Deloitte Access Economics

Analysis of the offshore oil and gas marine support sector

Australian Mines and Metals Association

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Deloitte.

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Glossary

AMMA	Australian Mines and Metals Association
ABS	Australian Bureau of Statistics
CSG	Coal Seam Gas
EBA	Enterprise Bargaining Agreement
FIFO	Fly-in fly-out
FY	Financial Year
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas

Executive summary

Deloitte Access Economics (DAE) has been commissioned by the Australian Mines and Metals Association (AMMA) to prepare an analysis of the economic circumstances of the offshore oil and gas marine support sector.

The offshore oil and gas marine support sector is crucial to the successful extraction of oil and gas in Australia. The industry is involved in every step of oil and gas operations – from exploration, to construction and the extraction of resources.

Over the last decade the sector has benefited from a considerable surge in exploration and investment activity, driven by rising demand for energy and raw materials in developing Asian economies. More recently, however, cost pressures in the sector – including labour costs – have increased notably. That is presenting substantial challenges, eroding the competitiveness and profitability of the offshore oil and gas marine support sector.

Moreover, softer global economic conditions and rising cost pressures across the broader oil and gas industry (and the Australian economy more generally) are also threatening to weaken the pipeline of future investment projects. Indeed, a number of major oil and gas projects have already been shelved or delayed.

Given the close relationship between the offshore oil and gas marine support sector and the wider oil and gas industry, a fall in oil and gas activity will significantly hamper demand for offshore marine support services.

These two factors – slowing investment activity in the wider oil and gas sector, and declining profitability within the offshore oil and gas marine support sector – have the potential to damage the ongoing, long-term viability and future development of the offshore sector.

It is within this context that the current enterprise bargaining campaign for the sector is set. An industrial relations framework which reduces business flexibility and produces excessive wage outcomes adds to the pressures facing the sector, and has implications for the Australian economy more generally.

This report evaluates the economic environment facing vessel operators, and assesses the implications of a subdued oil and gas industry on Australia's overall economy.

The rise of emerging Asia ...

The rise of emerging economies over the past decade saw half the world embark on an 'industrial revolution' that led to many nations entering a 'commodity hungry' phase of their economic development.

Sent commodity prices surging ...

That surge in global demand for industrial commodities caught the global resources sector by surprise – demand outpaced supply, and many commodity prices jumped.

With resource-related investment following suit

In turn, that surge in commodity prices generated a matching surge in commodity-related investment: the global resources sector spent a fortune on getting more product to market. Old mines were expanded, greenfield mines were developed, rail and port capacity was lifted, and the like.

Here in Australia the total spent on capacity expansion has been the same (in today's dollars) as the Americans spent on sending a man to the moon in the 1960s.

That boom is now centred in gas development

While Australia's oil and gas industry has been generating headlines in recent years on the back of large LNG investments, the industry is much older than often appreciated. The seeds for Australia's oil and gas industry were sown by the French world scientific expedition when they discovered the first reported traces of oil shale in New South Wales in 1802. A century later, oil shale production was underway at Hartley Vale and Joadja Creek, and natural gas had been found in water bores in both Queensland and New South Wales. And, after yet another century, Australia now possesses a world class industry which significantly contributes to the nation's economic activity.

Since the turn of the twenty first century a shift in the fortunes of oil and gas products has taken place. Crude oil production peaked in 2000 and has since fallen away. On the other hand, Australia's gas production has surged.

Initially the most recent boom in investment was focused on coal and iron ore, but is now centred in gas. That reflects not merely the rising energy needs of emerging economies, but also the environmental advantages of gas over oil in terms of greenhouse gas emissions and also of air quality impacts in Asia's fast growing mega cities.

In turn, the surge in capital expenditure supported Australia's economic growth at a time when households were being cautious with their spending, with softer housing construction and State and Federal Governments amid a phase of cost cutting.

But the downswing in investment has already begun

Deloitte Access Economics expects private business investment spending will generate a mild drag on the economy as early as 2014-15.

The Commonwealth Government's official commodity forecaster, the Bureau of Resource and Energy Economics (BREE) is of the view that:

> *"… the stock of committed investment has peaked and is projected to decline over the next five years as a result of fewer high value projects progressing through the investment pipeline to offset the completion of the LNG projects that are currently under construction.*
>
> *… BREE estimates that around $150 billion of high value projects have been delayed or cancelled since April 2012, while cost increases to committed projects currently account for 11 per cent of the stock of committed investment."*[1]

[1] See BREE, *Committed investment in resources and energy major projects at peak*, at http://www.bree.gov.au/media/media_releases/2013/20130522-investment.html

Moreover, it is worth stressing that some other key forecasters of the Australian economy have an even sharper downswing in the offing.

Hence the biggest driver of Australian economic growth in recent years is set to slow sharply. That will slow revenue in Australia's offshore oil and gas marine support sector and, with costs rising sharply, will affect the long term sustainability of the sector.

Some of this downswing in investment is due to global factors

Why? Some of this relates to global developments such as more modest expectations of future demand growth out of China. And some of it relates to the supply side, with considerable investment already having occurred both here and in the world's other major resource producers. For the gas sector in particular, the big supply side development has been the success of 'alternative' gas development in the United States.

Yet 'Australia specific' factors are arguably even more important

Yet there are some uniquely Australian components of the coming slowdown in the pace of development in the resources sector in general, and the gas sector in particular.

Australia has priced itself out of a leading edge position in the global gas development queue

In brief, a sharp rise in relative costs in recent years has priced Australian companies out of a number of investment opportunities. Many of these costs (new taxes, exchange rates, interest rates, environmental and native title and other approvals) are not in the control of individual businesses. To the extent that labour costs are influenced by wage growth across the broader labour market, these costs are also only partly controlled by firms.

And while some cost levers are under the control of individual businesses in the resources and mining services sectors, it definitely doesn't help that the $A has remained elevated (indeed, despite recent falls the $A remains above US 92 cents – well above the long run average of around US 76 cents).

This pressure has largely been felt by businesses as profitability has fallen while the compensation of employees has continued to rise. That includes exporters and import competing businesses, as well as downstream firms, and the vessel operators within the offshore oil and gas marine support sector are not immune.

Yet there is also a broader backdrop to consider in evaluating any proposed Enterprise Bargaining Agreement (EBA). The offshore oil and gas marine support sector in Australia has been part of a remarkable surge in investment activity in recent years, but the capacity for that surge to continue– and continue underpinning future Australian prosperity – may be compromised by the lift in relative costs affecting the sector.

The resources boom can be thought of as containing three phases: price, investment and net exports. Following the peak of the commodity price phase in 2011, and the imminent slowing of investment spending, Australia's economy is currently in a period of transition. Given the proportion of the resources investment pipeline tied up in LNG projects, the successful transition between the last two phases of the resources boom will depend somewhat on the realisation of these projects.

Costs are up

Similar to the rest of the economy, the oil and gas industry and the maritime and shipping industry is suffering under the pressure of the high $A. Furthermore, high labour, capital and regulatory costs are putting impending gas projects in jeopardy. While Chevron has accepted a $10 billion overrun on the cost of the Gorgon project, Woodside has abandoned the onshore developments at James Price Point, a major part of their greater Browse Basin project.

McKinsey (2013) estimates that a new Australian LNG project would have a cost of supply as much as 30% higher than a matching Canadian or east African project.

The situation was aptly surmised by Gary Gray, the Federal Resources and Energy Minister when commenting on the Maritime Union of Australia's claim for cooks to be paid up to $230,000 a year:

> *"We've got to get things into proportion… Everyone needs to be careful that the costs that are placed on industry through these sorts of wage demands don't kill the golden goose."*

Competition is up too, with that combination now pressuring prices

In addition to the rising costs afflicting LNG production, global price pressures are mounting too. Qatar is expanding its LNG capacity rapidly, Russia is looking to supply China, and possibly South Korea, using natural gas pipelines and the United States is beginning to export its shale gas. Moreover, developments in technology related to producing international onshore gas reserves will also increase ongoing competition to Australia's offshore LNG prospects.

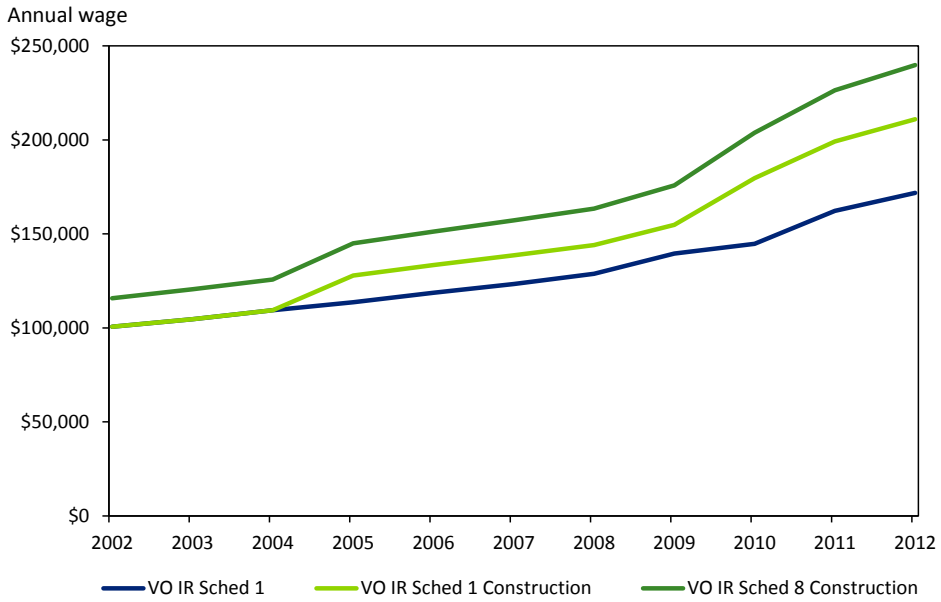
Consequently, the future price of gas in Asia may fall as buyers, including Japan, are looking to remove the link to the oil price which traditionally set the price of LNG in Asia.

And adding pressure to the offshore oil and gas marine support sector

As with the broader oil and gas industry, labour costs in the offshore oil and gas marine support sector have increased substantially in recent years.

Chart i below presents data supplied to Deloitte Access Economics by AMMA. It shows annual wage data for the integrated rating classification in the sector over the last decade. Not only have wages grown steadily over time (with particularly strong growth since 2009), but wages have reached very high levels. Indeed, the data shows that, in 2012, a worker in the schedule 8 integrated rating (construction) classification was earning almost $240,000 per year, while a worker in the schedule 1 integrated rating classification was earning in excess of $170,000 per year. This is inclusive of superannuation, casual loading, 'dead days', clothing allowances and taxi allowances.

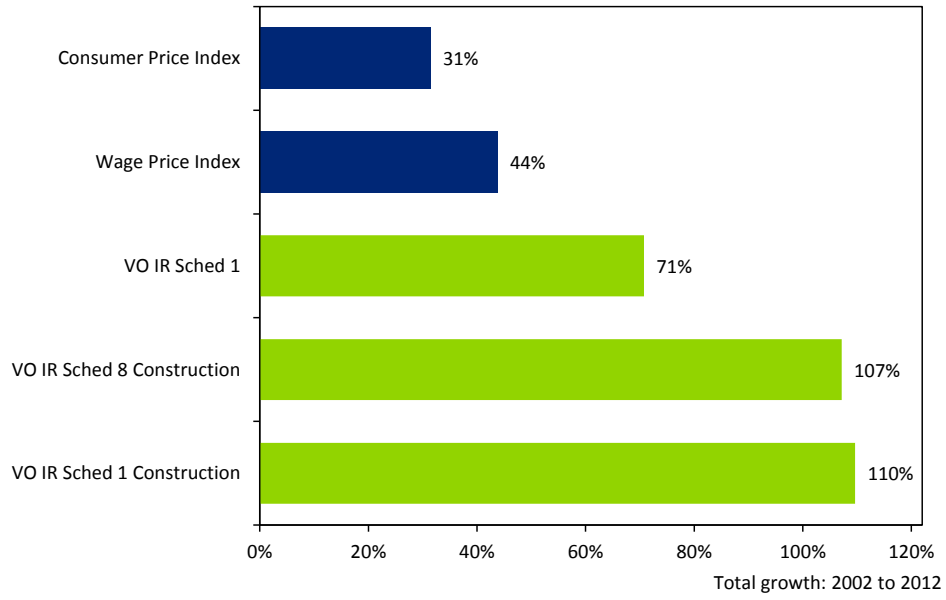
Chart i: Integrated rating wage comparison, annual wage



Source: AMMA
Note: IR is an abbreviation of integrated rating

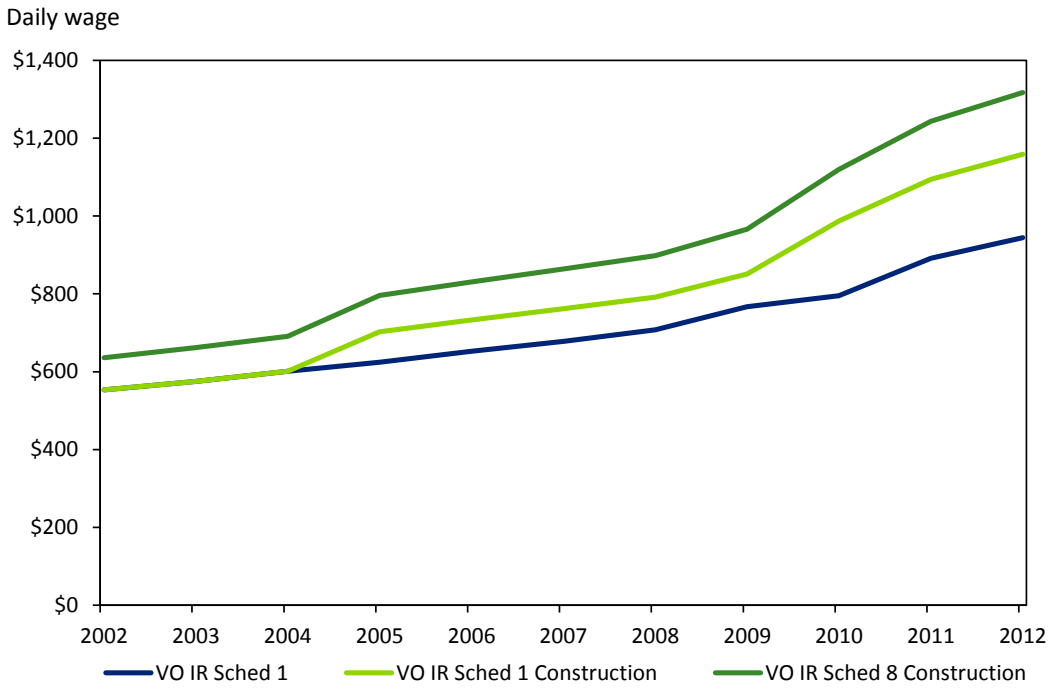
As the chart below shows, wages earned by selected integrated rating classifications in the offshore oil and gas marine support sector have almost doubled over the last decade. The chart also compares wage growth in the sector with broader wage and price measures across the Australian economy. The growth in wages for integrated rating classifications has easily outpaced growth in the wage price index for all workers over the last decade, while growth in the earnings of schedule 1 and schedule 8 integrated rating (construction) were more than three times faster than the Consumer Price Index over the same period.

Chart ii: Integrated rating wage growth, 2002 to 2012



Source: AMMA
Note: IR is an abbreviation of integrated rating

Chart iii: Integrated rating wage comparison, daily wage



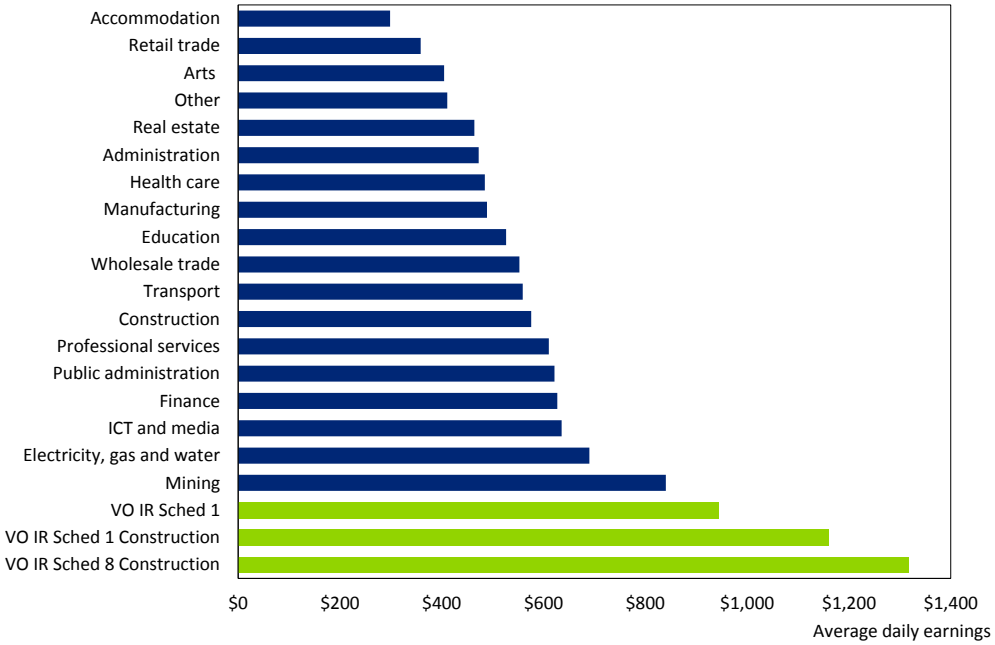
Source: AMMA
Note: IR is an abbreviation of integrated rating

Wages in the sector have also reached very high levels when viewed on a daily basis, as seen in Chart iii above. This data was supplied to Deloitte Access Economics by AMMA, and shows that the daily wage for the integrated rating classifications have increased notably over the last decade.

The data shows that the daily pay for the schedule 8 integrated rating (construction) classification reached more than $1,300 in 2012, while for the schedule 1 integrated rating (construction) classification the daily pay was more than $1,150. Again this wage data is inclusive of superannuation, casual loading, 'dead days', clothing allowances and taxi allowances.

The pace of wage growth in the sector has clearly been disproportionate to wage and price growth in the Australian economy overall. That fact is also confirmed by comparing average daily wage levels of the integrated rating classifications to workers across other Australian industries, as is shown in Chart iv below.

Chart iv: Average daily pay rate, industry comparison



Source: Australian Bureau of Statistics, Deloitte Access Economics, AMMA

Note: Integrated rating data was provided by AMMA. The daily wage data includes casual loading, superannuation, and allowances for 'dead days', clothing and taxis. To calculate data for other industries, Deloitte Access Economics has calculated the average hourly earnings by industry using data from the Australian Bureau of Statistics on average weekly earnings and average weekly hours worked. A 12 hour working day is then assumed for all industries, and 25% casual loading and 9.25% superannuation contribution have been added.

However, there are limitations on the capacity of employers in the sector to meet demands for sustained wage growth which is disproportionate to broader wage and price measures. Indeed, wage growth which is not reflective of productivity improvements in the sector is detrimental to the profitability and sustainability of businesses, and risks the long term viability of the sector.

Further, if a significant number of planned offshore LNG projects are not going to be undertaken due to the increasing pressure in the broader oil and gas industry, the lack of subsequent work would have a detrimental impact on the Australian offshore oil and gas marine support sector.

With assistance from AMMA, Deloitte Access Economics has undertaken a survey of vessel owner-operators servicing the Australian market. The survey was undertaken to reveal the financial performance of vessel operators by collecting cost and revenue information for the period 2007-08 to 2011-12. The survey was completed by companies who are active participants in the Australian offshore oil and gas marine support industry, and is presented here in aggregate form. The total combined revenue from Australian vessel operations of the survey participants is estimated to have been approximately $600 million in 2011-12.

The survey shows that the profitability of vessel operators has been squeezed in recent years. The cost of labour has been rising sharply, while revenue growth has been more muted. The split between labour cost and revenue growth has had a significant effect on vessel operator profits.

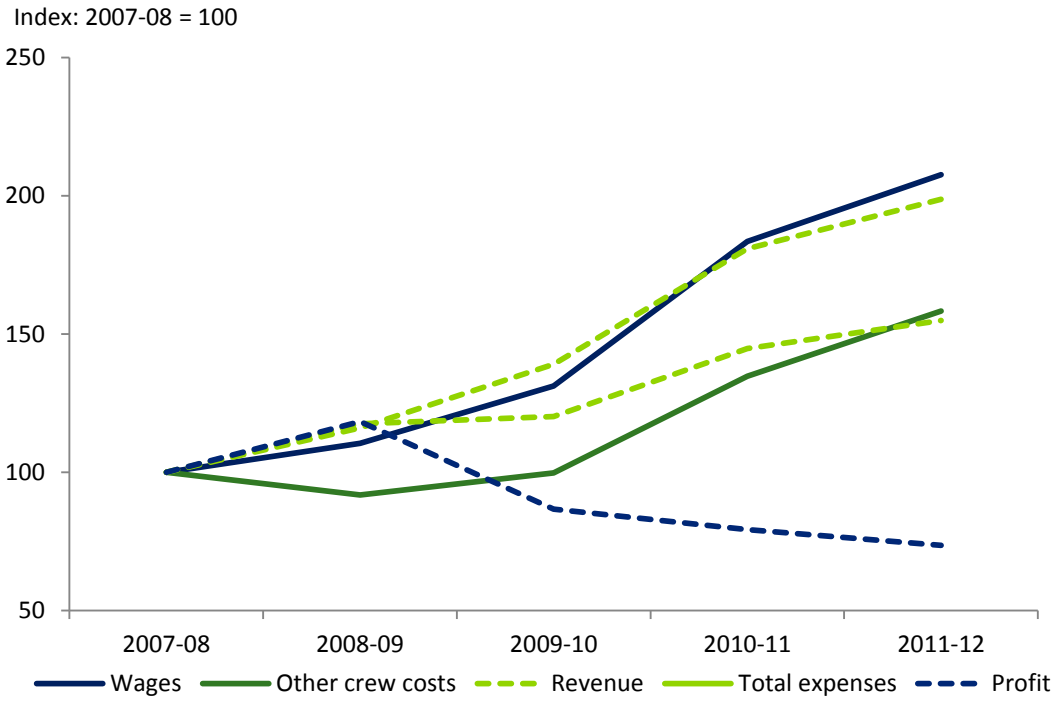
The key results of the survey show that within the offshore oil and gas marine support sector:

- On a 'per vessel' basis, wages and total expenses have increased by around 40% since 2007-08, while revenue has increased by only 8%;
- Between 2008-09 and 2009-10, the sector's profits fell by 27% while at the same time wage costs grew by around 19%.
- Profit per vessel in 2011-12 was half the level recorded in 2007-08;
- Over the last five years, wages and total expenses have doubled, while revenue has increased by only 50%;
- Profit was more than 26% lower in 2011-12 compared to 2007-08; and,
- On a 'per worker' basis, profit fell by almost 14% per year from 2007-08 to 2011-12.

In other words, every year since 2008-09 has placed more strain on the industry's profitability than the preceding year.

Chart v presents estimated growth in key financial variables over the survey period from 2007-08 to 2011-12, and highlights the rising wage costs facing the sector over recent years.

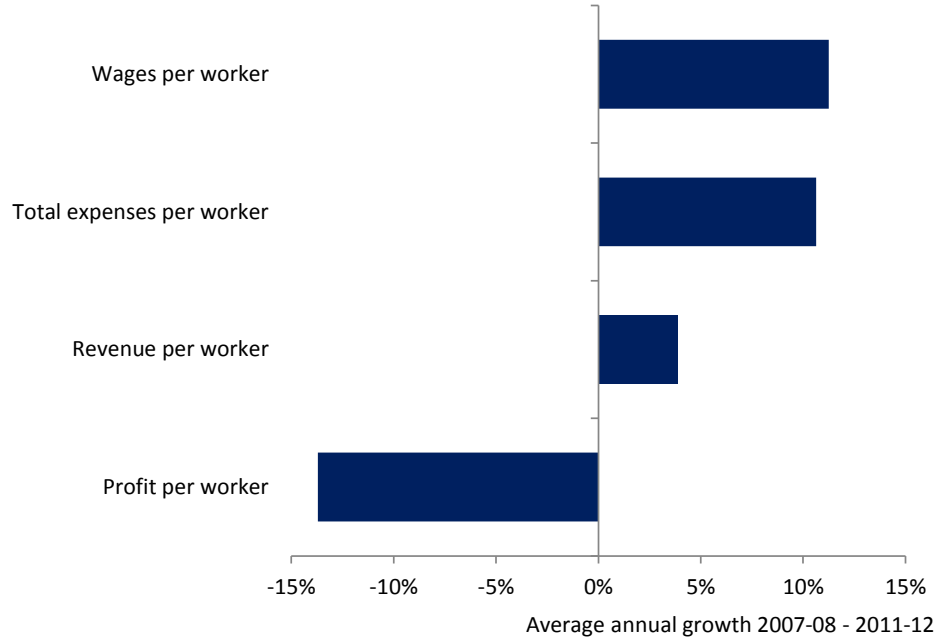
Chart v: Performance of key financial variables, 2007-08 to 2011-12



Source: Deloitte Access Economics

Chart vi shows that, on average, workers in the offshore oil and gas marine support sector have seen their wages grow by around 11% per year since 2007-08. Over the same period, the average worker in Australia has seen their wages grow by some 4% a year.

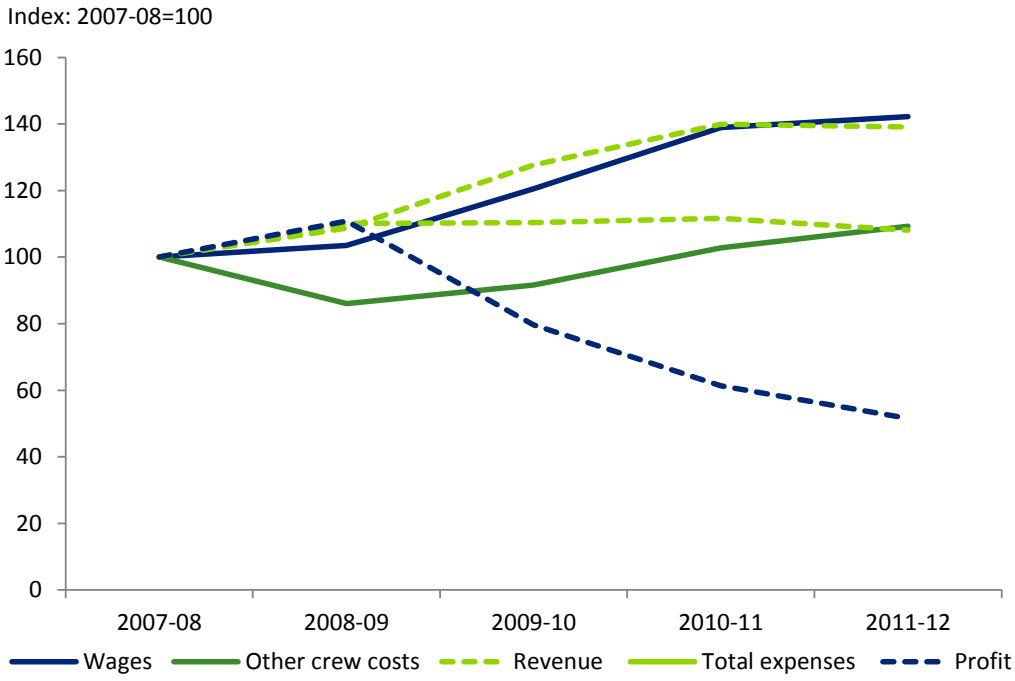
Chart vi: Average annual growth in per worker costs and revenues, 2007-08 to 2011-12



Source: Deloitte Access Economics

The chart below shows the sector's costs and revenues on a 'per vessel' basis. Both total expenses and wages have increased by around 40% since 2007-08 on a per vessel basis, while revenue has increased by only 8%. As a result, profit per vessel has fallen consistently in recent years, and in 2011-12 was only at half the level recorded in 2007-08.

Chart vii: Performance of key financial variables on a per vessel basis, 2007-08 to 2011-12



Source: Deloitte Access Economics

Given current trends, it is clear that strong wage increases going forward will further erode the viability of the sector.

Additional cost pressures would run risks for the sector

The offshore oil and gas marine support sector has been exposed to a sharp rise in labour costs over a sustained period. Any increase in labour costs (either from wages or productivity impeding conditions) resulting from the upcoming EBA, must be negotiated with the understanding that vessel operators are unable to carry much of the added cost themselves.

The survey undertaken by Deloitte Access Economics suggests that the capacity of the sector to absorb strong wage increases has declined markedly over the past five years. Strong wage growth combined with weakening profit margins over the past few years has left the offshore oil and gas marine support sector in a position where any significant, sustained growth in wages could threaten the ongoing viability of the sector.

Such as situation would make it even more difficult for Australian-based vessel operators to compete with international rivals, and would place additional pressure on the oil and gas industry. Given that the business case associated with a number of potential projects in the investment pipeline is already dissolving, further cost pressure could see major projects foregone. Such a scenario would have significant implications for the Australian economy, and the offshore oil and gas maritime support sector.

More generally, labour market regulations and conditions need to facilitate the ongoing viability and profitability of businesses, and the creation and maintenance of sustainable Australian industries and jobs. This is particularly the case in sectors which compete internationally with businesses which are not subject to the same labour market regulations.

The profitability and international competitiveness of Australia's offshore oil and gas marine support sector has been eroded in recent years. It is therefore critical for the ongoing viability of the sector that the EBA process facilitates the employer flexibility and wage outcomes required to support the sustainability of vessel operators.

And for the future of the Australian economy as a whole

Such a result would affect the entire economy. In 2011, the direct and indirect operations of the oil and gas industry represented some 2% of the Australian economy, with that share expected to rise considerably over time (Deloitte Access Economics, 2012). Any outcome which constrained the operations of the wider industry would therefore have implications for Australia's national prosperity overall. Not only would the economy forego significant investment and export activity, it would also see the delicate transition between the investment and net exports phase of the mining boom being pressured.

Fumbling this transition would add to the risks associated with the impending structural change in the economy, hurting activity and employment growth as more people have to be reskilled in a shorter period of time. All of these challenges mean that the transition from investment to exports is under pressure. Indeed, the offshore oil and gas marine support sector is at the frontline of this transition, and in some ways the challenges facing the sector are reflective of the challenges facing the broader economy.

That's a problem not just for gas development, but for the Australian economy

The upshot is that, within a still solid global market for many industrial commodities, including gas, relative cost pressures have pushed Australian projects back in the global development queue.

That is a problem not merely for the Australian gas sector, but also for the Australian economy as a whole, with the largest driver of Australian economic growth in recent years already throttling back sharply, with even further weakness in the offing.

Cost control will be key

Other things equal, that underscores the importance of cost control to the outlook for both this sector and for the wider Australian economy.

Deloitte Access Economics

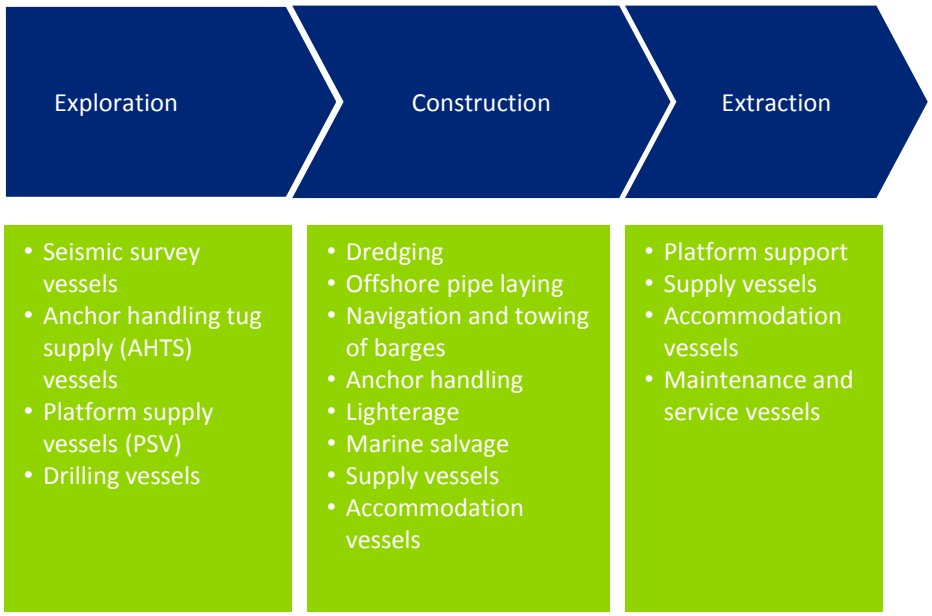
1 Introduction

Deloitte Access Economics (DAE) has been commissioned by the Australian Mines and Metals Association (AMMA) to prepare an analysis of the economic circumstances of the offshore oil and gas marine support sector.

The offshore oil and gas marine support sector provides a wide range of services essential to oil and gas extraction:

- Seismic survey vessels are a pivotal component in the exploration phase of an offshore oil or gas project.
- Dredging, pipe-laying and the navigation and towing of large barges are contracted during the construction phase.
- Platform support and service vessels hold an important role to ensure effective and reliable extraction of oil and gas once the initial construction period is over.

Chart 1.1: Offshore oil and gas marine support services



Source: Deloitte Access Economics

While the offshore oil and gas marine support sector relies on the oil and gas industry for its livelihood, the oil and gas industry expects cost effective and efficient supply of services in return.

International competition in the marine support sector exists. It is therefore important that Australian firms remain competitive, so that the domestic sector's capacity to service the oil and gas industry is not damaged. At the same time, both industries are dependent on the wider global and Australian macroeconomic environment.

Consequently, the current state of the oil and gas industry, as well as the macroeconomic environment, must be discussed in order to adequately describe conditions facing vessel operators. To capture these intricacies, this report starts by describing the current state of the Australian economy in Chapter 2. Discussion is focused around the effect of the resources boom on the Australian economy.

While the resources boom has successfully increased production in the economy, income is currently under pressure due to the falling terms of trade. This pressure has recently been borne by businesses, as evidenced by a fall in business profitability through 2012 and into 2013.

The pressure on profitability is felt in the oil and gas industry. The oil and gas industry is amid an expansion of historic proportions through gas extraction and LNG production projects. Equally, however, the industry is suffering from rising costs at a time when future LNG prices are under pressure. The impact of these market pressures on the oil and gas industry is discussed in Chapter 3.

Based on evidence collected from Deloitte Access Economics' survey of vessel operators, profitability in the offshore oil and gas marine support sector too is being squeezed. This situation is largely created by the increasing gap between revenue and labour cost growth, as discussed in Chapter 4.

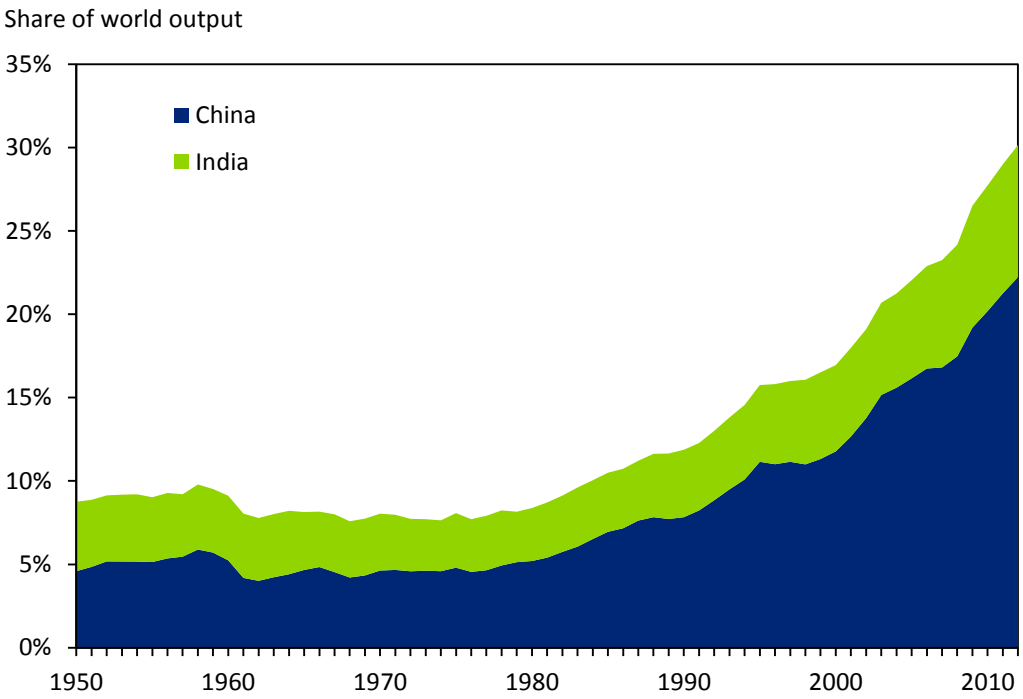
Given the tight profit margins which vessel operators already work under, future labour cost growth, not reflected in rising productivity, may be passed on to the oil and gas industry. However, adding further cost rises may place more of the future investment pipeline in jeopardy. Such a downward revision of the expected performance of the oil and gas industry is likely to have a significant effect on the Australian economy, as investment and exports are foregone, and the transition away from mining-related investment is hurried. This scenario is discussed in Chapter 5.

2 Macroeconomic context

2.1 A global industrial revolution is underway

Over the last decade global economic growth has largely been driven by the rapid industrialisation of China and India. This is evidenced in Chart 2.1 as the share of China and India in global economic output has grown substantially over the last three decades.

Chart 2.1: Share of global output, selected major economies



Source: Conference Board, Total Economy Database

Although there will be cycles, the broader trend in both China and India is a process of sustained urbanisation as rapid income growth and job opportunities attract workers to cities.

The urbanisation and industrialisation of emerging economies has been a key factor in increasing global demand for industrial commodities such as coal, iron ore and LNG. The subsequent rise in global commodity prices has been of particular benefit to commodity exporters such as Australia where it instigated the resources boom.

The resources boom has been the major systemic driver of the Australian economy in recent years.

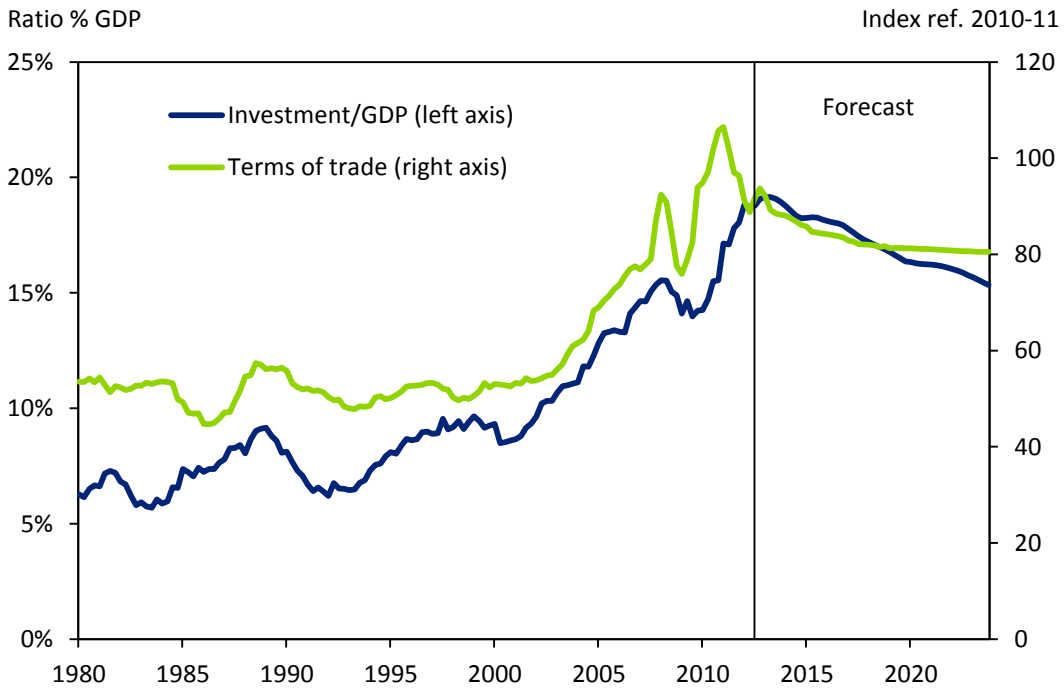
Yet 'the resources boom' is more complex than commonly recognised. In particular, it can be thought of as being represented by three phases: the commodity price phase, the investment phase, and the export phase.

2.2 There's been a boom in commodity prices

The price phase of the Australian resources boom is represented by the terms of trade index in Chart 2.2. The terms of trade index measures the price received for Australia's exports compared to the price paid by Australia for its imports. Australia is an exporter of primary resources. As such, rising commodity prices, on the back of Chinese and other emerging economy demand, drove the terms of trade to the peaks observed in mid-2011.

However, as resource extraction is expanding across the globe, supply has begun to catch up with demand. As a result, Deloitte Access Economics is of the view that the peak of the price phase has already passed, though Australia's terms of trade is expected to settle at a historically high level.

Chart 2.2: Terms of trade has been pulling along extra investment



Source: Deloitte Access Economics' *Business Outlook, March 2013*

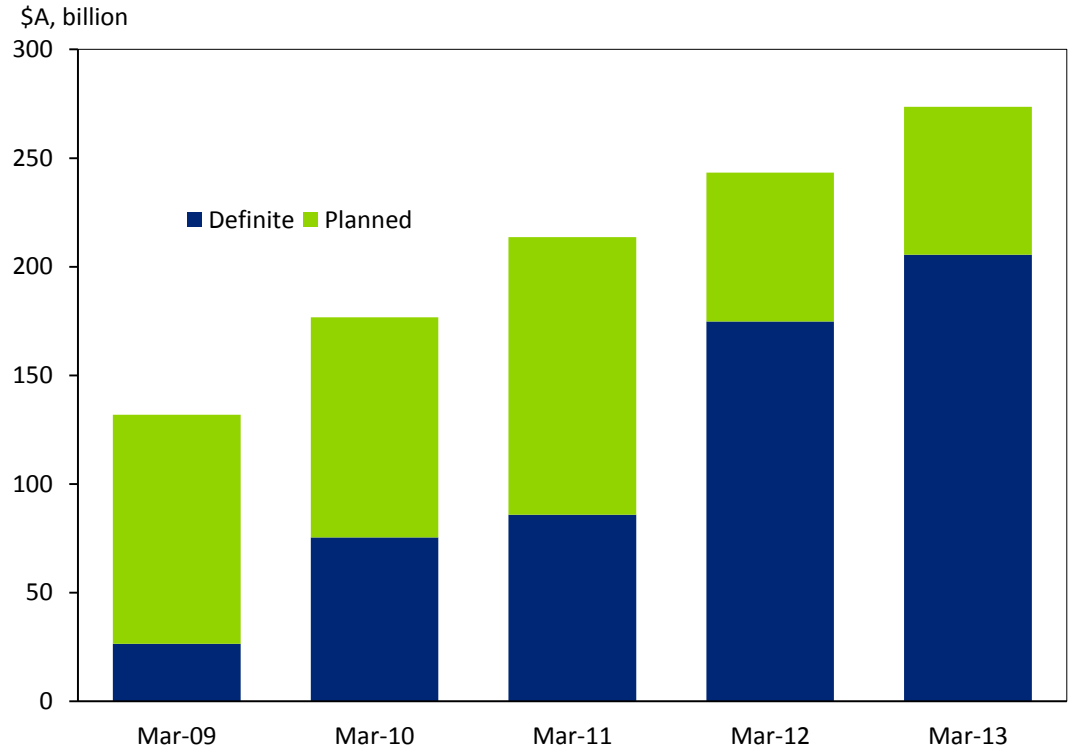
Note: Investment is represented as underlying private sector investment

2.3 And a boom in 'commodity construction'

Given the high prices received for industrial commodities, a sharp rise in mining related investments ensued. Since 2000, mining related capital expenditure has grown by 21%[2] on average per annum (ABS a, 2013). This has seen overall investment as a share of GDP double in the past 10 years, as seen in Chart 2.2.

Chart 2.3 presents data from Deloitte Access Economics' *Investment Monitor*, and shows that the value of oil and gas projects either under construction or within the investment pipeline has more than doubled in the space of five years. Indeed, the frequency of oil and gas mega projects has been increasing, and it is large LNG projects which will support the remaining rise in investment in the short term.

Chart 2.3: Value of oil and gas projects within Australia



Source: Deloitte Access Economics *Investment Monitor, March* 2013

2.4 With a boom in exports stretching ahead

The reward from Australia's enormous investment in resources is to be reaped from a sharp rise in net exports. The net exports measure represents the direct contribution of trade to Australia's economic performance and is calculated as the difference between the value of Australia's exports and imports.

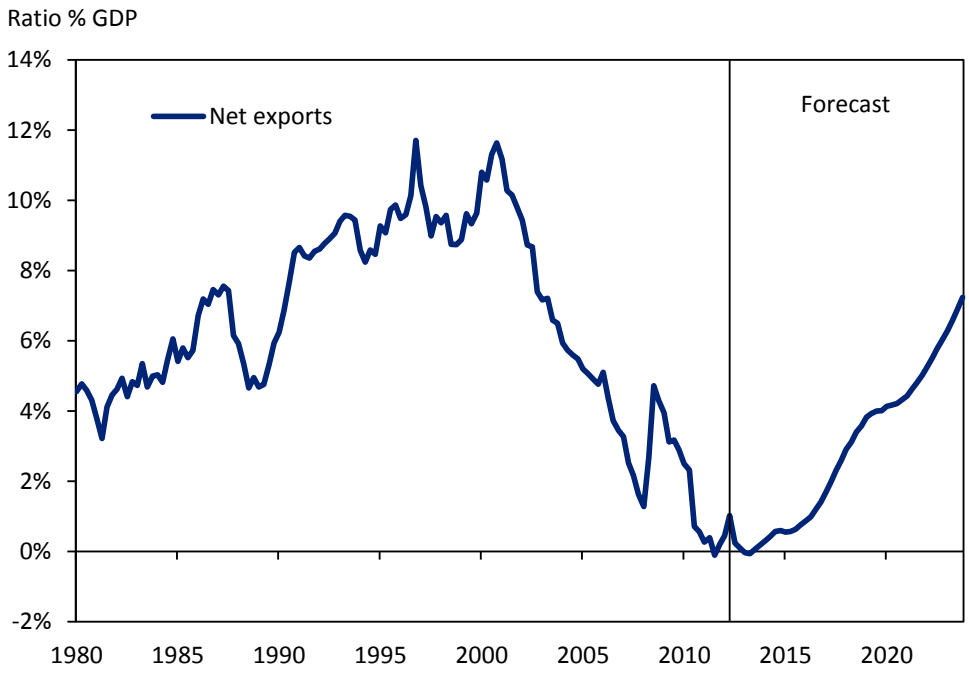
[2] Measured in current prices.

The contribution of net exports to GDP has been falling since 2000 (see Chart 2.4), despite the fact that Australia's terms of trade index has been rising.

Among a number of reasons, this fall can be attributed to the rise in imports of capital equipment brought in to sustain the capital intensive nature of mining related investments.

Consequently, as the investment cycle peaks, the effect on net exports will be two-fold: imports will fall as demand for capital equipment falls, while exports will rise as mines and liquefaction facilities begin operation.

Chart 2.4: Net exports represents the reward



Source: Deloitte Access Economics' *Business Outlook,* March 2013

2.5 Australia has been a big beneficiary

The aggregate effect of the resources boom on Australian economic activity is captured by the Gross Domestic Product (GDP) measure. GDP can be measured in a number of different ways, all capturing the aggregate level of economic activity present in Australia over a given period of time.

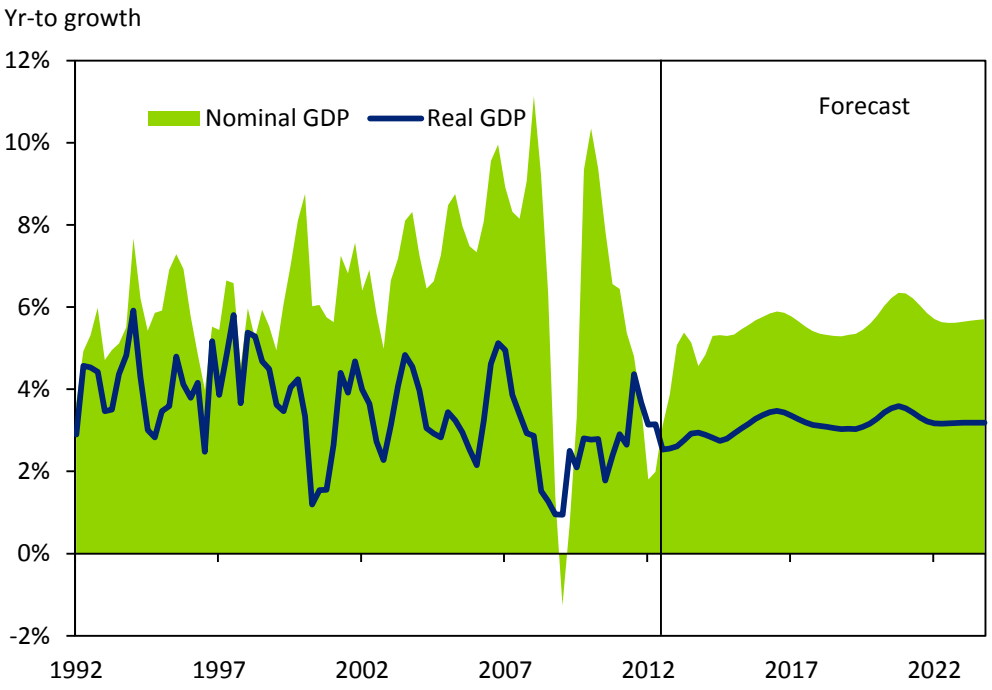
Real and nominal GDP is presented in Chart 2.5. Real GDP growth captures the fundamental change in economic activity, ignoring price changes. As such, this measure is favoured by economists when describing production. On the other hand, nominal GDP includes price changes and therefore captures the monetary effect of changes to economic activity – income.

Australia has enjoyed two decades of remarkable prosperity. Real GDP has grown consistently since 1992 and has recorded average annual growth of 3.5% per annum. This

is particularly remarkable considering the woes brought upon the world economy by the Global Financial Crisis and the more recent European Debt Crisis.

The resources boom is paramount to Australia's economic performance. In recent times, a large part of Australia's real economic prosperity must be accredited to investment activity flowing from the resources boom. Similarly, the rise in net exports on the back of iron, coal and gas exports will drive real GDP in the future.

Chart 2.5: Real and Nominal GDP growth, Australia



Source: Deloitte Access Economics' *Business Outlook*

Nominal GDP too has benefited from the resources boom. As the terms of trade grew during the 2000s, Australia's nominal GDP grew with it. This reflects the fact that Australia received higher prices for its exports than it paid for its imports.

2.6 But falling prices are squeezing profits

However, the terms of trade is now falling while the Australian dollar remains persistently high. As a result, the prices received for Australia's exports are relatively less than otherwise, meaning that income received from economic activity is falling.

In the past year this fall in income has been illustrated by a squeeze on private business profitability across all sectors of the economy. National accounts data shows that from 2011 to 2012 wages and salaries of employees in Australia rose by 6%, while gross operating surplus of private non-financial corporations fell by 4.5% (ABS b, 2013).

When assessing the broad economic environment, it is therefore important to separately analyse production and income.

The resources boom fuelled by emerging Asian nations has clearly driven the Australian economy up in the past decade. Real activity has grown based on mining-related investment and will continue to grow based on net exports.

At the same time, nominal GDP enjoyed buoyant growth while Australia's terms of trade was high; however, it is now declining. As a result, private businesses have suffered across the economy as evidenced by the recent fall in profits.

Indeed, a recent (21 May 2013) speech by Treasury Secretary Dr. Martin Parkinson noted that:

> *The National Accounts measure of corporate profitability (GOS) has fallen in each of the past five quarters (to December 2012), by a cumulative total of 9.2 per cent. This cumulative shortfall is not far short of the falls in corporate GOS during the GFC (10.2 per cent) and the early 1990s recession (11.2 per cent). This is the first time in the history of the quarterly National Accounts (beginning in 1959) that corporate GOS has fallen in more than three consecutive quarters.*[3]

That data is for Australia as a whole, but the point is also relevant in the offshore oil and gas marine support sector, where profitability has been under pressure for even longer.

2.7 The risk of a 'resource construction cliff'

Significant debate surrounds the expected future profile of mining investment in Australia.

It is worth glancing back at Chart 2.2 earlier. The rise of emerging Asia generated big price gains in industrial commodities such as coal and iron ore. In turn that underwrote a surge of resource-related investment in Australia.

However, as the forecasts in that chart also make clear, the mega mining projects which have driven much of this nation's economic growth in recent years will soon peak as a share of the economy.

The Government's official commodity forecaster, the Bureau of Resource and Energy Economics (BREE) is of the view that:

> *"… the stock of committed investment has peaked and is projected to decline over the next five years as a result of fewer high value projects progressing through the investment pipeline to offset the completion of the LNG projects that are currently under construction.*

[3] See http://www.treasury.gov.au/PublicationsAndMedia/Speeches/2013/Budgeting-in-Challenging-Times

> *… BREE estimates that around $150 billion of high value projects have been delayed or cancelled since April 2012, while cost increases to committed projects currently account for 11 per cent of the stock of committed investment."*[4]

There are a few reasons for that scenario of a peak then a fall in Australia's investment spending:

- First, the nation (and its resources sector) has already spent a fortune on resource-related investment. Engineering construction (where most of the resource-related work shows up) is currently 6% of the economy, versus an average of just 1% in the 1980s and 1990s.
- Second, not only is there an enormous pipeline of production in resources in Australia and around the world well on its way, analysts are beginning to question the size of future growth in commodity demand. Because China's development model has been so overweight in infrastructure and housing, it has been matchingly overweight in its demand for the likes of coal and iron ore. (For example, China accounts for 60% of the world's iron ore usage.) Yet it's clear the pace of steel output growth in China is slowing, and that although there are notable future gains to be made, they may still fall well shy of some of the sillier predictions made for Chinese and global commodity demand. That reassessment of medium term prospects says there is less of a need for a new round of resource investment – the pipeline of coming supply is already large, and the demand it seeks to fill may grow less fast than some imagined.
- Third, Australia's share of global resource investment is already falling. A large reason is what has happened to relative costs in recent years. Many of these (new taxes, exchange rates, interest rates, environmental and native title and other approvals, the lift in wage rates for given occupations, and the like) aren't in the control of individual businesses. And while some cost levers are under the control of individual businesses in the resources and mining services sectors, it definitely doesn't help that recent times saw the $A stay strong even though commodity prices fell.

In addition, there are few signs as yet that the easing in resource-related investment will be offset by an increase in investment from other sectors. Most business surveys are suggesting that capacity utilisation is down, forward orders have softened, and that profitability is off its peaks.

Add in the $A's strength, and it is clear that there is a peak coming. But when? And how big will the subsequent fall be?

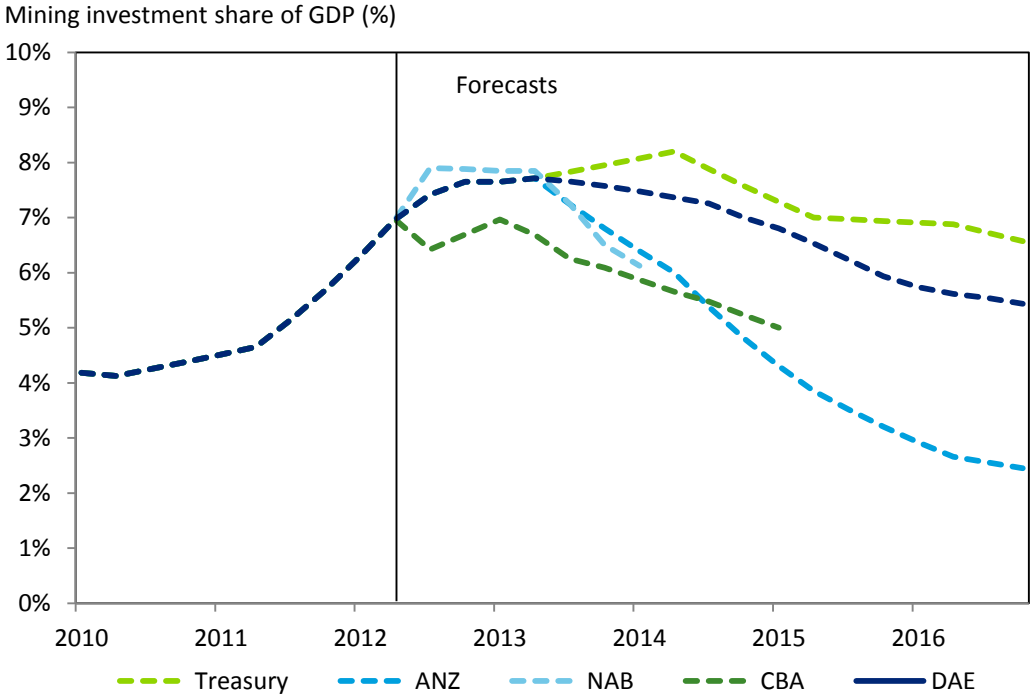
The capital expenditure survey published by the Australian Bureau of Statistics indicates that mining investment is nearing its peak while other commentators are suggesting that mining investment has already peaked and is facing a sharp decline. While on some measures (such as new project commencements) the peak has already been seen, there still continues to be a very large mining investment pipeline at present, and the long construction periods associated with mining investment mean that many of the current projects underway will continue to be in their construction phase for some time yet.

[4] See http://www.bree.gov.au/media/media_releases/2013/20130522-investment.html

Nevertheless, there is definite pressure on the current pipeline. While large LNG projects continue to dominate the investment program, the economic parameters underlying these and other mining investments are rapidly weakening. The Bureau of Resources and Energy Economics (BREE) believe that $150 billion of high value projects at the feasibility stage have been delayed or cancelled since April 2012.

Chart 2.6 illustrates the varying mining investment forecasts presented by Deloitte Access Economics and other financial institutions. Our view sees mining investment peak as a share of GDP within the next year. Thereafter, we project mining investment will decline, settling at approximately 5.5% of GDP by 2016 and falling further to around 4% of GDP by 2023.

Chart 2.6: Projected mining investment



Source: Deloitte Access Economics, Business Outlook, March 2013; Budget Paper No. 1, 2013-14; Macrobusiness, 2013.

Expectations from the Treasury and RBA are similar, albeit a little stronger. They expect a mild decline from a later peak of mining investment at around 8% of GDP.
In contrast, the consensus view from the major Australian banks tends to be more bearish, with expectations for a rapid fall in the value of capital projects in Australia leading up to 2015. The ANZ (2012) notes:

> *"Investment in the mining and resources sector will decline particularly sharply over the second half of 2014 and 2015 and at a somewhat quicker pace than the RBA is currently anticipating underlining the importance that other sectors of the economy strengthen over the next 12-18 months."*

The ANZ projections see mining investment fall to as low as 2% of GDP by 2016. Note that Chart 2.2 earlier showed that prior to 2005, mining investment as a share of GDP was often in the 1-2% range.

Meanwhile the NAB sees:

> *"Potential for mining investment to decline precipitously once existing projects have been completed. This "mining cliff" could appear as early as the first quarter of 2014."*

3 The oil and gas industry

3.1 A player with a long history

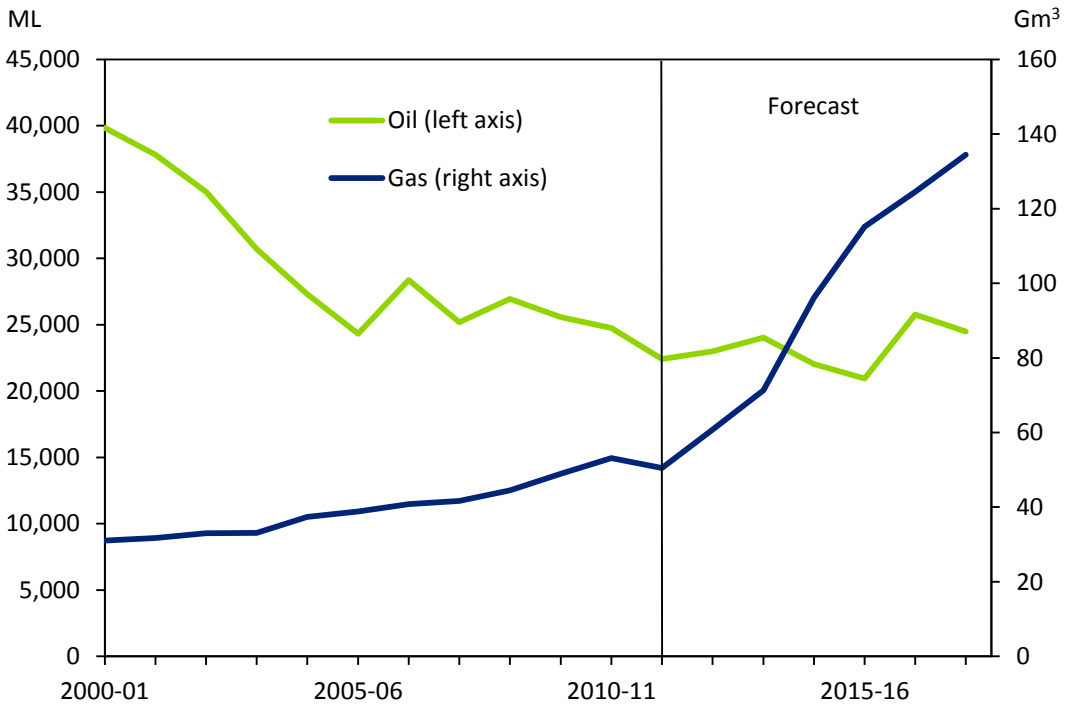
While Australia's oil and gas industry has been generating headlines in recent years on the back of large LNG investments, the industry is much older than often appreciated. The seeds for Australia's oil and gas industry were sown by the French world scientific expedition when they discovered the first reported traces of oil shale in New South Wales in 1802. A century later, oil shale production was underway at Hartley Vale and Joadja Creek, and natural gas had been found in water bores in both Queensland and New South Wales (APPEA, 2013).

And, after yet another century, Australia now possesses a world class industry which significantly contributes to the nation's economic activity.

Since the turn of the twenty first century a shift in the fortunes of oil and gas products has taken place. Crude oil production peaked in 2000 (Department of Infrastructure and Transport, 2012) but has since fallen away.

On the other hand, our gas production has surged. This trend is expected to continue as existing oil reserves are depleted while recent and upcoming investments in LNG production is realised, as seen in Chart 3.1. Indeed, in 2011 the direct and indirect operations of the oil and gas industry represented some 2% of the Australian economy, with that share expected to rise considerably over time (Deloitte Access Economics, 2012).

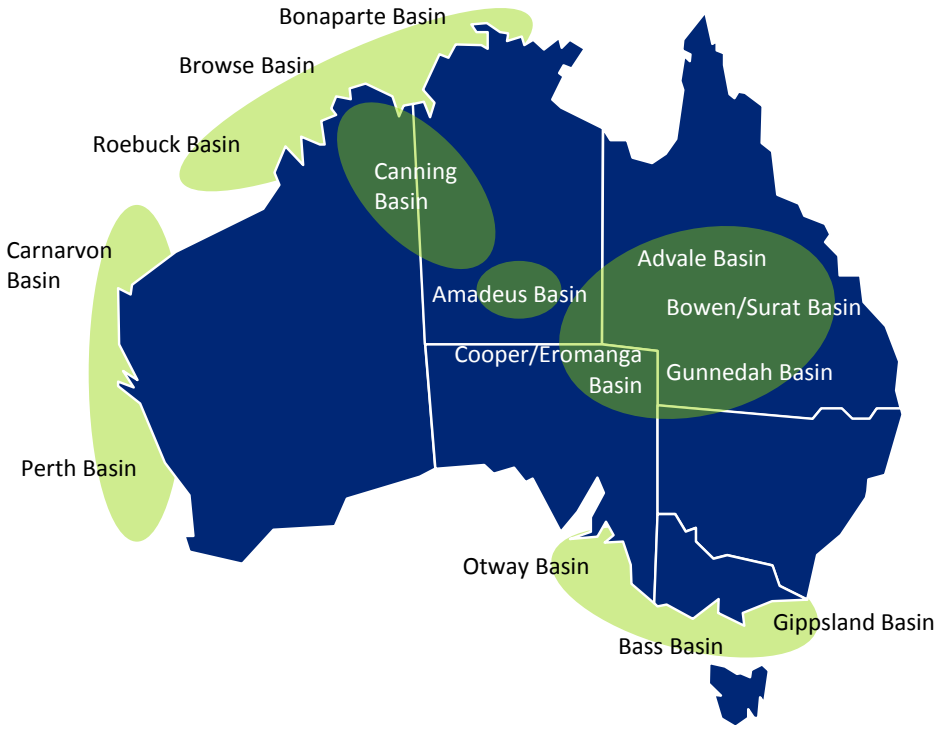
Chart 3.1: Oil and gas production



Source: BREE

The industry is confined to specific regions based on the presence of oil and gas basins. Oil is mainly extracted off Western Australia's coast and the Bass Strait. Offshore gas extraction is mostly located in the waters surrounding Western Australia and the Northern Territory, whereas CSG is extracted from fields mainly located in Queensland and New South Wales (but liquefied and exported from Gladstone, Queensland). Figure 3.1 below illustrates where these major deposits are located.

Figure 3.1: Oil and gas reserves in Australia, 2011



Source: Geoscience Australia

3.2 And global opportunity beckons

At present there are ten major oil and gas projects under construction, with a further nine in the pipeline[5], as detailed at Appendix A.

This investment activity – and the implications for the Australian economy – is significant. The Gorgon, Inpex Ichthys and Wheatstone projects are the three largest private sector projects currently under construction in Australia. All involve offshore gas extraction and LNG production facilities and are worth a combined $115 billion.

Another ten projects involving offshore gas extraction, worth a combined $58 billion in potential investment, are in the planning phase.

[5] This includes projects in the Timor Sea.

The domestic Australian market is not large enough to support the size and scale of this investment. Rather, the success of these developments is dependent on the state of global LNG demand.

The good news is that the global demand for Australian gas output is expected to continue to grow to 2050. Those gains will be driven by three main factors:

- **Global growth:** increasing demand for energy, especially from the emerging economies of Asia.
- **Medium-term compromise:** Environmental concerns – not merely greenhouse emissions, but also rising concerns around air quality – have detracted from coal while energy production from renewables will take longer than anticipated to ramp up; meaning that gas has emerged as the perfect medium-term compromise.
- **Supply-constrained growth:** Demand growth should be sufficiently fast that supply will struggle to keep up.

Australia is well positioned to benefit from this growth, especially from Asia-Pacific markets. Australia's advantage in gas production includes the sheer size of our deposit, our close proximity to Asia and recent technological advancements making our gas more accessible.

However, capitalising on this potential requires significant challenges to be overcome, and policymakers and other participants in the market need to take a long term view. Indeed, risks are emerging which threatens the opportunities for Australia's oil and gas industry. Rising costs and regulatory hurdles face oil and gas firms as well as vessel operators in the downstream offshore oil and gas marine support sector.

3.3 Yet significant risks are emerging

Yet despite the prosperous outlook for production levels in Australia's gas industry based on past and current investment in the sector, significant risks are emerging. A number of the oil and gas projects now underway are enduring significant labour, capital and regulatory pressures. These pressures stem from a combination of supply constraints, logistical obstacles due to the remote location of the projects, the strength of the Australian dollar and an uncertain tax environment.

The implications of the increasing pressures are already being felt on the oil and gas industry. Chevron's Gorgon project is experiencing cost overruns while Woodside's Browse Basin development has been scaled back significantly. The head of Royal Dutch Shell recently acknowledged the impact of rising labour costs, stating that the company had "slowed the pace on new [final investment decisions] for LNG in Australia, where there's cost inflation pressures."[6]

Indeed, labour costs within Australia's oil and gas industry are among the highest in the world. The average salary for an Australian working in the oil and gas industry is

[6] See http://www.afr.com/p/business/companies/costs_force_shell_into_go_slow_mode_0zVCkIMIffY5Rlq0XDpUNP

A$160,392, compared to the United States average of A$118,519 (Hays, 2013). Note that these figures relate to the entire oil and gas industry, and therefore include professional and managerial roles and personnel. They should therefore not be directly compared to wages for selected workers within the offshore oil and gas marine support sector, which are presented elsewhere in this report.

Notably the high cost of labour does not necessarily translate into high productivity. A study conducted by the Business Council of Australia (2012) found that Australian projects required some 30 to 35% more labour inputs to deliver the same project when compared with the United States.

These findings were indicative of not only the high cost of operating in Australia, but also of a lower return on investment. When compared to the United States Gulf Coast, Australian construction inputs are more expensive and project management costs are greater. McKinsey (2013) estimates that a new Australian LNG project would have a cost of supply as much as 30% higher than a matching Canadian or east African project.

Notably, cost pressures are not the only potential impediment to the expected growth of the Australian oil and gas industry – price pressure too is growing. Australia is not the only provider of gas to the growing market in Asia. The US, Qatar and Russia all have the potential to significantly increase the supply of gas to Asia. The result of such competition may see the price of LNG in Asia decline while the quantity exported by Australia could be less than expected.

The impact of a softer demand outlook, combined with the current cost pressures felt by operators, could significantly erode the business case underlying many of the proposed LNG developments scheduled to commence in Australia in the next few years.

Australia's oil and gas reserves are plentiful; however, their extraction is a costly endeavour. Oil and gas resources require considerable amounts of skilled labour and capital to develop. These inputs are expensive and because reserves are usually found in remote locations, transportation of labour and capital inputs present further cost dimensions. In addition to these factors, external pressures have contributed to the cost environment through an increasing regulatory burden and exchange rate fluctuations.

Oil and gas operators base investment decisions on the relative returns available from oil and gas projects across the globe. That is, capital is highly mobile. Investors may seek other international destinations if Australia's cost pressures are not addressed.

A good example of capital mobility can be drawn from Woodside's decision to shelve the James Price Point component of the Browse Basin development. Within a week of reducing the value of the Browse Basin project, Woodside lodged an expression of interest to develop a Canadian LNG project.

The same issues also face investors and operators in the offshore oil and gas marine support sector, where global firms seek out markets which maximise their return on investment. Maintaining the international competitiveness of the Australian market is critical to the ongoing viability of domestic industry.

3.4 Capital cost pressures

Possibly the most important factor influencing a project's final investment decision is whether or not to commit to the large capital costs associated with constructing new LNG production facilities. This cost is intensified by logistics as the majority of Australia's projects are located far from local infrastructure.

The price of capital for LNG projects is very susceptible to the industry's supply and demand conditions. As more and more of the projects in the investment pipeline come online, the demand for capital intensifies and with supply capacity constraints, comes an upward pressure on prices. Thus, the cost of domestic capital inputs has risen for many of the same reasons labour costs have – heated competition for a short term fixed pool of resources.

Exchange rate fluctuations present further cost complications. The Australian dollar has been trading near parity with the US dollar since 2011, creating a relative cost disadvantage. Assuming that oil and gas operators report revenue in US dollars, but incur costs Australian dollars, a high Australian dollar means that expected revenues will not cover as large a proportion of costs as otherwise expected. The realisation of this risk has been experienced by Chevron who attributes a third of the Gorgon cost blow-out to the appreciating Australian dollar.

The remoteness of these projects present key complications and unique costs. While Chevron has absorbed the unexpected cost increases posed by logistical challenges to the Barrow Island LNG development, Woodside has tried to minimise these costs using floating LNG (FLNG) technology.

Woodside have proposed to develop three gas fields located in the Browse Basin, 425 kilometres off the coast of Western Australia in 750 metres of water. The initial projected involved an onshore processing plant at James Price Point. However, given increasing costs Woodside replaced this initial project, choosing instead to use FLNG technology to develop the resource.

FLNG technology has many advantages; providing the means to economise smaller hard to reach gas fields and providing operators with the ability to improve project economics through offshore processing. FLNG is not without its challenges — the engineering feat alone is enormous. However, in Woodside's case, FLNG is estimated to be up to 20 per cent cheaper than the James Price Point development.

The potential gain FLNG provides for investors also represents the potential loss for the Australian economy. Woodside's processing plant was expected to create up to 8,000 domestic jobs and contribute $50 billion to GDP. The economic stimulus will now be felt elsewhere.

3.5 Regulatory cost pressures

Government regulation is necessary to minimise negative externalities which can arise from resources development. However, too much red and green tape can create problems for the industry as prices move away from free market clearing levels. The effect of such an

environment leads to missed market opportunities resulting in a sub-optimal utilisation of resources (Productivity Commission, 2009).

There is potential to improve the legislative framework associated with the oil and gas industry. Currently, there exists a range of different measures in place for oil and gas projects, which typically have both state and federal requirements.

At the Federal level, there have been recent changes to bolster Australian Industry Participation Plans, particularly those required to access relevant tariff concessions. It is important that these requirements appropriately recognise the long lead times of investments and the complexity of attendant engineering, feasibility and procurement processes (Deloitte Access Economics, 2012).

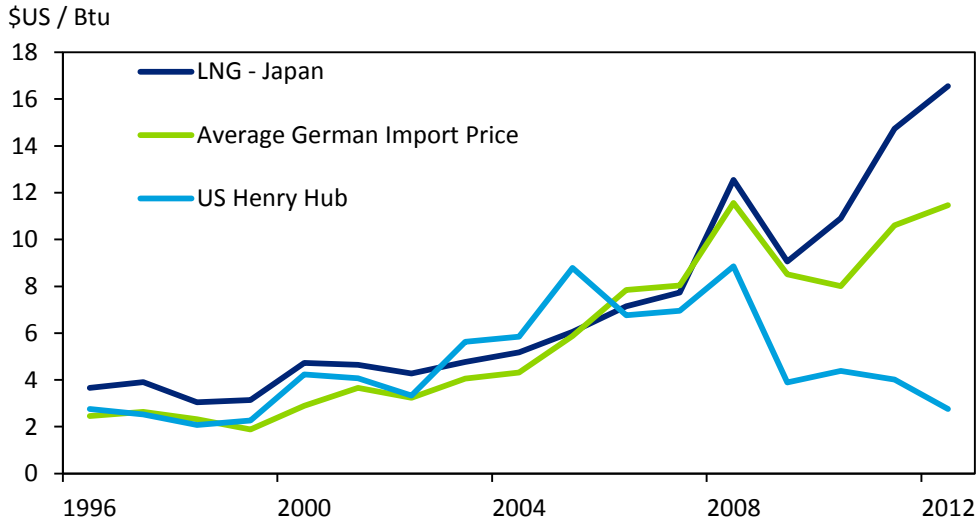
3.6 Revenue pressures

At least until recently, investment within the oil and gas industry has been driven by consistently growing prices of LNG. While oil and gas exporters cannot control price movements, various methods are used to mitigate the risk of a price falls. However, a large sustained fall in LNG prices still has the potential to undermine the economic viability of investments.

Australian gas projects are underpinned by contract prices which are generally linked to the oil price. Chart 4.2 illustrates the evolution of gas prices around the world – US Henry Hub price, plus contract prices of Japanese LNG imports and the average German import price.

Due to the lack of global integration, large price differentials are observed. For example, the average Japanese import price for LNG as of March 2013 was $US 16.70, compared to the Henry Hub price of $US 3.82

Chart 3.2: Natural gas prices around the world



Source: BP (2011) and World Bank (2013), FRED (2013).

The vast majority of Australia's LNG exports are destined to Asian markets, of which Japan is Australia's biggest customer. In light of the price differentials presented in Chart 3.2, Japan is seeking to re-negotiate existing contract prices. Japan's goal is to abolish the oil price link that many of these contracts prices are driven by – a move that has the potential to undermine the business case of many of the Australian LNG ventures in the investment pipeline.

Japan's power to change the pricing formula comes from increasing competition from other LNG exporting nations such as Qatar, USA and Russia.

Qatar is currently the largest exporter of LNG worldwide, exporting three times as much LNG as Australia in 2012. Qatar is expected to remain at the vanguard of world LNG exports, and remain one of Australia's largest competitors in the future. However, this has been expected and accepted for quite some time.

What is of more concern to Australian LNG exporters is the opening of the US market to LNG exports. Historically, US LNG exporters are constrained by regulations that prohibit them from trading with nations that do not have free trade agreements with the US.

However, Cheniere Energy's Sabine Pass plant was recently granted approval to export LNG to Asia-Pacific. This highlights the strong desire of operators seeking to arbitrage in Asian markets. Currently there are about 20 applications with the US Department of Energy seeking export approval. It is not likely that all of these projects will gain approval, as there is a concern surrounding the impact that exports may have on domestic gas prices and subsequently the US economy. However, even the potential for US LNG exports to Asia significantly increases the risk surrounding Australian LNG projects.

In addition to the presence of the US in the Asia-Pacific market, there are ongoing negotiations between Russia and China to construct a natural gas pipeline from the Siberian gas fields into China. The Russian pipeline would provide a substantial quantity of gas to the Chinese market. So much so, China could possibly become a gateway for gas trade into South Korea and possibly Japan.

Further, the Chinese themselves have some of the largest unconventional gas reserves in the world. There is a hope to replicate the US 'shale gas boom' and this has already started to attract international investment. Such a development would clearly affect the demand for LNG by China, and thereby the prospects of Australian LNG exports.

4 The offshore oil and gas marine support sector

The offshore oil and gas marine support sector is estimated to employ approximately 2,500 staff directly to vessels, with another 10,000 staff in affiliated areas (Logistics Training Council, 2011).

The industry is pivotal to the broader oil and gas industry:

- Seismic survey vessels, anchor handling tug supply (AHTS) vessels, platform supply vessels (PSV) and drilling vessels are employed during the exploration phase of an offshore oil or gas project.
- Dredging, pipe-laying, supply and accommodation vessels, as well as the navigation and towing of large barges, are contracted during the construction phase.
- Platform support and service vessels hold an important role to ensure effective and reliable extraction of oil and gas once the initial construction period is over.

This chapter explores trends in labour costs and revenue in the sector over recent years, including through the use of a survey of vessel owner-operators servicing the Australian market.

4.1 Labour cost pressures

As with the broader oil and gas industry, labour costs in the offshore oil and gas marine support sector have increased substantially in recent years.

Chart 4.1 below presents data supplied to Deloitte Access Economics by AMMA. It shows annual wage data for integrated rating classifications in the sector over the last decade. As an employee responsible for assisting with berthing and un-berthing, securing cargo, maintenance and other generalised duties, integrated rating workers play a fundamental role across vessel operations:

- An integrated rating schedule 1 represents a worker performing in the IR classification on a standard vessel; and,
- An integrated rating schedule 8 represents a worker performing in the IR classification on a specialist vessel.

As the chart below shows, not only have wages grown steadily over time (with particularly strong growth since 2009), but wages have reached very high levels. Indeed, the data supplied by AMMA shows that, in 2012, a schedule 8 integrated rating (construction) worker was earning almost $240,000 per year, while a schedule 1 integrated rating worker was earning in excess of $170,000 per year. This is inclusive of superannuation, casual loading, 'dead days', clothing allowances and taxi allowances.

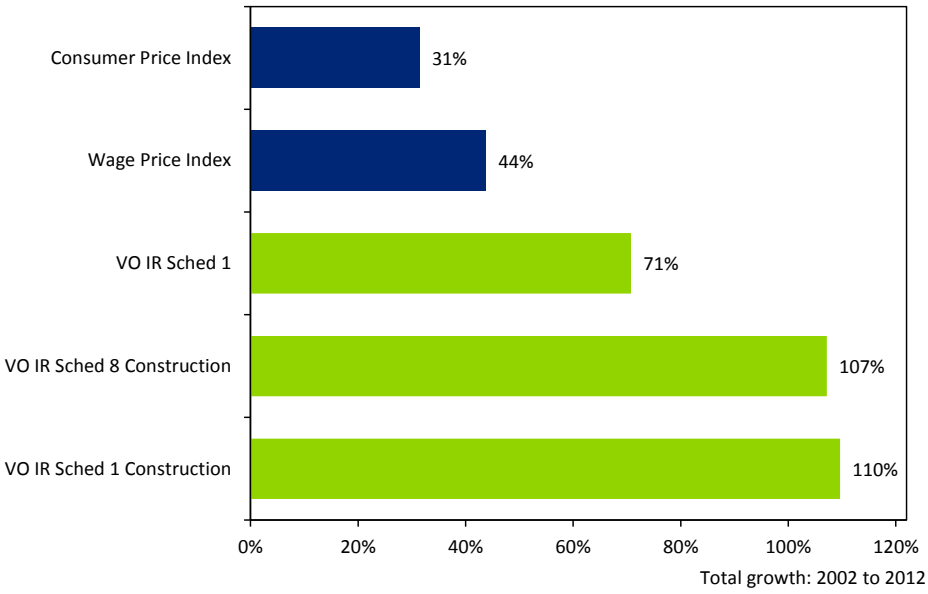
Growth in wages earned by selected integrated rating employed in the offshore oil and gas marine support sector is illustrated in Chart 4.2 below. The chart shows that wages have almost doubled over the last decade for schedule 1 integrated rating workers, and have increased by more than 70% for schedule 8 workers.

Chart 4.1: Integrated rating wage comparison

Source: AMMA
Note: IR is an abbreviation of integrated rating.

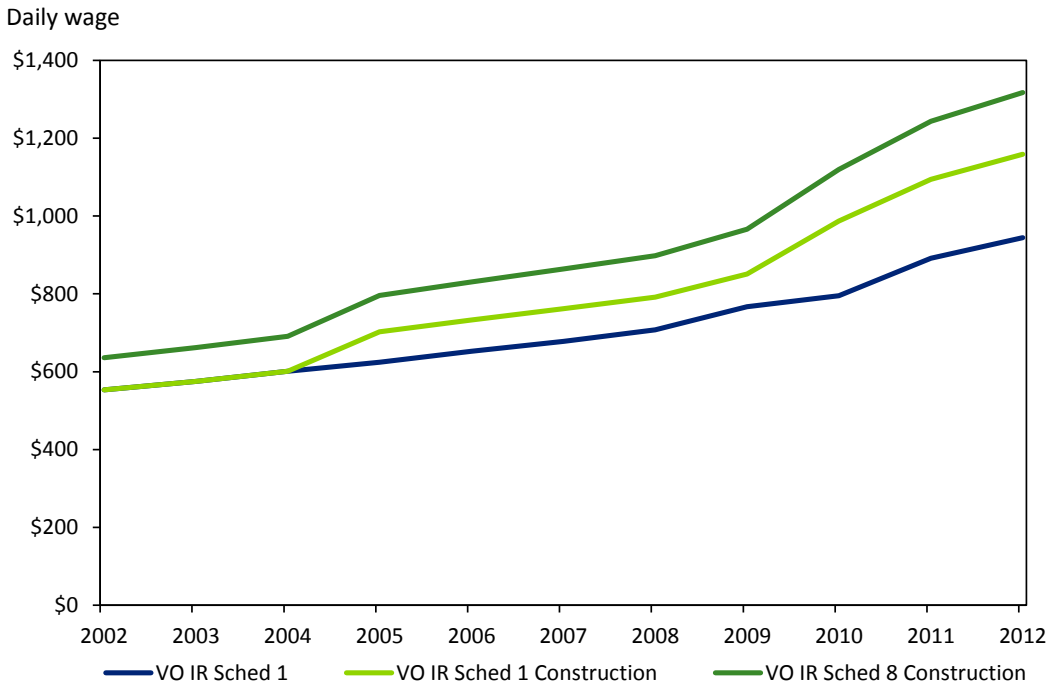
The chart also compares wage growth in the sector with broader wage and price measures across the Australian economy. The growth in wages received by integrated rating classifications has easily outpaced growth in the wage price index (WPI) for all workers over the last decade, while wage growth for the schedule 1 and schedule 8 integrated rating (construction) classifications were more than three times faster than broad price growth (measured by the Consumer Price Index) over the same period.

Chart 4.2: Integrated rating wage growth, 2002 to 2012



Source: AMMA
Note: IR is an abbreviation of integrated rating

Chart 4.3: Integrated rating wage comparison, daily wage



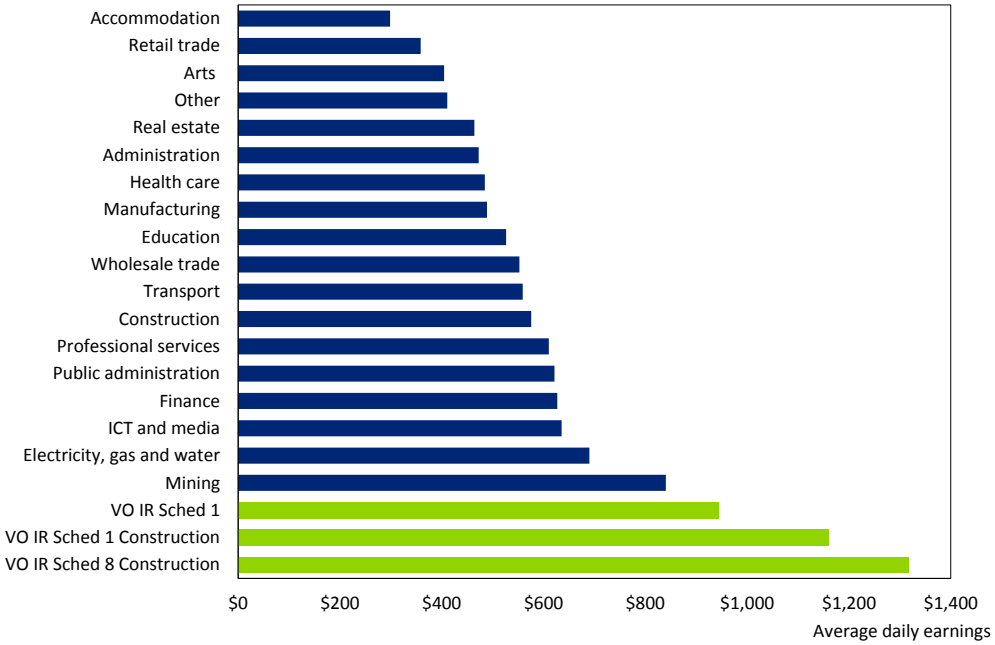
Source: AMMA
Note: IR is an abbreviation of integrated rating

Wages in the sector have also reached very high levels when viewed on a daily basis, as seen in Chart 4.3 above. This data was supply to Deloitte Access Economics by AMMA, and shows that the daily wage for the integrated rating classifications have increased notably over the over the last decade.

The data shows that the daily pay for the schedule 8 integrated rating (construction) classification reached more than $1,300 in 2012, while for the schedule 1 integrated rating (construction) classification the daily pay was more than $1,150. Again this wage data is inclusive of superannuation, casual loading, 'dead days', clothing allowances and taxi allowances.

The pace of wage growth in the sector has clearly been disproportionate to wage and price growth in the Australian economy overall. That fact is also confirmed by comparing average daily wage levels of the integrated rating classifications to workers across other Australian industries, as is shown in Chart 4.4 below.

Chart 4.4: Average daily pay rate, industry comparison



Source: Australian Bureau of Statistics, Deloitte Access Economics, AMMA

Note: Integrated rating data was provided by AMMA. The daily wage data includes casual loading, superannuation, and allowances for 'dead days', clothing and taxis. To calculate data for other industries, Deloitte Access Economics has calculated the average hourly earnings by industry using data from the Australian Bureau of Statistics on average weekly earnings and average weekly hours worked. A 12 hour working day is then assumed for all industries, and 25% casual loading and 9.25% superannuation contribution have been added.

There are some important reasons why wages in the offshore oil and gas marine support sector exceed those in other Australian industries. Maritime workers have been in relatively high demand, and there is a limited pool of maritime labour which has generated instances of shortages of skilled labour.

However, there are limitations on the capacity of employers in the sector to meet demands for sustained wage growth which is disproportionate to broader wage and price measures. Indeed, wage growth which is not reflective of productivity improvements in the sector is detrimental to the profitability and sustainability of businesses, and risks the long term viability of the sector.

Moreover, the strong pace of wage growth in the sector in recent years has also been accompanied by non-monetary employment conditions which restrict the capacity of employers to operate cost-effectively. These conditions are often unproductive and uncompetitive, and have implications for the wider economy.

This environment sets the context within which the current EBA negotiations in the sector are taking place. As well as wage demands put forward as part of those negotiations, the Maritime Union of Australia (MUA) has also presented further examples of restrictive and uncompetitive conditions it seeks to impose on employers. Deloitte Access Economics has been advised of these conditions by AMMA.

The MUA's demands concerning recruitment are possibly the most extreme. In the first instance, workers are to be sourced from the MUA's available labour database, and to employ foreign labour employers must prove (to the satisfaction of the MUA) the unavailability of domestic workers. In addition to this, if an employer does engage foreign labour they must pay a rate equal to the total of the foreign workers' wages to either the domestic crew, on top of their existing wage, or to a union training fund. The MUA is seeking that employers give absolute preference of employment to former employees on a last-off first-on basis, and then to former industry employees with 12 months experience.

Also, the MUA is seeking to restrict employers' use of casual employment and redundancies by demanding that a 75% permanent workforce is maintained and that the employers' right to implement redundancies based on the assessment of future skills needs within the industry be removed. Instead, the MUA is seeking that redundancies must favour foreign workers first, must be solely voluntary, and must be made on a last on-first off basis.

Other demands include a request for a dispute settlement procedure, which restricts the capacity of vessel operators to implement operational changes while a dispute is being settled, inhibiting the employer's ability to implement productivity and safety improvements.

Several other conditions also suggest unnecessary costs for employers. These include an allowance which seeks to gain employees a further $200 and $250 per day respectively for working on major projects. The MUA is also seeking to revise the definition of construction, which would result in allowances being paid on work indirectly related to construction, such as maintenance and repairs. Further, the MUA is demanding a 25% increase in the daily construction allowance.

Restricting vessels operators to only employing domestic labour may result in further skill shortages and further wage inflation, and removes the right of the employer to hire the best person for the job in order to meet operational requirements. That request obstructs employers from making decisions which are in the best interests of the firm.

These conditions (and others sought by the MUA) would impede productivity in the sector and restrict the flexibility with which firms can operate, reducing competitiveness and exacerbating an already high cost environment for domestic operators

4.2 Revenue pressures

A large share of vessel operators' costs of operation is made of labour costs. For wage growth to be sustainable, revenues must therefore grow at a similar rate. However revenue in the offshore oil and gas marine support sector has been under pressure.

International competition in the sector and the specialised nature of dredging and pipe laying services mean that Australian operators have not necessarily received the expected windfall from recent oil and gas construction activity. Further, revenue is expected to remain under pressure given the recent scaling back of investment activity.

Even more important to the Australian offshore oil and gas marine support sector is the ongoing service necessary to ensure the efficient extraction of oil and gas once construction has been completed. Such services involve vessels for platform support, supply and ongoing maintenance.

However, if a significant number of planned offshore LNG projects are not going to be undertaken due to the increasing pressure in the broader oil and gas industry, the lack of subsequent work would have a detrimental impact on the Australian offshore oil and gas marine support sector.

4.3 The vessel operator survey

The pressures on the offshore oil and gas marine support sector described above can be seen in the results of a survey of vessel operators undertaken by Deloitte Access Economics.

The sector does not fit neatly into the Australian New Zealand Standard Industrial Classification (ANZSIC) typically used by the Australian Bureau of Statistics and other organisations to publish industry-level data. As a result there exists no official data source from which to assess the industry's financial performance.

With assistance from AMMA, Deloitte Access Economics has undertaken a survey of vessel owner-operators servicing the Australian market. The survey was undertaken to reveal the financial performance of vessel operators by collecting cost and revenue information for the period 2007-08 to 2011-12. The survey was completed by companies who are active participants in the Australian offshore oil and gas marine support industry, and is presented here in aggregate form. The total combined revenue from Australian vessel operations of the survey participants is estimated to have been approximately $600 million in 2011-12.

AMMA has advised that the sample of firms covered in the survey is broadly representative of the sector overall. However, as noted in Appendix B, where Deloitte Access Economics refers below to the sector as a whole it should be interpreted as referring to the aggregate of the companies surveyed.

The following sections of the report discuss the key findings of the survey. Details on the methodology and survey coverage are provided in Appendix B.

4.3.1 Survey findings

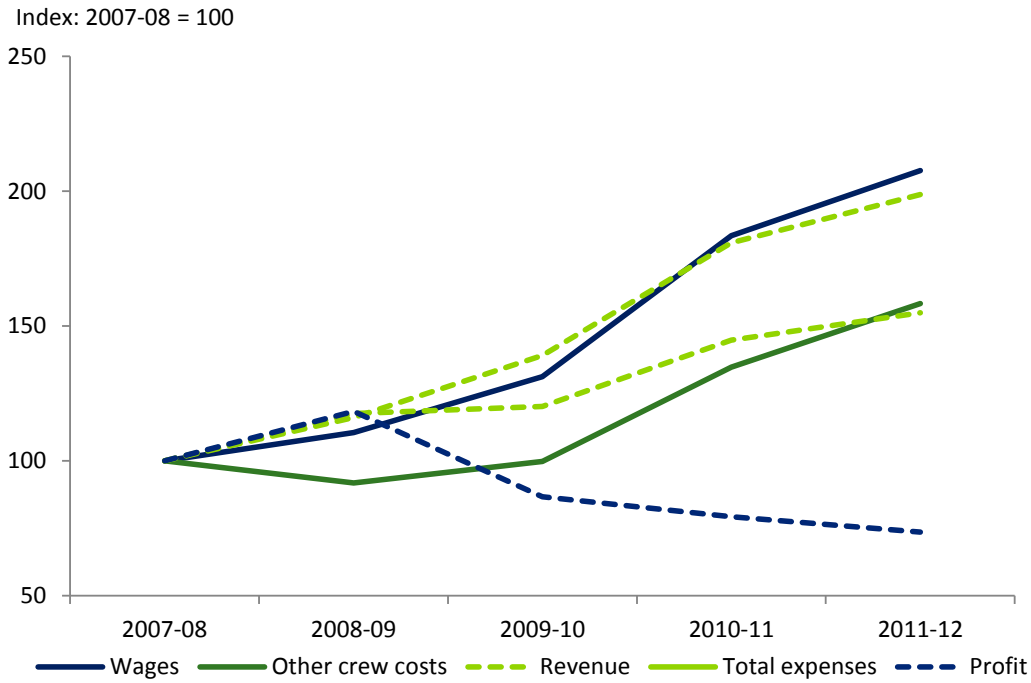
Chart 4.5 presents estimated growth in key financial variables over the survey period from 2007-08 to 2011-12. The chart shows that while wages and total expenses have doubled over the last five years, revenue has increased by only around 50% in the same period. As a result, profits in 2011-12 were some 26% lower than in 2007-08.

The chart also highlights the volatility the sector has experienced over the past few years, and also how the sector's financial position has deteriorated since the global financial crisis. Across 2008-09 and 2009-10 the sector's profits fell by 27% while at the same time wages costs grew by around 19%.

That experience was not unique to the offshore oil and gas marine support sector. Indeed, over the same period mining industry wages grew by 4% while profits fell by 20%. While profits are highly volatile, wages are not – pressure from employees, unions, politicians and other forces means that wage growth is typically stable. In any time of economic contraction, a gap would therefore be expected to develop between wages growth and profit growth.

But while that gap has reversed in the mining industry, and in other industries, the offshore oil and gas marine support sector has seen the gap continue to rise. The sector's profitability has declined consistently since 2008-09, and expenses have continued to rise. In other words, every year since 2008-09 has placed more strain on the industry's profitability than the preceding year.

Chart 4.5: Performance of key financial variables, 2007-08 to 2011-12



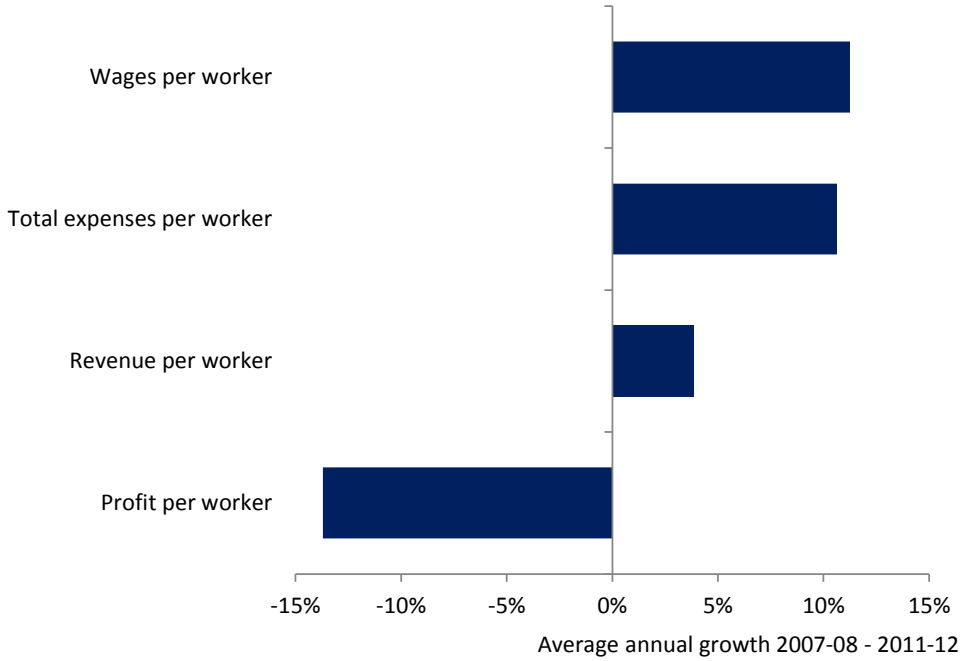
Source: Deloitte Access Economics

An increase in the overall wage bill of an industry may be due to business decisions relating to the hiring of new staff and promoting of existing staff. Such decisions do not necessarily reflect a deterioration of the sector's profitability. It is useful, therefore, to examine financial variables on a 'per worker' basis.

Chart 4.6 shows the average annual growth in per worker wages, expenses, revenue and profit. On average, workers in the offshore oil and gas marine support sector have seen their wages grow by around 11% per year since 2007-08. Over the same period, the average worker in Australia has seen their wages grow by some 4% a year.

The chart below also shows that between 2007-08 and 2011-12, the profit earned by vessel operators per worker has fallen by almost 14% per year.

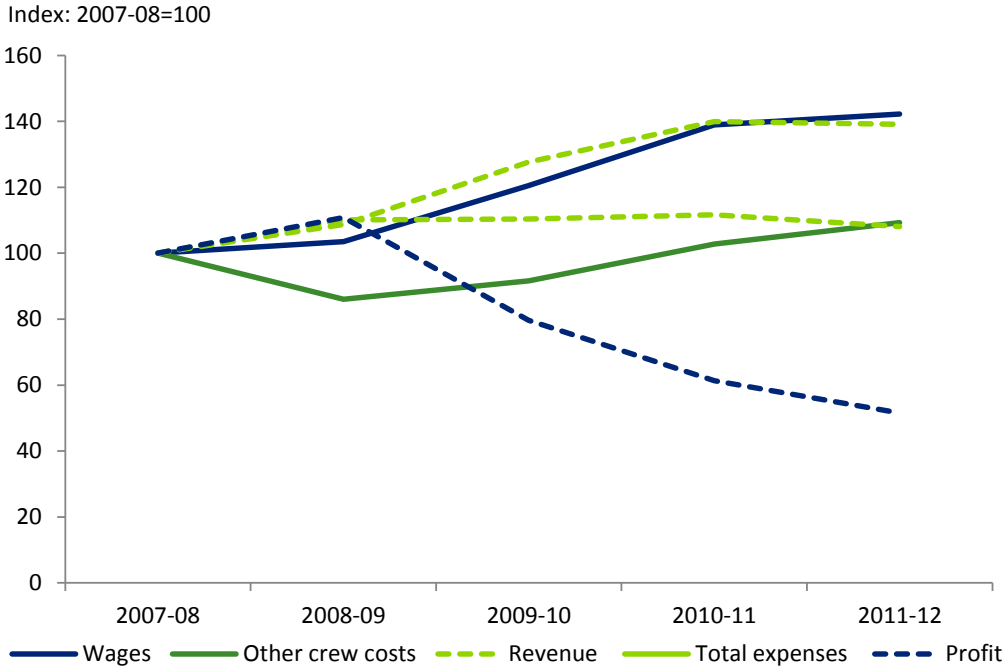
Chart 4.6: Average annual growth in per worker costs and revenues, 2007-08 to 2011-12



Source: Deloitte Access Economics

It is also useful to examine the sector's costs and revenues on a 'per vessel' basis. As Chart 4.7 below shows, both total expenses and wages have increased by around 40% since 2007-08 on a per vessel basis, while revenue has increased by only 8%. As a result, profit per vessel has fallen consistently in recent years, and in 2011-12 was only at half the level recorded in 2007-08.

Chart 4.7: Performance of key financial variables on a per vessel basis, 2007-08 to 2011-12



Source: Deloitte Access Economics

4.3.2 Comparison with other industries

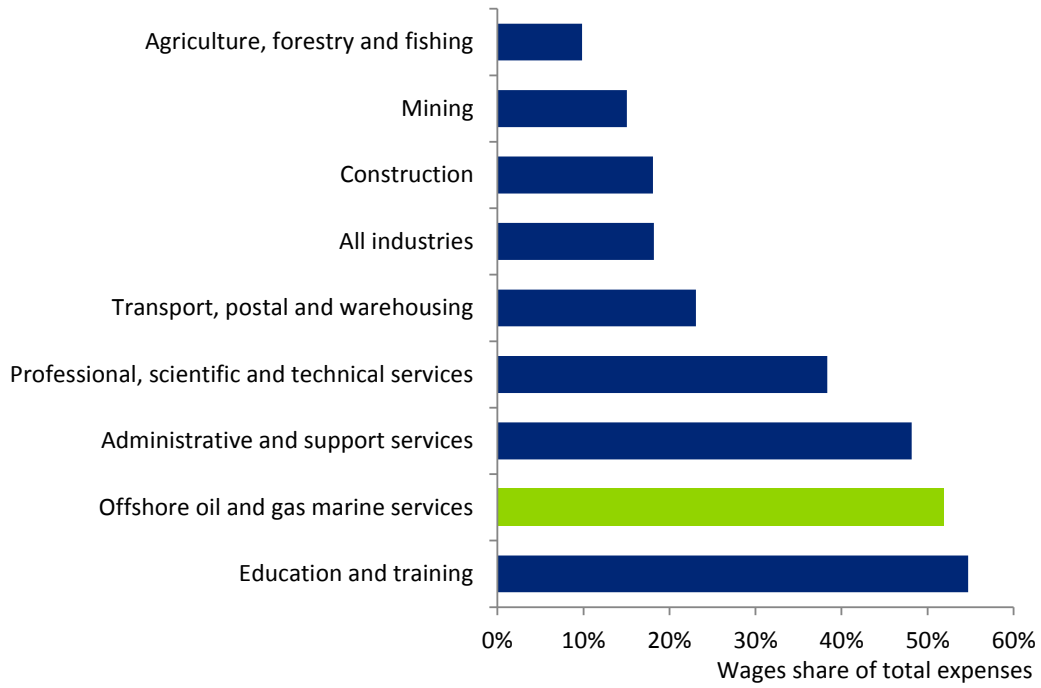
Deloitte Access Economics has combined the survey results with data from the Australian Bureau of Statistics on the financial performance of other industries across Australia. For the offshore oil and gas marine support sector, wages are estimated to account for just over half of total expenses, a share that is exceeded by only education in the ABS data (see Chart 4.8).

The sector can be characterised as having a relatively volatile revenue base. As the chart below shows, for other sectors with a degree of revenue volatility – such as mining, agriculture and construction – wages make up a far smaller proportion of total expenses. The same is true for wages as a share of revenue.

Indeed, the wages contribution to expenses in the offshore oil and gas marine support sector is more akin to labour-dominated service industries such as education and training, which have far less revenue volatility. That can make it difficult for the sector to reduce costs temporarily in periods of soft revenue growth (or revenue decline).

Chart 4.9 tells a similar story. It shows revenue per worker as a share of wages per worker for a range of industries. In essence, this can be interpreted as the marginal return on wages – the amount of revenue earned for each dollar of wages paid to the average worker.

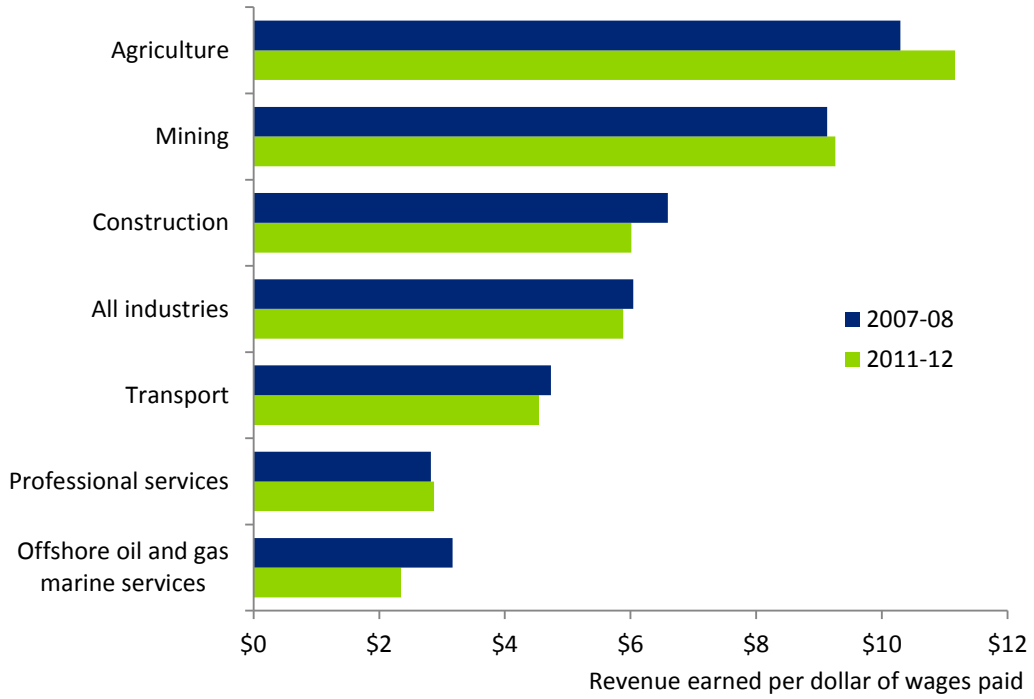
Chart 4.8: Wages as a share of total expenses, selected industries



Source: ABS, Deloitte Access Economics

In the industries with similar degrees of revenue volatility as the offshore oil and gas marine support sector, wages not only make up a far lower share of overall expenses but the amount of revenue earned for each dollar of wages is three to five times larger.

Chart 4.9: Revenue earned per dollar of wages, per worker basis, selected industries



Source: ABS, Deloitte Access Economics

The survey results suggest that estimate that for every dollar of wages paid to a worker in the offshore oil and gas marine support sector, about $2.30 in revenue is earned. That return is down from $3.20 five years ago and is almost two-thirds lower than the average across all industries.

4.3.3 Summary of survey results

Strong wage growth combined with weakening profit margins over the past few years has left the offshore oil and gas marine support sector in a position where any significant, sustained growth in wages could threaten the ongoing viability of the sector. The survey has found that relative to 2007-08 the industry's total wage bill has more than doubled, while wages per worker has grown by over 50%. Over the same period, revenue per worker has grown by only 16%, while profit per worker has fallen by almost 45%.

Wages have a far greater impact on the overall financial position of the sector compared to many other industries. In 2011-12, wages accounted for nearly 60% of operating expenses and over half of total expenses. That compares to around 18% of total expenses on average across other industries. The survey also suggests that for each dollar of wages paid to a worker in the offshore oil and gas marine support sector, just over $2 in revenue is earned – far less than the average across other industries.

At about $70,000, profit per worker in the sector compares favourably to results across all industries suggested by data from the Australian Bureau of Statistics. However, this figure has declined from almost $200,000 five years ago. Overall the survey results suggest that the capacity of the sector to absorb strong wage increases has declined markedly over the past five years.

Moreover, the challenges facing the sector mean that it is vital that vessel operators are able to manage their businesses flexibly. Conditions within the current EBA negotiations which place a costly, unproductive and unnecessary burden on employers will only further impede profitability.

Given current trends, it is clear that strong wage increases going forward will further erode the viability of the sector.

Such a move would make it even more difficult for Australian-based vessel operators to compete with international rivals, and would place additional pressure on the oil and gas industry. Given that the business case associated with a number of potential projects in the investment pipeline is already dissolving, further cost pressure could see major projects foregone. Such a scenario would have significant implications for the Australian economy, and the offshore oil and gas maritime support sector.

5 Potential implications for the Australian economy

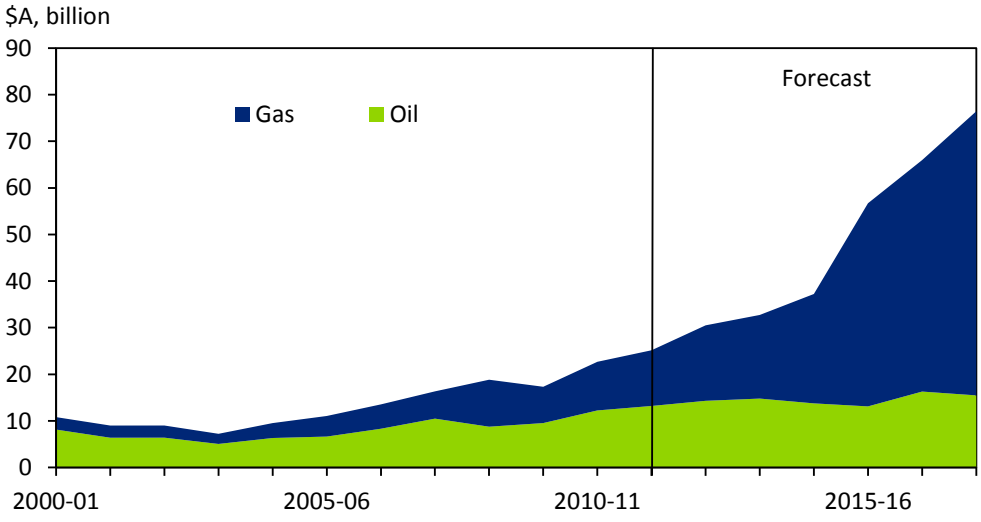
A discussion of the potential macroeconomic implications of a subdued oil and gas industry is presented in this chapter. Issues considered here include the direct and indirect effects on employment and output caused by such a development.

An industry's direct economic contribution is often measured in terms of the value added to a country's GDP by that industry. The value added measure differs from industry gross output or revenues as it controls for factors such as the cost of intermediate inputs used in the production process of the industry. As such, the sum of value added across all Australia's industries is equal to Australia's GDP. This is known as the production approach to measuring GDP.

The oil and gas industry contributed approximately 2% of Australia's total value added in 2012 (ABS c, 2013). This is broadly comparable to the coal industry, food manufacturing or the road transport industry.

Given the export intensive nature of the oil and gas industry, expected growth in exports closely resembles expected growth in the direct contribution of the industry to Australia's economy. As pictured in Chart 5.1, gas exports are expected to grow strongly in the coming years. Given the long term contracts underlying LNG projects, export volumes will respond immediately as new liquefaction capacity comes online. As such, BREE expects exports to grow by 31% per annum to total $52.8bn[7] in 2017-18. (BREE, 2013). This will see LNG significantly contributing to the Australia's trade balance.

Chart 5.1: Oil and gas export



Source: BREE

[7] In 2012-13 dollars.

The impact on the direct contribution of the oil and gas sector from abandoning projects currently in the investment pipeline is unlikely to be felt immediately, because there would not be an immediate fall in oil and gas production.

However, the failure to significantly add to existing infrastructure and replace aging extraction facilities would significantly reduce the contribution of the industry to Australian GDP over time compared to what would otherwise have been achieved.

In addition to the direct contribution of the oil and gas industry, the indirect contribution of the industry must be accounted for in order to address the full impact of the sector on the Australian economy.

Abandoning projects currently in the investment pipeline would have an immediate impact on the indirect contribution of the oil and gas industry. The construction sector would suffer from the loss of expected activity associated with large engineering developments. Similarly, the manufacturing sector would forego revenue related to demand for machinery and equipment. Moreover, the downstream offshore oil and gas marine support sector would also clearly be affected by a slowdown in investment in the broader oil and gas industry.

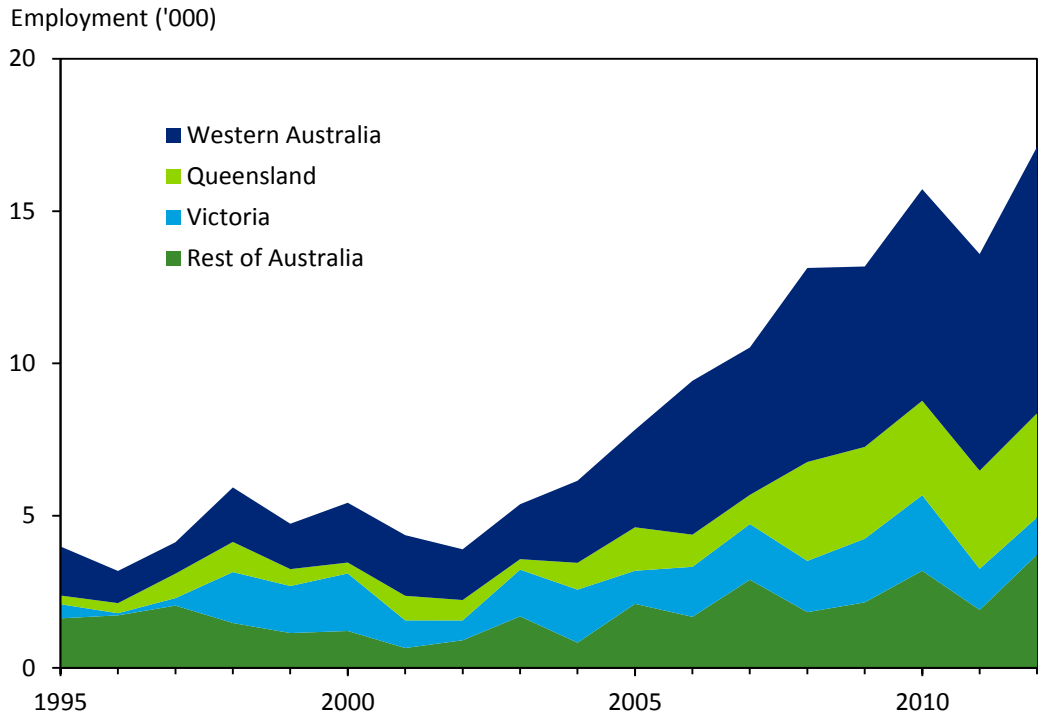
The flow on effects would not end there. The Australian economy will undergo significant structural change in the near future as the investment phase of the resources boom draws to an end. Capital and labour currently employed in mining-related investments will have to be reallocated to other sectors of the economy. Oil and gas investments currently represent a significant share of the Australian investment pipeline. Failure to convert a number of these plans to construction would see the end of the investment phase of the mining boom approach much more rapidly.

Australia's efficient capital markets ensure that capital is able to shift quickly between sectors. Labour, on the other hand, is not as mobile. Given the specific skills required to contribute to mining-related investment, much of the workforce must be re-skilled to be usefully employed in alternative industries. Furthermore, it may take some time before alternative industries are able to absorb the labour shifting out of mining-related construction projects.

Consequently, the effect of bringing forward the end of the investment phase of the resources boom, would likely cause unemployment to rise, as workers re-skill and other industries build up their capacity to take on more employees.

In addition to the indirect effect on labour, there will be a direct impact on employment in the oil and gas sector as activity slows. The oil and gas industry employs approximately 17,000 persons. The majority of the oil and gas workforce used to be employed in Victoria, when crude oil was the key output. Western Australia overtook Victoria in the early 2000s as gas extraction and production lifted and oil production faded. Since then, Queensland has joined Western Australia as CSG exploration and extraction has taken off, as seen in Chart 5.2.

Chart 5.2: Employment in the oil and gas industry, Australia



Source: ABS catalogue 6291.0.55.003

Given the remote location of most oil and gas reserves, alternate employment opportunities in the local community would be scarce. As a result, people who used to be employed in the oil and gas sector would be forced to move away to seek work elsewhere.

This could have a significant effect on the livelihood of the rest of the community, as it likely relied on the income of oil and gas employees to fund local business and public, amenities such as schools and hospitals.

6 Conclusions

AMMA is preparing for upcoming EBA negotiations on behalf of 19 Australian based vessel operators serving the oil and gas sector. In order to obtain a reasonable outcome for employees and employers alike, it is important that the economic context and potential implications of decisions are understood.

Australia has enjoyed remarkable economic growth over the past decade, largely due to activity attributed to the resources boom. However, while production is still growing strongly, national income is under pressure due to the falling terms of trade and persistently high Australian dollar. Much of this pressure is carried by private businesses as profits are falling across the economy.

Despite the immense investment pipeline possessed by the oil and gas sector, it too is under pressure. Rising capital and labour costs, together with price uncertainty, is eroding the business case underlying future investments and causing significant cost overruns for projects under construction. The situation was aptly surmised by Gary Gray, the Federal Resources and Energy Minister when commenting on the Maritime Union of Australia's claim for cooks to be paid up to $230,000 a year:

> *"We've got to get things into proportion… Everyone needs to be careful that the costs that are placed on industry through these sorts of wage demands don't kill the golden goose."*

As with the broader oil and gas industry, labour costs in the offshore oil and gas marine support sector have increased substantially in recent years, and there are limitations on the capacity of employers to meet demands for sustained wage growth which is disproportionate to broader wage and price measures. Indeed, wage growth which is not reflective of productivity improvements in the sector is detrimental to the profitability and sustainability of businesses, and risks the long term viability of the sector.

Further, if a significant number of planned offshore LNG projects are not going to be undertaken due to the increasing pressure in the broader oil and gas industry, the lack of subsequent work would have a detrimental impact on the Australian offshore oil and gas marine support sector.

The survey undertaken by Deloitte Access Economics suggests that the capacity of the sector to absorb strong wage increases has declined markedly and that the profitability of vessel operators has been squeezed over the past five years. The key results of the survey show that within the offshore oil and gas marine support sector:

- On a 'per vessel' basis, wages and total expenses have increased by around 40% since 2007-08, while revenue has increased by only 8%;
- Between 2008-09 and 2009-10, the sector's profits fell by 27% while at the same time wage costs grew by around 19%.
- Profit per vessel in 2011-12 was half the level recorded in 2007-08;
- Over the last five years, wages and total expenses have doubled, while revenue has increased by only 50%;
- Profit was more than 26% lower in 2011-12 compared to 2007-08; and,
- On a 'per worker' basis, profit fell by almost 14% per year from 2007-08 to 2011-12.

In other words, every year since 2008-09 has placed more strain on the industry's profitability than the preceding year.

That is also placing additional pressure on the oil and gas industry. Given that the business case associated with a number of potential projects in the investment pipeline is already dissolving, further cost pressure could see major projects foregone. Such a scenario would have significant implications for the Australian economy, and the offshore oil and gas maritime support sector.

More generally, labour market regulations and conditions need to facilitate the ongoing viability of businesses. This is particularly the case in sectors which compete internationally with businesses which are not subject to the same labour market regulations. It is therefore critical for the ongoing viability of the sector that the EBA process facilitates the employer flexibility and wage outcomes required to support the sustainability of vessel operators.

The challenges facing the sector mean that it is vital that vessel operators are able to manage their businesses flexibly. Strong wage growth combined with weakening profit margins over the past few years has left the offshore oil and gas marine support sector in a position where any significant, sustained growth in wages could threaten the ongoing viability of the sector.

Should excessive labour costs growth be implemented over the coming years, the implications could be widespread. Given that vessel operators do not have the capacity to absorb the rise, it would be pushed to the broader oil and gas sector, potentially leading to a lower conversion rate of planned projects in the pipeline to actual projects under construction, and subsequent negative implications for the Australian economy.

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Appendix A: Oil and gas projects

Table A.1: Oil and gas projects in Australia

Project	Cost ($m)	Status	Type
Gorgon	52,000	Under construction	Offshore LNG
Inpex Ichthys	34,000	Under construction	Offshore LNG
Wheatstone	29,000	Under construction	Offshore LNG
Australia Pacific LNG	24,700	Under construction	CSG/LNG
Queensland Curtis LNG	19,600	Under construction	CSG/LNG
Gladstone LNG	19,000	Under construction	CSG/LNG
Prelude	12,000	Under construction	Offshore LNG
North Rankin development	5,000	Under construction	Offshore LNG
Kipper-Tuna-Turrum Project	4,400	Under construction	Offshore LNG/oil
Macedon gas	1,470	Under construction	Offshore LNG
Greater Western Flank Project	2,500	Committed	Offshore LNG
Arrow Energy LNG	20,000	Under consideration	CSG/LNG
Tassie Shaol LNG	2,100	Under consideration	Offshore LNG
Crux LNG	1,275	Under consideration	Offshore LNG
Fisherman's Landing LNG	1,050	Under consideration	CSG/LNG
Greater Sunrise gas	13,000	Possible	Offshore LNG
Scarborough LNG	10,000	Possible	Offshore LNG

Source: Deloitte Access Economics *Investment Monitor*

Appendix B: Vessel operator survey

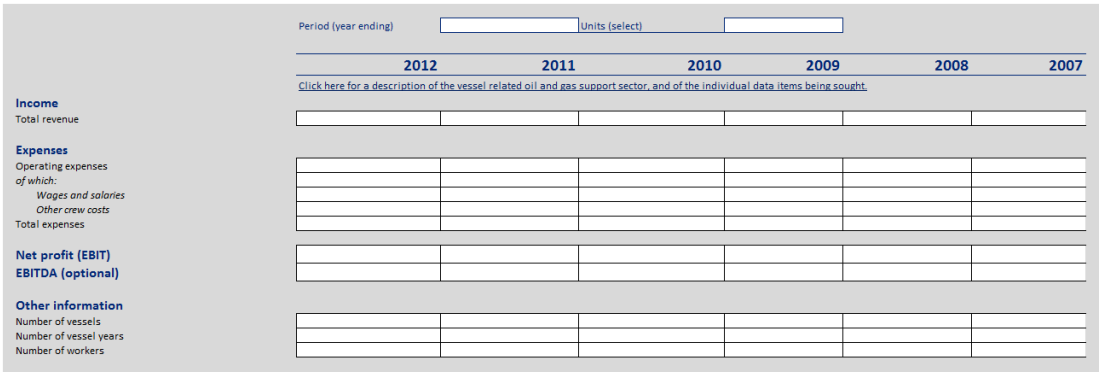
Given the lack of official data specific to the offshore oil and gas marine support sector, Deloitte Access Economics undertook a survey of vessel owner operators. This appendix outlines the survey design, the coverage and sample size, the methodology, and the limitations of the survey.

Survey design

The aim of the survey was to assess how wages in the sector have increased over time relative to overall profitability. As a result the data sought related primarily to financial information, including revenue and expenses. Respondents were asked to separately identify wages and other crew costs within operating expenses.

A snapshot of the survey form is shown in Figure B.1 below.

Figure B.1: Vessel operator survey form



Period (year ending) | Units (select)

	2012	2011	2010	2009	2008	2007
Click here for a description of the vessel related oil and gas support sector, and of the individual data items being sought.						
Income						
Total revenue						
Expenses						
Operating expenses						
of which:						
Wages and salaries						
Other crew costs						
Total expenses						
Net profit (EBIT)						
EBITDA (optional)						
Other information						
Number of vessels						
Number of vessel years						
Number of workers						

Other information requested as part of the survey included the number of vessels (including vessel years) operated by the company, and the number of workers employed.

Coverage and sample size

The focus of the survey was vessel related oil and gas support activities. 'Vessel related' activities refers to any activities for which the company is an owner-operator of one or more vessels. That is, the coverage of the survey was limited to include only the activities of vessels providing marine support services to the oil and gas sector.

Most of the survey participants have operations in many regions around the world. Data relating only to Australian operations was sought in this survey. Further, many respondents have activities not related directly to the activities of vessels providing marine support services to the oil and gas sector. Services might be provided to other industries, or additional services not directly related to vessel activities may be undertaken (such as ship repair or stevedoring services). These types of activities were excluded from the survey.

A total of five major marine services companies participated in the survey. AMMA has advised that the companies surveyed represent the majority of activity in the Australian offshore oil and gas marine services sector, and the total combined revenue of survey respondents in relation to owner-operated vessel operations is estimated to have been $600 million in 2011-12. The absence of any official data sources for the sector means that Deloitte Access Economics is not able to assess what proportion of the total sector is covered by this survey.

Data analysis and methodology

Survey respondents were given the option of providing data relevant to their standard reporting period (that is, calendar or financial year). Deloitte Access Economics converted responses where necessary to ensure a consistent reporting period.

Of the respondents, the majority (representing around 80% of revenue in 2011-12) reported on a financial year basis. Responses in a calendar year basis were therefore converted to a financial year basis by taking a simple average of the relevant years. For example, the average of 2007 and 2008 calendar data became the estimated value for 2007-08.

Data was analysed only on an aggregate basis. Where data was not provided by a respondent for a particular year, the aggregate was constructed using growth rates from the remaining survey responses.

Prior to converting to a financial year basis (where necessary), a number of simple checks were performed on each survey received. These included, but were not limited to:

- comparing operating expenses to total expenses, where the latter is defined to be operating expenses plus financing and investment expenses;
- comparing wages and salaries to other crew costs, where the latter include non-wage costs such as meal and accommodation provision, and were generally found to be around one tenth of wages expenses;
- creating simple ratios and margins, such as gross profit margin, revenue per worker and wages per worker; and
- following up with survey participants where necessary to confirm any matters of clarification.

Survey limitations

As with any survey, there are a number of important limitations which should be considered.

Sampling error

Most surveys attempt to make inferences about the population as a whole using data from a limited subset of that population. Where data about the entire population is known, statistical tests can be performed to determine relative coverage of the sample, and to generate confidence intervals for the sample estimates.

This type of analysis was not possible for the survey of vessel operators, because the required information for the sector as a whole is not known. As with any survey, there is therefore the potential for sampling error, which arises as a result of a survey not being a complete representation of the population.

Non-sampling error

Although both Deloitte Access Economics and the survey respondents make every effort to ensure the accuracy of the data provided, any survey that necessarily involves analysis and estimates is subject to non-sampling error.

For example, and as noted above, this survey asked respondents to report on a very specific aspect of their operations, both at a geographic level and at an operational level. As a result respondents were required to estimate amounts specifically related to Australian vessel related oil and gas support activities, potentially resulting in some error.

Limitation of our work

General use restriction

This report is prepared solely for the use of the Australian Mines and Metals Association (AMMA). This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of analysing recent trends in Australia's gas sector, with particular reference to labour cost developments and implications in Australia's offshore oil and gas marine support sector. You should not refer to or use our name or the advice for any other purpose.

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