



A joint initiative of the Queensland Major Contractors Association and Construction Skills Queensland

2013

Major Projects Report

Queensland Engineering Construction Outlook



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Acknowledgement

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Foreword



Jeff Seeney MP

It is with great pleasure that I introduce this year's Major Projects Report – an important collaboration between the Queensland Major Contractors Association and Construction Skills Queensland.

Historically, the construction industry – particularly engineering construction – has been a significant component of Queensland's economy. This is reflected in Government's focus on the four pillars as the key drivers of the state's economy. Over the past decade, engineering construction work done has grown from \$6.5 billion to \$33.5 billion in real terms.

In 2011/12 alone, work done grew 44%, driven by massive investments in our resources and the need to build social and economic infrastructure to cater for strong population growth in our cities and towns.

In reflecting on recent years and looking to the future, the construction industry will continue to play a vital role in Queensland's economic development.

In 2013, we have yet again experienced the impact of natural disasters on parts of our state. I have witnessed

the way Queenslanders have come together and shown their strong support in preparing for the rebuilding and reconstruction that has already begun.

In this, the engineering construction sector deserves substantial credit for the way it has been able to adapt to meet Queensland's rapidly evolving infrastructure needs.

This year's Major Projects Report presents both challenges and opportunities for the Queensland engineering construction sector. Whilst the analysis in this Report confirms what we have all suspected – that engineering construction opportunities have slowed in the past year – the upside is that further substantial cycles in investment and construction will play out during the next five years and beyond, driven by a long term increase in global demand for minerals and energy, and the dynamism of state infrastructure

requirements. In this sense, there are many opportunities to realise sustained economic growth and higher living standards for all Queenslanders through the period ahead.

Yet we cannot afford to be complacent. As this Report acknowledges, these opportunities are under increasing pressure from high costs and declining competitiveness. In dealing with this, we need to ensure that we are providing the right skills at the right times for the industry, that we have a fit for purpose regulatory regime that does not impose undue cost pressures on major projects, and that together with industry we have a concerted focus on productivity which will determine our future prosperity. Given the vital role played by the private sector in delivering new investment to the state, it is important that we work together on these issues to maintain Queensland's competitive edge.

The Queensland Government has a clear policy agenda to meet these challenges, in particular, through:

- Streamlining major projects approvals to keep the economy moving
- Fixing the planning system to ensure that it can facilitate growth, encourage development, assist investment and protect the environment of our state
- Reducing red and green tape, especially in the resources sector, to reduce cost pressures on industry and make Queensland an attractive place to invest
- Reviewing Government's procurement policy
- A commitment to create a dynamic vocational education and training (VET) sector responsive to the changing needs of industry and learners, and delivering 10,000 extra apprenticeship

commencements over six years through investment of an additional \$86 million

- Building a more resilient and innovative Queensland economy through a new approach to infrastructure reconstruction following the 2013 floods.

A strong, adaptable and competitive engineering construction sector is vital to Queensland's economic future.

I look forward to working with you as we confront the challenges and opportunities which lie ahead.

The Hon. Jeff Seeney MP
Deputy Premier

Minister for State Development,
Infrastructure and Planning

February 2013

Executive Summary

This is the 5th Major Projects Report, with earlier reports published between 2006 and 2012. In recent years, significant changes have occurred both globally and in the Queensland marketplace. These changes include – but are not limited to – ongoing global economic turmoil, record and then declining commodity prices, a fluctuating and then strengthening Australian dollar, skills shortages in specific trades, and rising wages and costs which threaten competitiveness and productivity. As a consequence, Queensland now faces a series of challenges and opportunities – some familiar and some new – driven by virtually unprecedented uncertainty, and structural adjustments driven by global macro-economic forces.

The aim of this Report is to provide a reasoned and thoughtful perspective on the outlook for major engineering construction activity in Queensland, the workforce resourcing requirements this necessitates for contractors and government agencies, and the implications for the industry as a result of these findings.

Consequently, the Report focuses on major engineering construction projects – both funded and unfunded – defined as those exceeding \$100 million.

A complete list of major projects considered for this analysis – and the explicit assumptions for each project regarding work done and construction workforces employed each year – are provided in the Appendix of this Report.

In 2011/12, major project work in Queensland increased by 133%, reaching a record \$17.6 billion in work done.

This accounts for over 50% of the total engineering construction market. Although growth picked up across multiple engineering construction sectors, it was not evenly distributed. Mining and heavy industry – primarily coal and Liquefied Natural Gas (LNG) related works – dominated major projects construction activity in Queensland with nearly \$13 billion in work done. In turn, the aggregate major project workforce requirement surged to 19,300 persons, from 12,500 persons in 2010/11. This is shown in **Figures A and B** opposite, where the columns show the levels of construction work done, in \$Billions (scale shown on left hand axis (LHS));

and lines refer to estimated major project workforces required, in thousands of persons (scale shown on right hand axis (RHS)).

Importantly, these Figures do not include the billions of dollars spent on reconstruction projects following the 2010/11 floods, estimated up to \$6 billion.

While the bulk of these funds have been spent on engineering construction projects (particularly roads), they were generally broken down into smaller packages of works not exceeding the minimum threshold value (\$100 million) for inclusion in this Report. Further, the very recent and damaging January 2013 floods could add another \$1.5 – \$2 billion to the reconstruction task, but are again excluded from this analysis of major projects.

Major project activity is now timed to peak in 2012/13 at \$18 billion, with the major project workforce requirement rising to 23,500 persons.

Once again, LNG and coal projects play a substantial role in driving activity to this peak, but there are also further increases in major projects activity in 2012/13 for railways and harbours, water and sewerage, electricity, pipelines, and telecommunications.

After 2013/14, projected major project workforce demand will decline. This decline will be gradual at first, and is expected to accelerate at the end of the forecast period. While major project work done will still be at near record levels through 2013/14, activity is projected to decline to around \$10.9 billion by 2016/17, as existing projects move to completion without being

Figure A

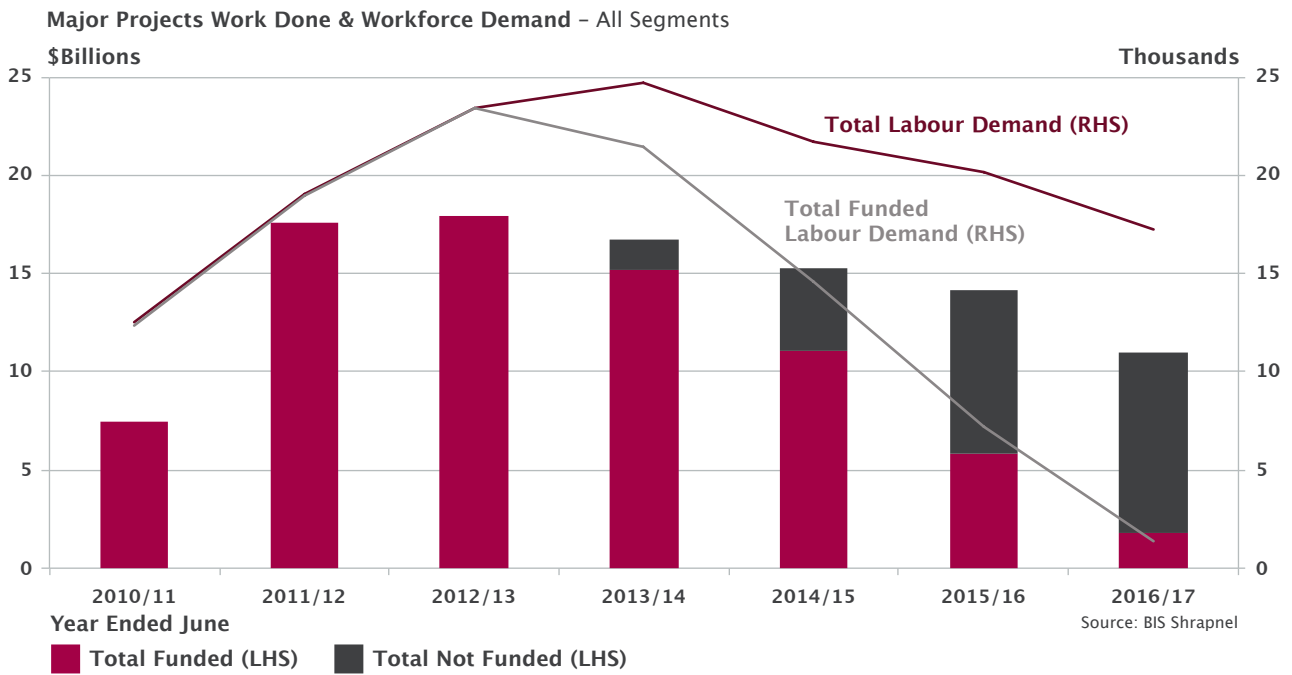


Figure B

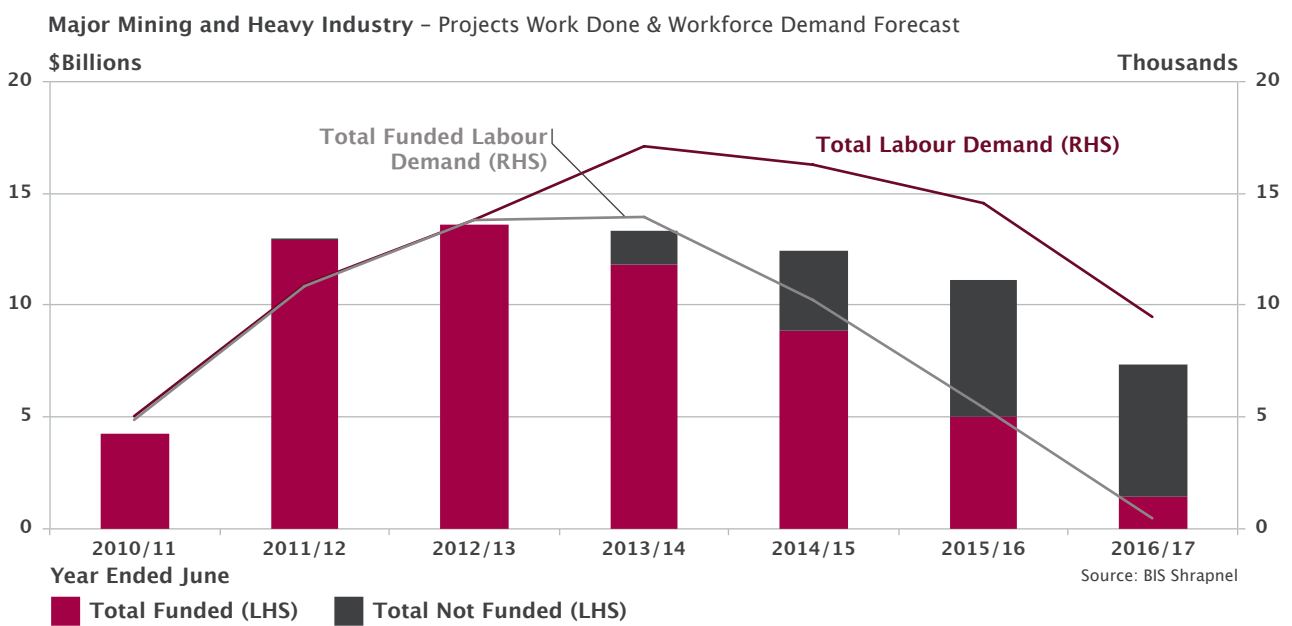
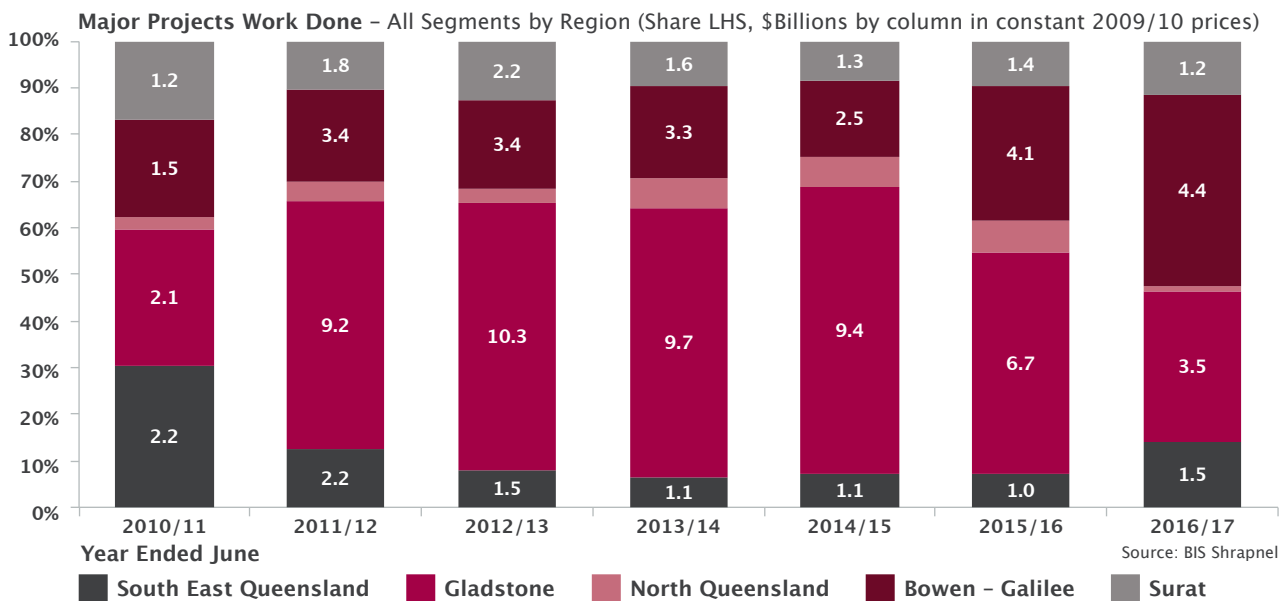


Figure C



replaced fully by new projects. Even so, major project work in 2016/17 is still expected to be over 40% higher than in 2010/11, as shown in Figure A.

Meanwhile, the regional nature of major resources projects (Figure C) will continue to drive disparities between regional and metropolitan work for the remainder of the forecast.

The shift of labour and capital from South East Queensland to regional Queensland, in a very concentrated period of time, presents ongoing challenges to local communities and projects.

In summary, the forecast outlook for major projects in Queensland means:

- Queensland faces a period of **unprecedented uncertainty** in engineering construction and major project work, with a reliance on unfunded projects to sustain activity above 2010/11 levels.
- Contractors will increasingly be confronted with **complex new challenges** associated with adequately resourcing their projects with skilled labour that can operate with both flexibility and increased levels of productivity.
- Although the **timing of activity has changed significantly** since the 2012 Major Projects Report, the total volume of work from 2012–2017 has not changed substantially.
- The **combination of weaker commodity prices and a higher cost environment has squeezed new major project opportunities** over the forecast period; but another cycle of resources investment and public infrastructure spending is still expected after the middle of the decade.

- **Regional pressures will continue to exert an influence** through the forecast period and beyond, and should be addressed.
- **The private sector will continue to dominate the major projects market**, implying more uncertain times ahead as forces beyond Queensland's control, including commodity prices, the Australian dollar, and the investment decisions of large multinational corporations, exert an increasing influence.

In part, the current boom and decline in major project work mirrors the tremendous – though unsustainable – cycle in LNG-related construction, however, much deeper forces are at play.

In particular, strong cost growth over several years has combined with falling commodity prices to undermine competitiveness and the financial feasibility of the next round of resources projects.

Consequently, resources investments that were expected to keep major projects activity at very high levels during and after the middle of the decade, have either been delayed or shelved.

The decline in major project work is also a consequence of a consolidation in public spending.

This has occurred at both the state and federal level, following years of strong spending growth. Flood reconstruction efforts aside, this will particularly affect the roads and bridges segment, given the importance of public sector funding to this segment.

While a decline in public investment was anticipated in the 2012 Major Projects Report, this is now occurring at a time when new resources projects are being delayed.

Consequently, instead of mitigating the volatility of the resources investment cycle, the slowdown in public spending growth is now likely to exacerbate the negative impact on the major projects market between 2013/14 and 2014/15.

The recent announcement of a federal election in September 2013 – while removing uncertainty about the exact timing of the election date – serves to remind that election years always precipitate a ‘wait and see’ element in the investment decision-making process.

Implications and Challenges

Previous Major Project Reports have warned that the industry must avoid skills and equipment shortages, bottlenecks, along with rising costs which have characterised previous booms. This requires transformational thinking about the way projects and skills are developed, and innovation in how they are delivered.

While the peak in major project work is now likely to come through earlier than anticipated, it is not too late to address these issues.

Although major project activity is projected to move lower during the next five years, the key drivers of Queensland’s major projects market – a once-in-a-generation commodities boom driven by the long-term industrialisation of China and India, coupled with Queensland’s increasing domestic infrastructure requirements – suggest that strong investment cycles will continue to play out in the decades ahead. There is still time to deliver skills and labour solutions, alongside structural improvements to maintain Queensland’s competitive edge for the future of the Queensland construction industry and labour force. Improvements to the broader regulatory environment and procurement models will also be critical to achieving this outcome.

Despite the projected downturn in prospects for major project work, the long-term outlook for the global economy and Queensland’s economy are positive. Global economic growth – a key driver of major projects activity in Queensland – was sputtering at best in 2012, but there are signs the picture is improving. For the Queensland economy, divergent investment cycles between non-mining and mining-related sectors – combined with a rising population, consumption, and minerals and energy production – will see economic growth sustained at relatively robust rates through the forecast period. Barring further shocks (global, financial, or natural), the prospects for the state economy remain positive.

In summary, the major projects industry faces an economic environment that, while uncertain, is not as dire as suggested by business and consumer confidence data sets. The important message for the major projects

industry in Queensland is the need to face up to today’s challenges on costs and competitiveness so that the industry continues to seize opportunities as they arise, and continues to maintain its market share of major project work.

Unfortunately, not all of the factors affecting cost and competitiveness are within the control of industry, governments and other stakeholders. Commodity prices are unlikely to rebound to post-Global Financial Crisis (GFC) highs in the foreseeable future, and the Australian dollar (\$AUD) is also likely to remain stubbornly high through the next few years at least, despite lower commodity prices over the past year. This, in turn, would keep domestic costs high from an international perspective. The strong \$AUD can be put down to a comparatively strong Australian economy, considerable foreign direct investment, strong Australian government debt credit ratings, and central bank activity in the United States (US) and Europe – which is actively devaluing their currencies.

This makes it imperative that cost and competitiveness issues are addressed where factors are more controllable.

Manageable factors affecting costs and competitiveness, which are also shaping Queensland’s major projects outlook include:

- **Shortage of skilled and semi-skilled labour:** This has contributed to a doubling of construction wages in Queensland in Average Weekly Ordinary Time Earnings (AWOTE) terms in the last decade. While the projection of declining major project work after 2012/13 may suggest that wage pressures will weaken, this isn’t necessarily the case. As the current civil construction phase moves into a building phase, there will be a different mix in demand for skills. In particular, there will be a heightening in demand for mechanical, structural and electrical trades and a movement away from the civil trades.
- **Remote, regional nature of projects:** The resources boom has created substantial challenges for the construction industry and regional communities. Attracting the skills required into regions such as the Bowen and Surat Basins has contributed to rising wage costs, and has exposed gaps in the provision and funding for infrastructure, including housing, schools, hospitals, transport and utilities. In those regions where activity has boomed, prices for essential services such as accommodation have surged, adding to the cost of development. While the use of Fly-in Fly-out (FIFO) workforces has reduced the need for substantial investment in social infrastructure, there could be far more effective future planning for infrastructure in likely ‘boom regions’ to reduce these highly variable cost pressures.
- **Risks to productivity:** The boom in major projects work and particularly, the skills shortages that

emerged, has likely affected productivity in the construction industry. Some of this impact would be clearly cyclical in nature. During boom times, the industry is more likely to hire more people of lower experience and skills than normal in order to get work done; and this raises overall costs. There are also likely to be structural risks in the productivity story: in short, there may be better ways of getting things done than are currently being utilised.

While an analysis of the factors driving productivity outcomes and proposed solutions are beyond the scope of this Report, this is an area that requires urgent attention if construction costs are to be reduced in a sustained, meaningful manner.

This may require a thoughtful re-examination of current work practices and standards, a more efficient use of capital, the transferability of labour skills, regulations affecting the industry and greater consideration of a range of contract models.

- **Contract structure:** In some cases, the contract structure itself may not lend itself to a minimisation of costs. Internationally, major projects have a poor record of cost overruns, and to address this, a wide range of contract models should be explored.

Risks to the Outlook

The projections in this Report are based on a reasonable and thoughtful view of the outlook for major engineering construction projects.

Given the outlook is highly uncertain, it is important to note that it is also subject to risks and revisions as new information becomes available.

Over the next few years, the biggest global risk relates to the potential of the current European economic recession – or renewed weakness in China, Japan or India – having a larger-than-forecast negative impact on the global demand (and prices) for commodities. For Queensland, this would likely lead to a larger decline in minerals-related investment, major project work done, and workforce demand than shown in this Report. As an upside to this, however, any severe weakening in prospects for Queensland mining projects may either free-up capacity for other major projects (across energy and infrastructure) or act as a catalyst to bring forward public investment projects from the timing suggested in this Report. This may still see a weakening in overall major projects activity, but will certainly deliver a broader mix in work.

Furthermore, the Galilee Basin, Surat Basin and North West Province regions of Queensland are potential wild cards that require consideration. The key assumption in this Report is that at least one major coal project – including associated rail and port infrastructure – will proceed in the Galilee Basin towards the end of the forecast period, providing a substantial surge of activity. It is very much possible that the timing of these projects

could shift substantially as new information comes to hand, and this will significantly impact the outlook for total work. Additionally, base metals and minerals investment in the North West province – although not at the scale of Surat (e.g. Wandoan) and Bowen Basin coal or LNG projects – could also provide substantial shifts to the aggregate forecast.

Meanwhile, the LNG market in Queensland should be seen as highly susceptible to risk.

It is becoming increasingly likely that the current boom in LNG-related work (with three separate projects underway simultaneously), will not be matched in the future. Construction cost escalations, low gas extraction rates in the early phase of production, overseas competitors (US, East Africa, Qatar), and Chinese domestic production opportunities threaten to shift future LNG investment overseas. US shale gas presents a particularly heightened risk.

In summary, the resources sector in Queensland is forecast to continue to underpin considerable strength in engineering construction. As non-mining investment in Queensland ramps up over the next few years through flood recovery projects, then housing, and eventually new public infrastructure projects, these projects will still have to compete vigorously with the resources sector for skilled labour. For Queensland to achieve maximum benefit from its resource and labour endowments, ongoing assessment of risks to productivity will be necessary to ensure we remain internationally cost competitive.

1. Queensland Major Projects

1.1. Basis of the Major Projects List

The 2013 Major Projects List is presented in the **Appendix** of this Report. To be classified as a major project – and therefore be included in The Major Projects List – a project must exceed \$100 million. The 2013 Major Projects List was developed by BIS Shrapnel with QMCA member input during November and December 2012.

1.2. Major Projects Commitments

Figure 1.1. highlights the current activity projections for major projects committed for the period from 2010/11 to 2016/17. The figures for this exercise were based on data available to December 2012. The graph also shows workforce demand across all segments.

1.3. Total Major Projects Outlook and Employment Demand

In aggregate, Queensland engineering construction for major projects jumped over 133% in 2011/12, reaching a record \$17.6 billion in work done. Of course, the strong correlation between work done and workforce demand translated to a surge in

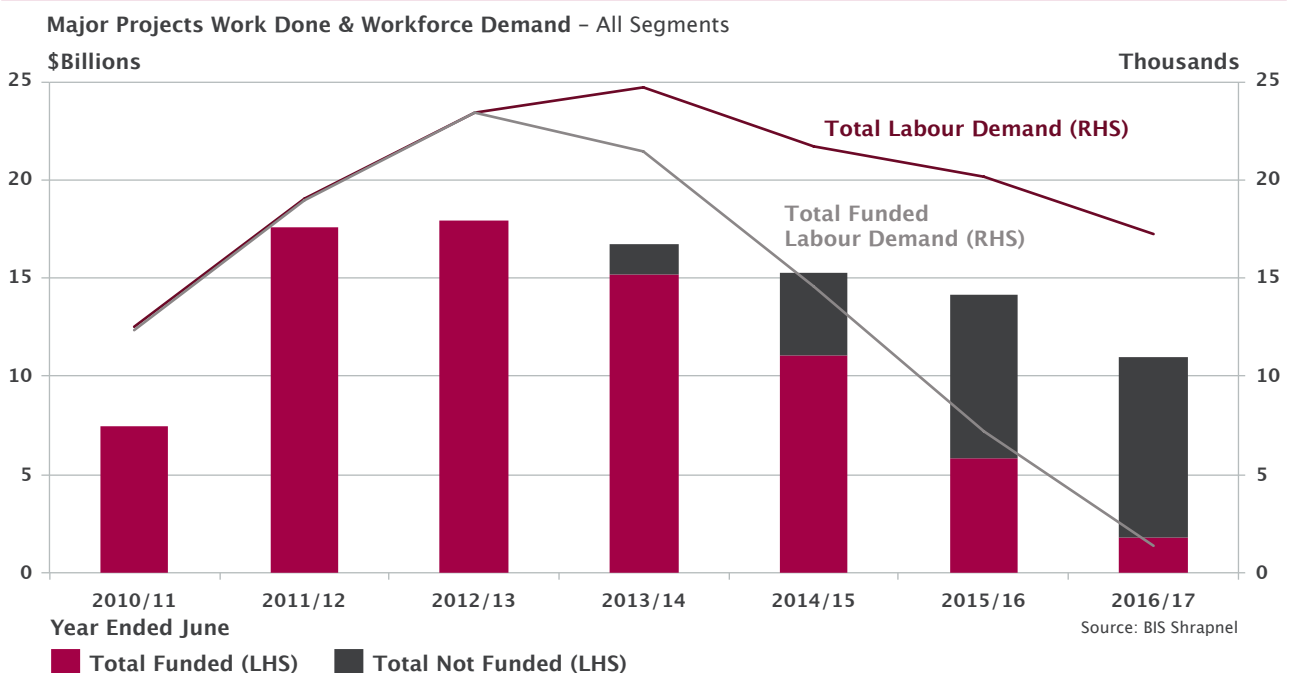
construction employment as well. In aggregate, construction employment for major projects-related work climbed over 50% to a record 19,000 persons.

Mining and heavy industry was clearly in the driver's seat in 2011/12, commanding nearly 90% of the work done and 60% of the workforce growth.

Going forward, major projects work done is forecast to peak in 2012/13 at just under \$18 billion, a slight 2% increase over 2011/12. However, it should be kept in mind that the growth will be achieved from a record-level base of activity. Workforce demand is expected to rise strongly in 2012/13 and peak in 2013/14 at 24,700 persons. The aggressive growth is even more startling considering the substantial level of employment already in play.

Most engineering segments saw growth in work done and workforce demand for major projects in 2011/12, except for roads and bridges, and a similar outcome is expected for 2012/13. The vast majority of work done and workforce demand growth in 2012/13 will be driven by mining and heavy industry, which alone will require 2,900 more workers – around 26% more than just a year prior. The most substantial increase in workforce

Figure 1.1. (Figure A in the Executive Summary)



1. Queensland Major Projects

requirement for mining and heavy industry will come from Queensland's Liquefied Natural Gas (LNG) industry.

Figure 1.1. summarises the impact of Queensland's LNG construction boom, off-peak commodities prices, increased industrial activity, federal and state budget constraints, and the high Australian dollar over the next four years for Queensland's major projects and workforce demands.

The impacts will be immediate and pronounced, with implications and hangover effects for all engineering construction segments over the next five years.

Figure 1.2. illustrates the share of workforce demand over the forecast between non-mining engineering construction, mining and heavy industry (excluding oil and gas), and oil and gas. It becomes clear when considering both Figures that activity and workforce requirements will remain historically high, though falling during the forecast period.

In effect, cost pressures associated with Queensland's LNG projects, in combination with delays to the next round of mining and public sector projects, will squeeze projects in the remaining engineering sectors.

It is important to acknowledge that this projection is based on a considered and reasonable view of the likely development of projects in the state, as detailed in the 2013 Major Projects List (see the **Appendix**), regardless of whether the projects have received funding approval. This is likely to provide a more realistic outlook of major projects activity in Queensland, and shows how the workforce requirement is likely to develop over the forecast. If the Major Projects List exercise was narrowed to only those projects with current funding approval, then major projects activity would experience a more rapid decrease in activity and related workforce

demand/cost pressure. However, this is not the most likely scenario outlook for activity given the high probability that many (currently unfunded) projects will be funded and committed to over the next 12–18 months. Rather, the unfunded forecast view is a worst case scenario outlook should international development deteriorate significantly, and the combination of threats to Queensland construction remain unaddressed.

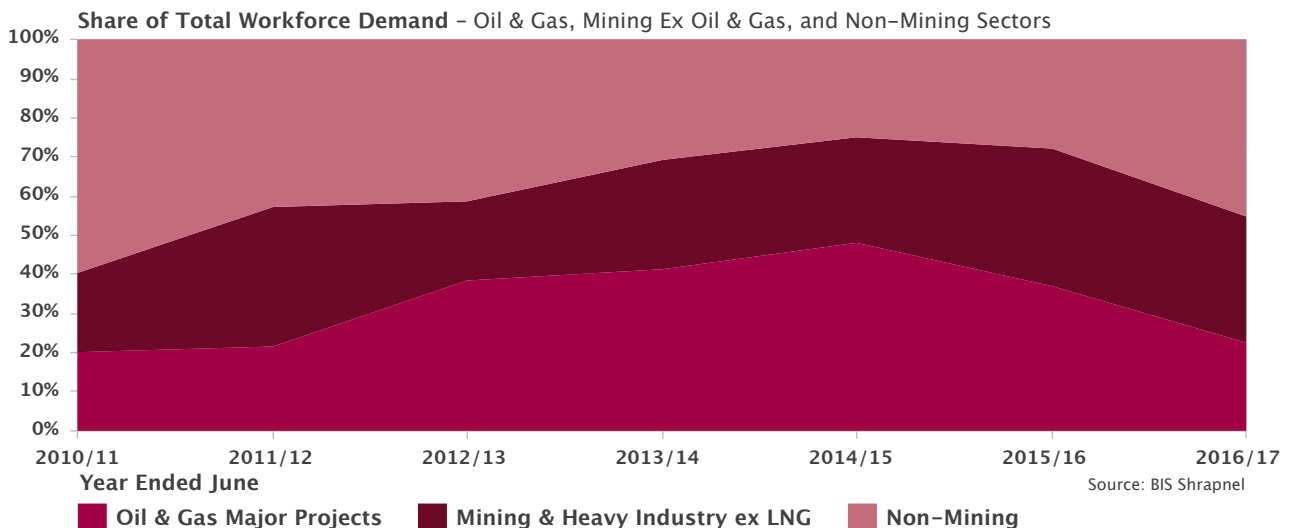
1.4. Roads and Bridges

Due to constrained federal and state budgets, major project work for roads and bridges is expected to deteriorate through much of the forecast period before picking up again by 2016/17. Furthermore, new major private toll roads are unlikely to materialise, given the high profile failure of prior Public-Private Partnership (PPP) roads projects in Queensland and New South Wales. With the next round of Nation Building Program (NBP) projects still in the wings, an unlikely rescue from private toll road projects, and a rising cost environment, Queensland roads and bridge construction work looks set to continue to decline until the next round of the NBP projects kick off after the middle of the decade.

Additional emergency Federal and State Government spending - particularly for 2013 flood-related disaster relief - presents strong upside potential to engineering construction activity in Queensland, especially for roads and bridges.

Although recent flood damages have yet to be formally quantified, it is expected that work required to be done may be within the range of \$1.5 – \$2 billion. Most – if not all – of this emergency-related work will be broken down into smaller packages of less than \$100 million, and therefore does not impact the major projects outlook presented in this Report. It does however, influence the overall level of civil construction activity within the state,

Figure 1.2.



and the ability of the State and Federal Government to source labour and fund major projects into the future. As shown in **Figure 1.3.**, major project road and bridge construction work done is expected to contract by nearly 60% by 2015/16, compared to the peak of 2010/11. Similarly, major project workforce demand is expected to decline by a similar proportion over the same period. The next round of NBP projects is expected to trigger the next upswing in 2015/16, but is unlikely to deliver the activity peaks of 2010/11.

A positive development for contractors in this segment is the Queensland State Government decision to outsource its road maintenance arrangements in the south east corner of the state. While the aggregate size and dollar value of these contracts is yet to be determined, it is likely to be in the vicinity of \$100 million per annum for the next five to ten years, and split among several contracts. As with flood-related works, this activity has not been considered in this Report given that the ultimate packages of work are likely to be well under the \$100 million threshold and the focus is on maintenance.

Finally, ongoing development of Coal Seam Gas (CSG) fields over the operational life of LNG facilities (at least two decades) will require continual investment in related field infrastructure, including access roads. Again, while not major projects in their own right, in aggregate they will lift the volume of sector activity compared to pre-CSG times.

1.5. Railways and Harbours

Major projects across rail and harbours have grown substantially over the last few years.

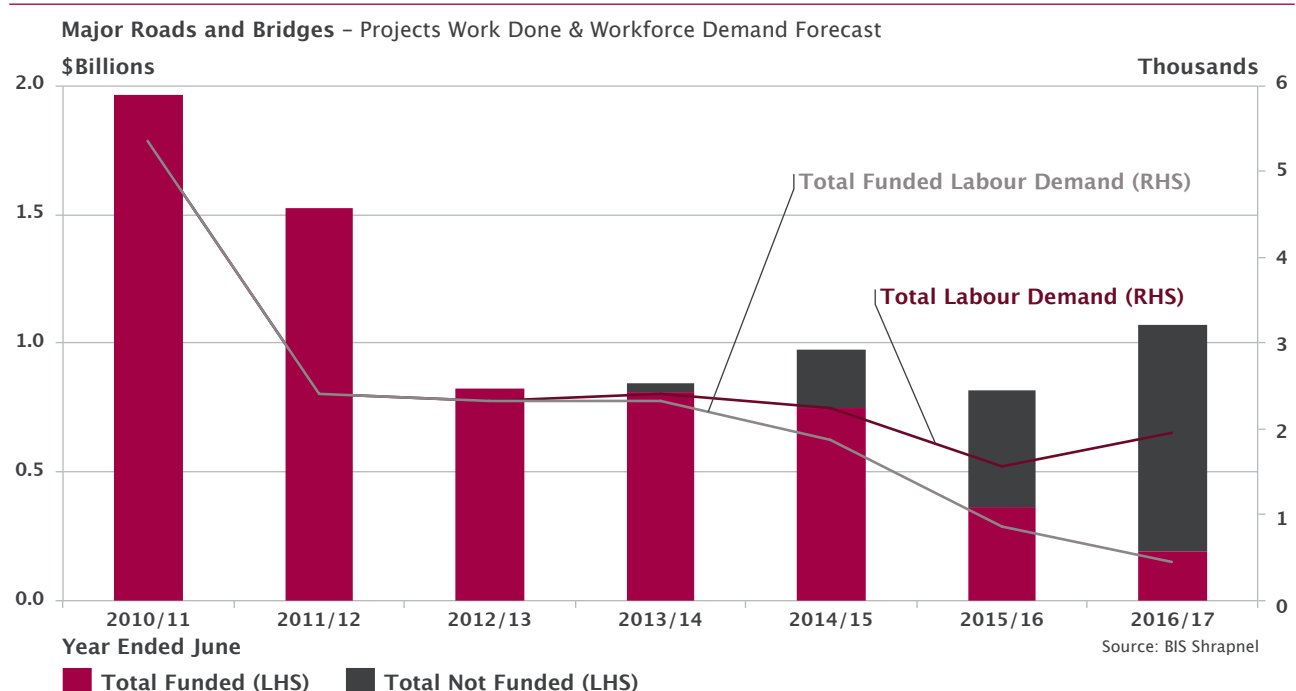
In line with the aggregate engineering construction industry profile, railways and harbours work done and workforce demand are expected to peak in 2012/13 but remain at exceptionally high levels again in 2013/14.

As shown in **Figure 1.4.**, combined railways and harbours work done will surpass \$1.6 billion in both 2012/13 and 2013/14. Workforce demand requirements will mirror the expected work done, with railways and harbours growing to 3,300 persons in aggregate in 2012/13 and declining only marginally in 2013/14.

Railways and harbours work has been driven predominantly by the demands of the resources sector. Consequently, the pause in commencing new resources projects during the second half of 2012 is expected to see the volume of major project work ease in this segment across 2013/14 and 2014/15. However, this easing will be gradual at first, with more substantial declines in funded work not expected until the middle of the decade and beyond.

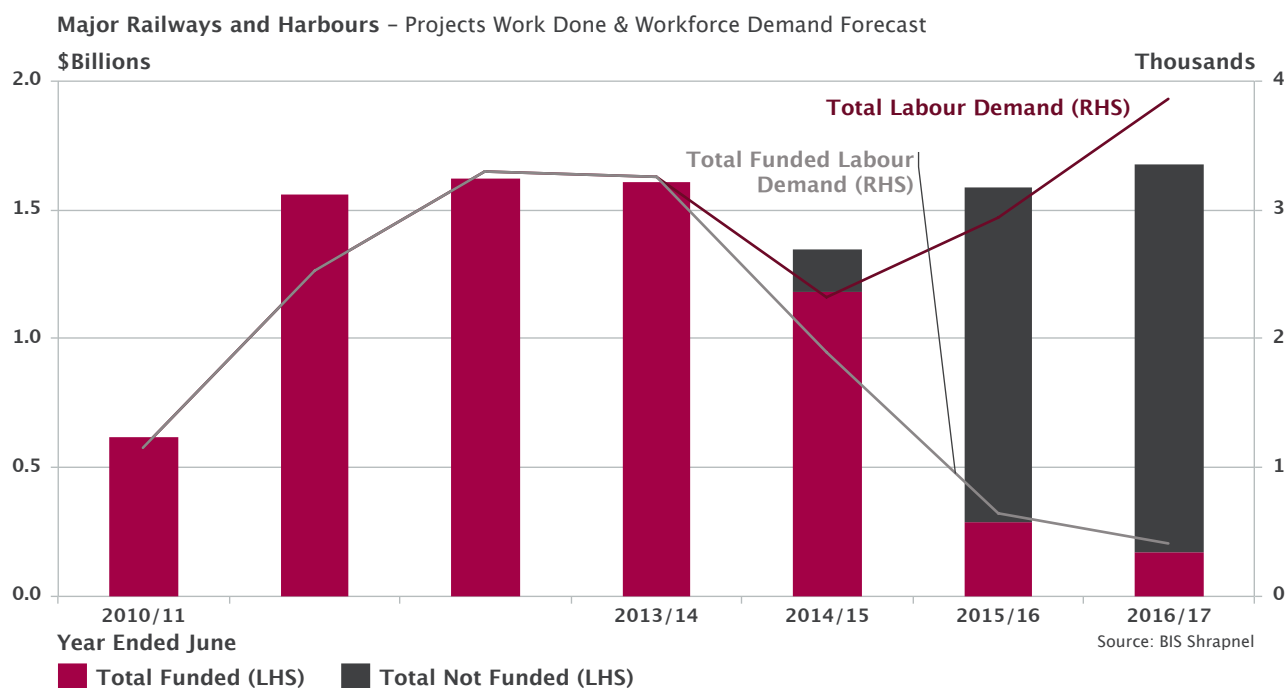
The key risk to the railways and harbours major project forecast is the inclusion of at least one major Galilee Basin project towards the end of the forecast period. This is essentially the 'non-funded' category of work shown in **Figure 1.4.** The development of the Galilee Basin, further north and west of existing coal infrastructure in the Bowen Basin, will necessitate a massive construction program involving over 400 km of new rail and new port capacity to handle up to 120 million tonnes per annum (MTPA) of coal. Both of the Galilee Basin major projects involve two stages of 30 MTPA. For this Report, it has been assumed that

Figure 1.3.



1. Queensland Major Projects

Figure 1.4.



major construction will begin on at least one of these projects by 2014/15. However, there remains a significant risk that the cost of developing these projects relative to expected coal prices may see activity delayed beyond 2016/17.

There are also upside opportunities to this outlook. Firstly, it is possible that one of the Galilee Basin projects could start earlier than anticipated. Another significant opportunity is the potential development of the Surat Basin coalfields. Looking specifically at the development of the large Wandoan mine, if it were to proceed it could boost railways and harbours major project work by around \$3–4 billion. This project would have major impact on the Surat region, with many other mines likely to piggyback if the Southern Missing Link rail were developed.

1.6. Water and Sewerage

Water and sewerage workforce demand and work done for major projects both climbed strongly in 2011/12, largely due to new water treatment plant facilities and pipeline work. Sewerage activity experienced double-digit growth rates over the last couple of years, albeit from a low base. In aggregate, major project water and sewerage activity in Queensland saw \$283 million in work done and employed nearly 500 persons.

Looking ahead, water and sewerage is expected to continue to grow in the short-term, peaking in 2013/14.

Completion of the Talinga and Reedy Creek Water Treatment Facilities, and a host of new CSG-related

pipeline work will drive activity. As shown in Figure 1.5., at the peak, major project water and sewerage activity is expected to reach more than \$450 million in work done and employ nearly 900 persons.

Water and sewerage major projects activity is expected to weaken over the subsequent two years, as projects move to completion and new projects commence in 2015/16. By 2016/17, activity is expected to rise strongly again due to strong pipeline work and the beginning of the new projects that will provide flood mitigation benefits, as well as additional water supplies for new coal and CSG fields.

There are significant risks with the water and sewerage major projects outlook. As many of the projects driving work done and workforce demand are coal-related pipeline works that are not yet funded, they retain plenty of start-date flexibility. If conditions do not prove ideal for these projects, they could be further delayed or pushed out beyond the forecast horizon, considerably weakening the industry growth profile.

1.7. Electricity, Pipeline and Telecoms

Electricity, pipeline and telecoms major projects employed more than 2,700 persons in 2011/12, two thirds of which involved pipeline-related work. It should be noted that pipeline work referenced in this section relates to non-water pipelines, as water pipelines are included in the previous section. As illustrated in Figure 1.6., in aggregate, electricity, pipeline and telecoms activity reached nearly \$1.3 billion in work done, nearly 200% higher than a year earlier.

Figure 1.5.

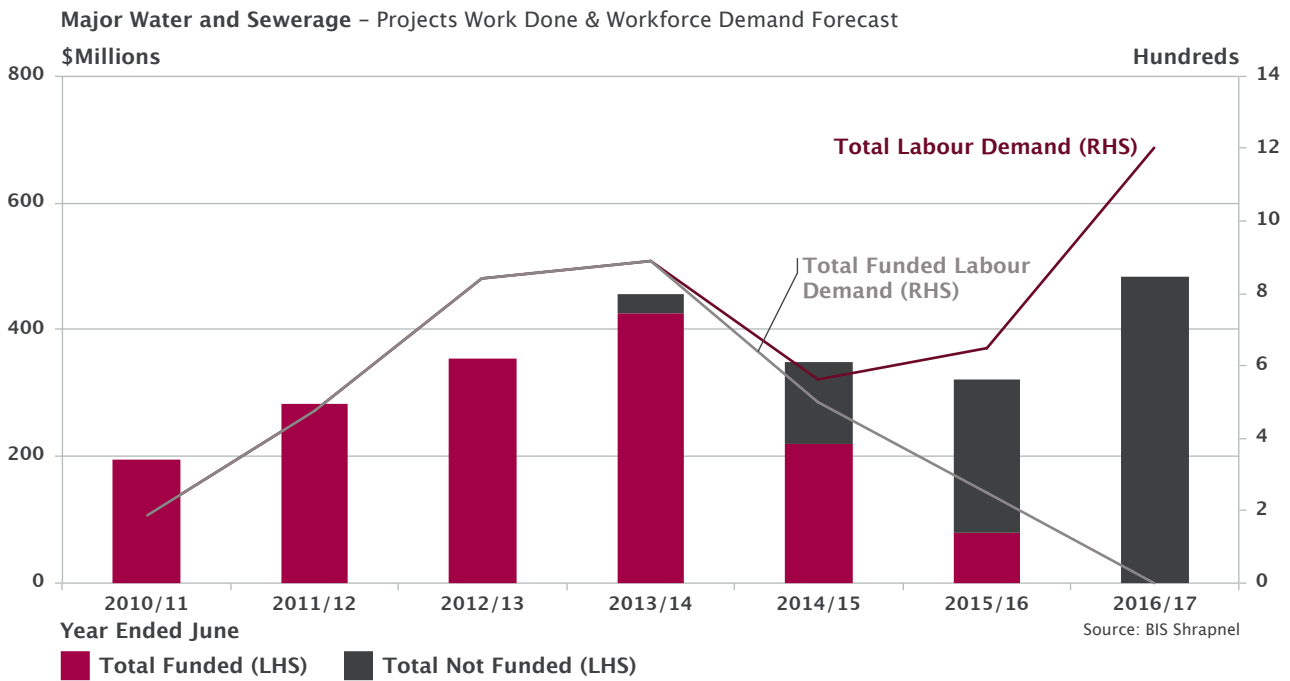
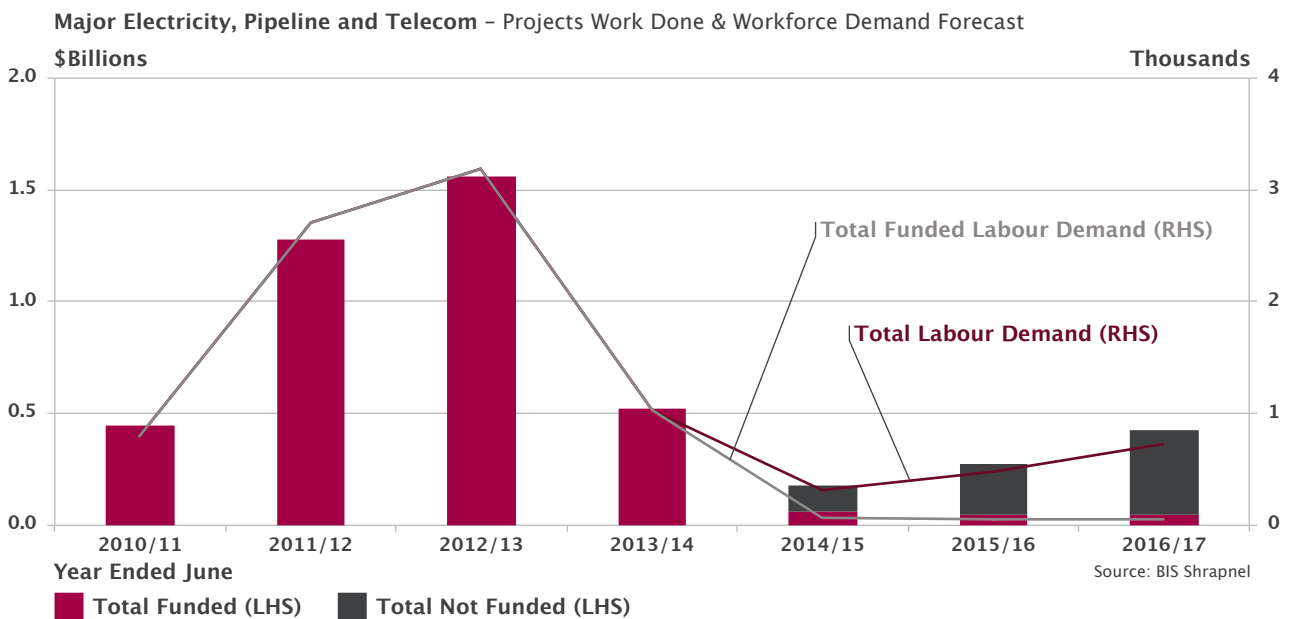


Figure 1.6.



The growth in 2011/12 was delivered by a simultaneous increase in activity in the electricity and pipeline segments, while telecoms remained flat.

In the electricity sector, a host of new Powerlink distribution and supply projects were a key driver. In the pipeline sector, the South West Queensland Pipeline and a series of CSG pipelines took growth to new levels at nearly \$860 million.

In the short-term, major project electricity, pipeline and telecoms work done is expected to peak in 2012/13 at \$1.55 billion, employing more than 3,200 persons in the process. The activity will be driven almost equally by electricity and pipeline work, as both sectors bring multiple major projects to completion. Over the medium to long-term, the picture is much weaker for electricity, pipelines and telecoms. With regards to electricity, recent estimates and forecasts of electricity demand

1. Queensland Major Projects

from the Australian Energy Market Operator (AEMO) suggest that energy demand in Queensland has been falling in recent years, pushing out the requirement for new power generation until late in the decade. For non-water pipelines, the vast bulk of major project work is occurring now – with major gas transmission lines being built between Gladstone and CSG fields in the Surat Basin – and will decline substantially in subsequent years. However, as with roads, the ongoing development of the CSG fields to feed the LNG trains once they are built, will require continual investment in pipelines to connect new wells with existing infrastructure.

A major upside opportunity for additional pipeline work is if Surat Basin coal fields were to be developed within the forecast period.

1.8. Mining and Heavy Industry

Mining and heavy industry major project work expanded by an astonishing 200% in 2011/12 to a record \$13 billion, as illustrated in **Figure 1.7**. From a major project workforce perspective, the number employed in Queensland’s mining and heavy industry space doubled between 2010/11 and 2011/12 to 10,900 persons. Queensland’s LNG projects were a key driver of growth, while existing coal projects remained very strong, despite delays to the next round of works. The immediate impact of the strong growth in LNG project work has been higher wages and construction costs, which threaten the cost competitiveness of other projects.

Long-term, if not properly managed, Queensland runs the risk of losing its market share of coal and CSG projects to other, lower cost export competitors.

While major project work done is expected to peak in 2012/13, labour demand will continue to rise for major projects, with a peak in labour demand timed for 2013/14 as Queensland’s LNG projects in particular, move into peak (domestic) construction phases. Furthermore, a substantial shift is expected in the pattern of labour demand, with upfront civil trades being replaced by key building phase trades, covering mechanical, structural and electrical skills.

Importantly, while major project activity is forecast to decline in subsequent years, given the volume of work already in the pipeline, it is expected to fall only gradually at first and remain at levels through the middle of the decade which are more than double that experienced in 2010/11. Queensland’s LNG projects alone will require a semi-skilled and skilled construction workforce averaging more than 10,000 persons over the next three years.

Crucial to the realisation of forecasts at and after the middle of the decade, is that resources projects currently under study or delayed will move into the committed and funded phase. This has particular relevance for the LNG stages or projects (such as Shell LNG) or new substantial coal developments in the Galilee and Surat Basins.

Important to the development of the North West Province in Queensland – although smaller in size – is the timing of new major base metals and minerals projects covering phosphates, silver-lead-zinc, copper, tin and nickel. As the global economy recovers from 2013/14, demand and prices for these metals and minerals is likely to pick up, underwriting the next round of investment. While dominated by the sheer scale of coal and LNG investments, other minerals projects will still be substantial over the next two

Figure 1.7. (Figure B in the Executive Summary)

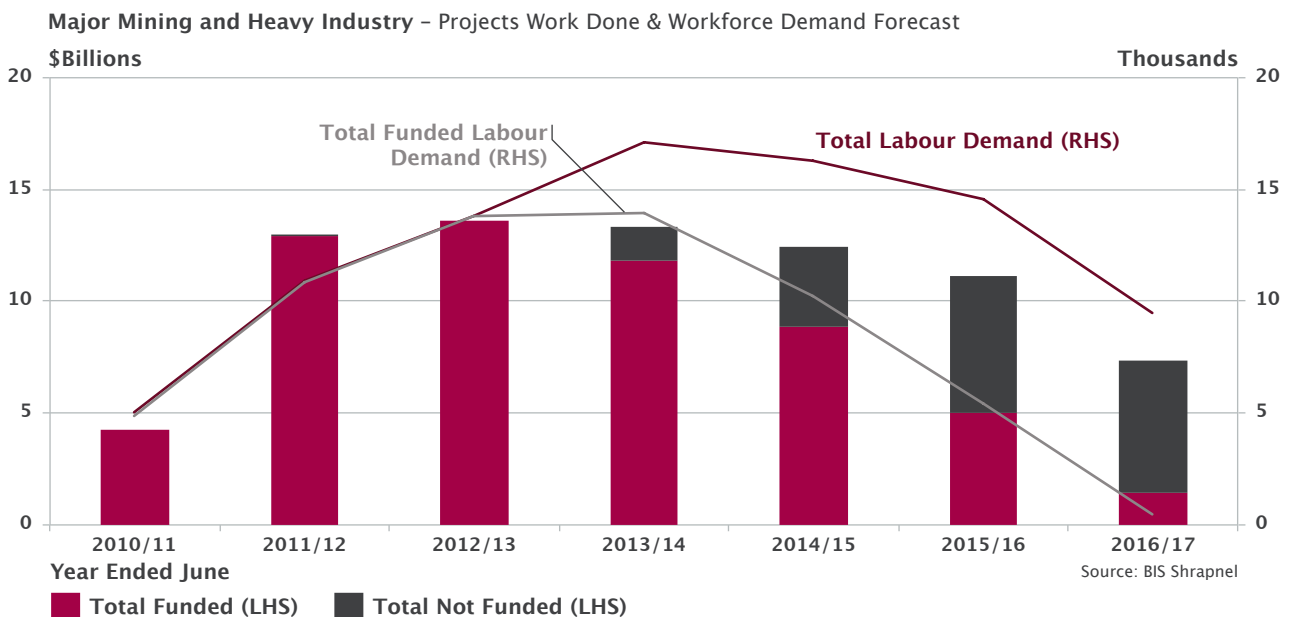


Figure 1.8.

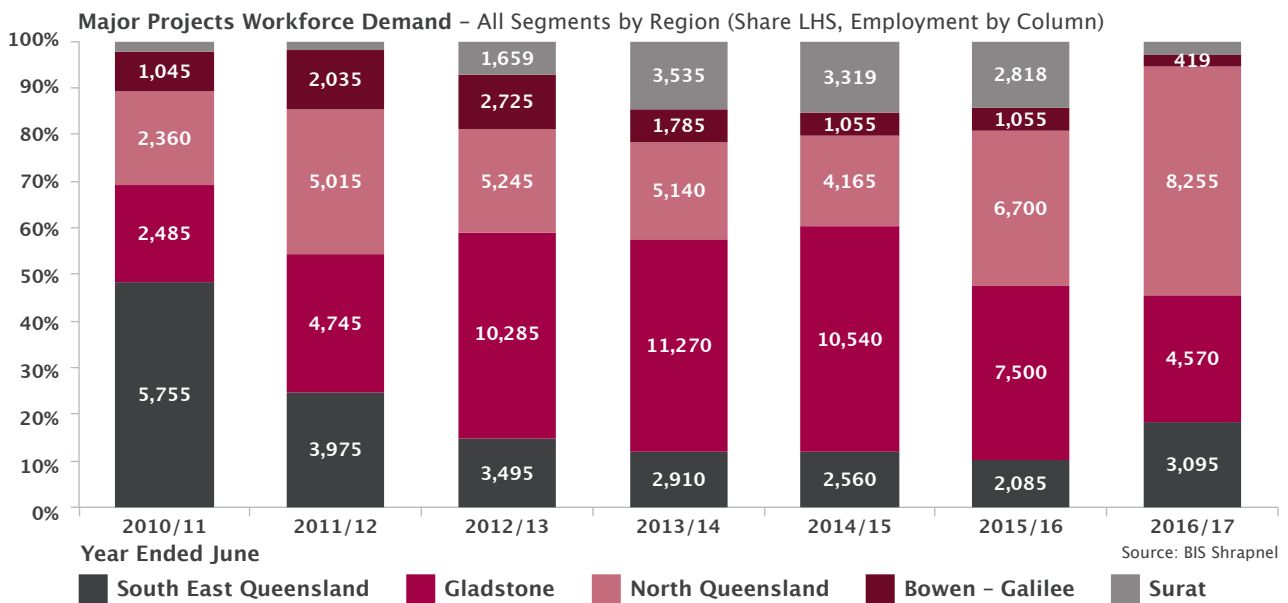
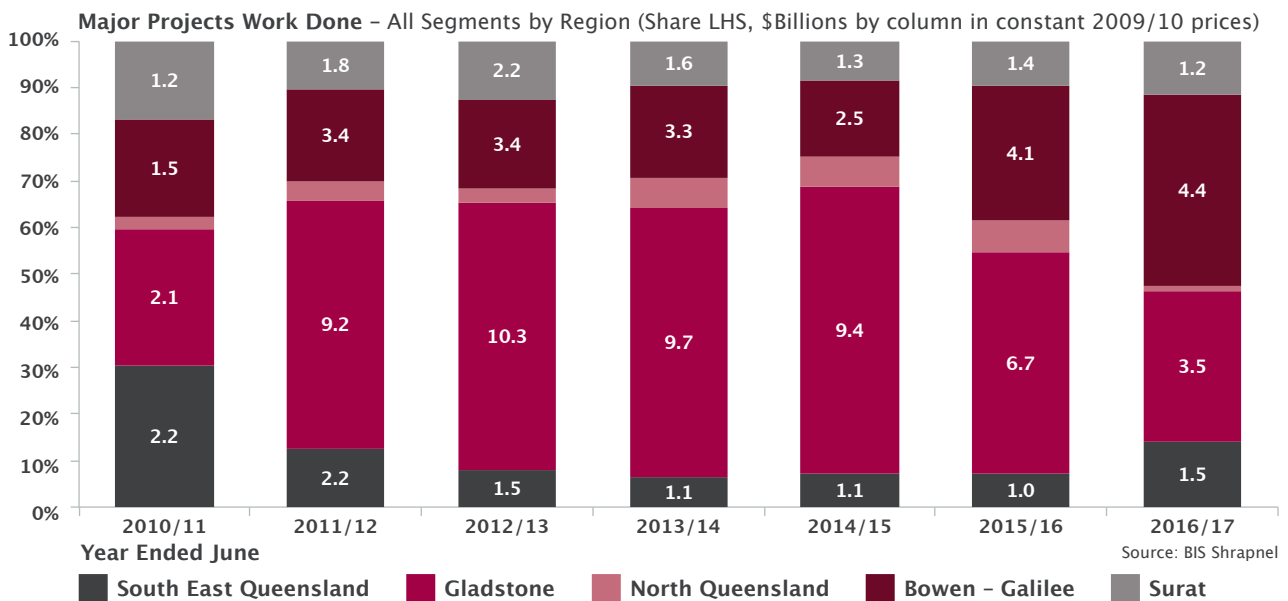


Figure 1.9. (Figure C in the Executive Summary)



years, and offer some upside to the forecasts and the northern region.

1.9. Queensland Regional Focus

Based on analysis of projects discussed in this Report, there is a continuing shift to regional projects – both in terms of work done and workforce demand over the next few years – before the next upswing begins after the middle of the decade, as shown in **Figures 1.8. and 1.9.** This is mainly due to markedly stronger major projects work done expected in the Gladstone, Bowen

Basin and Surat regions, as well as a sheer decrease in the level of real activity in South East Queensland.

The shift of labour and capital from South East Queensland to regional Queensland - in a very concentrated period of time - will continue to present challenges to local communities and projects.

In 2012/13 alone, Gladstone is forecast to expect more than double its current major project workforce requirement to meet the construction schedule of the LNG projects. Meanwhile, the remaining regions are

1. Queensland Major Projects

set to continue close to current workforce demand and work done levels during the same period. The likely result of this is tight semi-skilled and skilled labour conditions.

Currently, Fly-in-Fly-out (FIFO) workforces, new entrants, and overseas labour are helping to fill regional labour gaps. FIFO workforces – although a viable solution to intense, temporary skill requirements – can prove problematic for regional communities. In many cases, regional communities suffer from a classic free rider problem: FIFO workers enjoy regional community services (e.g. health care and other common access services), while not contributing fully in return through spending, and taxes leak to their state of residence. Further, local businesses often lose employees as major projects erode the communities. Although many of these projects and associated workforce pressures may be viewed as ‘one off’ type events, they are actually quite likely to be recurring as investment cycles in regional communities play out time and again.

Therefore, long-term, positive solutions to FIFO challenges should be addressed on behalf of regional Queensland.

Looking ahead, the Bowen Basin will remain a solid source of activity and workforce demand, with a steady stream of major projects set to keep activity relatively stable throughout the forecast. From 2012/13 through until 2015/16, activity in Gladstone is expected to remain in overdrive as the LNG projects move through peak construction phases. Easing of major projects work done and workforce demand requirements in South East Queensland and the Surat Basin will begin to provide some room for the activity in Gladstone and the Bowen Basin. However, constraints and bottlenecks will most likely not see material relief until 2015/16, when Gladstone passes its peak construction phase and a gap in major projects is felt in South East Queensland and Surat.

1.10. Strengths, Weaknesses, Threats by Region

South East Queensland

Publicly funded infrastructure works are the key driver in South East Queensland. Publicly funded roads and railways work will remain the principal source of major project activity. This means that the projection of declining levels of public investment and major project works in this region will place local contractors at significant risk. Beyond publicly funded works, Origin’s South West Queensland Pipeline Stage 2 & 3 is likely to be the only substantive private work driving the forecast. A turnaround in public investment is expected to come through after the middle of the decade, and this will support major project activity in South East Queensland. Until then however, it will be more challenging, with only a handful of major road and rail projects, new road maintenance contracts, and potential flood reconstruction works projected in the short-term.

Gladstone

The strengths, weaknesses and threats to the Gladstone region are shaped by the outlook for LNG and coal. See **Section 1.8.**, Mining and Heavy Industry, for detailed discussion and analysis on this topic. In summary, major project demands are expected to peak by 2013/14 here, and then start to decline. Whether the decline becomes more substantial at a later time depends on whether further stages to existing LNG projects – or new LNG projects (such as Shell LNG) – commence during the forecast period, or are delayed by high cost pressures and the emergence of competitive threats, such as United States (US) shale gas.

Bowen Basin

Coal-related major projects are shaping the Bowen Basin region. A substantial portion of these projects are either funded or well underway. However, a key assumption (as described in **Section 1.8. Mining and Heavy Industry**), is for one of the Galilee Basin projects and associated infrastructure to proceed towards the end of the forecast. By assuming this, the Galilee Basin projects present both upside opportunity with projects being pulled forward, or downside risk where they are pushed back.

Surat Basin

Oil and gas and related infrastructure are currently driving activity in the Surat Basin. However, significant coal resources mean there are substantial upside opportunities to the forecast. For example, if the right conditions permit the Wandoan Coal Project to proceed, then the Southern Missing Link rail project may come on earlier than expected. This in turn, would allow multiple coal-related projects to piggyback on the infrastructure. In addition, a number of CSG fired electricity generators are currently proposed in the region, meaning further upside potential exists, although there is a low probability of this occurring in the next five years.

North Queensland

The North West Province in Queensland could stand to benefit from multiple major base minerals projects covering phosphates, silver-lead-zinc, copper, tin and nickel. Timing of the global economic recovery and demand for metals and minerals will be the key issue to underwrite the next round of minerals investment in this region. While dominated by the sheer scale of the coal and LNG investments, base metals and minerals projects in this region will still be substantial over the next two years – including the South of Embley project. While LNG work in Queensland will peak and then decline through the forecast period, skilled labour shortages and wage pressures are likely to remain, given the increasing competition from other LNG projects in Australia and overseas, particularly Darwin LNG projects. This offers some upside to the forecasts.

2. International & Domestic Economy – Setting the Stage

2.1. Impacts of the Global Economy

A key message from the past year is that the health of the global economy has critical impacts on Queensland. The flow-on effects of recent economic turmoil influenced growth across Asia, and were even felt in China. Domestically, the impact of relatively weaker advanced economy demand and growth, led to weaker commodity prices against a backdrop of a continually strong Australian dollar (\$AUD), illustrated in **Figures 2.1.** and **2.2.** For Queensland, the thermal coal price was soft compared to its historic highs, with spot prices remaining below \$USD 100 per tonne since May 2012.

Figure 2.1.
\$USD Commodity Prices – Oil, Coal and Iron Ore

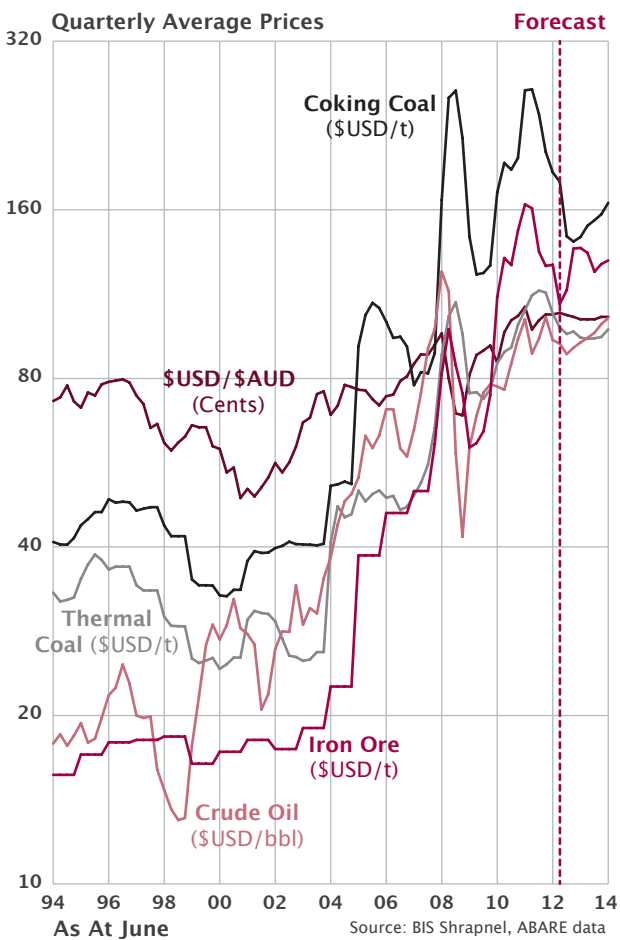
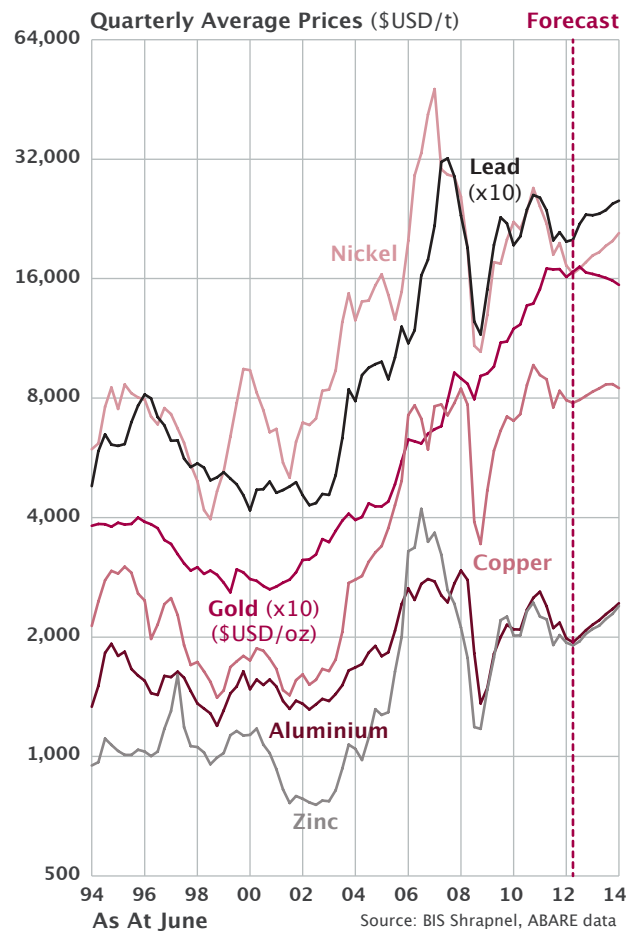


Figure 2.2.
\$USD Commodity Prices – Metals and Gold



To address advanced economy demand, central banks resorted to unprecedented simultaneous liquidity measures, which in turn continued to pressure the \$AUD upward.

This has placed Queensland mining operations and projects in the unusual circumstance of facing a record high \$AUD, even though commodity prices remain well below their peaks. This served to highlight the costs of doing business in Queensland – from construction to operations – resulting in major projects being questioned, delayed or cancelled.

Nonetheless, the global growth picture is improving. Although the Euro area will continue to be a drag on

2. International & Domestic Economy

world growth, activity in the United States (US) and China (and Asia broadly), will underpin better medium-term global growth prospects.

Sustained commodities prices, a comparatively strong Australian economy (compared to advanced economies), considerable foreign direct investment, strong Australian government debt credit ratings, and central bank activity in the US and Europe will all continue to apply pressure to the local currency over the forecast period.

Emerging market economies – particularly China and India – will outperform their advanced economy counterparts. As shown in **Figure 2.3.**, despite weaker advanced economy demand, emerging economies will sustain relatively strong growth and provide a larger share of global Gross Domestic Product (GDP), and in the process take the lead in driving world growth. Urbanisation and infrastructure development have contributed significantly to growth in China over the past decade and will remain strong, but in the future it is expected household demand will play a much larger role in fuelling growth.

Monetary and fiscal stimulus measures launched in China in 2012 and now Japan in 2013, will start to support commodity price levels in the short-term and drive higher prices over the medium-term.

While growth in the US is not assured, it shows some strong fundamentals. There is a broad base of recovery in the US economy (despite a small dip in activity in the December 2012 quarter), with companies recording stronger profits and increased employment. The resulting dividends include increased business investment (leading to more jobs), higher incomes, and assisting the recovery in the housing market.

Together, rising business investment, employment, incomes, housing asset values, and construction should deliver a virtuous self-sustaining growth cycle over the medium-term.

On the downside, repeated political brinkmanship – where the economy is held hostage – will prove a persistent risk to US growth. Irrespective of any given political/economic crises of the day, efforts to rebalance the budget and combat rising national debt will restrain growth in the US over the short and medium-term.

Meanwhile, the US Federal Reserve is unabashedly going for growth. It will continue to print money until unemployment reaches 6.5% or lower, provided inflation rests within reasonable levels. This means that the \$USD will remain historically weak against a relatively high \$AUD (above 80 US cents) over the next five years. In other words, the relatively weaker performance of the US economy (through the exchange rate) will continue to cast a spotlight on the costs of construction and business operations in Queensland over the forecast. Given the \$AUD and solid (but not peak) commodity price outlook, Queensland major projects will be required to remain vigilant on controllable costs in order to remain viable.

Economic conditions in the US and Europe, and sustained commodities demand from China, present opportunities for Queensland.

A relatively strong domestic economy, strong regional population growth, rich resources, and stable political climate will continue to attract foreign investment. Beyond the obvious minerals-related investment, multinational corporations, pension funds, and sovereign wealth funds all present strong opportunities as they search for returns in an environment where interest rates are at – or near zero – in the US and Europe. Infrastructure projects like ports, harbours, and roads with long-term cash flows may prove particularly attractive. In addition, foreign capital flows will also lead to a stronger \$AUD.

2.2. Impacts on the Australian Economy

The Australian economy has been the strongest performing developed economy over the past decade, highlighted by the avoidance of recession in the wake of the Global Financial Crisis (GFC). As a result, Australia has continued to move up the Organisation

Figure 2.3. Real GDP/Gross National Product (GNP) Forecasts

Year Ended December	OECD ⁽¹⁾	US	Japan	Euro Area ⁽²⁾	China	India	South East Asia ⁽³⁾	World GDP
2011	1.8	1.8	-0.6	1.4	9.3	7.9	4.2	4.0
2012	1.4	2.2	2.0	-0.5	7.8	4.5	3.7	3.0
2013	1.5	2.2	0.2	-0.1	8.2	6.7	4.6	3.5
2014	2.4	2.9	1.2	1.5	7.9	7.3	4.8	4.1

(1) Organisation for Economic Co-operation and Development (OECD): Australia, Austria, Belgium, Canada, Denmark, Finland, France, Switzerland, Turkey, United Kingdom, United States.

(2) Euro area: Cyprus, Estonia, Ireland, Malta, Slovakia, Slovenia, France, Germany, Italy, Spain, Portugal, Austria, Belgium, Netherlands, Luxembourg, Finland, Greece.

(3) South East Asia: Indonesia, South Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam.

Source: OECD, IMF, National Government Sources, BIS Shrapnel

for Economic Co-operation and Development (OECD) rankings to ninth in terms of GDP per capita (on a purchasing power parity basis), and now sits around 17% below the US, compared to nearly 23% in 2000.

There is no room for complacency, however, on the ground, this robust aggregate performance masks sharp differences between sectors and regions.

The picture is one of an economy out of balance, undergoing significant structural change with offsetting cycles averaging to a moderate outcome.

Meanwhile, the spectre of Europe or the US – on the back of their political and economic challenges – causing another world recession still persists.

Recent GDP growth in 2011/12 at 3.4% did not come without a price. Record levels of minerals investment and strong household spending were the primary drivers, with the surge in resources income and investment revealing skilled labour constraints. Skilled labour constraints have, in turn, renewed the focus towards escalating costs.

Now, even the minerals sector is feeling the impact of the high \$AUD as commodity prices have come off their peaks. Costs that were inconsequential at peak mineral prices, are now pivotal. Normally, a weakening of commodities prices would have weakened the \$AUD, masking the rise in costs. However, with a multitude of forces acting to prop up the dollar, weaker commodity

prices and a strong dollar now highlight the costs of doing business in Australia. In some cases, softer commodity prices, a strong \$AUD, and rising costs – particularly labour – have discouraged some major projects from proceeding (like Olympic Dam), and many others have experienced large cost overruns.

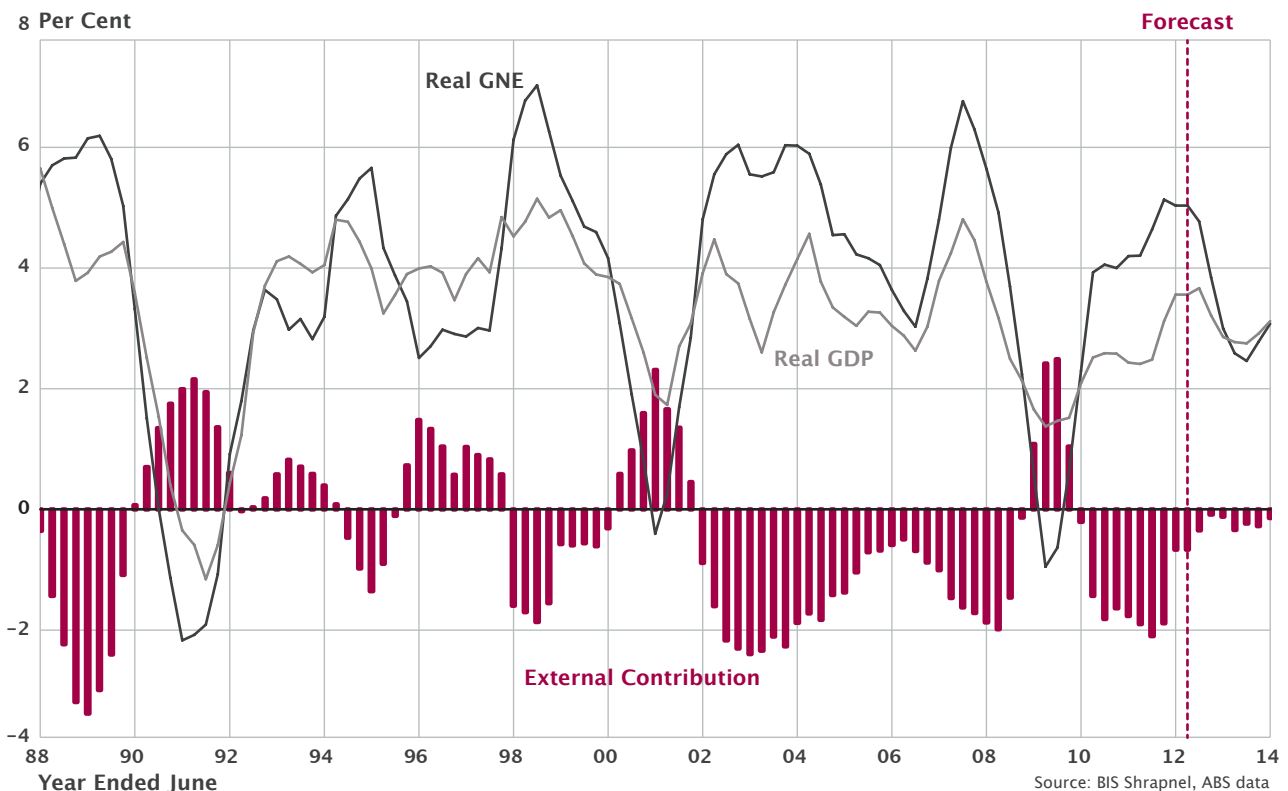
2.3. Outlook for the Australian Economy

GDP growth is expected to remain around its current rate of just above 3%, for four out of the next five years. However, a sharp slowdown is expected in 2013.

The minerals-related investment boom - the key driver in recent years - is now near its peak, where it is expected to hold for the next year, before trending gradually lower.

As a result, the contribution of minerals-related investment to GDP growth will slow, and then turn negative. Demand from China and India is forecast to remain strong, underpinning high commodity prices, which means a sharp decline in minerals-related investment is not expected. Nevertheless, growth in total business investment will slow as the contribution from minerals-related investment falls and non-mining business investment takes time to recover. This recovery in non-mining investment will be gradual, and will initially be driven by industries that service the residential building sector. The recovery will cover both machinery and equipment, and non-dwelling building investment.

Figure 2.4. Basic Economic Indicators – Moving Annual Totals



2. International & Domestic Economy

As the minerals investment boom shifts to a production boom, total export volumes will contribute 0.5 to 0.75% points to GDP for the next five years, despite weak non-minerals exports. On average, total export volumes are forecast to grow slightly faster than GDP throughout the forecast. On the import side, minerals-related imports will continue strongly for the next three years before shifting to household expenditure as the key driver.

Accounting for more than 50% of the economy, continued solid growth in household expenditure is a critical growth driver.

Households increased their saving rate sharply during the GFC. Recent data suggests that households in aggregate are comfortable with their financial position such that they are happy for spending to continue growing in line with incomes. Solid population growth, combined with around average employment and wages growth will help ensure solid household income growth, which in turn will continue to support growth in household expenditure.

As shown in **Figure 2.5.**, dwelling investment is starting to recover, and this is expected to continue in order to meet the extensive dwelling shortage that has developed over the past few years. This recovery is being underpinned by below average interest rates and an undersupply of dwellings in New South Wales, Queensland and Western Australia.

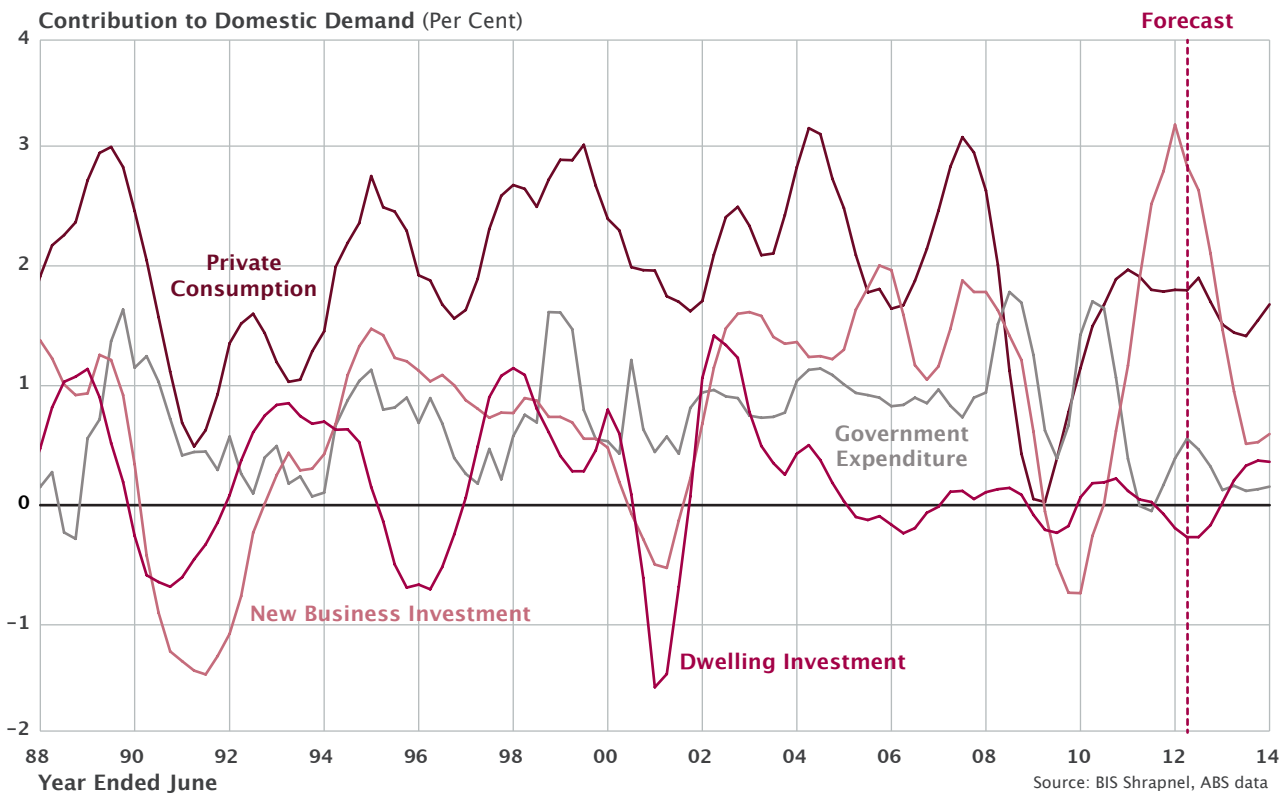
An extended recovery in dwelling building will create jobs in the building industry, and create significant spill-over benefits for other industries that are tied to the building industry.

Public sector expenditure is expected to largely track sideways for the next few years as all levels of government try to restrain spending and improve their fiscal position. This will involve further contraction in public sector investment, and lower than average growth in public consumption.

Employment growth is expected to gradually outpace labour force growth over the forecast. With the labour-intensive dwelling building industry playing an important role in Australia's economic growth, as well as other labour-intensive service industries, demand for labour is expected to increase. An increase in the participation rate later this year will offset some of this as discouraged workers (including many builders) return to work. This means that the unemployment rate will most likely hold between 5.25% and 5.5% over the next year, before dropping towards – and eventually below – 5% during 2014.

Although underlying inflation is currently around 2.5%, GDP growth – especially in the building industry – over the next three years will progressively erode existing spare capacity. This will have two effects. Firstly, it will encourage a recovery in non-mining business

Figure 2.5.



investment as businesses find themselves having to invest to meet demand. Secondly, the erosion of spare capacity will add to inflation pressure. This will lead underlying Consumer Price Index (CPI) inflation to rise above 3% during 2014.

These increased underlying inflation pressures will prompt the Reserve Bank to start raising interest rates during 2014, with variable housing interest rates expected to peak close to (but under) 8% in late 2015. A similar interest rate tightening cycle occurred in 2010. These higher interest rates will temporarily curtail the recovery in dwelling investment, slow growth in household expenditure, and produce a decline in business investment.

The forecast downturn in the economy in 2015/16 will be more evident in stalling domestic demand as opposed to GDP. The slowing in GDP is not very marked, reflecting the fact that the slowing in domestic demand will also reduce imports, and exports are expected to continue growing strongly due to increased mining capacity.

3. Queensland Economy

3.1. 2012 in Review

After stalling between 2009 and 2011, the Queensland economy grew rapidly through 2012, recording its fastest year-on-year growth in State Final Demand (SFD) – a measurement of goods and services sold in the state, without distinguishing exports and imports – since 2004.

The growth was driven by a surge in minerals-related investment, as well as robust consumption growth, which offset weakening levels of public investment and a trough in housing activity.

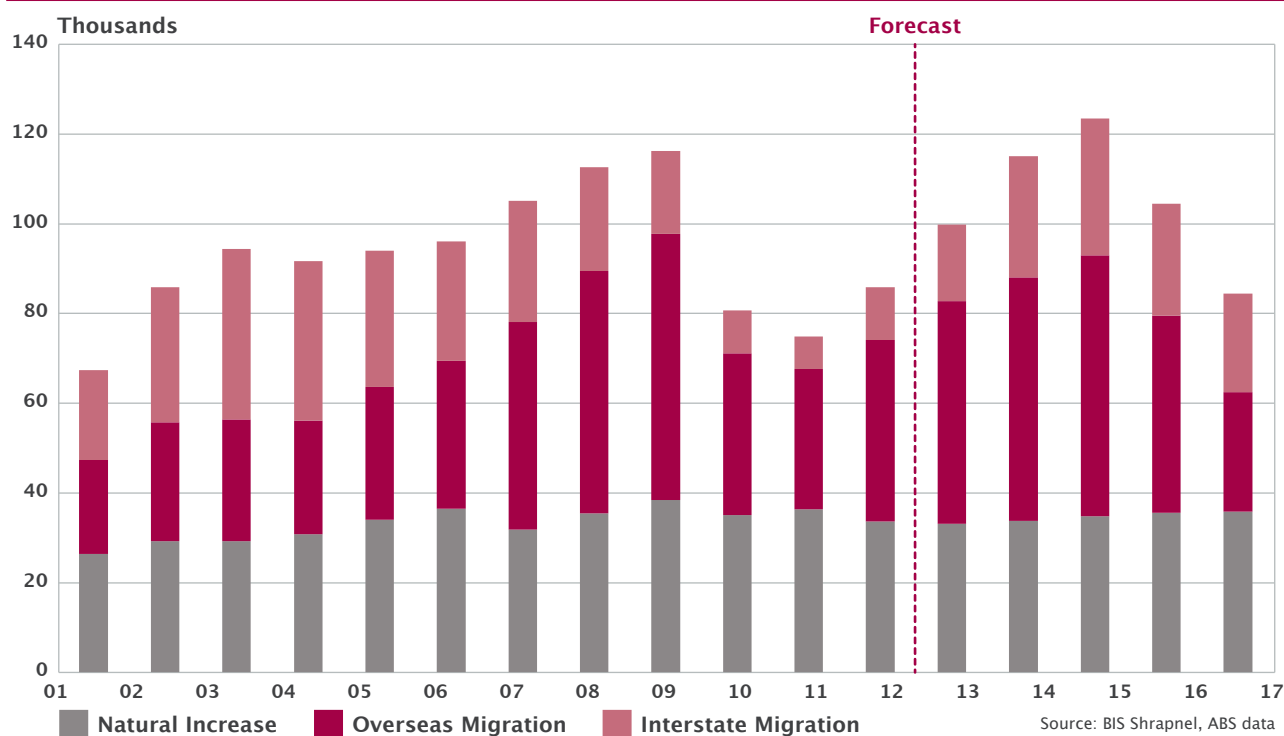
Through the second half of calendar year 2012, however, mixed signals began to emerge. While investment remained at a strong level overall, weaker commodity prices have seen several major resources projects delayed, particularly for coal. Public investment continues to weaken as projects funded since the global financial crisis (GFC) move into a completion phase without being replaced by new projects. Non-mining sectors – including housing and general business services – have

yet to pick up the baton to drive growth. Employment growth through the second half of 2012 stalled, although most recent data (December quarter 2012) showed improvement with the unemployment rate back down to 5.5%. Even so, the Queensland economy likely softened during the second half of calendar year 2012, particularly when compared to the heady growth seen in 2011/12.

3.2. 2013 and Beyond

The current patch of weakness will not persist, although state economic growth is not expected to rebound to 2011/12 rates in the near future. Over the next five years, divergent investment cycles are expected to play out across non-mining and mining-related sectors of the Queensland economy. Outside of mining and energy, the initial growth drivers will be new recovery initiatives following the January 2013 floods, and by 2013/14, a pick-up in housing investment will follow several very weak years. Continued strong population growth, an emerging dwelling shortage, low vacancy rates, rising rents, and below average interest rates

Figure 3.1. Queensland Population Growth



mean that dwelling building is expected to pick up very strongly in Queensland. As with New South Wales, increased dwelling building activity is expected to spill over into other industries, supporting activity and jobs throughout the state. Following housing, state investment and growth are expected to be supported by the next – albeit smaller – round of resources projects, as well as a recovery in public investment in areas such as transport and utilities infrastructure.

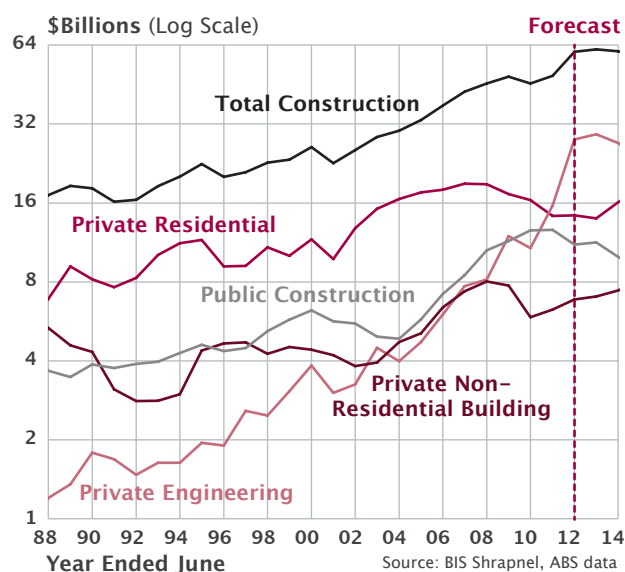
Residential building in Queensland increased by 1.9% in the year-ended June 2012, and while 2012/13 may not deliver strong growth, this is expected to change dramatically by 2013/14. While growth is off a very low base, it will be underpinned by continued strong population growth, low vacancy rates and rising rents. Queensland's population increased by 1.7% in the year to March 2012, with population growth of between 2–2.25% forecast over the next two years, as shown in **Figure 3.1**.

Even with the forecast recovery in dwelling building, this population growth will result in a sizeable dwelling shortage emerging, ensuring that the recovery in dwelling building is maintained over the medium-term.

The other major construction segment – non-residential building – is not expected to recover in the short-term. New private non-residential building is forecast to decline by nearly 11% in year-on-year terms to the year-ended June 2013, before posting a gradual recovery from late next year as the demand for office space intensifies. Public non-residential building is also forecast to continue to decline over the next two years. Queensland construction activity is summarised in **Figure 3.2**.

New private sector engineering construction has accelerated rapidly in Queensland, up by 83.2% year-on-year in the year to June 2012. The level of engineering construction is expected to remain at these extremely high levels for the next year or so, underpinned by ongoing activity associated with the various Liquefied Natural Gas (LNG) and coal projects that are currently underway. The rapid growth over the past few quarters means that around 8% growth in year-on-year terms is expected in the year to June 2013, even though there will be little or no further growth in quarterly terms.

Figure 3.2.
Queensland Construction Moving Annual Totals



While engineering construction activity will ease back gradually through the next five years, there will be significant changes in the mix of work with the current dominance of LNG-related work giving back some ground to coal and other minerals projects, as well as new projects in transport and utilities.

This also has implications for the mix of demand for labour skills required, with the focus shifting from civil construction skills to structural, mechanical and electrical trades, particularly on the large mega-projects which dominate the investment profile.

The scaling back of employment in the public service, combined with recent delays to the next round of resources projects (and substantial imports), helps explain why such large levels of investment have not delivered the employment punch. The unemployment rate rose from 5.3% to over 6% in the September 2012 quarter, but had fallen back to 5.5% by December 2012.

Further volatility in employment growth is expected through calendar year 2013, as new resources investment stalls and non-mining investment takes time to pick up.

3. Queensland Economy

However, as housing and other non-mining investments accelerate strongly through 2014 and beyond, employment and wages growth is expected to recover, supporting household incomes and underpinning growth in household spending. This is in sharp contrast to 2009/10 and 2010/11 when Queensland lagged behind the national employment and consumer spending growth, while the state unemployment rate jumped from below to above the national rate.

While the recent pause in new private and public projects has provided some relief, the biggest challenge facing the state in the next few years will continue to be an adequately skilled workforce supply to cater for the large LNG and coal investments, plus the expected acceleration in housing construction and household spending.

For example, as the large LNG projects move to the building phase of construction, demand for mechanical, structural and electrical trades will heighten. The strong upswing expected in the housing market will itself drive demand for related trades. Meanwhile, LNG projects moving out of the preparation phase, a pause in new coal related projects, and contractions in public investment has eased pressure on the civil trades. However, this may be short-lived given the likely size of the rebuilding task following the recent 2013 flood disaster.

Recent minerals-related investment, combined with the passing of the 2011 floods, has seen export volumes from Queensland increase strongly over the past few quarters. Barring major impacts from the January 2013 floods, further mineral export growth is expected as the various coal and minerals projects come on stream. This will help offset the expected weakness that will continue in tourism-related exports, due to the high Australian dollar and weak global growth.

Also weighing on activity is the State Government, which is reigning in spending in order to shore-up their finances.

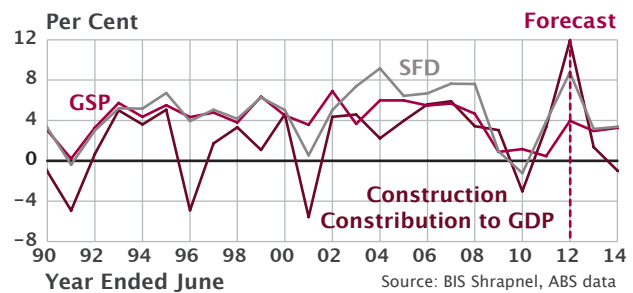
This is taking the form of reduced infrastructure spending, and lower employment and wage growth in the public service.

3.3. Economic Review

Overall, year-on-year growth in SFD was at 8.8% in the year to June 2012. Strong, albeit slower, growth in SFD and Gross State Product (GSP) is forecast for 2012/13 and 2013/14 (GSP differs from SFD as it takes into account imports and exports, and is analogous to Gross Domestic Product (GDP) at the national level), as shown in **Figure 3.3.**, SFD is expected to continue to outpace GSP on average over the next five years, reflecting the large import content of the minerals-related investment.

Investment and exports will be key drivers of Queensland economic growth.

Figure 3.3.
Construction Contribution to Gross State Product



New mining supply will come on stream – during the next two years and beyond – from recent and current high levels of mining investment, this will add to state output and exports. Growth in SFD and GSP is expected to slow in 2014/15 and 2015/16 as high interest rates impact on consumer spending and dwelling investment, and also as business investment growth slows sharply as a number of major projects wind down to completion. Thereafter, an easing in interest rates, a lower dollar and solid business and infrastructure investment (including new mining-related projects) are expected to lead to stronger growth from 2016/17 onwards.

An important driver for the next tranche of significant infrastructure investment in the state will be the ability to leverage federal funding of major projects through Infrastructure Australia and the National Building Program (NBP).

4. Queensland Construction Outlook

Total construction activity increased dramatically in 2011/12, with total activity 22.8% higher than in 2010/11. The construction sector can be broken down into sub-segments including residential building, non-residential building, and engineering construction. As **Figure 4.1.** highlights, the dominant driver of construction activity in Queensland is the engineering construction segment. Each of the three segments is addressed in this section.

4.1. Residential Building

New residential work done in Queensland has declined by 36% over the past four years. The overall economic climate in Queensland has been weak which has contributed to the decline. A weak tourism sector, depressed property market, and a slowdown in population growth have all impacted negatively, while natural disasters have only made things worse. The Gold Coast, Sunshine Coast, and North Queensland areas have fared the worst.

Marking the beginning of a recovery, it is forecast that new residential work in Queensland will finally return to growth in 2012/13 at +1%.

A much stronger result is anticipated to follow into 2013/14 at +19%. Across much of Queensland, residential markets do appear to be tightening as indicated by falling vacancy rates. Housing affordability

in Queensland has also improved considerably since 2007/08. Supported by a positive economic outlook, dwelling construction is expected to see a sizable lift. This comes from stronger population growth and incomes produced by a huge pipeline of engineering construction related to coal and gas in the state.

Over the medium to long-term, residential building is expected to continue to remain solid, although an expected lift in interest rates down the track, as well as the winding down of engineering construction activity levels from the peaks of 2012/13 and 2013/14, could quickly see the market cool.

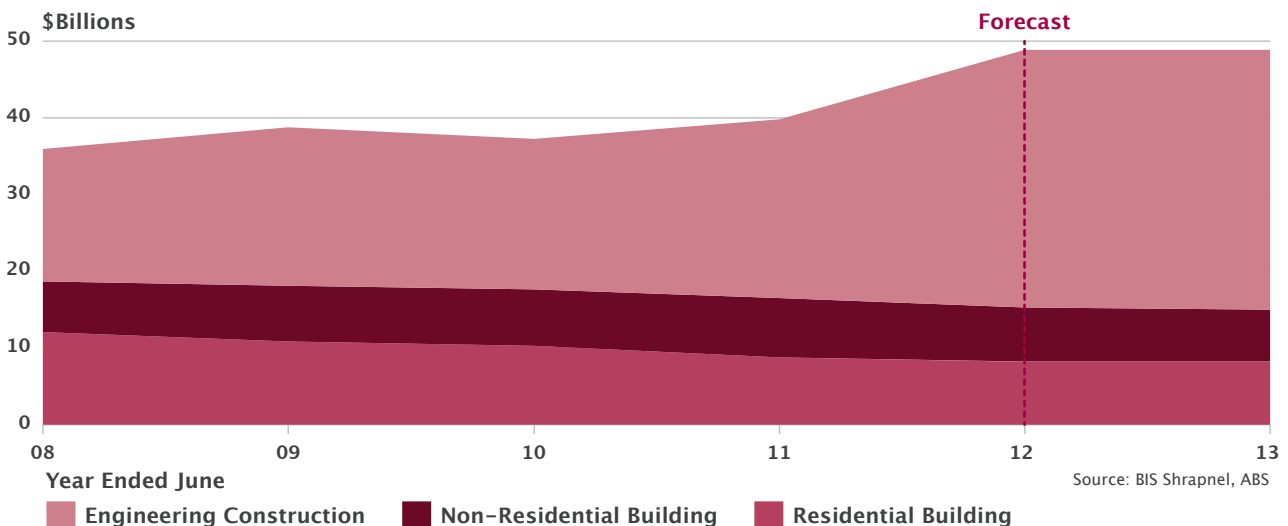
4.2. Non-Residential Building

In 2011/12, non-residential construction receded 8% to \$7.1 billion. With the Building the Education Revolution (BER) scheme winding down over 2011/12, education construction fell considerably by -48%. Although already at a high level, health work done continued to strengthen with growth of +30%. Commercial and industrial work done remained unchanged as strength in retail (+20%) and accommodation (+47%) countered falls in offices (-16%) and transport (-24%).

Non-residential work is forecast to decline a further 5% to \$6.7 billion in 2012/13.

Dragged further down by education (-23%), social and institutional work is forecast to decline 10%. Health work done is anticipated to remain at a high level,

Figure 4.1.



4. Queensland Construction Outlook

supported by the commencement of the \$950 billion Sunshine Coast University Hospital. Commercial and industrial work is forecast to remain unchanged as a decline in retail (-9%) is countered by modest growth in all other sectors.

Non-residential building is likely to fall further in 2013/14. Towards the end of the forecast period, however, non-dwelling construction is finally expected to see a return to growth. The preceding revival of residential construction, rising employment and incomes, and healthier state finances will begin to underwrite the next growth phase for non-residential building activity.

4.3. Engineering Construction

Queensland engineering construction activity hit an all-time peak of \$33.5 billion (+44%) in 2011/12.

Mining and heavy industry accounted for the vast majority of the record-setting growth rate, increasing to over \$19 billion (+94%), on the back of major Liquefied Natural Gas (LNG) and coal projects.

In addition, roads (+19%), railways (+18%), electricity (+12%), pipelines (+78%), and telecoms (+16%) also contributed to growth. On the downside, bridges (-40%), harbours (-33%), water supply (-17%), sewerage (-25%) and recreation (-12%) proved a drag to engineering construction growth in 2011/12. However, harbours – as well as water supply and sewerage – are still operating at historically high levels of work done.

The level of engineering construction is expected to remain at these extremely high levels over the next year or so.

This is underpinned by ongoing activity associated with the various LNG and coal projects that are already underway. The rapid growth over the past few quarters means that around 8% growth in year-on-year terms is expected in the year to June 2013, even though there will be little or no further growth in quarterly terms.

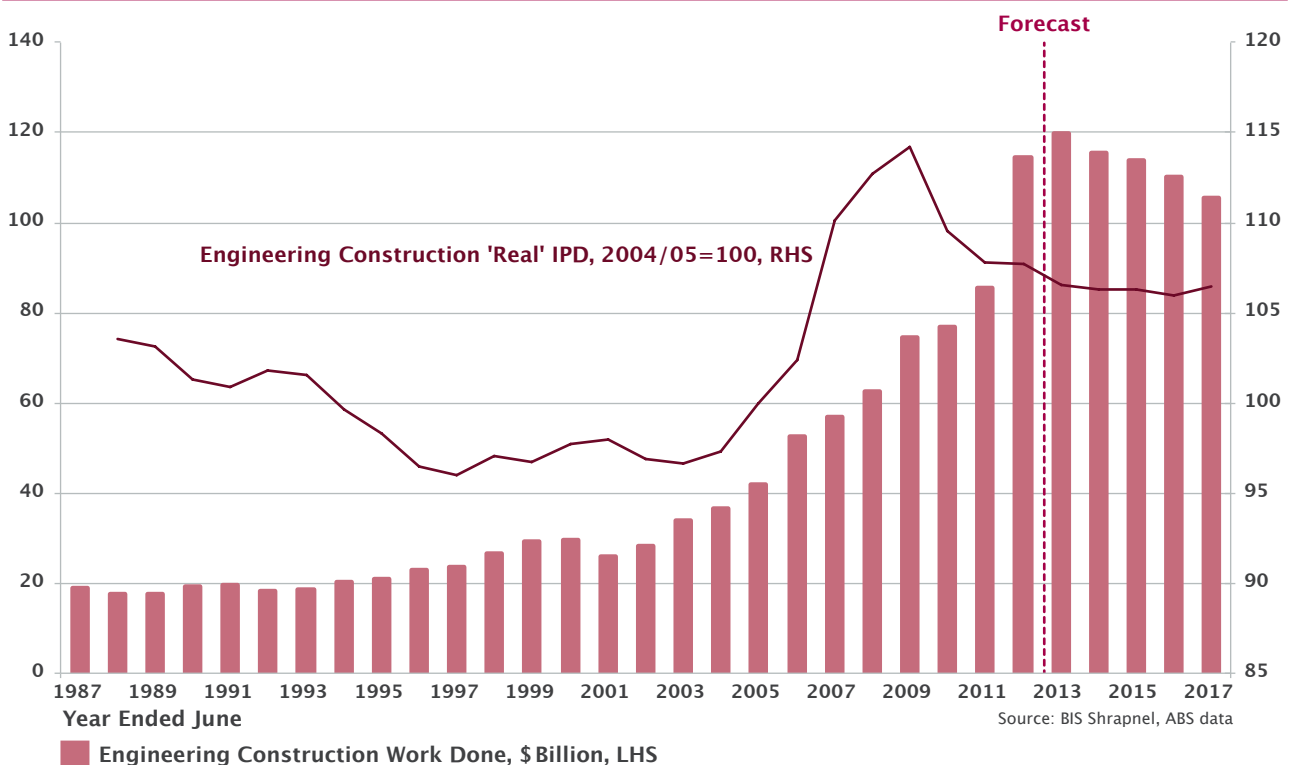
Over the medium-term, engineering construction activity is forecast to begin falling. This comes as major projects wind down to completion, and the combination of constrained public investment, peak LNG activity, labour markets, the Australian dollar, and commodity prices squeeze out activity in other engineering construction sectors. A return to growth is not expected until shortly after the forecast horizon, led by the next round of resources investment and a return to public investment in infrastructure.

4.4. Drivers of Construction Costs

Growth in construction costs tend to be linked to the amount of construction activity going on at any particular time.

There is a positive correlation between construction activity and construction costs because high (and rising) levels of demand (i.e. construction activity) not only places pressure on the existing supply of inputs

Figure 4.2.



– boosting input prices – but also allows supplier margins to increase. Where capacity constraints exist, rising construction activity can lead to strong increases in input prices as investment in new capacity is costly, and takes time to come on stream. Furthermore, skills shortages in key trades can be a risk to productivity, which can drive higher-cost outcomes over time. Construction costs may also vary due to changes in commodity prices (e.g. steel and oil) which are determined in global markets. These price changes may occur independently of domestic construction activity.

4.4.1. Queensland Construction Employment and Wages

Given the unprecedented level of construction activity, the biggest challenge facing Queensland continues to be sourcing an adequate supply of specialised labour – predominantly in remote regions over relatively short periods of time – to cater for the simultaneous development of major LNG projects, additional coal project construction, and the expected pickup in residential construction. This requires a degree of versatility to meet the demands of major projects as they move from preparation phase (civil earthworks trades) to the building phase (construction, mechanical and electrical trades).

Skilled trade shortages in remote regions naturally push up wages and construction costs.

To address this issue, major projects presently rely heavily on Fly-in Fly-out (FIFO) workforces to meet intense temporary construction demands in remote regional areas, which can drive up costs for services in these regions.

Queensland construction employment growth has been stronger than the national average for more than a decade, on the shoulders of mining-related projects. These projects increased migration, boosted demand for dwellings, commercial and industrial space, and also boosted demand for social and physical infrastructure. Since 2007/08, the growth rate of Queensland construction wages (measured by Average Weekly Ordinary Time Earnings (AWOTE) data) has far exceeded the growth rate of construction employment – indicating labour supply bottlenecks.

Although Queensland major project activity is expected to cool somewhat through the forecast period, supply constraints for skilled and semi-skilled engineering construction labour are expected to continue, driving reasonably robust growth in construction wages. Coupled with the growth rates of the past, this means that Queensland construction labour costs will be approximately one third higher again in five years, or nearly double what they were ten years ago. Compared nationally, Queensland construction labour costs were 4.3% lower than the national average in 2003.

Today, labour costs are 4.2% higher than the national average, and are forecast to be 8.6% higher than the national average by 2017.

4.4.2. Engineering Construction Implicit Price Deflator

Given the use of similar construction materials and skilled labour, costs for engineering construction are linked to broader cost trends in the building and construction industry.

One gauge of aggregate engineering construction costs is the implicit price deflator (IPD) for engineering construction work done. This is derived by dividing current price (nominal) engineering construction data from the Australian Bureau of Statistics (ABS) by its corresponding constant price (real) data series. This effectively isolates changes in the price of construction, as opposed to changes in activity.

There tends to be strong correlation between the ‘real’ engineering construction IPD (i.e. net of consumer price index (CPI) inflation) and real increase in construction work done at the national level. Through the last decade, construction costs rose well ahead of CPI inflation, and were strongly in line with the general boom in domestic construction activity, and rising steel/oil product prices in Australian dollar terms.

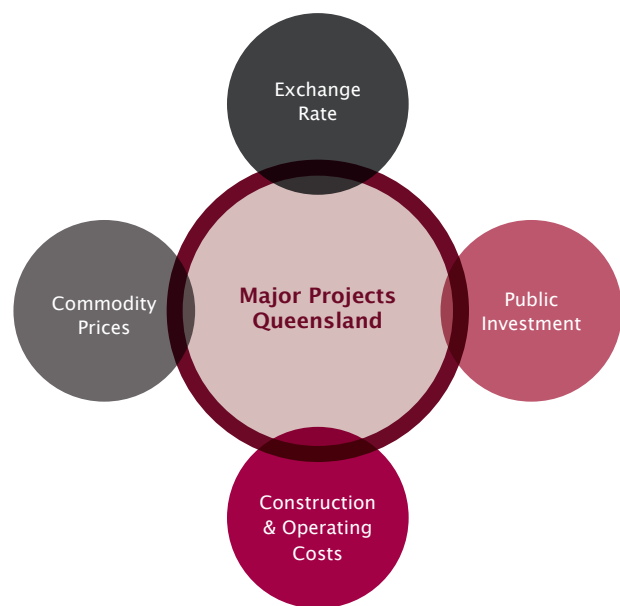
Given the outlook for Australian non-dwelling construction activity and commodity prices, combined with the growth of the Australian dollar and inflation (by default) in engineering construction, the inflation adjusted engineering construction IPD is expected to be weaker over the next five years than in the 2000s, as shown in **Figure 4.2**. However, the level of costs will remain stubbornly high – and well above the cost levels of the 1990s and 2000s. Furthermore, this is a national indicator, and regions such as Gladstone and the Bowen Basin are likely to exhibit much stronger growth than presented here.

5. Key Implications, Challenges and Risks

Based on the findings in this Report, there are considerable implications, challenges and risks ahead for the Queensland construction industry that require solution-based consideration. **Figure 5.1.** compares last year's major projects 5-year outlook to the present forecast (note that 2011/12 is now historical rather than forecast). Although the timing of activity has changed significantly, the total volume of work for the period 2012-17 has not. In summarising the major projects forecast, the following points should be noted:

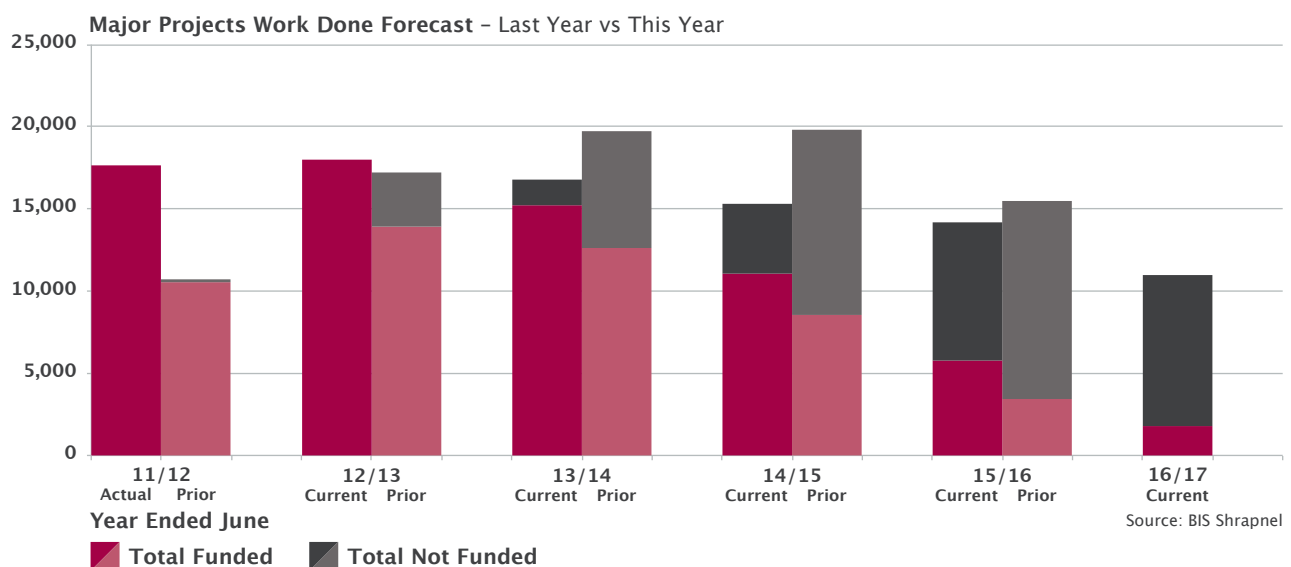
- **Work done in the short-term has proven stronger than expected.** Performance may not be as strong as the numbers show. Work done in 2011/12 proved to be stronger than expected, yet major projects in play remained static. This implies that cost overruns and imports contributed significantly to work done numbers.
- **Total 'funded' work done outlook has improved.** This largely reflects mining and heavy industry, and other minerals-related investment including rail, harbours and pipelines. However, the public sector and non-minerals related projects outlook is weaker.
- **Total 'not funded' work done outlook has substantially deteriorated.** Here, LNG projects will continue to drive work done numbers, as peak construction phases begin. Subsequent employment and wage pressures are squeezing other sectors,

Figure 5.2.



while delays to several coal-related projects are also reducing the pipeline of work. The outlook for total unfunded work has declined to such a degree that the medium-term total outlook has deteriorated

Figure 5.1.



substantially. Furthermore, outside of the mining and heavy industry sector, there appear to be fewer major project opportunities.

- **Private sector provides the primary source of major projects.** Reduced public investment means the market will remain dominated by private major projects, where visibility and certainty is lower. International forces will continue to shape private sector outcomes. This implies riskier times ahead for contractors.

Overall, there are four key factors that have shifted the outlook for major projects in Queensland from a year earlier. As shown in **Figure 5.2.**, these four factors are the exchange rate, commodity prices, public fiscal policy, and construction and operating costs in Queensland. Factors shaded in grey (the exchange rate and commodity prices) are determined by external

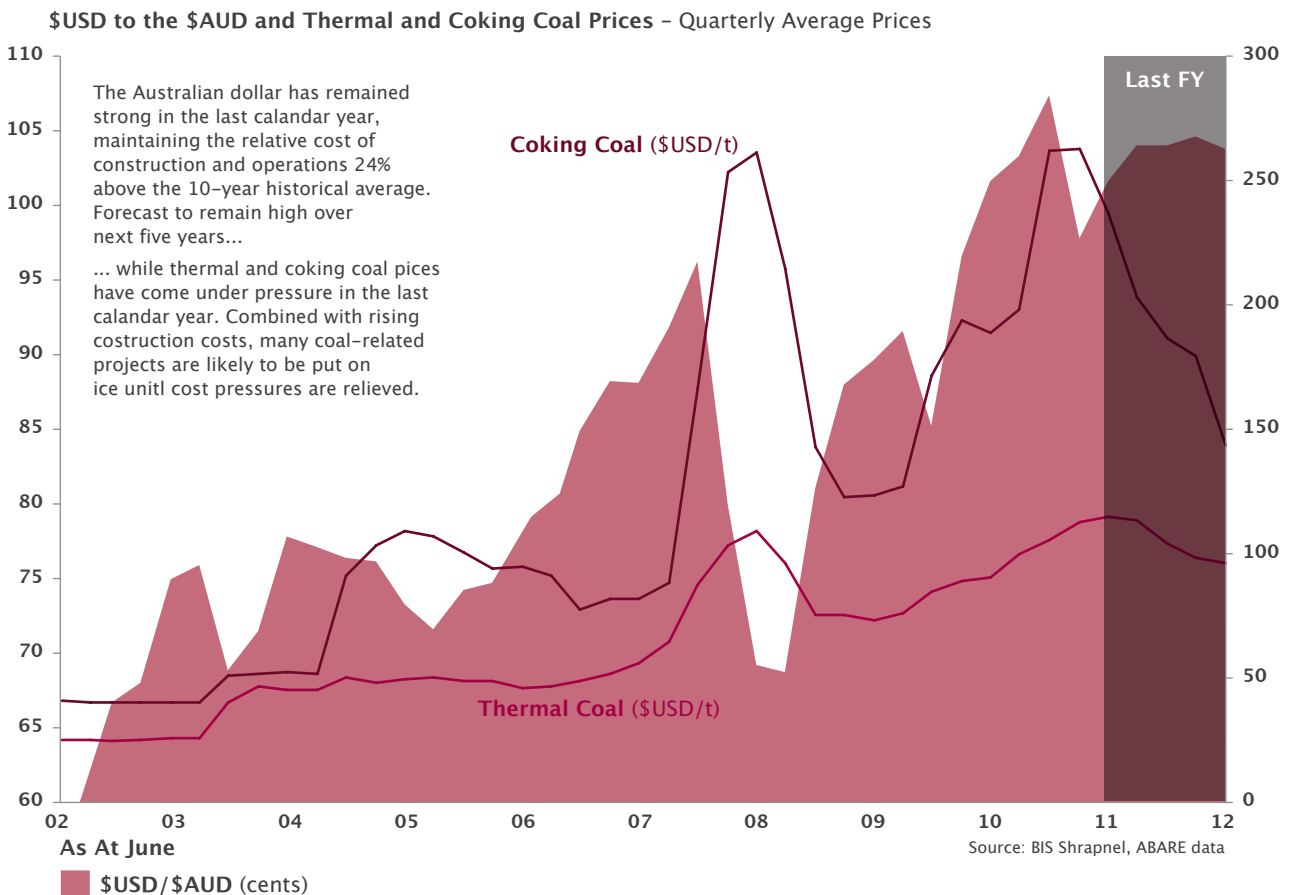
forces and are less controllable. Factors which are more controllable are shaded red (public investment and construction and operating costs). In both cases, darker shades reflect greater influence over the forecast period.

5.1. External Forces as Negative Factor

As shown in **Figure 5.3.**, commodity prices for thermal and coking coal surged in the last decade, fuelling an unprecedented minerals boom. Normally, there is a close, positive relationship between commodity prices and the Australian dollar. The robust commodity price environment combined with a positive correlation with the Australian dollar, in turn has allowed Queensland construction costs to rise relatively unchecked.

Recently, however, Queensland has experienced a slight reversal of fortune. International forces are propping up the

Figure 5.3.



5. Key Implications, Challenges and Risks

Australian dollar, while some commodity prices important to Queensland investment – like coking and thermal coal – have fallen and are expected to continue to remain soft over the forecast (but are still historically high). Now, costs that were previously inconsequential are pivotal.

The net impact of a strong Australian dollar is an increase in the relative cost of construction and operations in Queensland. Compared with the United States (US) dollar, the local currency is presently 24% higher than the 10-year historical average. For projects funded by multi-national corporations, or investments that are minerals-related and sell products in US dollar terms, this is a significant bottom line impact.

Commodity prices and the exchange rate, however, are not the entire story.

Costs of construction and operations - as well as the level of public investment in Queensland - are critical to the outlook, and become more important for major projects further into the future.

The key is to understand that although commodity prices will remain historically high, privately funded major projects in Queensland will need to remain financially viable without the benefit of a lower exchange rate. Therefore, Queensland project owners and managers must maintain a sharp focus on forces within their sphere of influence, to retain – or enhance – the outlook for major projects in the state.

5.2. Federal and State Government Impacts

The Federal and State Government focus on reining in budget deficits will also constrain opportunities. Notwithstanding the Federal Government's recent indication that it is unlikely to return its budget to balance in the current financial year, it is still engaging in one of the largest fiscal consolidations in history. The main reason for the Federal Government's existing deficit is that revenue has fallen sharply – as a share of Gross Domestic Product (GDP) over the past few years – while expenditure has increased. Revenue is expected to increase as a share of GDP over the next few years, reflecting economic recovery and the introduction of the Minerals Resource Rent Tax (MRRT) and the Carbon Tax. However, there are structural changes occurring in both the company tax and the Goods and Services Tax (GST) that mean Commonwealth revenues will not regain their pre-Global Financial Crisis (GFC) share of the economy.

Because it is extremely difficult and politically challenging to rein in ongoing (or recurrent) expenditure, public investment is likely to bear the brunt of the fiscal restraint. This will result in significantly lower levels of public sector funding for infrastructure and other capital items over the next few years, compared to the high levels of investment during the mid 2000s through to early 2010s. This situation is not expected to last forever, with a pickup in public investment expected during the second half of the decade.

Rising public sector revenues (including royalties in Queensland) and an end to the current phase of debt consolidation, is expected to underwrite another round of infrastructure projects in Queensland and other states. The next round of federal funding for National Building Program (NBP) projects will have an important influence here.

5.3. Construction and Operating Costs

The cost of construction and operations in Queensland are fundamental drivers of current and projected major projects activity in the state, and tackling these pressures effectively will be vital. Core factors which are likely to drive costs pressures include:

- Temporary shortages and shift of demand for specialised trade labour as major projects move through site preparation and construction phases
- Skills shortages for key trades
- The remote and regional nature of projects
- Risks of low productivity, including:
 - Under-optimised structures for labour organisation
 - A focus on compliance instead of proficiency
 - Significant administrative burden from competing compliance regimes
- Inefficient contract structures.

Temporary shortages and shift of demand for specialised trade labour imply higher wage costs, heavy reliance on Fly-in Fly-out (FIFO) workforce and transient regional community strain.

Over the last decade, construction wages in Queensland have doubled in Average Weekly Ordinary Time Earnings (AWOTE) terms, from \$708 in 2002 to \$1,418 in 2012. Queensland construction wages a decade ago were 8.6% below the national average, while today they are 4.2% higher.

While we are nearing a peak in major project work and workforce demand, activity is expected to remain very strong in 2013/14, with moderate declines coming though in subsequent years. Furthermore, major projects in Queensland will continue to come under pressure from other projects occurring elsewhere in Australia and overseas. This means skills and wages pressures will continue to be an issue, and matching the right skills to demand will be crucial.

The progress of major projects from civil phases to major building phases - particularly within the LNG industry - will also bring its own challenges as the mix in demand transforms from civil trades to mechanical, structural and electrical trades.

With respect to the LNG construction boom, never before has Queensland attempted to do so much simultaneously. Taken together, Queensland's LNG projects will require a

semi-skilled and skilled construction workforce averaging more than 10,000 persons over the next three years. This means that Queensland projects will need to compete with other LNG projects both within Australia (for example, the Darwin LNG project) and overseas.

Consequently, skills and wages pressures are likely to intensify further.

Recent cost overruns at BG Group's Curtis Island LNG (\$4 billion) and Western Australia's Gorgon LNG project (ongoing), with nearly an identical workforce requirement (10,000), may indicate that when it comes to cost escalations, delays, and overruns, we are yet to see the worst of these problems.

Currently, major resources projects are relying heavily on FIFO workforces to solve regional specialised trade labour gaps. While FIFO is a workable solution, it is not without cost. Much of the FIFO workforce benefits – such as increased spending and tax payments – leak outside of regional areas, or even worse, interstate. Therefore, regional communities are required to adapt to large, transient populations that strain community resources including public infrastructure, and common access services such as health care, without full compensation. Although many of these projects may be 'one off' in nature, investment cycles are likely to be recurring in regional communities implying long-term solutions to this challenge should be addressed.

With regard to workforce demand, something will have to give.

Assuming all LNG projects move ahead as planned, it will be the remaining engineering construction sectors that will need to make room as the massive workforce requirement of the LNG projects drive up competition for labour. For some mining and heavy industry sub-sectors like coal, the competition for labour could not be more poorly timed, as softening coal prices and the high Australian dollar are creating challenges. Similarly, in the public sector, already constrained state and federal budgets will see public dollars for engineering construction projects get less 'bang for the buck' as labour continues to become more difficult – and pricey – to source.

The remote, regional nature of expected major projects is also leading to rising costs. The resources boom has created substantial challenges for the construction industry and regional communities. Attracting the skills required into regions such as the Bowen and Surat Basins has contributed to rising wage costs, and exposed gaps in the provision and funding for infrastructure including housing, schools, hospitals, transport, and utilities. In those regions where activity has boomed, prices for essential services like accommodation have surged, adding to the cost of development. In areas where activity has started to decline, these price pressures have just as dramatically reversed, but will emerge again in future cycles unless practical solutions are found.

While the use of FIFO workforces has reduced the need for substantial investment in social infrastructure, there

could be far more effective of planning for infrastructure in likely boom regions in future to reduce these highly variable cost-pressures, whether FIFO workforces are employed or not.

Maintaining robust productivity growth is an important way of keeping costs in check in the long-term, however, there are substantial risks to productivity performance ahead.

The boom in major projects work – and particularly the skills shortages that emerged – has likely affected productivity in the construction industry. Some of this impact is clearly cyclical in nature. During boom times, the industry is more likely to hire more people of lower experience and skills than normal, given skills shortages and the pressure to get work done, and this raises overall costs. In addition, there are likely to be structural elements affecting productivity which become evident under closer examination. In short, there may be better ways to get things done than are currently being utilised by the industry.

5.4. Reassessing for Change

While an analysis of the factors driving productivity outcomes – and proposed solutions – are beyond the scope of this Report, this is an area that requires urgent attention if construction costs are to be reduced in a sustained, meaningful manner.

This may require a thoughtful re-examination of current work practices and standards, a more efficient use of capital, the transferability of labour skills, regulations affecting the industry and greater consideration of a range of contract models.

A re-examination of current frameworks would be beneficial if these frameworks are seen to be imposing unnecessary costs upon the industry. Regulations developed in the past – during different economic times – may no longer be best practice. Revisiting workplace practices may actually improve outcomes for all participants while reducing costs.

Actively considering a wider range of major project contract award systems could also lead to substantial cost savings.

Internationally, major projects have a very poor record of meeting initial project estimates and bid prices. Recent research published by Dr Bent Flyvbjerg (Chair of Infrastructure Policy and Planning at Delft University of Technology, Netherlands in 2007), found that 9 out of 10 projects – from a sample of 258 major transport projects in 20 nations on five continents – experienced a cost overrun. Further, Flyvbjerg found that these escalations averaged between 20–45% of the original estimate in constant prices, depending on the project type, with rail being the worst.

To address cost overruns a range of contract models should be explored. Alliance and Early Contractor Involvement (ECI) models show particular potential

5. Key Implications, Challenges and Risks

for improved cost outcomes. Some contract types contribute to inefficient bidding practices and scoping errors, as well as unbalanced risk/reward profiles for owners, contract holders and contractors. Accordingly, models that encourage appropriate bids, proper scoping, and distribute risk and reward in a balanced fashion amongst stakeholders should be considered.

A tabled summary of these challenges and solutions is detailed in **Figure 5.4**.

5.5. Risks to the Outlook

The projections in this Report are based on a reasonable and thoughtful view of the outlook for major engineering construction projects. However, as noted, the outlook is also highly uncertain and therefore subject to risks and revisions as new information becomes available.

Over the next few years, the biggest global risk relates to the potential of the current European economic recession – or renewed weakness in China, Japan or India – having a larger-than-forecast negative impact on the global demand (and prices) for commodities.

For Queensland, this would likely lead to a larger decline in minerals-related investment, major project work done, and workforce demand than forecast.

On the potential upside to this, a further severe weakening in prospects for Queensland mining projects may either free up resources for other major projects (across energy and infrastructure), and/or act as a catalyst to bring forward public investment projects from the timing suggested in this Report. This would happen in a similar way that State and Federal Governments reacted to the financial crisis in 2008. Given the dominance of coal and LNG projects in driving the outlook, this may still see a weakening in overall work, but will certainly deliver a broader mix in work across other infrastructure segments.

Furthermore, the Galilee Basin, Surat Basin (especially the inclusion of the Wandoan coal mine and Southern Missing Link), and North West Province regions of Queensland are potential wild cards.

Figure 5.4. Cost Drivers, Implications and Solutions

Driver	Implication	Solution
SKILLED AND SEMI-SKILLED LABOUR SHORTAGES	Labour constraints leading to cost blowouts and decreasing Queensland competitiveness. Heavy reliance on FIFO and 457 Visa holders, placing labour strain on regional community resources without full compensation.	Short-term: FIFO, 457, skills training. Long-term: Skills training, FIFO. Develop long-run solutions to fully compensate transient (and likely cyclical) strain on regional community resources from FIFO workforces.
REGIONAL RESOURCE PROJECTS	Labour constraints and sharp increases in other local costs like accommodation leading to cost blowouts and decreasing Queensland competitiveness. Disproportionate share of work will be private, minerals-related engineering construction.	Better planning and delivery regarding the provision of appropriate skills training and local infrastructure to handle transient workforces activity over the forecast.
RISKS OF LOWER PRODUCTIVITY	Increases the cost of a given amount of labour over time, having both cyclical and structural elements.	Re-examination of current frameworks which may be embedding 'structural' inefficiencies including: <ul style="list-style-type: none"> • Current work practices and standards • More effective use of capital • Transferability of labour skills • Contract arrangements between owners, EPC Management and contractors • Regulations affecting the industry.
CONTRACT ARRANGEMENTS/AWARDS	Contracting arrangements can impact competitiveness and the cost track record of Australian and Queensland projects. Cost overruns are an industry problem that needs to be tackled by all parties involved.	Encourage exploration and adoption of contract structures that support appropriate bids, proper scoping, and distribute risk and reward in a balanced fashion amongst stakeholders.

The key assumption in this Report is that at least one major coal project - including associated rail and port infrastructure - will proceed in the Galilee Basin towards the end of the forecast period, providing a substantial surge of activity.

However, it is possible that the timing of these projects could shift significantly as new information comes to hand, and this will significantly affect the outlook for total work. Additionally, base metals and minerals investment in the North West Province – although not at the scale of Galilee, Surat and Bowen Basin coal or LNG projects – could also provide substantial shifts to the aggregate forecast.

There are also substantial risks surrounding the timing of work for LNG projects. The LNG sector in Queensland is not bulletproof. It is becoming increasingly likely that the current boom in LNG-related work (with three separate projects underway simultaneously), will be unmatched in the future.

Construction cost escalations, low gas extraction rates in the early phase of production, overseas competitors (US, East Africa, Qatar) and Chinese domestic production opportunities threaten to shift future LNG investment overseas.

US shale gas presents a particularly heightened risk. Currently, there are 17 US shale projects awaiting final export approval, totalling more than 100 million tonnes per annum (MTPA) – more than enough to satisfy global demand growth for LNG through at least 2020. Further, US projects are price competitive as they are likely to be unlinked to the oil price, potentially more than offsetting additional transportation costs to Asian markets. Should further US shale projects gain approval for export, this could prove challenging to Queensland's LNG industry, but it may not be all bad. In fact, this might ease labour constraints substantially, providing room for other resource (i.e. coal) and non-mining related major projects that do not currently stack up in the expected cost environment to move forward. The result may yield a more mild, but sustainable, investment cycle than is currently projected.

Appendix – 2013 Major Projects List

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$Millions)
ROADS AND BRIDGES				
CUNNINGHAM HIGHWAY/AMBERLEY INTERSECTION	Qld Government	Roads	South East Queensland	200
MAINS ROAD/KESSELS ROAD INTERSECTION	Federal Government	Roads	South East Queensland	300
DECEPTION BAY RD: BRUCE HWY TO LIPSCOMBE RD	Qld Government	Roads	South East Queensland	124
TRANSAPEX – LEGACY WAY LINK	BCC	Roads	South East Queensland	1700
BRISBANE NEW PARALLEL RUNWAY PHASE 1 & 2	Brisbane Airport	Runways	South East Queensland	250
PEAK DOWNS HWY IMPROVEMENTS	Qld Government & Federal Government	Roads	Bowen	120
EASTERN BUSWAY STAGE 3 – BURANDA TO COORPAROO: MAINS AVENUE TO BENNETTS ROAD	Qld Government	Roads	South East Queensland	480
SOUTH EAST BUSWAY STAGE 2 EXTENSION – EIGHT MILES PLAINS TO UNDERWOOD ROAD	Qld Government	Roads	South East Queensland	230
CENTENARY HIGHWAY (WESTERN ARTERIAL) EXTENSION – LOGAN MOTORWAY TO SPRINGFIELD STAGE 2	Qld Government	Roads	South East Queensland	585
IPSWICH MOTORWAY OTHER STAGE: DARRA TO ROCKLEA	Qld Government & Federal Government	Roads	South East Queensland	1100
PORT OF BRISBANE MOTORWAY GATEWAY MOTORWAY TO PRITCHARD STREET	Qld Government & Federal Government	Roads	South East Queensland	385
GATEWAY MOTORWAY UPGRADE SOUTH (GUS)				
SOUTH 2B: BROADWATER ROAD TO GARDNER ROAD & SOUTHBOUND ON-RAMP	Qld Government & Federal Government	Roads	South East Queensland	140
FURTHER SOUTH UPGRADES FROM MT GRAVATT- CAPALABA ROAD TO PACIFIC MOTORWAY	Qld Government & Federal Government	Roads	South East Queensland	1020
GATEWAY MOTORWAY UPGRADE NORTH (GUN)				
SOUTH OF NUDGE ROAD DEAGON DEVIATION & SANDGATE ROAD AND DEPOT ROAD	Qld Government & Federal Government	Roads	South East Queensland	150
NUDGE TO START OF BRUCE HIGHWAY	Qld Government & Federal Government	Roads	South East Queensland	1300
BRUCE HIGHWAY				
SARINA TO CAIRNS: CARDWELL RANGE REALIGNMENT	Federal Government	Roads	Northern Queensland	143
SARINA TO CAIRNS: DUPLICATION FROM VANTASSEL ST TO FLINDERS HIGHWAY	Federal Government	Roads	Northern Queensland	138
SARINA TO CAIRNS: SHEEHY ROAD (FOREST GARDENS) TO RAY JONES DRIVE	Federal Government	Roads	Northern Queensland	150
CURRA TO SARINA: CALLIOPE INTERCHANGE AT DAWSON HIGHWAY	Federal Government	Roads	Gladstone	152
CURRA TO SARINA: CABBAGE TREE CREEK TO CARMAN ROAD & BACK CREEK RANGE	Federal Government	Roads	Bowen	100
CABOULTURE TO CALOUNDRA UPGRADES	Federal Government	Roads	South East Queensland	195
COOROY TO CURRA: (SECTION B) SANKEYS ROAD TO TRAVESTON ROAD	Federal Government	Roads	South East Queensland	513
COOROY TO CURRA: (SECTIONS A) COOROY SOUTHERN INTERCHANGE TO SANKEYS ROAD	Federal Government	Roads	South East Queensland	600
PACIFIC MOTORWAY				
NERANG TO TUGUN/VARSITY LAKES – LANES & INTERCHANGES	Qld Government & Federal Government	Roads	South East Queensland	440
SECTION C) DAISY HILL TO LOGAN MOTORWAY AT LOGANHOLME	Qld Government & Federal Government	Roads	South East Queensland	1100

Funded
 Not Funded
 Key Assumptions

Engineering Value (\$Millions)	Project Status	Commence-ment Date	Completion Date	2012/13 (\$Millions)	2013/14 (\$Millions)	2014/15 (\$Millions)	2015/16 (\$Millions)	2016/17 (\$Millions)
150	Expected	2009/10	2015/16				20	35
216	Under Construction	2011/12	2014/15	43	50	43		
93	Probable	2016/17	2018/19					12
1500	Under Construction	2010/11	2015/16	410	279	213	21	
160	Expected	2012/13	2016/17		15	65	65	15
120	Expected	2013/14	2015/16			55		
182	Probable	2016/17	2018/19					20
173	Probable	2012/13	2017/18					
439	Expected	2014/15	2017/18			78	161	140
825	Probable	2016/17	2018/19					90
231	Complete	2010/11	2013/14	62	12			
90	Expected	2011/12	2014/15	45	45			
765	Probable	2012/13	2018/19			75	160	180
107	Under Construction	2012/13	2014/15	48	49	2		
975	Probable	2016/17	2018/19					56
107	Under Construction	2009/10	2012/13	28				
103	Expected	2013/14	2015/16		18	36	29	
110	Under Construction	2010/11	2013/14	43	39			
106	Under Construction	2010/11	2014/15	11	42	43	6	
75	Under Construction	2011/12	2014/15	22	26	23		
137	Expected	2012/13	2014/15	18	70	49		
385	Under Construction	2009/10	2013/14	45				
420	Expected	2013/14	2016/17		65	120	120	120
330	Under Construction	2009/10	2014/15	18	43	29		
825	Expected	2015/16	2018/19				80	188

Appendix – 2013 Major Projects List

Continued

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$Millions)
TOWNSVILLE REGION				
TOWNSVILLE PORT ACCESS PROJECT – STAGE 2: EASTERN ACCESS CORRIDOR	Federal Government	Roads	Northern Queensland	135
TOWNSVILLE RING ROAD – STAGE 4: SHAW RD TO MOUNT LOW	Federal Government	Roads	Northern Queensland	135
KINGSFORD SMITH DRIVE CORRIDOR				
KINGSFORD SMITH DRIVE CORRIDOR STAGE 2	Brisbane City Council	Roads	South East Queensland	192
KINGSFORD SMITH DRIVE CORRIDOR STAGE 3	Brisbane City Council	Roads	South East Queensland	600
TOTAL ROADS AND BRIDGES MAJOR PROJECTS				
RAIL				
(PASSENGER)				
DARRA TO SPRINGFIELD PASSENGER LINE 2: RICHLANDS TO SPRINGFIELD	Qld Government	Passenger (Rail)	South East Queensland	418
GOLD COAST RAPID TRANSIT SYSTEM STAGE 1	Qld Government	Passenger (Rail)	South East Queensland	949
MORETON BAY RAIL LINK (REDCLIFFE RAIL LINK)	Qld Government	Passenger (Rail)	South East Queensland	1147
LAWNTON TO PETRIE THIRD RAIL TRACK	Qld Government	Passenger (Rail)	South East Queensland	170
(COAL/FREIGHT)				
GSE 140 GOONYELLA SYSTEM EXPANSION (TO SUPPORT HAY POINT)	QR National	Coal (Rail)	Bowen	185
WIGGINS ISLAND BALLOON LOOP	QR National	Coal (Rail)	Gladstone	200
ROCKLANDS AND STANWELL DUPLICATION (BLACKWATER)	QR National	Coal (Rail)	Bowen	200
DINGO TO BLUFF DUPLICATION (BLACKWATER)	QR National	Coal (Rail)	Bowen	175
GOONYELLA COAL RAIL FURTHER UPGRADES	QR National	Coal (Rail)	Bowen	500
BLACKWATER SYSTEM FURTHER UPGRADES	QR National	Coal (Rail)	Bowen	200
MOURA-ALDOGA LINK PROJECT	QR National	Coal (Rail)	Gladstone	500
GALILEE BASIN COAL RAIL INFRASTRUCTURE	TBD	Coal (Rail)	Bowen	3000
TOTAL RAIL MAJOR PROJECTS				
HARBOURS/PORTS				
WESTERN BASIN DREDGING AND DISPOSAL PROJECT	Gladstone Ports Corporation	Coal (Harbour)	Gladstone	1000
WIGGINS ISLAND STAGE 1 – 27 MTPA	Wiggins Island Coal Export	Coal (Harbour)	Gladstone	2400
HAY POINT STAGE 3 EXPANSION 11 MTPA	BMA	Coal (Harbour)	Bowen	2500
CURTIS LNG JETTY	Santos	LNG (Jetty)	Gladstone	200
GLADSTONE LNG JETTY	BG	LNG (Jetty)	Gladstone	150
DREDGING FOR BRISBANE NEW RUNWAY	Brisbane Airport	Roads (Dredging)	South East Queensland	200
AUSTRALIA PACIFIC LNG JETTY	Origin	LNG (Jetty)	Gladstone	240
SHELL LNG JETTY	Shell/Arrow	LNG (Jetty)	Gladstone	240
WEIPA BAUXITE PORT UPGRADE	Rio Tinto	Bauxite (Harbour)	Northern Queensland	400
GALILEE BASIN COAL HARBOUR INFRASTRUCTURE	TBD	Coal (Harbour)	Bowen	3000
TOTAL HARBOURS MAJOR PROJECTS				
WATER				
KENYA WATER TREATMENT PLANT	Queensland Gas Company	WTP	Surat	310
CONDABRI CENTRAL, TALINGA & REEDY CREEK WATER TREATMENT FACILITIES	Origin	WTP	Surat	300

■ Funded ■ Not Funded ■ Key Assumptions

Engineering Value (\$Millions)	Project Status	Commencement Date	Completion Date	2012/13 (\$Millions)	2013/14 (\$Millions)	2014/15 (\$Millions)	2015/16 (\$Millions)	2016/17 (\$Millions)
101	Under Construction	2010/11	2012/13	13				
101	Expected	2013/14	2015/16		33	38	30	
154	Probable	2013/14	2015/16		40	80	34	
480	Probable	2016/17	>2017					160
WORK DONE				822	848	978	818	1070
Funded				822	808	745	364	189
Not Funded				0	40	233	455	881
293	Under Construction	2012/13	2013/14	183				
664	Under Construction	2010/11	2013/14	171	128			
803	Expected	2013/14	2016/17		170	220	220	170
119	Expected	2012/13	2015/16	7	54	70	30	
157	Under Construction	2011/12	2013/14	80	37			
140	Under Construction	2011/12	2014/15	55	55	15		
140	Under Construction	2011/12	2014/15	55	55	15		
123	Expected	2012/13	2014/15	60	60	3		
350	Probable	2014/15	2016/17			120	120	70
140	Probable	2015/16	>2017				70	70
325	Probable	2015/16	>2017				135	140
2250	Expected						450	600
WORK DONE				611	559	443	1025	1050
Funded				611	559	323	250	170
Not Funded				0	0	120	775	880
268	Under Construction	2010/11	2014/15	82	35	26		
1200	Under Construction	2011/12	2014/15	300	300	300		
1750	Under Construction	2011/12	2014/15	525	525	350		
120	Under Construction	2011/12	2013/14	72	8			
90	Under Construction	2012/13	2014/15	33	48	9		
80	Expected	2013/14	2014/15		40	40		
144	Expected	2013/14	2015/16		45	72	27	
144	Probable	2014/15	2016/17			45	72	27
120	Expected	2013/14	2015/16		45	61	14	
2250	Possible	2015/16	>2017				450	600
WORK DONE				1012	1046	903	563	627
Funded				1012	1046	858	41	0
Not Funded				0	0	45	522	627
217	Under Construction	2010/11	2012/13	56				
210	Under Construction	2011/12	2013/14	105	106			

Appendix – 2013 Major Projects List

Continued

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$Millions)
ASSUMED WATER TREATMENT/PIPING AT ROM REGION	Santos	WTP/Pipeline	Surat	350
WOLEEBEE CREEK TO GLEBE WEIR PIPELINE (145KM) (WAS FROM REEDY CREEK)	Sunwater	Pipeline	Surat	430
CSG WATER TREATMENT PLANT/PIPELINE AT CHINCHILLA REGION	Arrow/Shell	WTP/Pipeline	Surat	300
GORGE WEIR TO BYERWEN PIPELINE PROJECT (110KM) (FOR BOWEN COAL PROJECTS)	Sunwater	Pipeline	Bowen	240
LOWER FITZROY RIVER INFRASTRUCTURE PROJECT - RAISING EDEN BANN WEIR STAGE 1	Gladstone Area Water Board (GAWB)	Dam	Gladstone	171
GLADSTONE TO FITZROY RIVER PIPELINE	Gladstone Area Water Board (GAWB)	Pipeline	Gladstone	345
WYARALONG DAM WTP STAGE 1	Qld Gov	WTP	South East Queensland	100
CEDAR GROVE CONNECTOR (WAS SOUTHERN REGIONAL PIPELINE EXTENSION)	Qld Gov	Pipeline	South East Queensland	250
GALILEE BASIN FLOOD MITIGATION AND WATER SUPPLY DAM *	TBD	Dam	Other	300
GALILEE BASIN FLOOD MITIGATION AND WATER SUPPLY PIPELINE *	TBD	Pipeline	Other	600
TOTAL WATER MAJOR PROJECTS				
SEWERAGE				
TOTAL SEWERAGE MAJOR PROJECTS				
ELECTRICITY				
KUMBARILLA POWER STATION 450-600MW	QGC/BG	Generation	Surat	500
MACKAY CO-GENERATION 36MW	Mackay Sugar	Generation	Bowen	120
SOUTHWEST QUEENSLAND AUGMENTATION	Powerlink	Distribution/ Supply	South East Queensland	185
GLADSTONE SUBSTATION REPLACEMENT	Powerlink	Distribution/ Supply	Gladstone	120
CUMBOOLA TO WANDOAN NETWORK AUGMENTATION	Powerlink	Distribution/ Supply	Surat	102
CUMBOOLA TO WESTERN DOWNS NETWORK AUGMENTATION	Powerlink	Distribution/ Supply	Surat	156
CALVALE TO STANWELL TRANSMISSION LINE	Powerlink	Distribution/ Supply	Bowen	128
HALYS TO BLACKWALL AUGMENTATION	Powerlink	Distribution/ Supply	South East Queensland	524
KOGAN CREEK SOLAR BOOST PROJECT	CS Energy	Generation	Surat	105
DIAMANTINA POWER STATION	APA & AGL	Generation	Northern Queensland	550
SPRINGDALE TO BLACKWALL TRANSMISSION LINE	Powerlink	Distribution/ Supply	South East Queensland	125
COOPER'S GAP WIND FARM	AGL	Generation	South East Queensland	1200
GALILEE BASIN TRANSMISSION PROJECT *	TBD	Distribution/ Supply	Other	300
TOTAL ELECTRICITY MAJOR PROJECTS				
PIPELINES				
SOUTH WEST QUEENSLAND PIPELINE (SWQP) - STAGE 2 (& 3)	Epic Energy/Origin	Gas	South East Queensland	858
GLADSTONE COMPONENT OF PIPELINE WORK FOR CURTIS LNG PROJECT	QGC & BG Group	CSG	Gladstone	163
SURAT COMPONENT OF PIPELINE WORK FOR AUSTRALIA PACIFIC LNG PROJECT	Origin	CSG	Surat	675

■ Funded

■ Not Funded

■ Key Assumptions

* We have assumed either Hancock/GVK's Alpha or Adani's Carmicheal project will proceed

Engineering Value (\$Millions)	Project Status	Commencement Date	Completion Date	2012/13 (\$Millions)	2013/14 (\$Millions)	2014/15 (\$Millions)	2015/16 (\$Millions)	2016/17 (\$Millions)
245	Under Construction	2011/12	2013/14	133	70			
301	Expected	2012/13	2014/15	60	200	40		
210	Expected	2013/14	2015/16		50	180	80	
180	Probable	2013/14	2015/16		30	90	60	
128	Probable	2013/14	2015/16			40	60	28
207	Probable	2015/16	>2016/17				70	100
80	Probable	2015/16	2016/17				20	45
175	Probable	2015/16	>2016/17				30	85
225	Expected	2016/17	>2016/17					75
450	Expected	2016/17	>2016/17					150
WORK DONE				354	456	350	320	483
Funded				354	426	220	80	0
Not Funded				0	30	130	240	483
WORK DONE				0	0	0	0	0
Funded				0	0	0	0	0
Not Funded				0	0	0	0	0
425	Under Construction	2010/11	2012/13	128				
72	Under Construction	2010/11	2012/13	6				
56	Under Construction	2011/12	2012/13	37				
36	Under Construction	2011/12	2012/13	25				
31	Under Construction	2011/12	2012/13	17				
47	Under Construction	2011/12	2012/13	45				
38	Under Construction	2011/12	2012/13	25				
157	Under Construction	2011/12	2012/13	154				
53	Under Construction	2011/12	2013/14	32				
385	Under Construction	2011/12	2013/14	193	53			
50	Expected	2015/16	2016/17				25	25
720	Probable	2016/17	>2017					100
125	Expected	2016/17	>2017					50
WORK DONE				661	53	0	25	175
Funded				661	53	0	0	0
Not Funded				0	0	0	25	175
640	Completed	2010/11	2013/14	200				
130	Under Construction	2010/11	2012/13	130				
540	Under Construction	2011/12	2013/14	350				

Appendix – 2013 Major Projects List

Continued

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$Millions)
GLADSTONE COMPONENT OF PIPELINE WORK FOR AUSTRALIA PACIFIC LNG PROJECT	Origin	CSG	Gladstone	225
SURAT COMPONENT OF GLADSTONE PIPELINE WORK FOR GLADSTONE LNG PROJECT	Santos	CSG	Surat	488
GLADSTONE COMPONENT OF PIPELINE WORK FOR GLADSTONE LNG PROJECT	Santos	CSG	Gladstone	163
SURAT TO GLADSTONE PIPELINE WORK FOR SHELL ARROW LNG	Shell/Arrow	CSG	Surat	450
BOWEN TO GLADSTONE PIPELINE WORK FOR SHELL ARROW LNG	Shell/Arrow	CSG	Gladstone	150
TOTAL PIPELINES MAJOR PROJECTS				
TELECOMMUNICATIONS				
NATIONAL BROADBAND NETWORK – QLD COMPONENT	NBN Co.	Telecomms	Other	6928
TOTAL TELECOMMUNICATIONS MAJOR PROJECTS				
OIL & GAS				
CURTIS LNG UPSTREAM FIELD DEVELOPMENT	QGC & BG Group	LNG	Surat	4700
CURTIS LNG DOWNSTREAM (2 TRAINS, 8.5MTPA)	QGC & BG Group	LNG	Gladstone	14840
GLADSTONE LNG UPSTREAM FIELD DEVELOPMENT	Santos & Petronas	LNG	Surat	4500
GLADSTONE LNG PROJECT DOWNSTREAM (2 TRAINS, 7.8 MTPA)	Santos & Petronas	LNG	Gladstone	14350
AUSTRALIA PACIFIC LNG UPSTREAM FIELD DEVELOPMENT	Origin/Conoco Phillips	LNG	Surat	6500
AUSTRALIA PACIFIC LNG PROJECT (2 TRAINS, 9MTPA)	Origin/Conoco Phillips	LNG	Gladstone	18500
SHELL LNG SURAT BASIN UPSTREAM FIELD DEVELOPMENT	Shell/Arrow/Bow	LNG	Surat	2000
SHELL LNG BOWEN BASIN UPSTREAM FIELD DEVELOPMENT	Shell/Arrow/Bow	LNG	Bowen	1500
SHELL LNG PROJECT (2 TRAINS, 7–8MTPA)	Shell/Arrow/Bow	LNG	Gladstone	16000
TOTAL OIL & GAS MAJOR PROJECTS				
BAUXITE, ALUMINA & ALUMINIUM				
WEIPA BAUXITE MINE EXPANSION (SOUTH OF EMBLEY)	Rio Tinto Alcan	Bauxite	Northern Queensland	1100
TOTAL BAUXITE, ALUMINA & ALUMINIUM MAJOR PROJECTS				
OTHER HEAVY INDUSTRY				
AUSTCANE ENERGY PROJECT – ETHANOL	Austcane Energy Project	Ethanol	Northern Queensland	220
TOTAL OTHER HEAVY INDUSTRY MAJOR PROJECTS				
COAL				
BROADMEADOW COKING COAL MINE EXPANSION	BMA	Coal	Bowen	900
LAKE VERMONT EXPANSION	Jellinbah Resources	Coal	Bowen	200
DAUNIA COKING COAL MINE	BMA	Coal	Bowen	1600
CAVAL RIDGE COKING COAL MINE	BMA	Coal	Bowen	3740
GROSVENOR COKING COAL MINE	Anglo Coal	Coal	Bowen	1700
MILLENNIUM MINE EXPANSION	Peabody	Coal	Bowen	400
WASHPOOL COKING COAL MINE	Aquila Resources	Coal	Bowen	368
SPRINGSURE CREEK COKING COAL MINE	Bandanna Energy	Coal	Bowen	800

■ Funded ■ Not Funded ■ Key Assumptions

Engineering Value (\$Millions)	Project Status	Commencement Date	Completion Date	2012/13 (\$Millions)	2013/14 (\$Millions)	2014/15 (\$Millions)	2015/16 (\$Millions)	2016/17 (\$Millions)
180	Under Construction	2011/12	2013/14	30	150			
390	Under Construction	2011/12	2014/15	150	150			
130	Under Construction	2011/12	2014/15		120	10		
360	Expected	2014/15	2016/17			120	200	40
120	Expected	2014/15	2016/17					160
WORK DONE				860	420	130	200	200
Funded				860	420	10	0	0
Not Funded				0	0	120	200	200
4850								
4850	Under Construction	2010/11	>2016/17	40	50	50	50	50
WORK DONE				40	50	50	50	50
Funded				40	50	50	50	50
Not Funded				0	0	0	0	0
3700								
3700	Under Construction	2009/10	>2016/17	320	240	240	200	200
7590	Under Construction	2009/10	2013/14	3650	2970	1436		
3600	Under Construction	2009/10	>2016/17	320	320	320	320	320
7500	Under Construction	2009/10	2014/15	2880	2880	2880	1325	
5200	Under Construction	2009/10	>2016/17	320	240	240	400	400
13500	Under Construction	2009/10	2013/14	3000	3000	3000	2000	
1600	Under Construction	2009/10	>2016/17	200	200	150	150	250
1200	Under Construction	2009/10	>2016/17	100	100	50	50	150
8500	Expected	2015/16	>2016/17			1500	3000	3000
WORK DONE				10790	9950	9816	7445	4320
Funded				10790	9950	8316	4445	1320
Not Funded				0	0	1500	3000	3000
750								
750	Probable	2013/14	2016/17		250	250	250	
WORK DONE				0	250	250	250	0
Funded				0	0	0	0	0
Not Funded				0	250	250	250	0
110								
110	Probable	2015/16	2016/17				55	55
WORK DONE				0	0	0	55	55
Funded				0	0	0	0	0
Not Funded				0	0	0	55	55
720								
720	Under Construction	2010/11	2013/14	360	80			
140	Under Construction	2011/12	2012/13	70				
1280	Under Construction	2011/12	2013/14	560	240			
2992	Under Construction	2011/12	2013/14	1200	800			
1400	Under Construction	2012/13	2015/16	300	370	370	320	
320	Expected	2012/13	2016/17	40	50	10	130	90
258	Probable	2013/14	2014/15		140	117.6		
640	Probable	2013/14	2015/16		120	300	220	

Appendix – 2013 Major Projects List

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$Millions)
MINYANGO COAL PROJECT	Caledon Resources	Coal	Bowen	750
BARALABA OPEN CUT EXPANSION	Cockatoo Coal	Coal	Bowen	400
MIDDLEMOUNT COKING COAL MINE STAGE 2	Macarthur Coal	Coal	Bowen	325
ELLENSFIELD COAL MINE	Vale	Coal	Bowen	640
CODRILLA	Macarthur Coal	Coal	Bowen	150
MORANBAH SOUTH COKING COAL MINE	Anglo Coal	Coal	Bowen	1100
EAGLE DOWNS COKING COAL MINE	Aquila/Vale	Coal	Bowen	1200
EAGLEFIELD COKING COAL MINE EXPANSION	Peabody	Coal	Bowen	1500
DRAKE MINE	Qcoal	Coal	Bowen	400
PEAK DOWNS COAL MINE EXPANSION	BMA	Coal	Bowen	460
ALPHA COAL OR CARMICHAEL COAL *	GVK / Hancock or Adani	Coal	Bowen	6000
ROLLESTON THERMAL COAL MINE EXPANSION	Xstrata	Coal	Bowen	400
TOTAL COAL MAJOR PROJECTS				
OTHER MINERALS				
GEORGE FISHER EXPANSION	Xstrata	Silver/Lead/ Zinc	Northern Queensland	310
RED DOME MUNGANA	Mungana gold mines	Gold	Northern Queensland	330
CLONCURRY COPPER PROJECT	Xstrata	Copper	Northern Queensland	200
ROCKLANDS COPPER	Cudoco	Copper	Northern Queensland	250
MT CARLTON (SILVER HILL)	Conquest Mining	Gold	Northern Queensland	127
LADY LORETTA SILVER/LEAD/ZINC – STAGE 2	Mineral Securities	Silver/Lead/ Zinc	Northern Queensland	460
PARADISE PHOSPHATE PROJECT	Legend International holdings	Phosphates	Northern Queensland	1800
DUGALD LEAD ZINC PROSPECT	Minerals and Metals Group	Silver/Lead/ Zinc	Northern Queensland	900
MT GARNET TIN	Consolidated tin mines	Tin	Northern Queensland	124
MERLIN PROJECT MOLYBDENUM	Ivanhoe Mines	Molybdenum	Northern Queensland	320
NORINCO LATERITE NICKEL PROJECT	Metallica Minerals	Nickel	Northern Queensland	135
ROSEBY COPPER PROJECT	Altona resources	Copper	Northern Queensland	313
TOTAL OTHER MINERALS MAJOR PROJECTS				
TOTAL MAJOR PROJECTS				

■ Funded

■ Not Funded

■ Key Assumptions

* We have assumed either Hancock/GVK's Alpha or Adani's Carmicheal project will proceed

Engineering Value (\$Millions)	Project Status	Commence-ment Date	Completion Date	2012/13 (\$Millions)	2013/14 (\$Millions)	2014/15 (\$Millions)	2015/16 (\$Millions)	2016/17 (\$Millions)
600	Probable	2013/14	2015/16		170	320	110	
320	Probable	2013/14	2015/16		110	120	90	
284	Probable	2013/14	2015/16		65	135	84	
640	Probable	2013/14	2016/17		180	235	190	35
135	Probable	2010/11	2011/12		135			
770	Probable	2014/15	2017/18			175	230	225
960	Probable	2015/16	2017/18				200	440
1200	Probable	2015/16	2018/19				250	350
360	Probable	2015/16	2017/18				105	190
368	Probable	2015/16	2017/18				80	160
5000	Probable	2015/16	2017/18				800	1250
280	Probable	2016/17	2017/18					140
WORK DONE				2530	2460	1783	2809	2880
Funded				2530	1540	380	450	90
Not Funded				0	920	1403	2359	2790
WORK DONE								
124	Under Construction	2010/11	2012/13	24				
215	Expected	2010/11	2013/14				65	45
110	Expected	2014/15	2015/16			65	45	
125	Under Construction	2011/12	2012/13	50	75			
45	Under Construction	2011/12	2012/13	21.3				
184	Expected	2011/12	2013/14	70	54			
700	Expected	2012/13	2014/15		300	300	300	
450	Expected	2011/12	2014/15		110	145	120	
50	Expected	2012/13	2013/14	30	20			
160	Expected	2012/13	2013/14	90	70			
81	Expected	2013/14	2014/15		50	31		
94	Expected	2014/15	2016/17			30	47	17
WORK DONE				285	679	571	577	61
Funded				285	329	145	120	0
Not Funded				0	350	426	457	61
WORK DONE				17965	16770	15273	14137	10971
Funded				17965	15180	11047	5800	1819
Not Funded				0	1590	4227	8338	9152





QUEENSLAND MAJOR
CONTRACTORS ASSOCIATION