (Phase 1) - Goodwyn GH and Tidepole Fields	FID approved, possible 2013 start	Early 2016	Committed
Apache	1200	Julimar Development Project - 20 subsea gas production wells, 3 production manifolds and pipelines to Wheatstone platform. 180km northwest of Dampier	2013	2016	Committed

Woodside / BP / ChevronTexaco / Shell / MIMI / PetroChina	na	Browse FLNG Project, Brecknock & Scott Reef gas field, James Price Point, Broome	Initial development plans scrapped. New plans underway.	2015	Possible
BHP Petroleum (50%) / ExxonMobil (50%)	10000	Scarborough FLNG project, 280 km North West of Onslow	FID due early 2014	na	Possible
Gorgon joint venture (Chevron Australia (47%) / Shell (25%) / Mobil (25%) / Osaka Gas (1.25%) / Tokyo Gas (1%) Chubu Electric Power (0.417%))	10000	Gorgon LNG project (fourth liquefaction train) , Barrow Island, Geryon field and the Chandon field.	Environmental approval in late 2013, FID in 2014	na	Possible

Source: Deloitte Access Economics.

Annex B

Industry Capability Network WA

The Industry Capability Network (ICN) is a national network of independent industry consultancies managed by industry and sponsored by state governments to achieve beneficial outcomes for local Australian and New Zealand industry and economy. In WA, the ICN focuses on WA projects and suppliers.

ICN has as clients some of the largest project proponents in WA. ICN's role is to match this data against Australian capabilities and then provide qualified support on experienced suppliers.

ICN assists project proponents towards their local content objectives that WA businesses are afforded 'Full, Fair and Reasonable' opportunity to quote and tender for work.

ICN also administers the Australian Government's Supplier Access to Major Projects (SAMP) program. Introduced in 1997, SAMP is designed to underpin long-term, coordinated and strategic approaches to pursue opportunities for Australian industry in major projects globally.

ProjectConnect

The ProjectConnect website is an online electronic library which stores, organises and distributes information on suppliers, development projects and project supply opportunities.

ProjectConnect allows project proponents to list the goods and services it intends to purchase.

Suppliers can then register their interest on listed items, either as a:

1. Full package supplier that has a demonstrated in-house capacity to provide the complete item.
2. Component package supplier that it interested in providing parts of the item to the successful full package tenderer.

ProjectConnect is unique in that it also allows registrations from component suppliers that want to provided goods and services to a project's successful tenderers. To support component suppliers, projects publish the name and contact details of successful tenderers (on award of contract).