

2015

Major Projects Report

Queensland Engineering Construction Outlook



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Acknowledgement

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Foreword

We are proud to introduce the 2015 Major Projects Report — an important partnership between the Queensland Major Contractors Association and Construction Skills Queensland.

This is the seventh edition of the Major Projects Report. Since the mid 2000s, this report has become the leading strategic policy document for the Queensland construction industry and an important, independent voice for its stakeholders across business, government and labour.

A strong Queensland economy depends on a strong, innovative and highly skilled construction industry. Over the past decade, annual construction work done in Queensland has grown from \$22 billion to \$58 billion in real terms and the industry directly employs around 230,000 people. Within this, engineering construction activity has experienced an unprecedented expansion, booming more than fivefold from \$8 billion in 2004 to \$42 billion in 2014, through investment in resources and public infrastructure.

However, as outlined in this report, both the Queensland economy and the state's construction industry face a challenging future. Engineering construction activity has already fallen sharply in line with declining resources investment and capital spending on public infrastructure, with a further 55% decline in major project work anticipated over the next two years. In turn, Queensland's rate of economic growth has also slowed sharply, and there are concerns over State and Federal Government finances and falling commodity prices. Now it is time to consider how Queensland can adapt and evolve in the current climate.

While the state economy is currently transitioning from the record peak of a "once in a generation" investment boom, it rests on strong fundamental economic drivers: our growing interconnectedness with fast growing Asian economies, our abundant natural resources, and rising demand for infrastructure to satisfy a growing, skilled, population. Consequently, once the current adjustment returns us to more normal conditions, it can be expected that further investment cycles will play out in the future. The major projects market will likely become more volatile and cyclical from here, not less. The challenge for all stakeholders is to learn from past experience, look through the short term malaise and implement transformational change for the construction industry and economy over the long term; to make it more productive, sustainable and predictable, so that we can plan effectively for the future.

This will require a coordinated and consultative approach between industry, government and labour. While we should not expect governments to maintain activity at unusual, boom-time levels, there is a role for governments to bring forward investment in public infrastructure to soften the impact of the sharp downturn in private investment and sustain the industry's ability to respond once private investment does return. In other words, what is required is a smoothing of the cycle, with governments investing in projects that make economic sense. In turn, this requires a fundamental re-thinking of how we assess, rank, fund, procure and deliver major infrastructure

projects, and how we sustain and enhance our industry's skills. In this respect, this report is distinctive in the way it outlines the key issues and provides recommendations to steer us in the right direction.

The Queensland Major Contractors Association and Construction Skills Queensland commend this report to you, and look forward to working with you as we meet the challenges and opportunities ahead.

Fernando Fajardo
Acting President

Queensland Major Contractors Association

March 2015

Graham Carpenter
Chairman

Construction Skills Queensland

Executive summary

Queensland's seventh Major Projects Report since 2006 marks a significant shift in the state's recent boom cycle with Major Project work declining in aggregate terms during 2013/14, the first downturn reported in the series.

For many contractors and suppliers to the construction industry, the downturn in Major Project work is already well known. Falling coal prices have affected coal-related Major Project work since mid-2012 and, combined with falling public infrastructure investment in Queensland since 2010, this has been a key driver of the downturn. While LNG-related investment helped drive a peak in Major Project work in 2012/13, it is now also turning down and will, almost single-handedly, drive much weaker levels of total investment and Major Project work compared with the last few years.

This is the challenge now facing the Queensland construction industry, and the broader economy. It demands that governments and industry work harder together to tackle productivity and competitiveness pressures facing Major Project development in Queensland; that sensible plans and processes are adopted to ensure that public infrastructure is delivered timely and efficiently to meet the needs of a growing state; that contractors can exhibit flexibility and innovation to meet demand; and that appropriate investment is made now to ensure that skills and competencies are developed and retained in the construction industry to meet the demands of future investment cycles.

The transition away from the boom times of resources investment is not just a physical one; it also represents an adjustment of expectations. In the decade between 2003 and 2013, many had become used to a world where the construction industry grew faster than the rest of the economy, where employment grew faster than the working population, where incomes and revenues from construction activity grew much faster than the rate we were improving productivity, and where tax revenues grew faster than expenses and public investment. To many, this became thought of as normal.

But it would be wrong to believe that adjusting to a "new normal" level of activity and heightened uncertainty about the future necessarily means accepting limited prospects for growth, employment and future opportunities in Queensland.

Rather, the Queensland economy rests on strong fundamentals which will support an ongoing and growing investment requirement over the decades ahead. These fundamentals include:

- Increasing interconnectedness with the fast-growing Asian economies such as China and India
- Relatively fast population growth and infrastructure requirements
- Large endowments of high-quality natural resources
- A highly skilled workforce.

So while the industry is in a sharp contraction phase now, further investment cycles will continue to play out in the future: the Major Projects market will likely become more volatile and cyclical from here, not less.

The challenge for all participants is to make it more productive, sustainable, and predictable, so that industry can plan effectively for the challenges ahead.

Key findings

With the recent boom in Major Project work now fading, Queensland faces a new series of challenges and opportunities. 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, funded and unfunded, and which are 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 at the end of this report.

In summary, the key findings from the 2014 Major Projects Report are as follows:

- **As projected in previous reports, a sharp drop in Major Project work occurred in 2013/14, with employment demand also following suit.** Queensland engineering construction for Major Projects fell 22% in 2013/14, from a record \$18 billion in 2012/13 to \$14.7 billion, as Major Projects fell across all sectors. Similarly, workforce demand also fell 23% in 2013/14, from a record 23,500 positions in 2012/13 to 18,100 positions, in line with the decline in Major Project work (see Figure A).
- **The current downturn has only just begun, with Major Project work now forecast to reach a trough of just \$6.3 billion in 2015/16.** In all, activity is forecast to fall a further 55% over the next two years (from current levels), with the trough in work done resting 65% below the 2012/13 peak. This is a steeper decline than previously projected as low commodity prices and tight government finances stymie the development of unfunded projects (see Figure B).
- **An upswing in Major Project work is now expected from 2016/17, rising further through to 2018/19.** However, much of the next cycle of work is currently unfunded and subject to risk.

- **Resources projects are still important in generating Major Project work.** Mining investment, though lower, will still drive more than half of all Major Project work done through the forecast period, with (albeit risky) projects such as the Galilee Basin and LNG projects key drivers.
- **Public infrastructure investment will be a key driver of growth in Major Project work from 2016/17, led by transport projects, particularly roads and railways.** However, increasing public sector investment is highly dependent on the successful funding of projects in the short term and reforms to public sector financing and procurement in the medium term.
- **In line with shifts in the type of projects proceeding, there will also be shifts in regional demand for skilled construction labour,** with demand moving away from the Gladstone region and the Bowen Basin coalfields to South East Queensland and the Galilee Basin (see Figure C).
- **The next upswing in Major Project work in Queensland is likely to coincide with increasing demand for infrastructure investment from other Australian states as well as globally through the G20 Brisbane Action Plan.** Given this, there is a lot which could (and should) be done to ensure the Queensland construction industry and economy is productive and globally competitive.

Figure A

Major projects work done & workforce demand – all segments

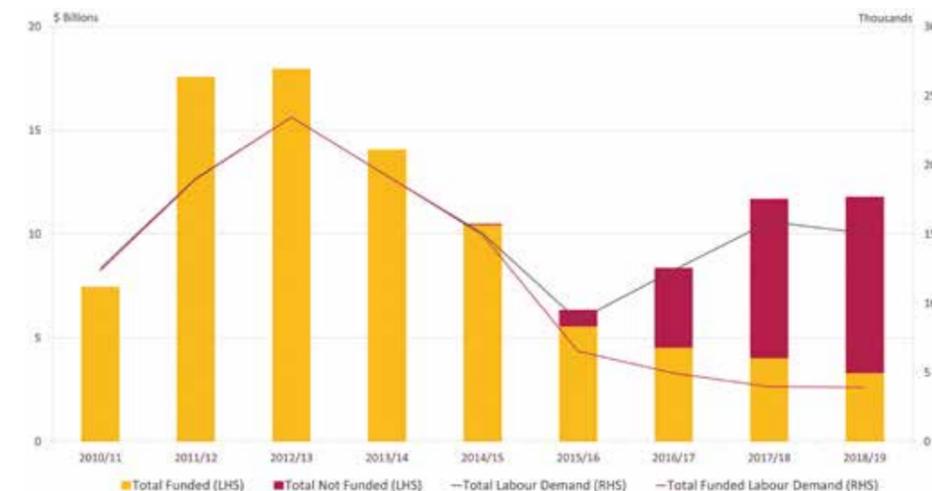


Figure B

Total work done forecast – 2014/15 forecasts vs 2013/14 forecasts

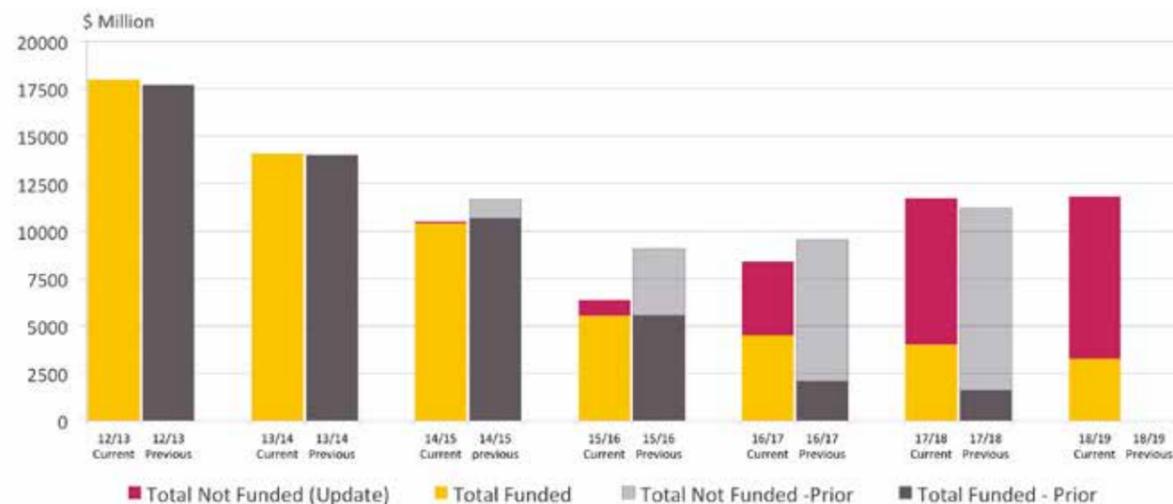
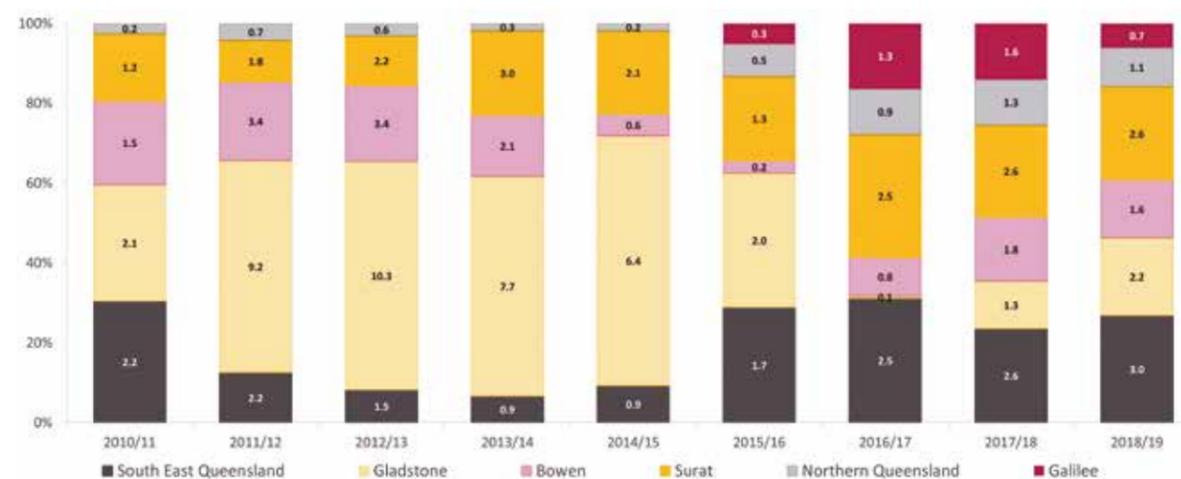


Figure C

Major projects work done – all segments by region (share LHS, \$Billions by column in constant 2011/12 prices)



Challenges and recommendations

Overall, the Queensland Major Projects industry is likely to experience a volatile cycle over the next five years. However, while the private sector is still expected to play a significant role, much of the “heavy lifting” in terms of infrastructure provision is expected to return to the public sector. In this respect, it is crucial that governments undertake this task transparently and efficiently, and finance infrastructure in a way which provides greatest economic benefit.

Fundamentally, governments should not fall into the trap of thinking that they must maintain the recent extraordinary levels of Major Project work at all costs – that they should completely fill the hole left by the mining investment boom. As outlined in this report (as well as previous reports) the recent resources boom drove Major Project work to unsustainably high levels, creating myriad challenges for the industry along the way. Part of the adjustment to the “new normal” is recognising that this phase of activity was highly unusual. To sustain activity at those levels would very likely involve investing in projects with very low economic benefits or “white elephants”, as well as further exacerbating costs and competitiveness pressures. However, there remains a strong role for governments to get on with the job of picking up their investment to soften the impact of the sharp downturn in private investment and sustain the industry’s ability to respond once private investment does return. What is required is a smoothing of the cycle, with governments investing in projects that make economic sense.

Adopting sensible public infrastructure investment plans and processes entails:

- Choosing projects with the greatest net economic benefits
- Finding sustainable mechanisms to fund infrastructure provision for the long term
- Ensuring efficient processes are in place for the procurement of services.

Meanwhile, governments, labour, and industry should work together to promote policies which:

- Support private infrastructure investment
- Streamline procurement processes
- Improve industry competitiveness and flexibility, and
- Invest in skills and competencies.

In this respect, this report issues the following recommendations:

- **That public sector infrastructure investment plans are fundamentally supported by proper and transparent cost benefit analyses (CBA) to ensure that the projects are selected on strong net economic benefit criteria.**

- **Governments should not rule out privatising assets (as part of a suite of funding solutions for new infrastructure) but only where it can be demonstrated that the assets will be run more efficiently by the private sector, that any resultant monopolistic price-setting behaviour can be effectively regulated to protect consumers of the asset, and that the resultant new infrastructure investment is based on rigorous and transparent CBA.**
- **That the public sector fundamentally reforms funding arrangements for the roads sector.** Currently, fuel excises do not go near to covering the long run costs of road construction and maintenance and there is a limit to the funds that can be raised through capital recycling. Ultimately, more sustainable funding measures will need to be found. This may include broadening the tax base or introducing forms of roads pricing (outside of existing toll roads). Overall, capital recycling may not be appropriate for many road projects as there is no effective price mechanism for roads which can efficiently capture value for private ownership.
- **That governments continue to encourage greater private investment in infrastructure through streamlined administrative and approval processes, for example through Projects Queensland, the State Assessment and Referral Agency (SARA), and the proposed Building Queensland. These agencies should implement full CBA for proposed infrastructure projects, quickly assess unsolicited development proposals, and consider “seed” funding of major infrastructure projects where it can be shown there is a gap between commercial returns and the broader economic benefit.** Again, the decision to provide funding support and the size of the subsidy should be based on a transparent CBA process.
- **That State and Federal Governments reform the procurement process to help reduce bid costs which can be significant in the context of overall construction costs for public infrastructure.** This includes governments taking more responsibility for the initial design, providing CBA to all bidders, leaving more of the detailed design work to the preferred tenderer rather than imposing on all bidders, and relaxing requirements on local content as well as other measures.

1. Queensland Major Projects

- **That industry and governments continue to tackle risks to productivity and competitiveness**, through appropriate skills and training packages, creating incentives for productivity-enhancing capital investment, penalising uncompetitive behaviour by labour or industry, and encouraging research, development and commercialisation of new construction techniques and practices through industry/university cooperation.
- **That industry and governments support research to identify potential skills mismatches and gaps** through the forecast period, particularly given current demographic shifts affecting professions in the construction industry. Ideally, this requires more detailed analysis of both demand and supply for key occupations in the industry and will become highly relevant in future cycles.
- **That improvements are made by governments and statistical agencies to improve the depth and quality of data pertaining to the construction industry**, particularly surrounding employment by detailed occupation, productivity, and construction costs for major infrastructure segments including roads and bridges, railways, ports, electricity, water, gas, and social building (i.e. education and health). This data will be vital for benchmarking Major Projects, as well as better assessing costs and benefits for rigorous Major Project selection.
- **The trajectory of commodity prices**, particularly for coal (both thermal and coking), as well as oil prices (which can influence returns to LNG projects).
- **Movements in the value of the Australian dollar**, which not only affect the profitability and competitiveness of resources projects but also help drive investment in other tradeables sectors of the Queensland economy, including tourism, agriculture, education, and manufacturing.
- **The substantial impact of two resources Major Projects on overall work – in particular, the Galilee Basin Coal Projects and brownfield expansions to existing LNG capacity.** In this report, it has been assumed that Galilee Basin-related construction will begin as early as 2015/16, and expansions to Queensland's LNG production trains by 2016/17. However there remain significant risks that these projects alone, comprising over \$14.2 billion in Major Project work through the forecast period, will be delayed.
- **Revenue risks to the Federal and Queensland Governments**, and how this may play out in terms of funding public infrastructure projects through the forecast period. This not only includes the risk that policies linked to investment programmes (e.g. capital recycling) do not proceed, but also that a weaker phase of economic growth in Australia (and falling income growth through declining terms of trade) will impact on tax revenues.

Risks to the outlook

A key feature of the outlook for Major Projects work in this report is its increasing volatility and risk. While activity is falling sharply now and over the next two years as the Queensland economy transitions away from the resources investment boom, there is also reasonable prospects for further cycles ahead given Queensland's natural strengths and advantages. However, the timing and strength of the next upturn is difficult to gauge, as many of the Major Projects identified in this report which are timed to start after 2016 are currently unfunded.

The key risks which will affect the Major Project outlook, as identified in this report, are:

- **The economic outlook for key trading partners, the strategic decisions they make in achieving sustainable growth**, and how this will impact on the global trade of resources for which Queensland has a strong supply position, particularly coking coal, thermal coal, and gas.

While most of these risks are outside of the control of the Major Projects industry, it remains important that governments and industry participants focus on what can be controlled to ensure that the industry and economy remains on a sustainable footing. This includes taking on the recommendations in this report with the long term aim of mitigating the volatility of the boom/bust investment cycle and achieving high quality, predictable and sustainable outcomes, safe workplaces and decent working conditions.

Maintaining a healthy Queensland economy depends on sustaining an innovative construction industry which is flexible in responding to the challenges ahead, and has the right mix of skills and competencies to meet future demand.

The 2015 Major Projects list is presented in the Appendix of this report. The Major Projects list is for projects in excess of \$100 million and was developed by BIS Shrapnel in coordination with QMCA member input from November 2014 through to January 2015.

Total Major Projects outlook and employment demand

Figure 1.1 highlights the current activity and projections for Major Project work and employment demand for the period 2014/15 to 2018/19 based on the 2015 Major Projects list, as well as historical data to 2010/11. Key points from this analysis are:

- **As forecast, a sharp slowdown in Major Project work occurred in 2013/14, with employment demand also following suit.** Queensland engineering construction for Major Projects fell 22% in 2013/14, from a record \$18 billion in 2012/13 to \$14.7 billion, as activity fell across all sectors. Similarly, workforce demand also fell 23% in 2013/14, from a record 23,500 positions in 2012/13 to 18,100 positions, in line with the decline in Major Project work. Despite the widely publicised decline in mining and heavy industry investment, non-mining investment also weakened significantly in 2013/14 as public finances remained stretched. Accordingly, the mining and heavy industry share of total Major Project work remained largely unchanged in 2013/14, representing 74% of work done and 58% of the workforce, with both measures only slightly down on last year.
- **A sharp contraction in Major Project work is forecast to continue over the next two years.** In aggregate, Major Project work done is forecast to decline nearly 65% from the 2012/13 peak to a trough of \$6.4 billion in 2015/16. Furthermore, Major Project activity will be lower in 2015/16 than 2010/11 reflecting the push back in a number of major mining and mining-related projects.
- **Most engineering segments are expected to contribute to declining activity, but mining and heavy industry construction will continue to dominate the overall shape of activity going forward.** The completion of three major Liquefied Natural Gas (LNG) projects on Curtis Island and in the Surat Basin, and the substantial retreat in coal and coal related works, will drive a collective 73% decline in Major Project work done between 2012/13 and 2015/16. In terms of the construction workforce, mining and heavy industry alone is anticipated to shed over 9,500 full time workers over the same period. This could be higher if new projects do not proceed.
- **An upswing in Major Project work is expected from 2016/17, but growth will plateau from 2017/18, with work done forecast to rise back above \$11.5 billion.** However, this recovery is predicated on currently unfunded projects proceeding, including large public sector road and rail projects, as well as another round of resources investment focused on Galilee Basin coal. Without these unfunded projects, the outlook will be closer to the flatter "Funded" projection illustrated in Figures A and B, with no upward cycle during the forecast period.
- **The cycles in Major Project work will also see shifts in employment demand through the next five years.** From the peak in 2012/13, workforce demand is expected to fall 50% to around 8,500 people by 2015/16, before recovering back above 15,000 people in 2017/18 and 2018/19. As shown in Figure 1.2, there is also a sectoral shift in employment demand, with oil and gas demand falling as a share of total workforce demand after 2014/15.

1. Queensland Major Projects

Figure 1.1

Major projects work done & workforce demand – all segments

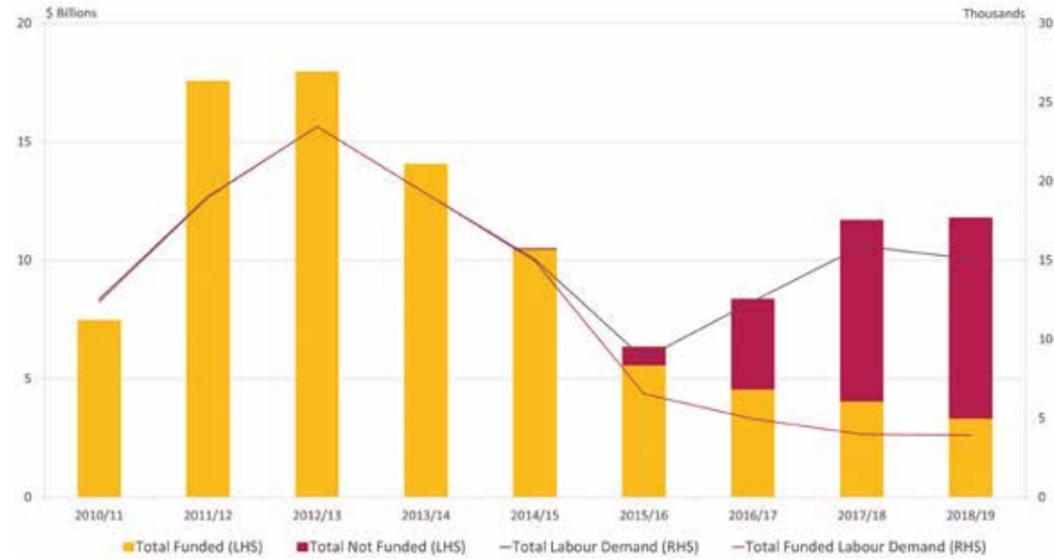
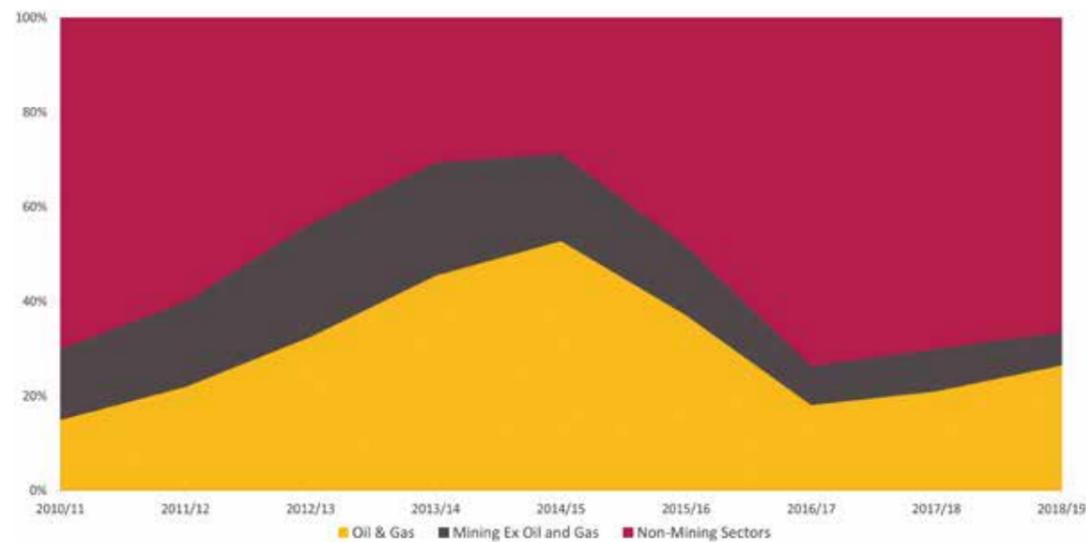


Figure 1.2

Share of total workforce demand – oil & gas, mining ex oil & gas, and non-mining sectors



Funded versus unfunded projects

This report's projection of Major Project work is based on a considered view of both funded and unfunded projects. Consequently, it is likely to provide a more realistic outlook of Major Projects activity in Queensland, and illustrate how the workforce requirement is likely to develop over the forecast period.

If the projection considered only those projects which currently had funding approval, then Major Projects activity would experience a more rapid decrease in activity. However, this is not the most likely scenario for activity given the reasonable probability that many (currently unfunded) projects will eventually be funded and committed to within the forecast horizon. Therefore, the unfunded forecast view is closer to a "worst case scenario" outlook, should international developments or public sector finances deteriorate significantly further, or the combination of threats to the Queensland construction industry remain unaddressed.

Towards an addressable market for local contractors

Given the high import content of materials, equipment, buildings and structures attached to LNG projects and the use of direct labour employment contracts in assembling downstream LNG components on site, BIS Shrapnel has produced an alternative measure of Major Projects work, which better captures the (smaller) market for which local contractors can effectively compete. This analysis is based on discussions with major contractors regarding the approximate percentage of LNG Major Project value year-by-year (both upstream and downstream, which are quite different) that tends to be imported, offered through direct labour employment contracts, or tendered as packages of work to local contractors.

Figure 1.3

Local major projects work done (excluding offshore LNG) – all segments

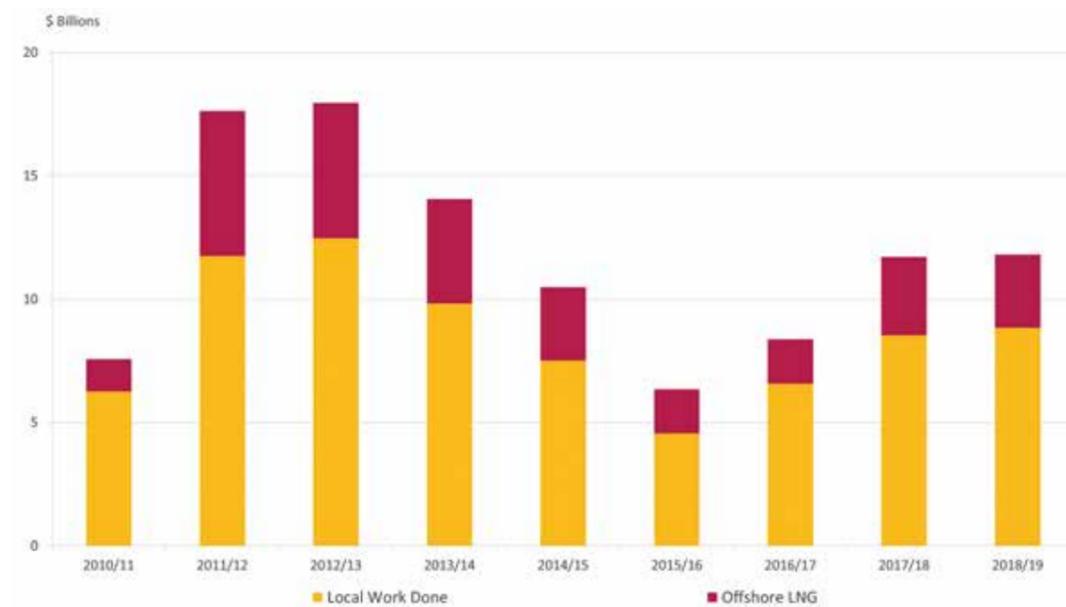


Figure 1.3 shows BIS Shrapnel's estimates of local work done versus offshore (imported) LNG. In 2011/12, the expansion of the contractor market was likely not as steep as indicated by the total value of Major Project work alone (and official ABS engineering construction data, which includes the value of imported LNG components).

During this period, the three major Gladstone-based LNG projects began to ramp up construction considerably, but this period coincided with a large increase in imports. However, the analysis shows, the local contract market continued to grow into 2012/13, corresponding well with construction employment which also rose during the same year.

A downturn in local contractor work occurred in 2013/14, with a further decline forecast for 2014/15 and stabilising in 2015/16.

By contrast, after 2015/16 it is assumed a much greater proportion of Major Project work will be won by local contractors, including upstream related LNG work, other inland resources projects (such as Galilee Basin thermal coal mines and railways), and public infrastructure.

1. Queensland Major Projects

Roads and bridges

Major Project work for roads and bridges is expected to remain weak in 2014/15, but is projected to pick up sharply from 2015/16.

Constrained Federal and State Government funding and the absence of major toll road projects are the primary reasons for the initial weakness. However, with the next round of the Infrastructure Investment Program (IIP) starting from 2014/15 road construction is set for a strong period ahead if a number of projects are given the green light including the Toowoomba Second Range Crossing, Gateway Upgrade North (GUN), the Kingsford Smith Drive, and Caloundra to Sunshine Motorway upgrades.

Major Projects work on Queensland roads and bridges is expected to surge in 2016/17 and edge slightly higher in 2017/18 to just short of \$2.5 billion, a new peak for Queensland roads and bridges.

We note, flood-related reconstruction funding was broken down into smaller packages of less than \$100 million, and therefore did not impact the Major Projects data presented here. It does, however, influence the overall level of civil construction activity within the state, and the ability of the State and Federal Governments to source labour and fund Major Projects into the future.

Figure 1.4

Major roads and bridges – projects work done & workforce demand forecast

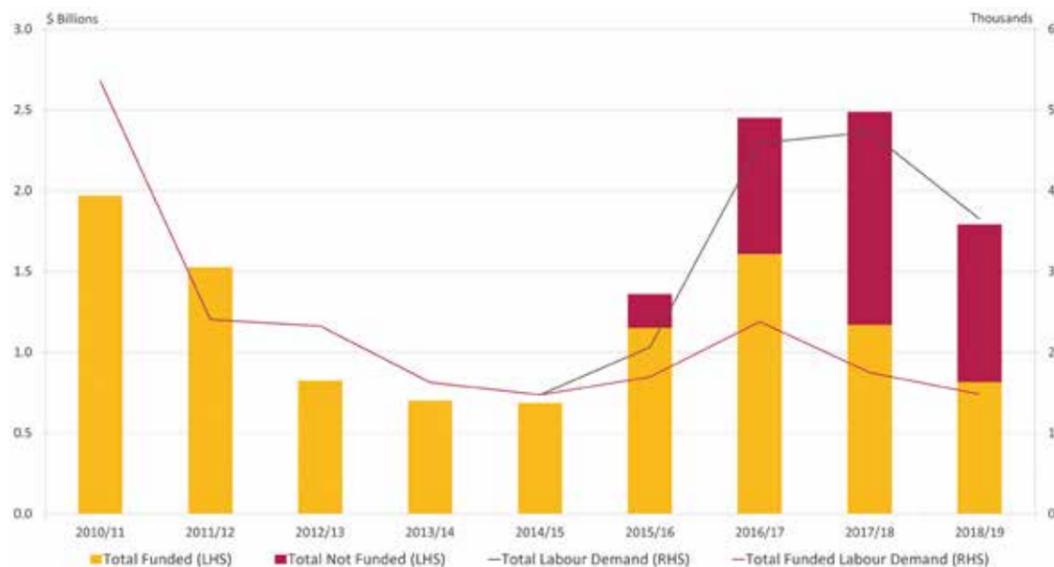


Figure 1.4 shows Major Project road and bridge construction work done is expected to contract by nearly 65% by 2014/15 compared with the peak of 2010/11. Major Project workforce demand is expected to decline by a similar proportion over the same period. The next round of IIP projects is expected to trigger the next upswing in 2015/16, with work done climbing by over 250% collectively from trough to peak.

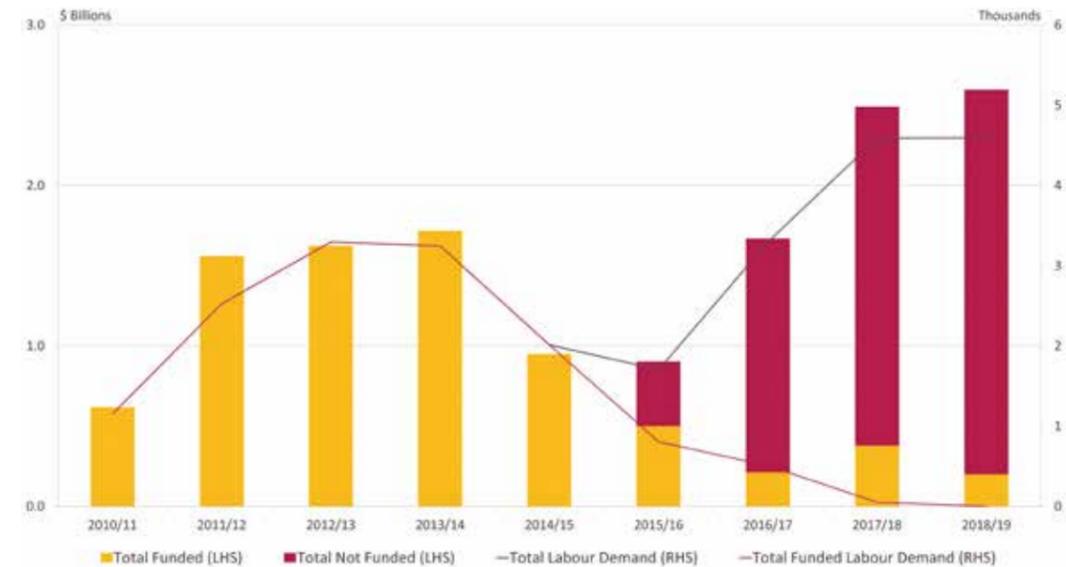
For contractors in this segment, a positive development has been the outsourcing of road maintenance arrangements in Brisbane, the Gold Coast, and Sunshine Coast. As with flood-related works, this activity has not been considered in this report given that the ultimate packages of work will likely be well under the \$100 million threshold, and the focus is on maintenance as opposed to construction work.

Railways and harbours

Major Project work across railways and harbours in Queensland has increased significantly over recent years, with work done peaking in 2013/14 at over \$1.6 billion. Workforce demand requirements mirror the work done profile, with major railways and harbours construction employment having grown to 3,300 people in 2012/13 and remaining at this level in 2013/14.

Figure 1.5

Major railways and harbours – projects work done & workforce demand forecast



Major Project construction work on harbours has been driven predominantly by the demands of the resources sector, but across railways there are also significant contributions from the public sector, notably the \$1.15 billion Moreton Bay Rail Link (which finishes in 2016). In aggregate, the pause in new resource project commencements during the second half of calendar year 2012 is driving a lower volume of Major Project work across railways and harbours through 2014/15 and 2015/16. Activity remains relatively high in 2014/15, but this is mainly due to two very large ports projects: the \$2.5 billion Hay Point Stage 3 expansion (scheduled to complete in 2014/15) and the \$2.4 billion Wiggins Island Stage 1 (which will be mostly complete by 2014/15).

From 2015/16, however, we have timed the start of preliminary works on the, as yet unfunded, Brisbane Bus & Train Tunnel (BAT) project and the Galilee Basin rail project. We also expect other projects to start around this time, including the Gold Coast Light Rail Stage 2 in 2015/16 and the Varsity Lakes to Elanora Extension in 2017/18. Altogether, these projects are expected to drive Major Project work done to over \$2.5 billion by 2018/19.

The key risk to the railways and harbours Major Project forecast concerns the future of the Galilee Basin – this is, essentially, the “non-funded” category of work shown in Figure 1.5. Should the development of the Galilee Basin take place (located further north and west of existing coal infrastructure in the Bowen Basin), this will necessitate a massive construction program involving over 400 kilometres of new rail and up to 120 million tonnes per annum of new coal port capacity.

For this report, it has been assumed that major construction will begin on one Galilee Basin coal mine in 2015/16, along with associated infrastructure. This will be followed by a second project from 2016/17, as well as a spur line. However, there remains significant risk that the cost of developing these projects, relative to current and expected coal prices, may see activity delayed beyond the current timeframe.

Water and sewerage

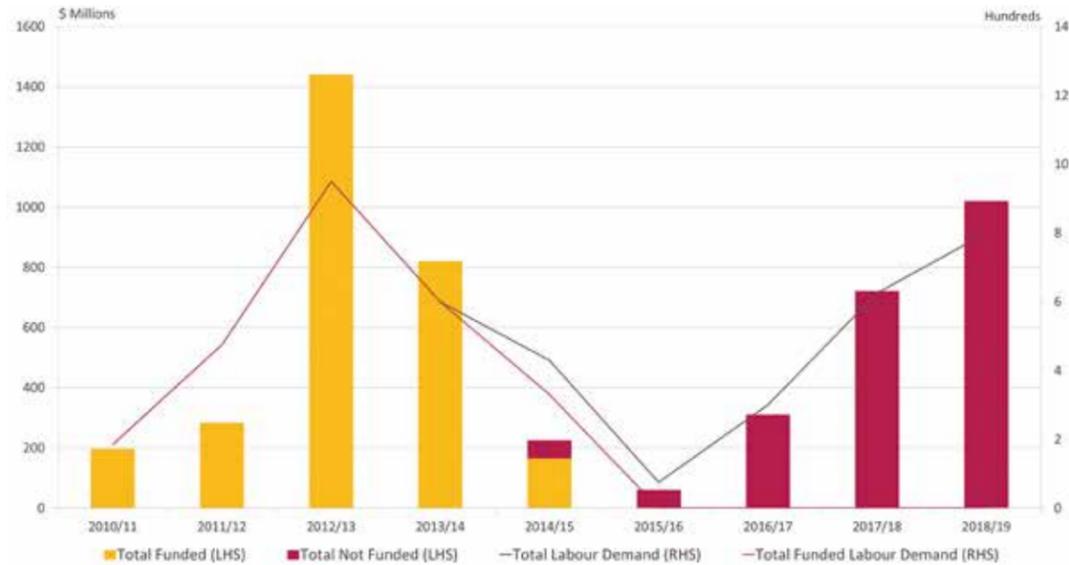
Water and sewerage work done and workforce demand for Major Projects both climbed strongly in 2011/12 and surged into 2012/13, to settle at just over \$1.4 billion and employing around 1,050 people. This rapid growth was largely underpinned by new water treatment facilities and pipeline construction projects supporting upstream Coal Seam Gas (CSG) field development in the Surat Basin. However, as these projects move towards completion, work done and employment weakened substantially, falling to just over \$800 million and 600 positions.

This trend is set to continue as these projects finish, with activity anticipated to decline sharply, bottoming out at just over \$100 million and 75 people in 2015/16.

1. Queensland Major Projects

Figure 1.6

Major water and sewerage – projects work done & workforce demand forecast



By 2016/17, activity is expected to be rising strongly again due to stronger 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, as well as potential agricultural food-bowl opportunities. With regards to the latter, the establishment of a Commonwealth water infrastructure ministerial working group in 2014 could help accelerate the identification and development of water infrastructure projects with the potential for Commonwealth involvement. Taken together, work done is expected to reach a new cyclical peak of \$1 billion by 2018/19, employing over 1,100 people (see Figure 1.6).

There are significant risks with the water and sewerage Major Projects outlook. Also, as many of the projects driving work done and workforce demand are coal related (Galilee Basin) pipeline work 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.

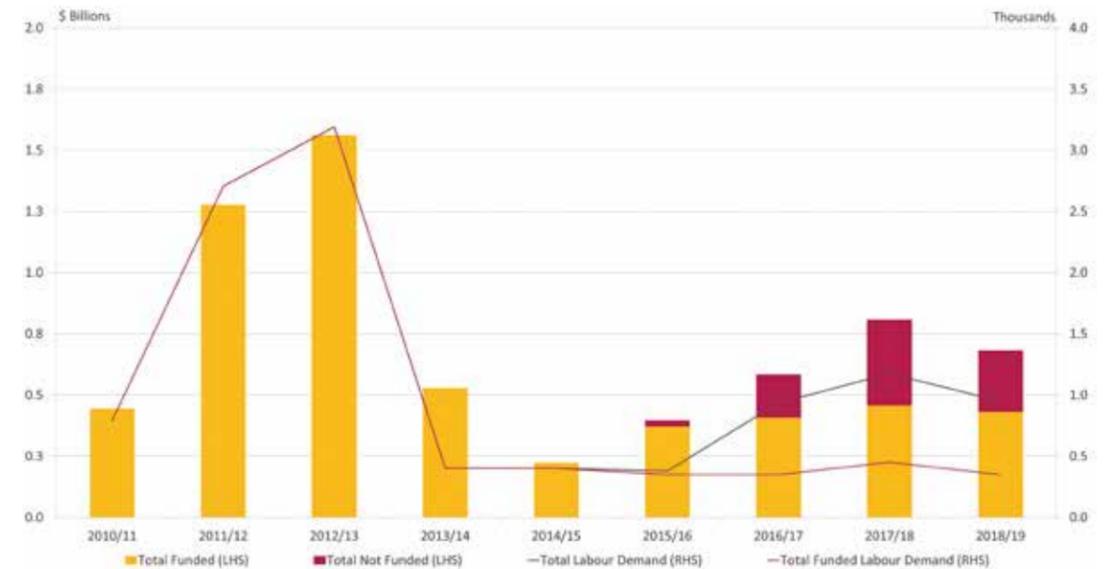
Electricity, pipelines and telecoms

Electricity, pipelines and telecoms Major Project work employed more than 3,000 people in 2012/13, two thirds of whom were involved in (non-water) pipelines work. In aggregate, electricity, pipelines and telecoms work done reached nearly \$1.6 billion in 2012/13, a new record.

Growth in 2012/13 was achieved by a simultaneous increase in activity in the electricity and pipeline segments including a host of new Powerlink distribution and supply projects, the South West Queensland Pipeline, and a series of CSG pipelines.

Figure 1.7

Major electricity, pipeline and telecom – projects work done & workforce demand forecast



In the short term, Major Project electricity, pipelines and telecoms work done is expected to contract sharply, settling at under \$300 million in 2014/15 as Major Projects wind up. From here, we are forecasting work done to shift higher, climbing back above \$800 million by 2017/18, before softening slightly in 2018/19 (see Figure 1.7). The increase to 2017/18 includes another, as yet unfunded, export gas pipeline projected to be constructed alongside Galilee Basin transmission works to support a brownfield LNG expansion, plus a further roll out of the National Broadband Network (NBN), before softening slightly in 2018/19.

Over the medium to long term, the picture is much different sector by sector. With regards to electricity, weaker forecasts of demand from the Australian Energy Market Operator (AEMO) suggest that new baseload generation capacity will not be required until the mid to late 2020s. Ongoing development of the CSG fields to feed the LNG trains once they are built will require continual upstream investment in pipelines (and other infrastructure) over the long term. Finally, Major Project telecoms activity is assumed to remain consistent from here as the fibre to the node NBN network is rolled out progressively across Queensland, although there may be scope for NBN activity to pick up if the roll out were to be accelerated by NBN Co.

Mining and heavy industry

Mining and heavy industry Major Project work experienced a period of unprecedented expansion between 2010/11 to 2012/13, increasing collectively by over 200% to a new peak of \$14.6 billion. From a Major Project workforce perspective, the number of people employed in Queensland's mining and heavy industry sector doubled over the same period to 14,000. Queensland's LNG projects were the key driver of growth (although as mentioned, many of these positions may have been effectively offshored) while coal projects (now completed), such as the Broadmeadow, Caval Ridge, Daunia and Grosvenor coking coal mines, also sustained a high level of work.

While Major Project work done peaked in 2012/13, measured labour demand remained steady in 2013/14 despite sharp falls in work done. However, this is mostly driven by peak phases of downstream activity on LNG projects which may not be contestable by local contractors.

By contrast, labour demand for major coal projects slipped by one quarter in 2013/14 (to 1,850 people), while a 75% decline is expected for other minerals projects (to just 325 people).

1. Queensland Major Projects

Figure 1.8

Major mining and heavy industry – projects work done & workforce demand forecast

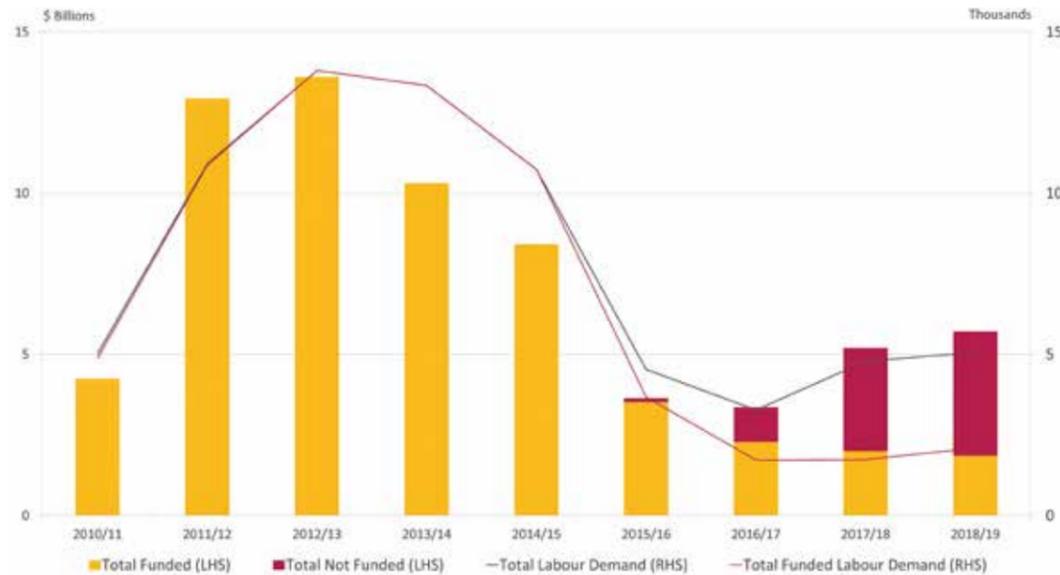


Figure 1.8 shows further declines in work done and workforce demand are forecast in subsequent years, with funded activity dipping below 2010/11 levels in 2015/16 and 2016/17, as current projects are completed. Thereafter, investment is forecast to move higher as Galilee Basin projects get underway alongside the next round of LNG expansions at Gladstone and Rio Tinto's South of Embley project.

However, assuming Queensland can meet challenges on costs and competitiveness, and is supported by strengthening global demand, a range of mining and heavy industry projects that are currently unfunded could feasibly come back late in the forecast period. Most of these are coal projects (in the Bowen and Galilee Basins), but there are also other resources developments such as, the Paradise phosphate project and ethanol projects in North Queensland.

Regarding LNG, it is now confirmed that a Shell LNG train will not proceed, but it is assumed that the upstream CSG fields will be developed to support one brownfield expansion of the existing projects by 2016/17. Nonetheless, ongoing development of CSG fields over the operational life of LNG facilities (at least two decades) will require continual investment in related field infrastructure, including roads, pipelines and gas facilities, and water. Again, while not Major Projects in their own right, in aggregate, they will lift the volume of sector activity compared with the pre-CSG era.

Queensland regional focus

Figures 1.9 and 1.10 show significant shifts in Major Project work and employment are expected at the regional level over the forecast period. While Major Project activity will be declining in aggregate terms, a greater share of this work is expected to be focused in the Gladstone and Surat Basin regions over the next twelve months. Later, activity is expected to switch back to South East Queensland, the Bowen Basin, and the Galilee Basin. The LNG investment boom continues to be the key driver of this switch, which once completed, gives way to a potential upswing in coal-related work in the Galilee Basin. Meanwhile, a broader based recovery in South East Queensland is dependent on investment decisions by State and Federal governments, particularly regarding new transport infrastructure. Rising residential and commercial building activity (not considered as major engineering projects for this report) are also adding to construction labour demand in South East Queensland, and this trend is expected to continue during the forecast period.

The initial shift of labour and capital to Gladstone and the Surat Basin, in a very concentrated period of time, continues to present challenges to local communities and projects. The construction workforce more than doubled here to meet the construction schedule of the LNG projects.

As major LNG projects in Gladstone wind down, the workforce shift that took place will reverse, with other regions such as the Galilee Basin and South East Queensland picking up the slack. While the pace of this change will be slower than that which occurred in Gladstone, both regions will have their own challenges to overcome. The regional towns that will inevitably service Galilee Basin projects will undertake a number of social and economic changes similar to Moranbah. This will require detailed planning by Federal, State, and Local Governments in conjunction with the project's proponents in order to maintain harmonious and sustainable communities.

As history has proven, the South East Queensland region has experience handling significant shifts in Major Project work and employment, such as those forecasts in this report. However, the current forecast upswing will occur at a time when other Australian states and cities (particularly Sydney), as well as other global cities, will also be under going increasing levels of Major Project investment. This will likely to see competition for labour, plant and equipment intensify and will be a challenging period for procurement.

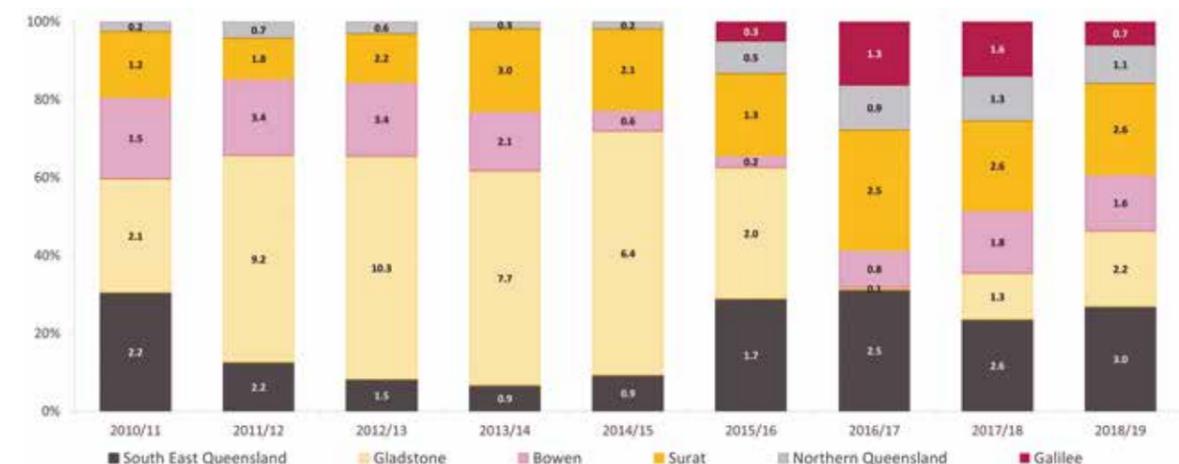
Figure 1.9

Major projects workforce demand – all segments by region (share LHS, employment by column)



Figure 1.10

Major projects workforce demand – all segments by region (share LHS, \$Billions by column in constant 2011/12 prices)



Strengths, weaknesses, threats by region

South East Queensland

Publicly-funded infrastructure works are the key driver in South East Queensland, with roads and railways work likely to remain the principal source of Major Project activity. In this sense, the projection of declining levels of public investment and Major Project works in this region places local contractors at significant risk. A turnaround in public investment is expected to come through after 2015/16, supporting Major Project activity in South East Queensland. However, conditions will remain difficult until then, with only a handful of major road and rail projects in the near term.

Gladstone

The strengths, weaknesses and threats to the Gladstone region are shaped by the outlook for LNG and coal, the latter affecting the staged development of the Wiggins Island Coal Export Terminal (WICET). Major Project demands are expected to have peaked in 2013/14 in this region, and are then expected to decline sharply given the completion of various LNG jetty projects and the impending completion of the \$2.4 billion first stage of WICET. Whether the decline becomes more substantial later on depends on whether further stages of existing LNG projects, or new LNG projects commence during the forecast period, or are delayed by high cost pressures and the emergence of competitive threats such as from US shale gas. This report assumes the region will see one brownfield LNG expansion and a new major pipeline which, in conjunction with water, road and feeder/gather pipeline works, will lead to a recovery late in the forecast period.

Bowen Basin

Coal related Major Projects shape the Bowen Basin region. A substantial portion of these projects are either underway and heading to completion, or unfunded. Given weakness in thermal coal prices and falling coking coal prices the next round of Major Projects remains under threat. In particular, a number of producers with allocations to the Wiggins Island Coal Terminal remain unable to access finance and, as a consequence, further delays or cancellations cannot be ruled out. In this report, it is assumed that several of the delayed coal projects will be revived late in the forecast period under more favourable Australian dollar prices and local cost structures, but it is not guaranteed.

Galilee Basin

The Galilee basin remains a key downside threat to our forecasts. As indicated in the Major Projects list, two major coal projects have been assumed for the Galilee Basin. The first mine is expected to begin construction in 2015/16 while the second will follow in 2016/17, alongside supporting rail and port infrastructure. However, these projects could easily be pushed back by a lack of funding or low coal prices.

Surat Basin

Upstream CSG LNG work is currently driving robust activity in the Surat Basin. Given the region's significant thermal coal resources (which are expected to remain unrealised for now) there is substantial upside opportunities to the forecast. For example, if economic conditions permit the Wandoan Coal Project to proceed, this could start a chain reaction of development as other mines are developed to piggy back on related infrastructure such as the Southern Missing Link rail project. In addition, a number of CSG-fired electricity generators are currently proposed in the region meaning further upside potential exists. However, there is a low probability of this occurring in the next five years given the outlook for electricity demand.

North Queensland

The North West Province in Queensland could stand to benefit from multiple major base minerals projects covering bauxite, phosphates, silver-lead-zinc, copper, tin and nickel. Timing of the global economic recovery and demand for metals and minerals will be the key factor underwriting the next round of minerals investment in this region. While dominated by the sheer scale of the coal and LNG investments further south, base metals and minerals projects in this region may still be substantial over the next three to five years.

2. International & Australian economy – setting the stage

The Queensland economy is closely tied to the prospects for the global economy. Queensland's natural abundance of high-quality mineral deposits means rising metal and energy consumption in the East Asian region, particularly China, has a significant impact on local construction activity.

The key points:

- **Global growth is improving in aggregate, however the story differs by region.** The unbalanced growth profile reflects various policy settings and stimulus measures being implemented. While there are positive signs for growth in the US, UK and China, prospects for Japan and the Euro Zone economies are not looking bright.
- **Growth is necessary for higher commodity prices.** Queensland's abundance of natural resources means the outlook for the global economy and, more importantly, industrial production has a strong bearing on future levels of investment activity and Major Project work.
- **Commodity prices have fallen, impacting the viability of some domestic mining operations.** Commodity prices are falling due to significant volumes of supply reaching the market. High local costs, unless corrected by domestic actions and a fall in the Australian dollar, are placing the next round of major resource projects in Queensland at risk.
- **Weakness for commodity prices is expected to linger.** Price weakness for a number of commodities is expected to continue in the short term. While prices are expected to recover gradually during 2015 and 2016, they will not return to previously high levels. In combination with strengthening consumption, the recovery will be led by higher cost producers closing mines and cutting back production as the global economy gradually picks up.
- **The Australian economy is operating below trend.** The Australian economy is struggling with the transition from the mining investment boom as non-mining investment has been slow to recover despite significant monetary stimulus and a falling Australian dollar.

Outlook for the global economy

Global economic prospects are improving. However, as seen in Figure 2.1, the story is markedly different across regions. While there are positive signs for growth in the US, UK and China, prospects for Japan and the Euro Zone economies are not looking bright. Geopolitical tensions in Russia and the Middle East have led to trade restrictions and volatility in energy prices. The unbalanced growth profile reflects various policy settings and stimulus measures (including unconventional monetary policy) being implemented. Overall, the world economy is projected to expand by 3.6% during calendar year 2014, and accelerate to 4.1% during 2015.

The United States continues its recovery after a patchy start to the year. Employment growth has defied expectations and taken the unemployment rate below 6% for the first time since 2008. Growth over the past year or two has been driven by the private sector, with residential construction and consumer expenditure remaining solid, despite cuts to public spending. Growth is expected to accelerate from 2015, driven by low interest rates, internationally cheap energy due to the shale gas boom, and ongoing employment growth.

On some measures, China is now regarded as the world's largest economy. Slower growth in the first quarter is likely to lead to annual growth falling below the Chinese Government's announced target of 7.5% for 2014. Activity in the real estate sector has been sluggish with prices and new housing starts falling. The real estate sector has been an important part of China's economic growth over recent years, and further easing will put pressure on other areas of the economy. To counter the slowdown in economic activity, the Government has introduced stimulus measures including lower taxes for small businesses, further fiscal and infrastructure spending, and cuts to the benchmark lending rates.

2. International and Australian economy – setting the stage

The Euro area expanded over the final quarters of 2013, moving the region out of recession. However, growth stalled over the first half of 2014, and this has finally prompted the European Central Bank (ECB) to take proactive steps by introducing a range of stimulus measures. The ECB has introduced a negative deposit rate, an unconventional tool aimed firmly at encouraging spending and discouraging saving. In addition, the bank offers low-cost loans to businesses and has commenced a program to purchase covered bonds and asset-backed securities for at least two years. This commenced in the fourth quarter of 2014. These policy measures should support weak growth across the Euro zone, particularly through private investment.

Japan has been running strong stimulus measures aimed at eliminating persistent deflation to help spur growth. The expansionary policy had been gaining traction, but an increase to the sales tax has unwound some of the gains for the economy. Once the shock of the sales tax erodes, the combination of free-flowing monetary stimulus and a weakened yen should see a pick up in economic growth in Japan over the next two years.

Figure 2.1

Economic growth by region and country

Year Ended December	Real GDP/GNP Forecasts								
	OECD	US	Japan	Euro Area	China	India	South East Asia	New Zealand	World GDP
2012	1.5	2.8	1.4	-0.7	7.7	4.7	4.0	2.6	3.2
2013	1.3	1.9	1.5	-0.4	7.7	5.0	4.0	2.7	3.0
2014	2.0	2.2	1.4	1.1	7.4	5.3	4.3	3.3	3.6
2014	2.6	3.2	1.8	1.6	7.3	6.3	4.6	3.1	4.1

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

(1) Organisation for Economic Co-operation and Development: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, 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.

Outlook for commodity prices

The long lead times between executing investment decisions and the period when new production reaches the market means commodity prices will always contain a natural element of volatility. For Australia's key bulk commodity exports, the supply/demand balance saw prices peak during 2011 (in US dollar terms) before sliding back over the subsequent years toward levels that appeared to be sustainable over the long term.

However, Australia's key commodity exports have suffered a large drop in prices over the past year. Amid a backdrop of slowing consumption growth in China along with ongoing weakness in the major European and Japanese markets, major international suppliers of iron ore, thermal coal and metallurgical coal have significantly increased production.

Much of this new supply has been due to a massive program of resource investment which was committed to during the peak in commodity prices. Major global producers have also ramped up output in order to lower overall unit costs. A consolation has been the decline in the Australian dollar, particularly over the past six months, which has softened the impact of commodity price falls for domestic producers, whose revenues are denominated in Australian dollar terms.

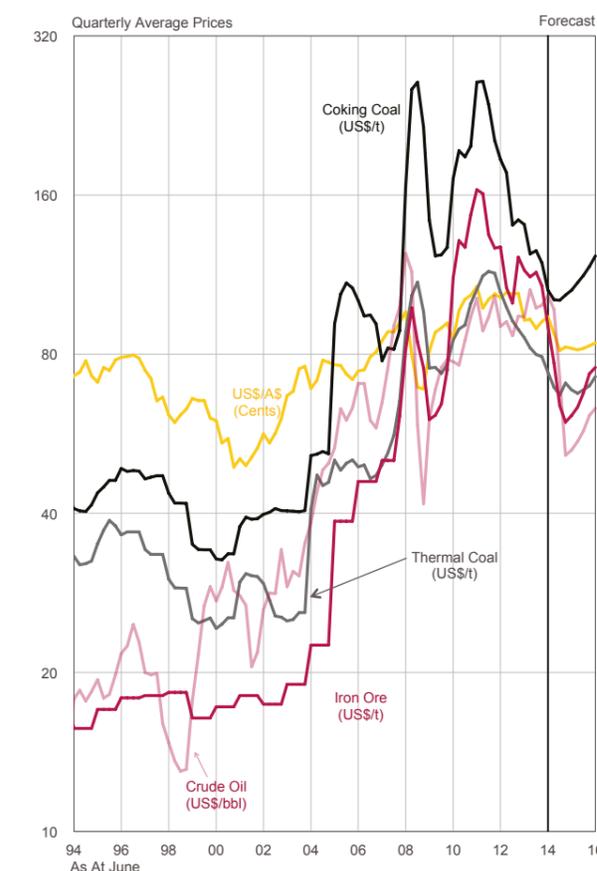
Even so, as shown in Figures 2.2. and 2.3, further price weakness for a number of commodities is expected in the short term before recovering somewhat over 2015 and 2016. A key element of the predicted recovery will be producers reacting to weak prices and oversupply by closing mines and/or cutting back production, particularly at uneconomic mines. The second driver will be strengthening demand for commodities as global economic growth gradually picks up. The key to this prognosis is the continued strengthening of the US economy and a stabilisation in Chinese economic growth.

For Queensland, the prices for coal (both thermal and coking) are particularly relevant for driving new resources investment. Coking coal prices gradually declined in 2014 in response to an oversupplied market and reduced import demand from Chinese steel producers as the real estate sector in the country experienced a sustained downturn. For 2014 as a whole contract prices averaged US\$107/t. The outlook for coking coal demand is expected to strengthen — driven by developments in steel consumption among the developing economies, primarily in China and also in India. The price gains during 2015 are expected to be minimal, rising to US\$130/t. From 2016, China's real estate sector is expected to recover, driving demand for steel. This increase in coking coal consumption is forecast to soak up excess supply. The anticipated closure of high cost mines is also expected to place some upward pressure on prices during the period taking prices to US\$152/t.

Thermal coal prices have fallen significantly in the past year, with contracts supplying Japanese energy utilities settling at US\$82/t for the 2014 Japanese Fiscal Year (JFY) — a reduction of 14% on the previous year. This decline is reflective of an overabundance of supply and reduced import demand from major global consumers. With a significant decline in prices, producers will be increasingly reliant on the lower Australian dollar to mitigate some of the losses incurred at current prices. However for some producers, the fall in price has lasted far too long and is at too low a level resulting in the suspension of some operations. Supply overhang in the thermal coal market is forecast to persist throughout 2015, leading to further declines in prices to US\$73/t for the 2015 JFY. During 2016, thermal coal price contracts are forecast to rise to US\$78/t helped by growing Indian and other Asian demand, and the potential construction of an extra 70 gigawatts of coal fired power generation capacity in China.

Figure 2.2

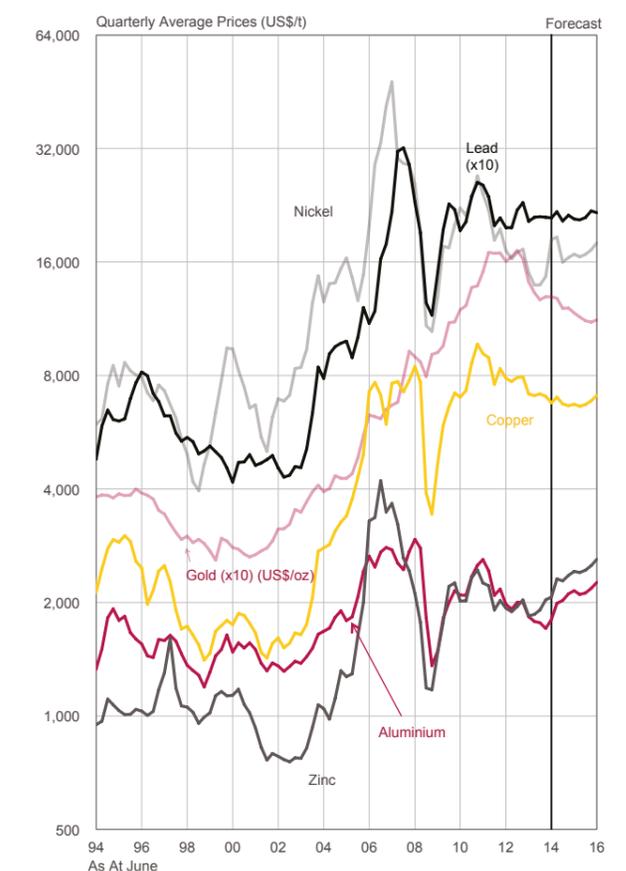
Commodity prices (\$US)



Source: BIS Shrapnel, ABARE data

Figure 2.3

Commodity prices (\$US)



Source: BIS Shrapnel, ABARE data

2. International and Australian economy – setting the stage

Outlook for the Australian economy

There are positive signs for the economy, but it remains stuck below trend (see Figure 2.4). The Australian economy faces a difficult balancing act as the mining investment boom recedes and non-mining investment has been slow to recover despite significant monetary stimulus and a falling dollar. While leading indicators of business investment are somewhat encouraging, the momentum necessary to absorb some of the slack in the economy is still missing. Commodity prices have fallen sharply which has resulted in a weaker terms of trade, reducing Australian incomes, and weighing on household and business spending. Low commodity prices for coal, iron ore, and oil are also affecting exploration activity and threatening the next round of investment.

On the flip side, the significant fall in oil prices, which are now at their lowest level since 2009, will assist industry via lower costs of production and improve real household incomes. The lower dollar also assists exporting businesses via higher export incomes (denominated in Australian dollars), while domestic trade-exposed industries benefit from improved competitiveness with the relative higher costs of imports.

In the short term, economic activity is expected to remain below trend. Structural change takes time, and we are witnessing an economy transition from a high exchange rate and high commodity prices setting to broader based industry growth. Non-mining businesses are still reluctant to commit to new investment until there are clear signals of a sustained pick-up in demand. Meanwhile, the timing of weaker levels of public sector investment will also be a drag on growth over the next year.

Despite the economy currently running below capacity, drivers are in place for stronger growth from 2016. Net exports will be a key element of the economic story going forward. The increased capacity in the mining sector will see a rapid escalation in resource exports, particularly from LNG. Meanwhile, imports will be soft in the near term consistent with the mining investment boom having peaked as well as weaker levels of domestic demand. We anticipate net exports will add at least one per cent to growth over each of the next four years.

Residential housing construction activity is gaining momentum with the prospect of low interest rates for an extended period combined with a substantial deficiency in residential stock. However, this upturn will not be uniform between regions, with sizeable stock deficiencies set to drive the markets in parts of Queensland and New South Wales in particular. Private non-dwelling building should also post, albeit moderate, growth over the next few years with Major Projects in retail, warehouses and accommodation sectors offset by declines after the current boom in hospital building.

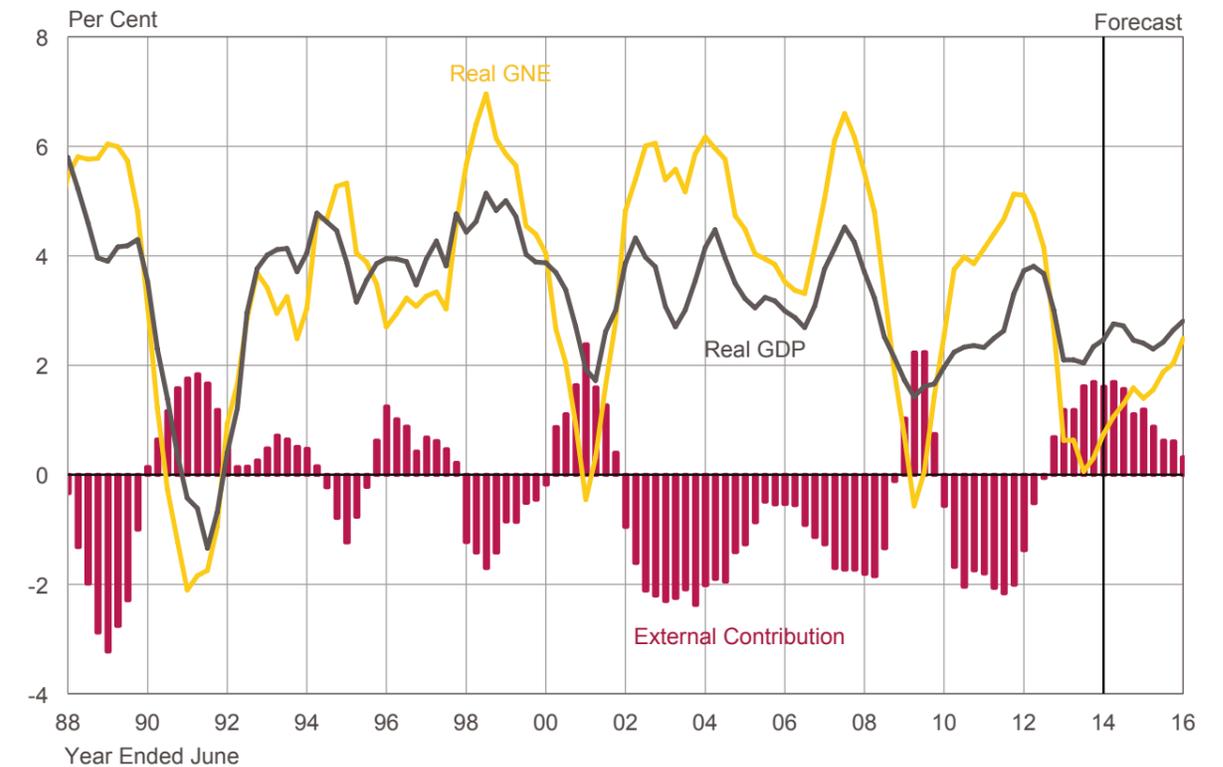
The key to the broad growth story will be the recovery in non-mining business investment. However, this could take some time. Ever since the Global Financial Crisis (GFC) hit, most non-mining business enterprises have been facing weak demand, weak profits and weak confidence, and have responded by cutting costs and deferring all non-essential spending.

Until capacity utilisation rises to a level which can underwrite a new wave of broad-based non-mining investment, we expect to see below trend growth rates. BIS Shrapnel believes this will come through during 2016, triggered by the weaker value of the dollar. Structural change occurs slowly and the transition back towards the trade-exposed industries will take a period of adjustment. In some cases the loss of industry will be irreversible (as in the case of the car manufacturing industry). However, the lower dollar will improve the competitiveness of agriculture, trade-exposed manufacturing, mining, tourism, education, finance, and business services.

While growth will be boosted by stronger levels of minerals production, the overall labour market will remain weak in the near-term. This is due to the high labour intensity of mine and infrastructure construction activity compared with mining operation activities. With the weak labour market, interest rates will remain at low levels for some time yet.

Figure 2.4

Australia GNE and GDP: moving annual total, annual % change



Source: BIS Shrapnel, ABS data

3. Queensland economy

The Queensland economy has been one of the best performers in Australia. Considered a “resources” state, the region is a heavy exporter of black coal and soon will be a major exporter of gas. Despite the resources label, the state economy is quite diversified and increasingly linked into global trade networks through tourism, agriculture, and education industries.

The key points:

- **The Queensland economy is slowing.** The combination of weaker public spending (both consumption and investment) and lower private investment expenditures has dragged the pace of growth in Queensland below that of the national economy during 2013/14.
- **The economy is undergoing transition.** Investment in the resources sector remains at a high level but is falling sharply as new Major Project commencements are failing to come through to replenish the existing pipeline of work. The transition from investment to strong export growth will present broad challenges to the Queensland economy and industry. In the meantime, a housing upswing and a lower Australian dollar supporting trade exposed industries offer some opportunities.
- **There is reason for optimism.** Queensland has a diversified economy. Prior to the mining boom, the state experienced an extended period of strong growth. As the economy adjusts to significantly lower levels of mining investment and a depreciating Australian dollar, the state’s trade-exposed industries are expected to take up the slack and shift some of the focus away from mining.
- **The slowdown in state final demand has impacted the labour market** — the unemployment rate has climbed in recent quarters. As the economy progresses from the highly labour-intensive mining construction phase to the less labour-intensive operations phase, the labour market will not grow as fast as growth in output (Gross State Product).

The current economic conditions

The pace of growth in the Queensland economy has slowed over the past two years, and for the first time since 2010/11, it dipped below the national average during 2013/14 (see Figures 3.1 and 3.2). Growth in State Final Demand (SFD), which measures direct expenditure in the state economy from households, businesses and governments, has dropped from an exceptionally strong 8.3% in 2011/12 to just 0.4% in 2013/14. Similarly, growth in Gross State Product (GSP), which measures the value of production, has slowed from a rate of 4.8% in 2011/12 to 2.3% in 2013/14. Although domestic demand (SFD) has softened considerably, strong export growth from the mining sector helped put a floor under economic growth. Despite the economy slowing, employment growth was surprisingly healthy during 2013/14, averaging 1.6% for the year to May 2014.

These dynamics reflect the overall story of a mining investment boom passing through its peak along with continued contractions in public and business investment. While investment in the resources sector remains at a high level for now, new Major Project commencements are failing to come through to replenish the existing pipeline of work. Major resources projects have been delayed, postponed or abandoned, following sharp falls in commodity prices. Total mining and heavy industry investment has now peaked and is declining.

Meanwhile, as private investment has weakened, so too has public sector investment. In the decade to 2009/10, Queensland saw very strong increases in publicly-financed construction activity. However, with the deterioration in state finances and the end of stimulus and flood rebuilding works, public investment has declined 18% since 2010/11.

In contrast, housing investment picked up during 2013/14, following several very weak years. Supported by sustained low interest rates and high levels of underlying demand, annual total dwelling approvals rose 27% during 2013/14 which fed into stronger levels of dwelling construction — up by 7% over the same period, with further growth expected still.

Figure 3.1

Queensland Economy – components of domestic demand

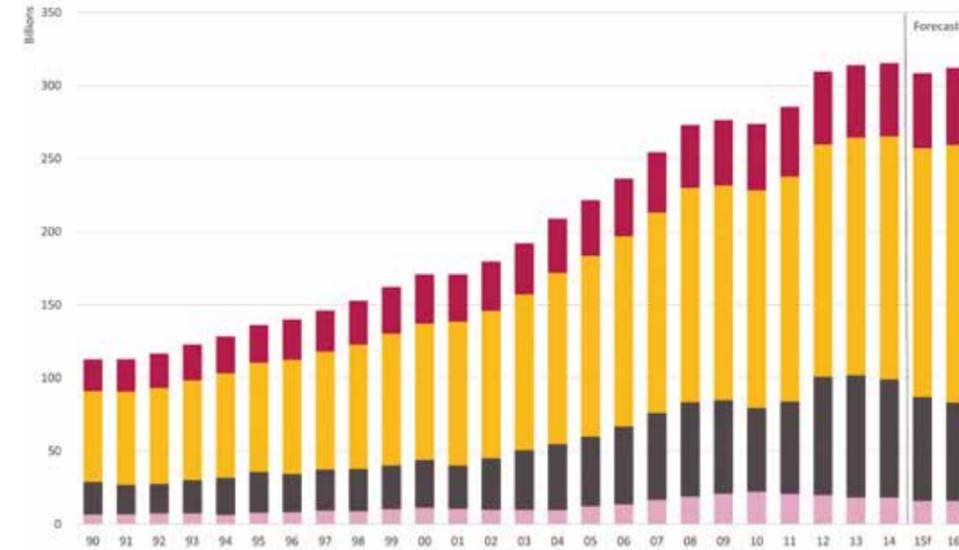
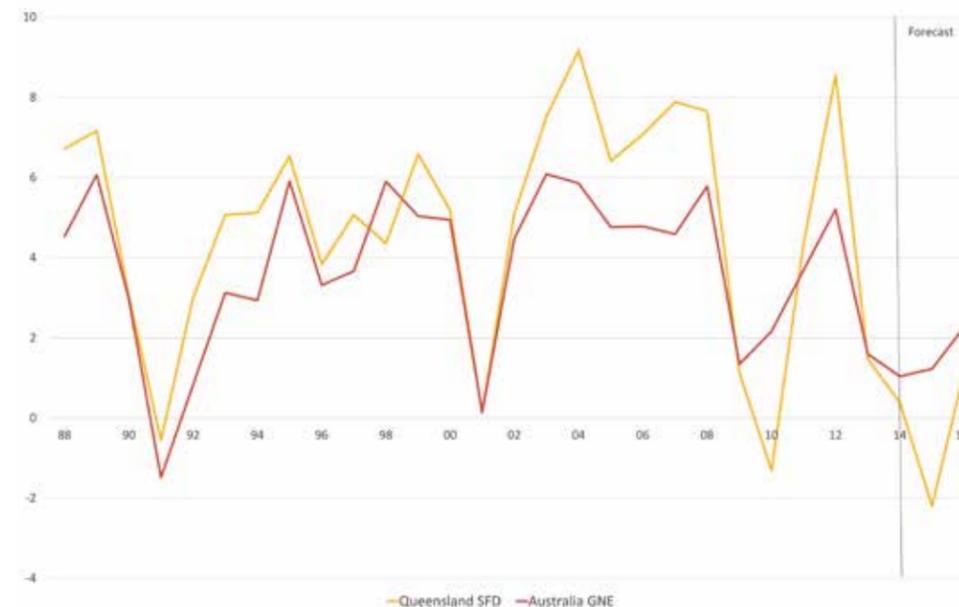


Figure 3.2

Queensland SFD and Australia GNE: year ended June, annual % change



3. Queensland economy

Queensland economic outlook

The Queensland economy is currently going through a transition period. The pace of growth has slowed during 2013/14 and this weakness is expected to extend into 2014/15. Activity should start to pick up strongly from 2015/16, boosted by stronger levels of household consumption, dwelling construction, government spending, a weaker dollar boosting the tourism and education sectors and a ramp up in exports following the commissioning of the Gladstone LNG plants.

Despite achieving reasonable growth in output (GSP), the sharp slowdown in SFD has impacted the labour market, with the unemployment rate climbing in recent quarters. As the economy progresses from the highly labour-intensive mining construction phase to the less labour-reliant operations phase, the labour market will not grow as fast as growth in output (Gross State Product).

SFD and employment growth is expected to rebound during 2015/16 and 2016/17. Initially, a key driver of growth will be dwelling investment, encouraged by a housing undersupply, low interest rates, and sustained population growth which is expected to remain above the national average (see Figure 3.3). Non-mining business and public investment are expected to strengthen from 2015/16, with a pick-up in household spending and renewed growth in government recurrent spending also contributing from mid-decade. This will underpin stronger growth in employment.

Figure 3.3

Queensland population increase, annual



Over the next five years, divergent investment cycles are expected to play out across the non-mining and mining-related sectors of the Queensland economy. In this report, we project a sharp decline in mining investment over the next two years as the completion of LNG projects joins the slump in new coal investment. However, there are prospects for further smaller cycles in mining investment if signature projects (such as Galilee Basin coal, or brownfield expansions to the LNG projects) materialise. Even so, lower levels of resources investment represent a drag on growth in the Queensland economy. However, the extent of the decline on the local economy will not be as severe as the headline figures suggest. This is due to the large imported component of the three LNG projects (structures, machinery and equipment) and, to a lesser degree, the coal mine and infrastructure investments. As the benefits did not entirely accrue to Queensland from the huge escalation of LNG construction in the past five years, neither will the downside be as severe as the headline investment figures suggest as construction falls. But the next two years will still remain very tough for industries linked to resources investment.

The strong momentum from the rebound in dwelling construction witnessed through 2013/14 is expected to carry through into 2014/15. Conditions are ripe for stronger dwelling construction activity with dwelling shortages emerging, continuing population growth, rising rents and low interest rates. Due to the large multipliers related to the housing industry, momentum should spill over into other industries, supporting activity and jobs throughout the state.

There is also reason for optimism in the medium-term. Fundamentally, Queensland has a diversified economy, with key industries including agriculture, tourism, and education. Prior to the mining boom, and the structural shift towards mining and mining-related activity, the state experienced an extended period of strong growth. As the economy adjusts to significantly lower levels of mining investment and a depreciating Australian dollar, the state's trade-exposed industries are expected to take up the slack and shift some of the focus away from the mining industry.

Finally, while public investment has been falling for several years, a recovery is expected to begin in 2015/16, gathering strength in subsequent years. This should also help contribute to domestic demand and economic growth after the middle of the decade, supported by key Federal and State infrastructure investment programmes. Realising this investment, however, will likely depend on successful funding of projects in the short term, and fiscal reforms at the Federal and State Government level to support sustainable infrastructure funding over the longer term.

Overall, growth in Queensland GSP is expected to ease to 1.8% in 2014/15, before lifting to an average growth rate of around 4.0% over the following two years as output from the massive wave of LNG investment comes on-stream and a recovery eventually emerges in public and non-mining investment. A weaker Australian dollar will assist the state's key tourism and education service export sectors, while the mining and agricultural industries will benefit from higher prices and revenues when denominated in Australian dollars.

4. Queensland construction review

With LNG facilities in Gladstone moving to the commissioning and export phases, the construction market in Queensland is set to experience a significant decline over the next two years. However, there are pockets of strength, with the residential construction sector gathering momentum and some segments of non-residential building improving. In this weaker environment, cost growth should remain subdued, but that should not deter the pursuit of productivity enhancements and improvement in the competitiveness of the Queensland construction industry.

The key points:

- **The Queensland construction market is set to change direction.** From a low of \$16.4 billion in 2000/01, total construction work (encompassing residential building, non-residential building and engineering construction) has risen to \$57.8 billion in 2013/14. This is set to be the peak in the cycle as the major LNG projects near completion and construction starts to wind down.
- **The downturn in Major Project work will be felt most in the engineering construction segment.** It is critical for contractors and suppliers to the construction industry to plan for growth in other segments, and within parts of the engineering construction sector itself.
- **Cycles in aggregate construction activity have implications for costs.** The boom in construction activity in Queensland over the past decade produced large increases in construction costs. The stronger levels of activity created capacity constraints and rising demand for inputs, placing pressure on the supply of goods, leading to increased prices.
- **Costs tend to be flexible upwards but sticky downwards.** While construction activity is set to decline, costs are expected to rise at a more subdued pace. However, costs are already substantially higher than they were prior to the boom and may need to fall in order to make private projects competitive against global rivals, particularly in mining and resources.

Recent trends and outlook for construction activity

After a decade of almost uninterrupted growth, the Queensland construction market is set to reverse direction. This is highlighted in Figure 4.1. After rising 7.0% in 2013/14, total construction activity, encompassing residential building, non-residential building, and engineering construction, reached \$57.8 billion (in constant prices). This is expected to be the peak in the construction cycle, with the weaker profile for coal investment and impending declines in LNG construction pulling total construction activity lower from 2014/15.

The outlook for construction activity is expected to decline by 38% in the period to 2016/17 as the gap between the current and future round of minerals projects emerges. While the total construction market is expected to decline, this is not expected to be a synchronised downturn, with pockets of strength in residential and non-dwelling construction dampening the extent of the downturn. A pick-up in engineering construction late in the decade is expected to drive a modest upturn from 2017/18.

Residential construction

The Queensland residential construction market is emerging from a weak period of activity, having fallen from a high of \$12.2 billion in 2007/08 to \$8.4 billion in 2012/13. More recently, there has been a pickup in activity, particularly in higher density residential building in South East Queensland. The residential building sector now appears to be on track for a sustained upturn over the coming years. Historically low interest rates, stabilising economic conditions, a sizable dwelling stock deficiency, and growing interest in Queensland from foreign investors and developers are all driving the improvement with activity expected to reach \$10.6 billion.

Although several stronger years of residential activity are projected, it is unlikely to match the record levels of housing activity experienced during the 2000s. This is due to the downturn in the investment phase of the mining boom, which will have flow-on effects on population growth through net skilled migration. This will see overall population growth moderate, which will pull back on the underlying demand for dwellings, although population growth will still remain robust relative to the rest of Australia.

The biggest factor restraining building investment will be the very tight pressure on public finances combined with the health and education segments coming off such high bases over recent years. The declining activity in these segments is expected to offset positive contributions from accommodation, entertainment and recreation, while the offices market is expected to pick up a little from 2015/16.

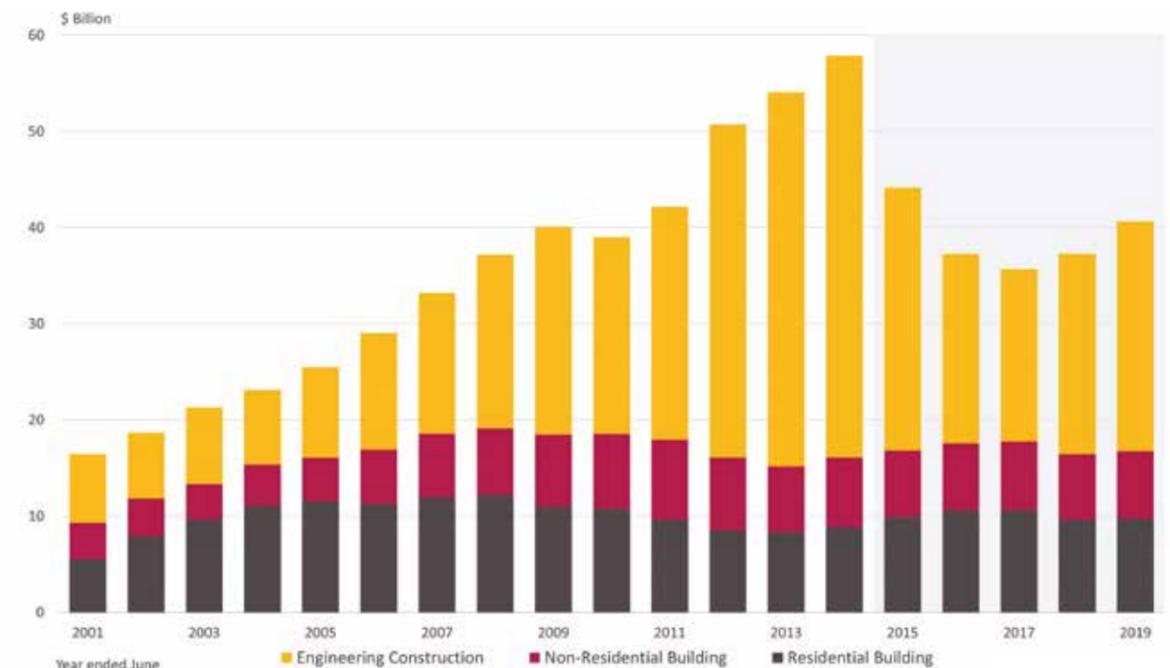
Non-residential construction

Activity in the non-residential building sector has declined from the highs of 2010/11 following the completion of a major round of public investment in education and health buildings. The overall profile for Queensland non-residential building is that it will remain relatively flat going out to 2018/19 in aggregate, although significant variation by sub-sector is anticipated.

Queensland possibly has the most upside for entertainment and accommodation building activity of the major states over the next five years. There are several very large tourism and entertainment developments in the planning phase that are not included in these projections given their uncertainty, however a depreciating Australian dollar in conjunction with sustained economic growth in Asia and the United States could improve the prospects of these projects going ahead.

Figure 4.1

Queensland construction by segment



Source: BIS Shrapnel, ABS

4. Queensland construction review

Engineering construction

Due to the size of the engineering construction sector, and in particular the mining and heavy industry construction segment, substantial swings in the sub-sectors have a large impact on overall construction activity. The size of the engineering construction market is projected to halve over the next two years, falling from \$41.8 billion (in constant prices) in work done during 2013/14 to \$19.7 billion in 2015/16. The combined impact of falling mining investment and weaker publicly funded infrastructure drives this weaker result, meaning most infrastructure sectors are likely to suffer in the near term.

The cycle is expected to bottom out at around \$17.9 billion in work done before a mild recovery takes place at the end of the decade. A funding gap has emerged in the public sector whereby several Major Projects have either reached completion or are near completion, while funding for the next round of Major Projects has yet to be finalised as the sale or long term lease of state-owned assets is acting as the trigger for their commencement. Meanwhile, a smaller cycle in mining-related construction is expected to take place in the medium term, once commodity prices start improving in Australian dollar terms amid sustained efforts to cut local costs and boost productivity.

Queensland construction costs

Growth in construction costs tend to be highly correlated with construction activity. When faced with capacity constraints, rising demand for inputs would typically place pressure on the supply of those goods, leading to increased prices. However, in a slower construction market, lower activity does not always lead to falling prices. Despite facing weaker conditions, prices can remain sticky at higher levels, particularly for wages. In these periods of weaker activity, construction costs are more likely to fall in real terms but still rise overall in nominal terms, growing at a rate below the Consumer Price Index (CPI).

Construction employment and wages

The key driver of construction sector wage growth is growth in total construction activity — measured as the sum of work done for residential and non-residential construction, as well as civil engineering construction — and its interaction with the pool of available labour. While measured construction activity in Queensland is expected to decline significantly from recent record high levels, it is expected to remain high in historical terms through the next five years.

Construction wages in Queensland (measured by average weekly ordinary time earnings data) have grown significantly through the construction boom. The period covering the major upswing in construction activity since 2000/01 has seen wages grow at an average annual rate of 4.0%. However, since the second half of 2012, the pace of wages growth has started to slow, falling to 3.0% during 2013/14.

Skilled labour shortages during the 2000s led to higher construction industry wages increases when productivity growth in the sector was at its weakest. The import of skilled labour on 457 visas helped contractors fill shortages and ease wage pressures. However, as the boom recedes and visas expire, the loss of these resources should lead to increased competition for local workers and provide a floor for wages growth.

As more recent wage outcomes have been much weaker, labour productivity has improved (though not to the same extent as other industries). While this is better news for the competitiveness of the Queensland construction industry, more needs to be done to ensure that cost pressures remain contained, otherwise Queensland remains at risk of missing the next round of major resources projects.

Quantifying construction costs

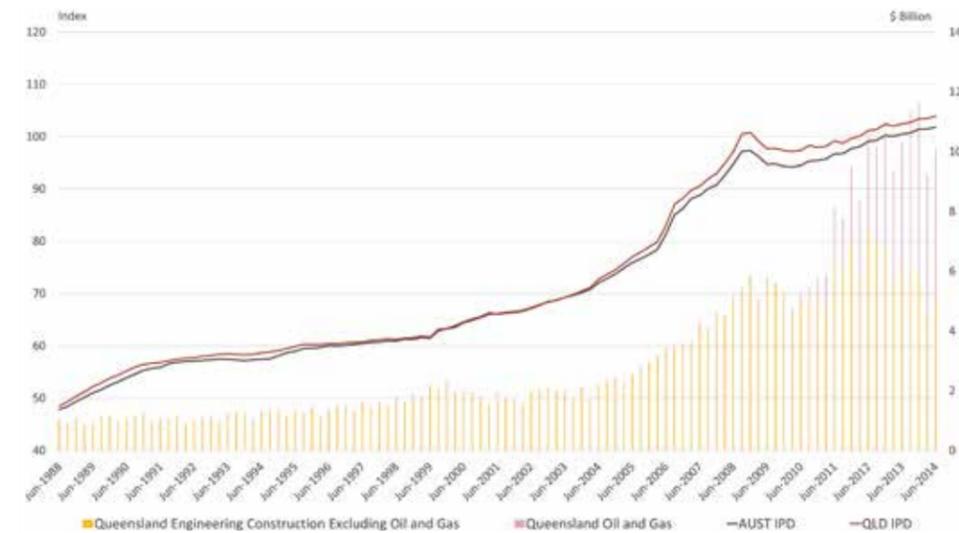
The Australian Bureau of Statistics publishes broad aggregate data series which provide an insight into the cost trends facing the engineering construction sector. Given the use of similar construction materials, equipment and skilled labour, the trend for costs in engineering construction can be extended to broader cost trends in the building and construction industry. The two construction cost series of note in the engineering construction segment are:

- **The implicit price deflator (IPD) for engineering construction work done.** The IPD is derived by dividing current price (nominal) engineering construction data from the Australian Bureau of Statistics by its corresponding constant price (real) data series. This effectively isolates changes in the price of construction, as opposed to changes in activity.
- **The Road and Bridge Construction Price Index.** Published by the ABS as part of the Producer Price Index at the state level, the road and bridge construction price index is a possible better measure of local construction costs in the engineering construction market given that roads is the second largest engineering construction subsector (outside of mining and heavy industry) and is less likely to have substantial imported components.

There are several distinct cost trends which can be identified in the engineering construction IPD (see Figure 4.2). Each of these trends coincides with the level of activity in the construction market.

Figure 4.2

Engineering construction implicit price deflators versus Queensland work done

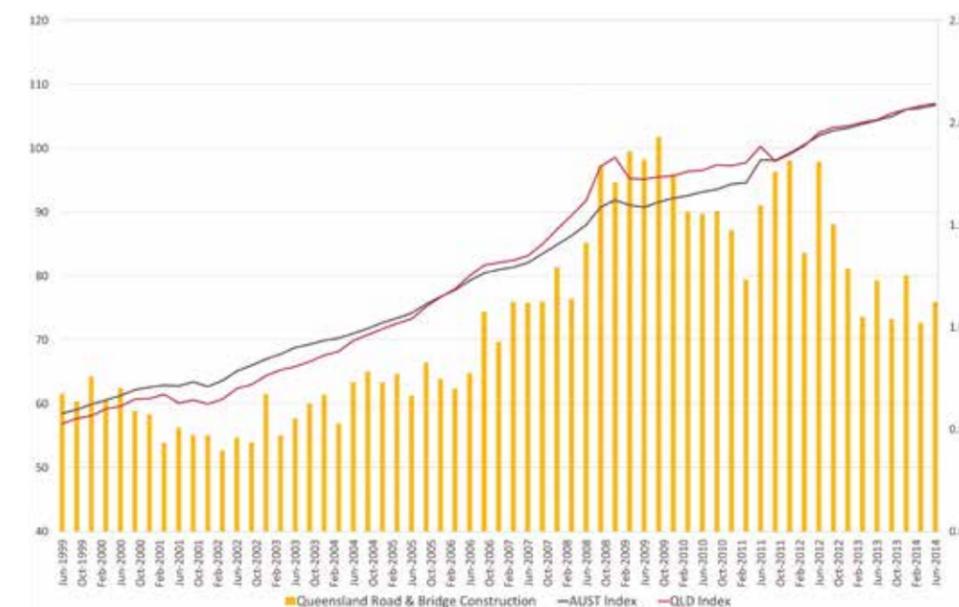


Prior to 2003, construction activity was quite stagnant leading to moderate increases in costs. However, with the onset of the mining and publicly-funded infrastructure boom, costs rapidly increased 40% in the period to 2008 led by increases in wages and critical inputs such as steel and fuel. Costs dipped in 2008/09 following the onset of the GFC, but this proved to be temporary, as the large Chinese stimulus program and the fall in the Australian dollar cushioned the domestic economy and improved prospects for major resources

projects. Costs resumed their upward trend from 2010, as the LNG sector joined the construction boom. The sheer size of the LNG boom had the potential to overwhelm the local construction industry. However, the heavy use of imported pre-fabricated modular structures helped take pressure off local supplies. Now, as the Queensland construction market moves into decline, we are witnessing considerably weaker growth in the engineering construction IPD.

Figure 4.3

Road and bridge construction price indexes versus Queensland work done



The road and bridge construction cost index (Figure 4.3) shows the extent construction costs in Queensland ran ahead of the national average during the late 2000s. Costs converged toward the national average by late 2011 and both indicators have tracked closely in the period since.

Despite road and bridge construction activity declining in recent periods, costs have remained stubbornly at elevated levels over the course of 2013/14. However, the pace of cost growth has slowed, which is typical of the manner in which the industry regains competitiveness when costs are contained over long periods.

The likely short-term outcome for the Queensland-based Road and Bridge Construction Price Index is a deceleration in growth, with price rises below that of the CPI. This result is derived from the weak outlook for construction activity, while input prices such as wages, fuel, and quarry products should also soften.

5. Key implications, challenges and risks

Figure 5.1 compares last year's Major Projects five year outlook to the present forecast (note 2013/14 is now historical rather than forecast). Several key points are worth mentioning:

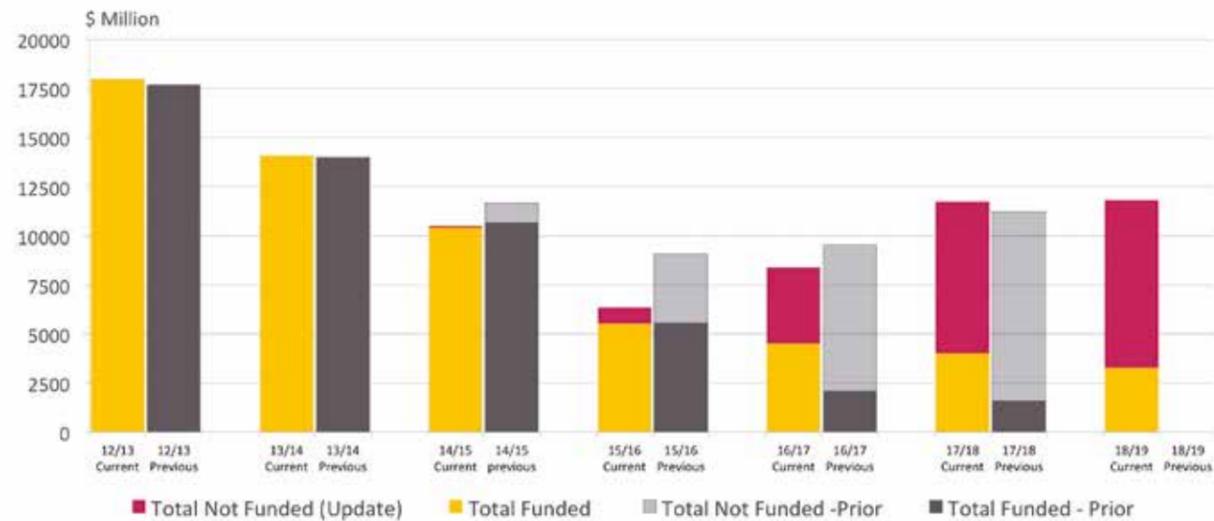
- **Major Project work done in 2013/14 came out almost exactly as forecast.** As predicted in the 2014 Major Projects Report, work done on Major Projects fell around 22% through 2013/14 to \$14.1 billion as falling mining investment joined the downturn in public sector funded infrastructure investment.
- **The current downturn has only just begun, with Major Project work now forecast to reach a trough of just \$6.3 billion in 2015/16.** In all, activity is forecast to fall a further 55% over the next two years (from current levels), with the trough in work done resting 65% below the 2012/13 peak. This is primarily due to much weaker levels of unfunded work over the next two years, while funded projects are assumed to proceed as planned. Low commodity prices continue to take their toll on regional mining projects whilst an upturn in aggregate public investment in Major Projects is still two to three years away.
- **While the trough in activity is well below the 2012/13 peak, we estimate that it will be roughly equivalent to the level of work which was done in 2007/08.** In short, the Queensland engineering construction market (as across Australia) is still in a process of transition to a "new normal". The experience of the past two years illustrates that the twin booms of mining and public investment over the past decade were a unusual phenomenon that, in terms of scale, are unlikely to be repeated soon. While the decline from the peak is steep, activity is expected to remain at high levels in historical terms and, with other states such as New South Wales ramping up infrastructure investment, challenges will remain in procuring construction services.
- **An upswing in Major Project work is now expected from 2016/17, rising further through to 2018/19.** To some extent, this represents the impact of shifting some of the projects delayed in 2012/13 and 2013/14 to re-commence later in the forecast period. But it also represents an upgrading of the outlook for public sector projects and new resources projects, although the majority of work further out remains unfunded and highly risky.

- **Resources projects will continue to play an important role in generating Major Project work.** While mining investment is expected to continue to fall sharply from here in aggregate terms, it will still drive more than half all Major Project work done through the forecast period, with the Galilee Basin and LNG projects key drivers. Indeed, over 2014/15, it is expected that mining and heavy industry construction's share of Major Project work will rise from 73% to 80% as existing resources projects are completed whilst an upswing in public sector infrastructure investment takes time to gain traction. The assumed commencement of Galilee Basin-related works from 2015/16 as well as brownfield expansions to LNG projects keeps the resources share of Major Projects work at 40 to 50% through the out years of the forecast.
- **Public infrastructure investment will be a key driver of growth in Major Project work from 2016/17.** While public infrastructure investment is expected to weaken in aggregate during 2014/15 and 2015/16, a pickup is expected from 2016/17, led by transport projects, particularly roads and railways. This has implications for both contractors and governments to ensure that projects are selected and financed on sensible criteria, and that procurement reforms are delivered to ensure the projects are delivered as efficiently as possible.

5. Key implications, challenges and risks

Figure 5.1

Total work done forecast – 2014/15 forecasts vs 2013/14 forecasts



Transition underway: volatility ahead

The key finding of the 2015 Major Projects Report is that Major Project work has only just begun a steep, three year decline in activity. While public investment in Queensland's infrastructure has been in aggregate decline since 2010 (driven by specific large projects across water, roads, and electricity), this downturn has been more recently joined by a decline in private investment spanning both traditional economic infrastructure (e.g. Public Private Partnerships) as well as resources investment. Initially, the downturn in resources investment was focused on coal, but has since widened to include the massive phase of LNG-related construction which began in 2009 and is now winding down. As more existing projects move to completion, without being replaced by new projects of equivalent size from the public and private sectors, the market for Major Project work will continue to shrink.

There is still a long way to go as Queensland adjusts to the "new normal" level of investment activity.

Overall activity is expected to rest at a trough of \$6.3 billion, some 65% below the resources boom-inspired peak of 2012/13. This inevitably means fewer Major Projects, lower levels of construction work, and lower levels of employment in the Queensland construction industry. While these are the realities of the "new normal", much of this adjustment also represents an adjustment of expectations. In the decade between 2003 and 2013, industry and governments had got used to a world where the construction industry grew faster than the rest of the economy, where employment grew faster than the working population, and where incomes and revenues from construction activity grew much faster than the rate we were improving productivity. Many thought this was normal.

For governments, the boom in civil construction and increasing employment opportunities attracted greater net population inflows (from other states as well as from overseas migration), boosting demand for services, office space and housing. The promise of stronger tax revenues — whether from payroll taxes, property taxes or royalties at the state level, and income taxes and company taxes at the Federal level — encouraged governments to fund large infrastructure programs to support the developing mining regions as well as increasingly congested urban areas. This seemed a virtuous cycle of investment and growth, and also came to be seen as normal.

The sheer size of the investment boom over the past decade drove a transformation in thinking to meet the challenge it presented to costs and capability. Projects were increasingly designed, procured and delivered in a way which attempted to minimise demand for local skills, fabrication and materials. Engineering and design moved offshore to lower cost sites in Asia and Europe. Fabrication also increasingly took place in the Philippines, Thailand, and Malaysia. Skilled labour was procured through Fly In Fly Out (FIFO) and Drive In Drive Out (DIDO) initiatives. Regional towns grew (or were created) in the footprints of resources developments. While these solutions were not perfect in mitigating sharp increases in costs, now that they are unlocked, they will continue to form part of a broad toolkit of solutions in planning and delivering Major Project work. This has significant ramifications for the future planning of skills demand, and catering for the regional location of work.

However it would be wrong to believe that the adjustment to the "new normal" and heightened uncertainty about the future necessarily means accepting limited prospects for growth, employment and future opportunities in Queensland. As Reserve Bank Deputy Governor, Philip Lowe, stated in an address to the society of Australian Business Economists in November 2014 in respect to Australia's outlook:

"Uncertainty is also normal. Given this, it is important that we guard against the possibility that this uncertainty mutates into chronic pessimism... If this were to become our normal mindset, then we would be well on our way to finding ourselves in the very world that we feared."

While the transition from the mining investment boom inevitably means sliding levels of investment (and Major Project work) over the next two years (compared to the peak), it is important to realise that this is not the final economic destiny for Queensland, nor a cause for entrenched pessimism. **Rather, the Queensland economy rests on strong fundamentals which will support an ongoing and growing investment requirement over the decades ahead.** These fundamental strengths include, amongst others, its increasing interconnectedness with the fast-growing Asian economies such as China and India through investment, trade, education, and tourism; its large endowments of natural resources; the skills of its high-value-add workforce; and its ongoing, rapid pace of population growth and development.

This positive, medium-term outlook is also reflected in this report. Between 2015/16 and 2018/19, annual Major Project work in Queensland is anticipated to increase 86%, from \$6.3 billion to \$11.8 billion. While a high share of this work is yet to be funded and is subject to private and public sector risk, it is typically reflective of the underlying drivers of investment in the Queensland economy; that is, further harnessing of the state's abundant natural resources, as well as catering for ongoing, nation leading, population growth and development. In short, the downturn in Major Project work over the next two years does not reflect an "end to cycles". To the contrary, the Queensland economy and construction industry will remain highly volatile and cyclical from here — and there will also be growth.

It is likely that the next upward movement in Major Projects work in Queensland will occur at a time when other Australian states (and the Federal Government) will also be looking to boost infrastructure spending. Global economic growth is also likely to be stronger during this period (than over the past few years) as demand recovers in GFC-affected countries and governments worldwide see advantages in accessing low cost capital to finance sensible public infrastructure

projects that offer an economic boost in the short term and help raise potential economic growth in the long term. This is certainly the prescriptive view of the IMF and other world economic organisations. The Global Infrastructure Initiative — a multi-year work programme to lift quality public and private infrastructure investment — was recently endorsed by the G20 economies as part of the Brisbane Action Plan to lift G20 GDP by an additional 2% by 2018.

Given this, there is a lot which could (and should) be done to ensure that the Queensland construction industry and economy is productive and globally competitive, provides strong employment opportunities, and delivers high returns to both labour and capital — not just for the next few years, but for the long term. In this sense, it is important that industry and governments learn from recent experiences, and adopt policies and actions that strengthen efficiency, improve skills and competencies, and deliver sustainable growth through the cycle.

Implications and challenges

Following an unprecedented boom in engineering construction Major Project activity over the past decade, the industry in Queensland is in the midst of a sharp reversal in fortune. In the 2013 Queensland Major Projects Report, it was noted that Major Project work would be likely to decline by 40% over the five years to 2016/17. In the 2014 report, the size of the decline in Major Project work was sharpened to 55%. This report extends the size of the downturn from peak to trough to 65%, as weaker commodity prices and tight public sector finances see even less unfunded projects proceed. On the upside, there are reasonable grounds for optimism in the medium to longer term, but achieving this depends on how successful Queensland is at attracting new investment. In this respect, the following actions are critical:

- Adopting sensible and transparent public infrastructure investment plans and processes
- Supporting private infrastructure investment
- Streamlining procurement processes
- Improving industry competitiveness and flexibility
- Investing in skills and competencies.

5. Key implications, challenges and risks

Public sector infrastructure provision

Traditionally, it was the public sector — predominantly the Federal and State Governments — which took direct responsibility for infrastructure investment in Queensland. In the 1980s, the share of engineering construction activity in Queensland funded by the public sector (excluding mining, oil and gas, and heavy industry) typically ranged between 80 to 90%. Through the 1990s and 2000s, however, the private sector took on an increasing role in the provision of economic infrastructure, driven by the privatisation of public assets (notably Telstra and, later, Aurizon), increasing private sector involvement in the delivery of major urban transport and utilities projects through Public Private Partnerships (PPPs) and the impact of the resources boom on related infrastructure construction including roads, railways, electricity, and ports. Consequently, the public sector share of non-mining and heavy industry engineering construction has fallen over the past two decades, to just over 50% in 2013/14, despite recently higher levels of activity.

While the private sector is still expected to be a significant driver of Major Projects work over the next five years (mainly through resources-related projects, albeit it at a much lower level), much of the “heavy lifting” in terms of infrastructure provision is expected to return to the public sector (see Figure 5.2). In part, this is the consequence of recent financial failures in the PPP space – particularly toll roads – which has seen increased caution from the private sector in financing the construction of traditional economic infrastructure.

But it also reflects the fact that in many cases (and particularly with roads, where there is no comprehensive roads pricing system) it is hard for the private sector to effectively capture the economic benefits of traditional infrastructure projects commensurate to the construction and patronage risks they take on board.

However, if governments are to be tasked with responsibility for infrastructure provision, it is crucial that they do so transparently, efficiently, and finance it in a way which provides the greatest economic benefit. Fundamentally, governments should not fall into the trap of thinking that they must sustain the extraordinary level of Major Project work at all costs. They should not feel compelled to completely fill the hole left by the mining investment boom. As outlined in this report (as well as previous reports) the recent resources boom drove Major Project work to unsustainably high levels, creating myriad challenges for the industry along the way. Part of the adjustment to the “new normal” is recognising that this phase of activity was highly unusual. To sustain activity at those levels would very likely involve investing in projects with very low economic benefits or “white elephants”, as well as further exacerbating costs and competitiveness pressures. However, there remains a strong role for governments to get on with the job of picking up their investment to soften the impact of the sharp downturn in private investment and sustain the industry’s ability to respond once private investment does return. What is required is a smoothing of the cycle, with governments investing in projects that make economic sense.

In summary, adopting sensible public infrastructure investment plans and processes entails:

- Choosing projects with the greatest net economic benefit
- Finding sustainable mechanisms to fund infrastructure provision for the long term
- Ensuring efficient processes are in place for the procurement of services.

The first point covers some fairly broad territory (including the second and third points), and points to reforming institutional and governance arrangements so that they incorporate “best practice” principles and processes. In a world of limited funds, this means that much more substantial analysis is undertaken on Major Projects to assess their net economic benefit (relative to other options) first and foremost, and divorcing this from the political imperative to announce the “next big project”. While Infrastructure Australia and other agencies have often argued for greater use of cost benefit analysis (CBA) in infrastructure planning, the uncomfortable truth is that in many cases CBA is either done poorly, is not released to the public (on confidentiality grounds), or simply not done at all. This has often led to large amounts of funding being committed to projects with either low or highly uncertain net economic benefits, including the National Broadband Network (NBN) at the Federal level, and Victoria’s East West Link at the State level – although numerous examples could be found for every State and Territory.

In turn, undertaking a proper CBA process on Major Projects will require a greater collection of economic and industry data to inform the CBA process from which decisions can be based. While this should happen in any case within Government, such data should also be made available to the broader community so that costs and benefits can be more rigorously tested. In this respect, there is a strong need to improve the quality of data

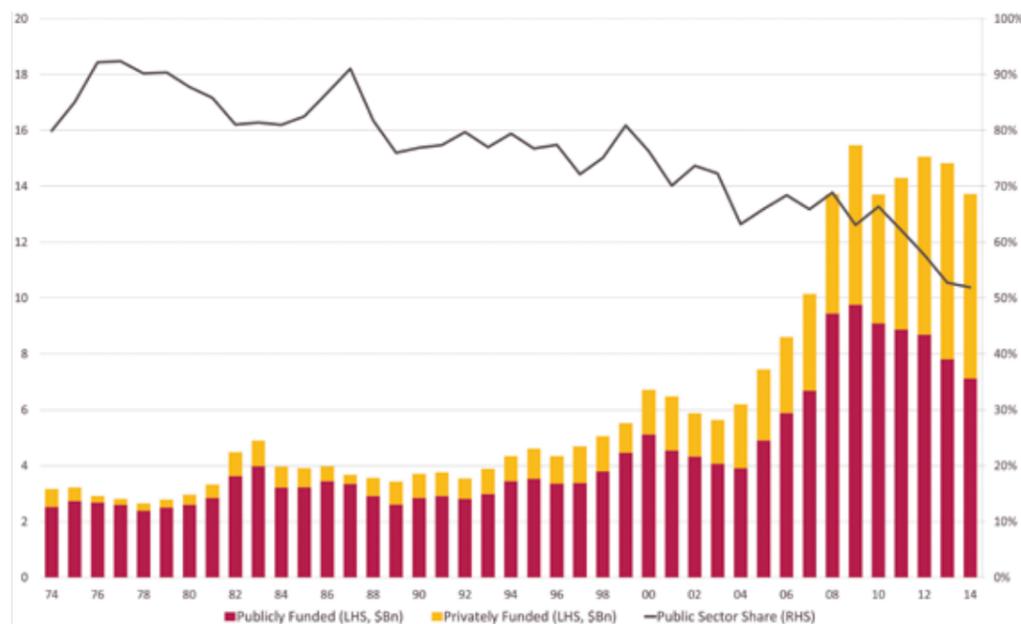
collected by the Australian Bureau of Statistics (ABS) or other agencies, particularly in relation to the existing quality and value of the capital stock, investment, construction, construction costs and productivity in infrastructure provision.

Delivery of public infrastructure projects on the merits of maximising net economic benefits would require that politics steps back from the process; that we do not favour projects because they will benefit a particular region or electorate, a particular industry (i.e. roads versus railways) or even satisfy majority opinion. In practice, this is difficult, as often election campaigns are based on delivering certain infrastructure projects, and governments often override existing recommendations from their own independent infrastructure bodies to fulfil electoral promises. But this, ideally, should be kept to a minimum. In this respect, the publication of detailed CBA for all Major Projects prior to their approval would provide electorates with much better data to make informed choices at the ballot box. Publication of CBA on Major Projects would also be highly useful for organisations that represent infrastructure users (e.g. motorists associations) and will, over time create greater certainty that there is a steady pipeline of credible projects available to assist planning by the Major Projects industry (and potentially encourage funding from the private sector).

Secondly, governments will need to find sustainable mechanisms to fund infrastructure provision for the long term. In many cases, market-based user charges are the best means of funding infrastructure in that they reveal consumers’ willingness to pay for new infrastructure, and this is certainly the case already for many utilities such as electricity, gas, water and telecommunications, as well as railways and ports (and where effective regulation can counter concerns of monopoly power over pricing). However, as starkly demonstrated by failures of toll road projects in Queensland and New South Wales, this approach does not work for all infrastructure sectors.

Figure 5.2

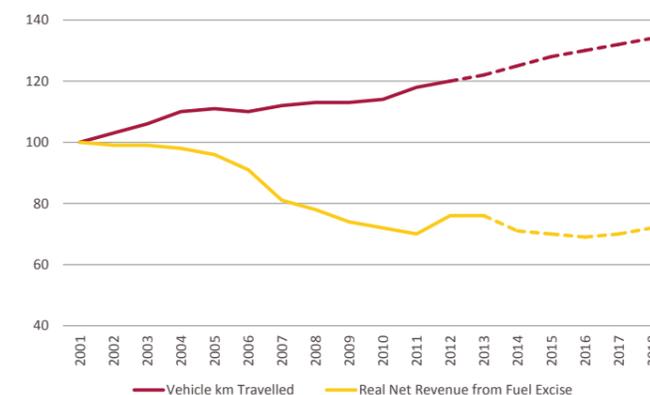
Public versus private funded engineering construction (excluding mining and heavy industry construction), Queensland, \$Billion, 2011/12 prices



Source: ABS, Cat No. 8762.0, Engineering Construction Australia

Figure 5.3

Road use and fuel excise



Source: Productivity Commission

5. Key implications, challenges and risks

Indeed, roads is a special case, as there is no price mechanism available which can be used to allocate investment resources effectively. Consequently, governments use taxation measures such as fuel excises to fund road infrastructure (including maintenance). The problem with this approach is that (a) with no price mechanism there is no indication as to where roads funds would be most efficiently spent and (b) fuel excise revenue is simply not keeping up with road demand anyway. Figure 5.3 highlights the problem when it is measured by vehicle kilometres travelled and demonstrated in the recent Productivity Commission Inquiry into Public Infrastructure (2014: p20). This means that governments are increasingly looking to other parts of their budgets to fund road construction and maintenance — or other mechanisms entirely such as asset sales (capital recycling) — which can be less efficient, less sustainable, or both.

In the long term, the development of an efficient road pricing system will be a major part of the solution to the sustainable funding of road infrastructure. There will be a need to move away from fuel taxes as fuel use itself is an unreliable proxy for road demand, and this trend will accelerate as vehicles become more fuel efficient and use a mix of energies. Ideally, advantage will be taken of new technologies which can accurately measure distances travelled by vehicles on roads and specific infrastructure (such as rail crossings and bridges). A wider application of the current “toll road” model will not be enough, as inefficiencies will be created as motorists actively avoid the tolled parts of the road network.

However, by itself, road pricing will not be enough. There is a strong social equity argument whereby governments will need to ensure road access remains available to the community for key roads. It may be impractical or inefficient to charge a price, however small. This means that, even under a more comprehensive roads pricing policy (which may be politically difficult to deliver) there will still remain a need for governments to fund road infrastructure. And the less that can be recovered by road prices, the more governments will be required to fund. To meet the need to fund infrastructure the three broad ways government can raise revenue are through:

- Increasing direct broad-based taxes
- Increasing public sector borrowings
- Asset sales/capital recycling.

Increasing taxes

While the first approach may be anathema to current Federal and State Governments, it should be seriously considered as part of a suite of funding solutions for public infrastructure. With the Federal Budget in long run structural deficit, and the State Budget also in a poor financial position, targeted tax increases (and reductions in tax subsidies or expenditures) should be

considered as part of the solution, rather than focusing purely on expenditure cuts (with their consequent economic impacts). However, it is important that any tax increases are designed so that they satisfy efficiency (i.e. are broad based and minimise changes to economic behaviour) and equity criteria. At the State Government level, this may include “value capture” methods such as property development charges or betterment levies to recoup some of the costs of development (such as in Victoria’s proposed level crossings investment plan).

As the Federal Government levies the largest broad-based taxes in Australia (income taxes and the GST) there is a strong role for Federal Government taxation reform in meeting the demands for sustainable infrastructure provision. Furthermore, as noted by the Productivity Commission (p12), the Federal Government can use its dominant fiscal position to demand that State and Local Governments improve their efficiency in project selection and delivery in return for funding (as has been used for accessing AusLink/Nation Building Program funding).

Debt financing

The other major avenue for funding public infrastructure is through increasing public debt. On equity grounds, this makes good sense as infrastructure is an asset class which will benefit multiple generations, and so from an intergenerational equity argument, it is sensible that the costs of infrastructure similarly be spread over multiple generations. But it also makes sense from an economic efficiency perspective, so long as the funds are used for projects with positive net economic benefits and are procured efficiently. This approach is also supported by the International Monetary Fund (IMF) which, in the current climate of historically low borrowing costs and weak demand, expressly favours governments of advanced economies (including Australia) borrowing to finance infrastructure provision rather than through “budget neutral” policies (such as raising taxes or cutting spending elsewhere):

“Robust demand growth from advanced economies has not yet emerged despite continued very low interest rates and easing of brakes to the recovery ... in this context an increase in public infrastructure investment, particularly for advanced economies with clearly identified infrastructure needs and efficient public investment processes, could provide a boost to demand in the short term and help raise potential output in the medium term... Moreover, evidence from advanced economies suggests that an increase in public investment that is debt financed could have larger output effects than one that is budget neutral, with both options delivering similar declines in the public-debt-to-GDP ratio.”

(IMF, World Economic Outlook, October 2014, ppxvi, p77).

While the IMF insists that this is not a “blanket recommendation” to all economies, it appears to be highly relevant for Australian governments which have relatively low levels of debt (compared with their global peers) and relatively well-developed infrastructure plans. However, taking this approach will require more sophisticated political discourse than simply declaring all debt to be bad and that there is a budgetary “crisis”. It entails a commitment to ensuring that the debt is used for projects that derive the greatest net economic benefit.

Capital recycling

More recently, “capital recycling” has emerged as another avenue to bolster the public sector’s ability to fund infrastructure. In this approach, governments privatise (or offer as a long term lease) income generating public sector assets and use the funds to build new assets. In the 2014/15 Federal Budget, a 15% incentive payment is now made available to State Governments that privatise assets. This is calculated as 15% of the proportion of the sale proceeds which are reinvested in new assets, with the funds made available in two stages; a 50% tranche when the sale process begins and the remaining 50% on the successful sale of the asset and start of the infrastructure project.

Capital recycling can have several benefits. Firstly, for governments which face limits as to how much they can borrow, privatisation or long term leases can realise funds without increasing debt (and potentially costs on existing debt). Secondly — and importantly given recent failures in PPP projects — governments can build and own assets for a period of time, until it generates a steady demand stream and income, thereby reducing both construction and demand risk for prospective private sector purchasers. In this sense, capital recycling operates as a kind of “reverse BOOT (Build, Own, Operate and Transfer)” scheme, with governments undertaking the role of financier and developer instead of the private sector. In a world where private finance has been “burnt” developing infrastructure projects (through a misallocation of risk) — and yet there is very strong demand (and potentially yields) from institutional investors and superannuation funds for purchasing the limited supply of “de-risked” assets — capital recycling may look very attractive. From a public sector financial perspective, capital recycling makes sense if the yields on the asset being sold are less than the prospective yields of building (and eventually transferring) a new asset, taking into account transaction costs (including potential future regulatory costs).

However, as with PPPs, capital recycling is not a financial “magic pudding”, and can have drawbacks if employed poorly. First and foremost, privatisation should only take place where analysis shows that the asset would be more efficiently managed by the private sector than the public sector.

Secondly, where there are monopoly characteristics of the asset being sold (i.e. price-setting power by asset owners, which is highly likely for ports, railways and electricity networks) then effective regulation needs to be put into place to ensure that post-sale prices remain efficient and do not burden users of the asset to secure supernormal profits. Thirdly, it should be shown that the promised projects to be built with the privatisation proceeds provide demonstrable net benefits. Without adherence to these conditions, there would be a risk that capital recycling becomes a lazy, inefficient and ultimately unsustainable way of raising infrastructure finance — where assets are sold that are just as efficient in public sector hands as the private sector, and where the resultant funds are invested in projects with low net economic benefits. This is already a concern in some states, where promises are being made to reinvest the funds in the regions where the asset is sold, regardless of any cost benefit analysis. This can be a considerable problem when dealing with assets where this is little effective price system or governance currently (to ensure the rights assets are built) such as roads and water. While Infrastructure Australia has a \$220 billion “wish list” in terms of infrastructure which could be privatised, few of these are roads given the limitations in capturing value on road assets except for specific urban tolled projects. In the long run, it is important that governments develop a range of sustainable funding practices and sources (including capital recycling) to support infrastructure provision.

5. Key implications, challenges and risks

Supporting private sector infrastructure investment

While there is now a strong focus on how governments can deliver infrastructure projects there is still a role for direct private financing and governments should support measures that allow for the efficient allocation of capital from the private sector. This may be as simple as having a focused and proper system in place for assessing unsolicited infrastructure development proposals from the private sector, and having a consistent bi-partisan political strategy on major infrastructure projects that could be developed through a PPP procurement process (unlike the negativity created by the differing political stances taken on the East West Link in Victoria). Again, a transparent cost benefit process could prove central to developing a stable political environment for Major Projects.

This means that governments and the private sector need to learn from mistakes of the past. This particularly relates to the estimation and allocation of risks between the public and private sector for infrastructure projects as well as the provision of sound political governance and processes. For projects which have demonstrative net economic benefits, but lesser ability to capture revenue streams directly through user charges, this may suggest that governments adequately support development by financing the “gap” between economic benefit and revenue capture.

This “seeding” approach is popular with State and Federal Governments, but it is vital that proper assessments are made of both the net economic benefit of the infrastructure (including all downstream impacts) and the true ability of the private sector to finance it (i.e. is the project really uncommercial?). As the Productivity Commission has pointed out, while recent PPP failures have led many to believe that private sector finance is difficult to raise for greenfield infrastructure projects, this perspective may change in future as the incidence of private failure becomes more remote.

It is important, however, that governments do not simply become an underwriter and financial contributor for projects which would have proceeded without additional contributions. Nor should they help fund private projects which have marginal public benefits and do not satisfy even private sector commercial requirements. For Queensland, this means financial or in-kind contributions towards infrastructure for resources projects (where most of the benefits accrue to the private sector) should be subject to scrutiny, particularly if prices from well-functioning commodity markets do not support development. At the very least, the case for support, via an analysis of the long-term net economic benefits of development (including the impact on existing or other potential operations), should be made clear.

In this, there may be good economic grounds for the public provision or seed funding of important resources-related infrastructure, such as railways or ports, particularly where it will be used “in common” by a group of competitors. As experience in other Australian resources regions (such as the Pilbara) has shown, it may be more economically efficient for one set of infrastructure to be built and shared, rather than risk the expensive duplication of the same infrastructure by different private parties. Public sector seeding of common use infrastructure may also help overcome market failure whereby private sector competitors wait for others to invest in supporting infrastructure in full (delaying projects for very long periods of time) and then attempt to negotiate access or build competing assets (if they are ever built at all). Furthermore, the seeded assets, once built, may provide governments with an equity stake which can provide long term revenue or lease opportunities. At a broader level, offering seeding funding can give financial credibility to State Government infrastructure plans and can help align public and private sector investment incentives.

Governments can also provide significant assistance to private investment in greenfields infrastructure by relaxing some of the strict requirements surrounding the full financing of infrastructure at the tender stage, and allow the preferred tenderer to develop a financing solution (covering both debt and equity) once all aspects of the project and its risks have been finalised. Furthermore, governments can do much to encourage private sector financing of infrastructure through improving other procurement processes which have been shown to add greatly to the cost of infrastructure projects.

Streamlining procurement processes

While the previous Major Projects Report exposed inefficiencies in the procurement process, the release of the Productivity Commission Inquiry into Public Infrastructure, released in May 2014, further highlighted the ways in which suboptimal procurement processes and regulations can lead to high infrastructure development costs and deter both public and private provision. This area remains a fertile ground for reform, and recommendations for both State and Federal governments include:

- Investing more in initial design
- Making analysis available to all bidders regarding risks, benefits and “whole of life” costs
- Contributing to bid costs where innovation is genuinely in prospect
- Leaving more of the detailed planning and design to the preferred tenderer (rather than all bidders at the tender stage)
- Removing unnecessary duplication or otherwise inefficient approvals processes or regulations
- Reducing the weight allocated to local experience (to encourage international competition).

Again, much of the improvement in processes requires better availability of information; that is, data and analysis to be made available to prospective tenderers to both reduce unnecessary duplication in bidding costs, but also to better understand and reduce risk.

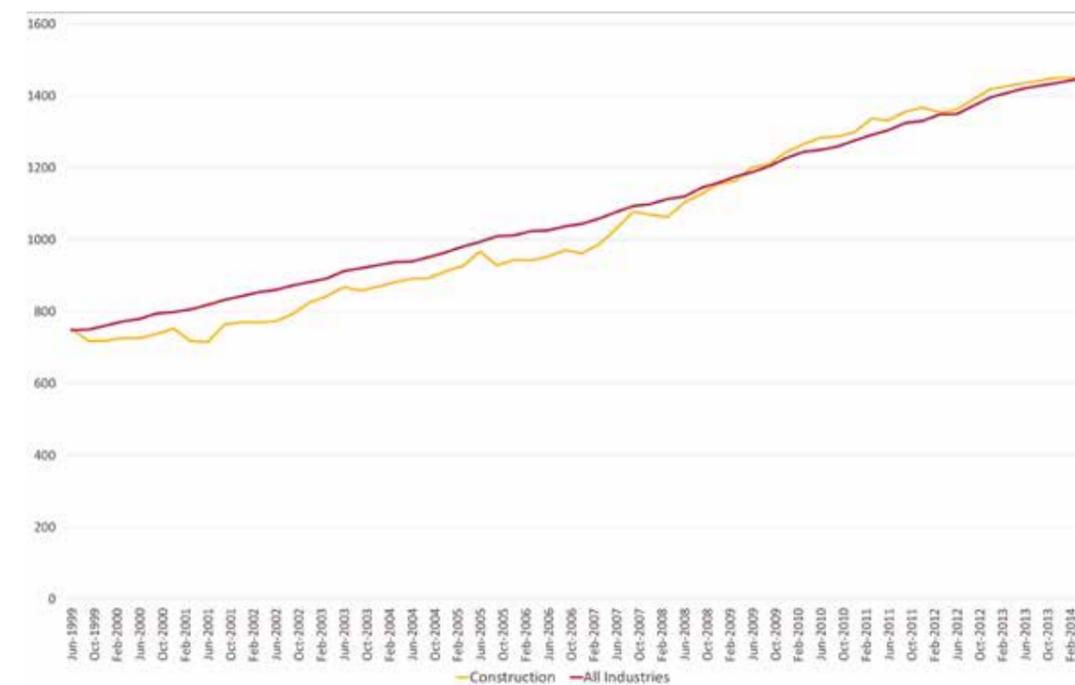
Improving industry productivity and competitiveness

While the Major Projects market appears to be largely contestable — evidenced by the increasing participation and success of “second tier” and international construction firms in the procurement process — there is still much that can be done to ensure that the industry is productive.

Typical measures of labour productivity for the construction industry (that is construction industry gross value added (GVA or output) divided by hours worked) show that it has increased over the past decade, although not at the same pace as all industries, nor construction wages (see Figures 5.4 and 5.5). Interestingly, wage increases in the construction industry were more pronounced during the 2000s when labour productivity growth was at its weakest, likely the result of severe skills shortages during the construction boom. More recent wage outcomes have been much weaker, and labour productivity has also moved to a higher level (though still lags well below other industries).

Figure 5.4

Wages in the construction industry, Australia (AWOTE, full time persons)



¹ Gelber, F. (5th May 2014) “PPPs are dead, long live PPPs”, The Australian

² Menezes, F. (6th May 2014) “Capital Recycling plan good in theory, difficult in practice”, The Conversation.com

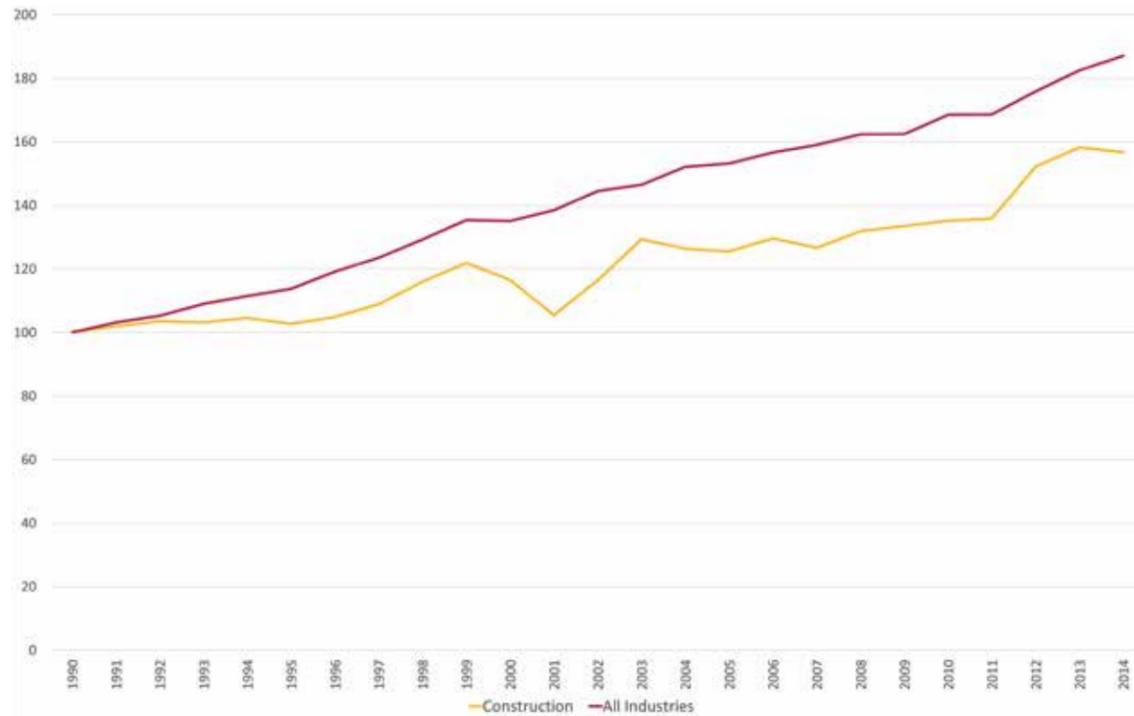
³ Greber, J. (18th October 2012) “Advisor seeks \$220bn privatisation to pay for new infrastructure”, Australian Financial Review.

⁴ Productivity Commission (2014: p15)

5. Key implications, challenges and risks

Figure 5.5

Labour multifactor productivity in the construction industry, Australia (1990=100)



Apart from cyclical factors, however, there may also be structural factors at work which could constrain growth in productivity outcomes in the future, such as inadequate investment in productivity-enhancing technology and capital, outdated work practices and standards, and excessive regulation. In this regard, it is important that both the construction industry and the Federal and Queensland Governments work together to ensure that:

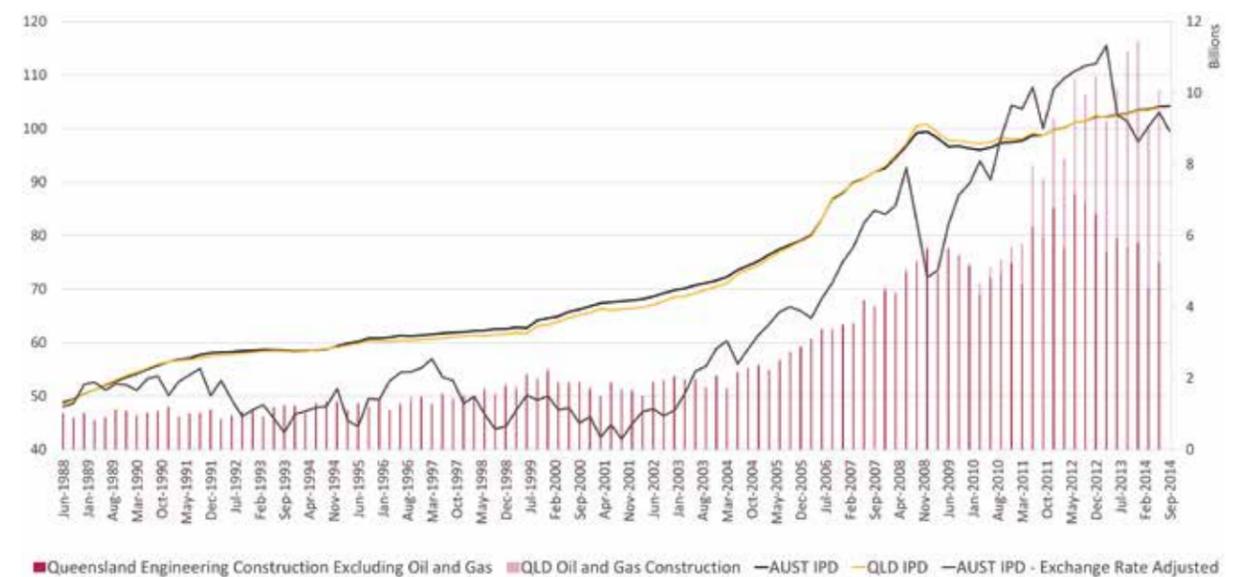
- Skills and training packages (including harmonisation of professional and trade skills across state and international borders, the use of 457 and other work visas) contain obligations for constructors to go beyond just compliance training and competencies towards developing real proficiency, and ensuring that planning for skills better matches likely future demand based on long term State Government development policies and objectives.
- There are no barriers to capital investment in the construction industry which would boost the efficiency of labour employed.
- There are appropriate incentives for research and development in the construction industry that, in the long run, will assist in improving competitiveness and productivity.
- Federal and State Governments adopt codes of practice which would penalise contractors with poor industrial relations arrangements.

- There is greater coordination in the timing of procurement of Major Projects to help smooth out volatile cycles in construction activity which have a direct impact on demand and costs.

In discussing costs and productivity improvements, it is worth emphasising that the largest driver of Australia's construction sector competitiveness (compared with other countries) has been the impact of the stubbornly high Australian dollar. While a rising Australia dollar has helped make imports relatively cheaper, it has also made local goods and services (including construction and operations services) more expensive vis-à-vis the rest of the world. However, with the Australian dollar recently easing, and with industry cost growth very weak, some of this competitiveness is being restored.

Figure 5.6

The impact of the Australian dollar on competitiveness



One simple way of measuring the impact of the exchange rate on domestic construction costs is to adjust standard measures of construction cost growth (such as the engineering construction implicit price deflator) for changes in the movement of the Australia dollar. This is shown in Figure 5.6, where the national engineering construction implicit price deflator for each quarter has been multiplied by the exchange rate of the Australian dollar to Special Drawing Rights (SDRs). SDRs are a weighted basket of major currencies representing claims of IMF member countries. When viewed in this way, a falling Australian dollar actually made local development more internationally competitive in the early 2000s and may have encouraged resource developments. But the relentless rise in the Australian dollar between 2003 and 2008 reversed these gains and exacerbated the loss of competitiveness from rising domestic costs. More recently, the lower Australian dollar and weaker local cost growth has seen costs restored to 2010 levels, but there is still much further scope for improvement if the dollar continues to fall.

Investing in skills and competencies

As outlined at the start of this chapter, while Major Project work done (and associated labour demand) is expected to decline sharply over the next two years, there are reasonable grounds for optimism in the medium to longer term. However, the next upswing in Major Project work is likely to occur at a time when other Australian jurisdictions are increasing their infrastructure investment, as well as the rest of the world, following the G20 Brisbane Action Plan. Consequently, it is vital that the Queensland construction industry retains its skills base to meet the demands of future cycles.

In this respect, a known and stable project pipeline, given credibility through proper governance processes including transparent cost-benefit analyses, would provide an ideal long term indicator of skills demand. This would be highly useful for the development of skills and competencies training packages and long term planning. However, on the supply side, more work needs to be done to analyse the impact of retirement, demographic change, and immigration policies on the available workforce. While some research has been done for the roads sector, there needs to be broader and more thorough analysis of how civil engineering and construction employment in Queensland (as well as other jurisdictions, who may wish to attract Queensland labour) will change over the coming decade. This analysis needs to be done by occupation, so that emerging gaps in skills in the long term (relative to projected demand) can be identified quickly and measures put in place to find solutions through

5. Key implications, challenges and risks

appropriate education and training in the short term. In turn, such analysis requires that much greater and more detailed workforce data covering employment, occupation, and training is collected by the ABS so that appropriate capability analysis can be undertaken.

Meeting the demands of future Major Projects cycles will require that governments and industry invest in education and training not just to “make up the numbers” in terms of the numeric quantity of labour, but to ensure that experiences and skills will not be lost to industry as older workers retire. Greater investment in training, as well as research and development in the industry, can also be expected to boost industry productivity and competitiveness over the long term (through the cycles). To sustain a high wage/high-value-add construction market, the industry will require people who can solve more complex problems, are more creative, innovative and flexible, and are rewarded for taking risks. Mentoring will be important to ensure that industry knowledge is passed from generation to generation. Increasingly employees in this will be expected to possess strong science, technology, engineering, and mathematics skills from primary and secondary education. Investing in industry skills for the long term means that appropriate investments are made in our schools and higher education systems to promote the teaching of these skills, and that ensure students are encouraged to pursue careers in the industry.

There may also be much that can be done to improve the apprenticeships system used in the construction industry. The experience of the recent boom shows that it is often difficult to attract and retain apprentices from an industry perspective, while the high costs/lower wages experienced during the early years of apprenticeships may not be meeting the needs of younger Australians.

Risks to the outlook

A key feature of the outlook for Major Projects work in this report is its increasing volatility and risk. While activity is falling sharply now and over the next two years as the Queensland economy transitions away from the resources investment boom, there is also reasonable prospects for further cycles ahead given Queensland’s natural strengths and advantages: increasing connections with the fast growing economies of Asia, strong population growth, and high quality natural resources. However, the timing and strength of the next upturn is difficult to gauge, as many of the Major Projects identified in this report, which are timed to start after 2016, are currently unfunded. For contractors, this means that efficiency, flexibility and innovation is required to navigate their way through the cycle. Governments can assist in this process by persevering with reforms to improve industry competitiveness and productivity, establishing better processes for assessing Major Projects and their funding, and supporting skills retention and economic growth through appropriate, well-flagged investment in infrastructure (especially when there are gaps in private investment) as well as training and education initiatives.

Even so, key risks remain which can shift the outlook significantly from what is projected here. These risks can be categorised as global (or external to the Queensland economy) as well as domestic risks.

In our previous report, we noted that the biggest global risk related to the economic outlook for key trading partners, is the strategic decisions they make in achieving sustainable growth, and how this will impact on the global trade of resources for which Queensland has a strong supply position, particularly coking coal, thermal coal, and gas. This is just as true today, if not more so, as the Queensland economy becomes more interlinked through global investment and trade. Unfortunately, some of the risks we highlighted, such as weaker growth in the economies of key trading partners, as well as tighter environmental conditions limiting the use of thermal coal, have come to pass, and this is affecting resources investment and profitability. Consequently, the downturn over the next two years is even steeper than projected last year. The risk from here is that this process more or less continues, and commodity prices (in Australian dollar terms) continue to fall or remain at a level which stymies new resources investment or impacts the sustainability of existing capital projects.

We have taken the perspective that in a “low growth” world, competitiveness will be supported by further productivity improvements and an appropriate downward adjustment in the exchange rate. However there is much uncertainty as to how much further operational expenses can be cut given the extent of cuts so far, and how stubbornly high the Australian dollar will remain, and for how long, given the extremely loose monetary policies being conducted around the world. While the exit of higher cost producers should, in theory, see some stabilisation (and even increases) in commodity prices, this process is already impacting on parts of the Queensland industry and new investments are likely to be several years away.

The Major Projects outlook after 2016, while positive, also remains highly dependent on one or two very large resources projects which are subject to significant risk; in particular the opening up of the Galilee Basin coal fields (including the construction of associated rail, port, electricity and water infrastructure) as well as a brownfield expansion to Queensland’s LNG infrastructure. These projects alone are expected to contribute \$14.2 billion in Major Project work (out of a Queensland total of \$52.5 billion) between 2015/16 and 2018/19 and are a key driver of the projected upswing in activity. In the case of the Galilee Basin coal, there remains significant uncertainty as to whether the project will be commercial at current or projected thermal coal prices, the capability of project proponents to finance development, what role the Queensland Government could (or should) undertake to secure investment, and the impact of Galilee Basin development on other thermal coal producers in Queensland and New South Wales.

Meanwhile, sharply falling oil prices over the past year as OPEC producers maintain supply rates in the face of weaker growth in oil demand, also casts renewed doubts on the profitability of existing LNG operations in Queensland (where prices are linked to oil prices) and the prospects for further investment. While we have assumed that further LNG processing trains will be built onto existing operations in Gladstone over time (with one expansion timed to start from 2015/16) it is possible that these investments will be delayed until prices (in Australian dollar terms) rise enough to underwrite financial feasibilities.

Falling commodity prices also threaten government revenues, whether through royalties (which accrue to State Governments) as well as company profits (which flow through to the Federal Government). In this sense, the downturn in commodity prices also puts at risk future funding for public infrastructure investment. While this suggests that efforts should be redoubled on securing infrastructure funding in the near term, there also needs to be proper debate about the sustainability of government funding in general and reforming the tax system to ensure it provides the revenues that will meet the demands of generations to come. Ultimately, the speed in which the Federal and Queensland Governments can implement reforms to improve infrastructure provision and governance processes so that sustainable long term infrastructure plans can be developed will be vital in reducing this uncertainty.

⁵ Austroads (2013) Australia and New Zealand Roads Capability Analysis 2013 to 2023, BIS Shrapnel.

⁶ Productivity Commission (2014: p34).

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■ Funded ■ Not Funded ■ Key Assumptions

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$m)	Engineering Value (\$m)	Project Status	Completion Date	2012/13 (\$m)	2013/14 (\$m)	2014/15 (\$m)	2015/16 (\$m)	2016/17 (\$m)	2017/18 (\$m)	2018/19 (\$m)
ROADS, BRIDGES AND RUNWAYS														
Brisbane City Region														
Mains Road /Kessels Road Intersection	Federal Government	Roads	South East Queensland	300	216	Under Construction	2014/15	43	60	10				
TransApex – Legacy Way Link	Brisbane City Council	Roads	South East Queensland	1700	1500	Under Construction	2015/16	410	279	260	11			
Wynnum Road	Brisbane City Council	Roads	South East Queensland	150	100	Probable	2018/19						50	50
Kingsford Smith Drive Corridor	Brisbane City Council	Roads	South East Queensland	600	480	Probable	2018/19				60	220	220	100
Brisbane Airport / Port														
Brisbane New Parallel Runway Phase 1 & 2	Brisbane Airport	Runways	South East Queensland	1000	800	Expected	2018/19				20	75	65	300
Dryandra Drive	Brisbane Airport	Roads	South East Queensland	250	200	Expected	2018/19					100	100	
Port of Brisbane Motorway	Brisbane Port	Roads	South East Queensland	150	100	Expected	2017/18				20	60	20	
Greater Brisbane														
Cunningham Highway/Amberley Intersection	Qld Government	Roads	South East Queensland	200	150	Expected	2017/18				20	35	15	
Ipswich Motorway														
Rocklea to Darra – Various Sections	Qld Government & Federal Government	Roads	South East Queensland	500	450	Probable	2020/21						50	100
Gateway Motorway Upgrade North (GUN)														
Nudgee to Cabbage Tree Creek to Bracken Ridge	Qld Government & Federal Government	Roads	South East Queensland	700	560	Probable	2018/19				90	180	203	38
Pacific Motorway														
Section C) Daisy Hill to Logan Motorway at Loganholme	Qld Government & Federal Government	Roads	South East Queensland	280	200	Expected	2019/20						60	90
Sunshine Coast Region														
Mooloolah River Interchange – Kawana Arterial and Sunshine Motorway Upgrade	Qld Government	Roads	South East Queensland	440	350	Probable	2018/19					50	150	150
Deception Bay Rd: Bruce Hwy to Lipscombe Rd	Qld Government	Roads	South East Queensland	124	93	Probable	2019/20						12	48
Toowoomba Region														
Toowoomba Range Second Crossing	Qld Government / Federal Government / Private	Roads	South East Queensland	1600	1200	Expected	2018/19				150	450	500	150

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Warrego Highway														
Toowoomba to Miles	Qld Government / Federal Government / Private	Roads	South East Queensland	525	350	Expected	2018/19				75	100	100	75
Toowoomba to Oakey Stage 2 – Nugent Pinch to Charlton	Qld Government / Federal Government / Private	Roads	South East Queensland	120	100	Probable	2017/18				20	60	20	
Bruce Highway														
Sarina to Cairns: Duplication from Vantassel St to Flinders Highway (Townsville Southern Approach)	Federal Government	Roads	Northern Queensland	138	80	Expected	2015/16		46	50	8			
Caloundra to Sunshine Motorway – widen to 6 lanes	Qld Government / Federal Government / Private	Roads	South East Queensland	1134	788	Expected	2018/19			18	175	175	175	175
Cooroy to Curra: (Sections A) Cooroy Southern Interchange to Sankeys Road	Federal Government	Roads	South East Queensland	550	300	Under Construction	2016/17		31	124	134	124		
Sarina to Cairns – Cattle Creek and Frances Creek upgrades	Federal Government	Roads	Northern Queensland	145	76	Expected	2017/18			9	26	47	42	
Curra to Sarina – Yeppen Floodplain South	Federal Government	Roads	Northern Queensland	150	106	Expected	2015/16			76	30			
Curra to Sarina – Yeppen Floodplain North	Federal Government	Roads	Northern Queensland	120	100	Expected	2017/18					40	80	
Caboolture to Caloundra Upgrades (3 Packages)	Federal Government	Roads	South East Queensland	195	137	Expected	2016/17			18	70	49		
Sarina to Cairns – Mackay Ring Road / Bypass – Stage 1	Federal Government	Roads	Northern Queensland	560	370	Expected	2018/19			10	106	100	100	65
Cooroy to Curra: (Sections C) Traveston Road to Keefton Road	Federal Government	Roads	South East Queensland	400	250	Expected	2018/19					53	105	105
Sarina to Cairns: Cairns Southern Approach Stage 2 – Edmonton to Gordonvale Duplication	Federal Government	Roads	Northern Queensland	481	351	Expected	2018/19					73	146	128
Sarina to Cairns – Goorganga Flood Plain (South of Proserpine)	Federal Government	Roads	Northern Queensland	330	241	Expected	2018/19					15	75	110
Sarina to Cairns – Houghton River Floodplain Upgrade	Federal Government	Roads	Northern Queensland	338	200	Expected	2018/19					55	110	55
Northern Queensland														
Peak Downs Hwy Improvements – Eton Range	Qld Government & Federal Government	Roads	Bowen	170	120	Expected	2016/17				55	75		
Townsville Ring Road – Stage 4: Shaw Rd to Mount Low	Federal Government	Roads	Northern Queensland	180	140	Expected	2016/17			20	60	60		
Far North Queensland														
Peninsula Developmental Road (PDR) (over 10 years)	Qld Government & Federal Government	Roads	Northern Queensland	500	500	Expected	2018/19				50	50	50	50
ROADS AND BRIDGES MAJOR PROJECTS	Work Done							791	698	684	1359	2449	2486	1789
	Funded							791	698	684	1149	1608	1170	815
	Not Funded							0	0	0	210	841	1316	974

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■ Funded ■ Not Funded ■ Key Assumptions

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$m)	Engineering Value (\$m)	Project Status	Completion Date	2012/13 (\$m)	2013/14 (\$m)	2014/15 (\$m)	2015/16 (\$m)	2016/17 (\$m)	2017/18 (\$m)	2018/19 (\$m)
RAIL														
(Passenger)														
New Generation Rail Stabling Yard	Qld Government / Private	Passenger (Rail)	South East Queensland	200	180	Expected	2015/16			60	120			
Moreton Bay Rail Link (Redcliffe Rail Link)	Qld Government	Passenger (Rail)	South East Queensland	1147	650	Expected	2016/17	60	105	262	182	43		
Coomera to Helensvale: 2nd track	Qld Government	Passenger (Rail)	South East Queensland	220	150	Probable	2017/18				50	70	30	
Gold Coast Rapid Transit System Stage 2	Qld Government / Private	Passenger (Rail)	South East Queensland	600	300	Probable	2017/18				100	150	50	
Bus & Train (BaT) Brisbane	Qld Government / BCC	Passenger (Rail)	South East Queensland	6000	5000	Probable	2022/23				100	250	500	1250
Varsity Lakes to Elanora Extension	Qld Government / QR	Passenger (Rail)	South East Queensland	859	600	Probable	2019/20						130	180
Beerburrum to Landsborough Duplication	Qld Government / QR	Passenger (Rail)	South East Queensland	278	180	Probable	2020/21							40
(Coal / Freight)														
Wiggins Island Balloon Loop	Aurizon	Coal (Rail)	Gladstone	200	140	Under Construction	2014/15	55	55	15				
Rocklands and Stanwell Duplication (Blackwater)	Aurizon	Coal (Rail)	Bowen	200	140	Under Construction	2014/15	55	55	15				
Wiggins Island Rail Project – Segment 2	Aurizon	Coal (Rail)	Gladstone	100	75	Expected	2014/15		5	70				
Goonyella Coal Rail Further Upgrades	Aurizon	Coal (Rail)	Bowen	300	200	Probable	2018/19					50	100	50
Townsville Eastern Access Rail Corridor	Private Developer	Freight (Rail)	Northern Queensland	200	160	Probable	2018/19					55	80	25
Inland Mainline Freight Upgrade – Queensland Border to Acacia Ridge	Federal/Queensland Government	Freight (Rail)	South East Queensland	4000	3000	Probable	2021/22							50
Galilee Basin Coal Rail Infrastructure	Adani / Posco	Coal (Rail)	Galilee	2500	1750	Probable	2019/20				200	900	550	100
Galilee Basin Coal Rail Infrastructure Spur Line	GVK	Coal (Rail)	Galilee	600	500	Probable	2020/21						300	200
RAIL MAJOR PROJECTS	Work Done							664	505	422	752	1518	1740	1895
	Funded							664	505	422	352	113	330	200
	Not Funded							0	0	0	400	1405	1410	1695
HARBOURS / PORTS														
Western Basin Dredging and Disposal Project	Gladstone Ports Corporation	Coal (Harbour)	Gladstone	1000	268	Under Construction	2014/15	82	35	26				
Wiggins Island Stage 1 – 27 mtpa	Wiggins Island Coal Export	Coal (Harbour)	Gladstone	2400	1200	Under Construction	2014/15	300	450	300				
Hay Point Stage 3 Expansion 11 mtpa	BMA	Coal (Harbour)	Bowen	2500	1750	Under Construction	2014/15	525	525	100				

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Dredging for Brisbane New Runway	Brisbane Airport	Roads (Dredging)	South East Queensland	500	300	Expected	2015/16		100	100	100			
South of Embly Port Upgrade	Rio Tinto	Bauxite (Harbour)	Northern Queensland	400	200	Expected	2017/18				50	100	50	
Galilee Basin Coal Harbour Infrastructure (Abbot Point) *	Adani / Glencore operator	Coal (Harbour)	Bowen	2500	1500	Possible	2019/20					50	700	700
HARBOURS MAJOR PROJECTS	Work Done							1082	1211	526	150	150	750	700
	Funded							1082	1211	526	150	100	50	0
	Not Funded							0	0	0	0	50	700	700
WATER														
QGC Water treatment Facilities – Kenya + Northern	Queensland Gas Company	WTP	Surat	1800	1400	Under Construction	2014/15	400	100	25				
Condabri Central, Talinga & Reedy Creek Water Treatment Facilities	Origin	WTP	Surat	1500	1200	Under Construction	2014/15	600	300	100				
Woleebee Creek to Glebe Weir Pipeline (145km) (was from Reedy Creek)	Sunwater	Pipeline	Surat	430	300	Expected	2014/15	40	220	40				
Etheridge Integrated Agricultural Project	Federal Government	Dam	Northern Queensland	700	500	Probable	2018/19					100	200	200
Lower Fitzroy River Infrastructure Project – Raising Eden Bann Weir Stage 1 (6m)	Gladstone Area Water Board (GAWB)	Dam	Gladstone	171	128	Probable	2018/19						40	60
Gladstone to Fitzroy River Pipeline	Gladstone Area Water Board (GAWB)	Pipeline	Gladstone	345	207	Probable	2018/19						70	100
Shell / Arrow Water Treatment Facilities Surat + Bowen	Shell/Arrow/Bow	WTP / Pipeline	Surat	1800	1400	Expected	2019/20					100	200	350
Wyralong Dam WTP Stage 1	Qld Gov	WTP	South East Queensland	250	175	Probable	2020/21							60
Cedar Grove Connector (was Southern Regional Pipeline extension)	Qld Gov	Pipeline	South East Queensland	100	80	Probable	2020/21							15
Gorge Weir to Byerwen Coal Project Pipeline Project (110km)	Sunwater for Qcoal	Pipeline	Bowen	240	180	Expected	2018/19					60	60	60
Galilee Basin Flood Mitigation and Water Supply Dam	Adani or GVK	Dam	Galilee	300	225	Expected	2020/21					50	100	75
Galilee Basin Flood Mitigation and Water Supply Pipeline	Adani or GVK	Pipeline	Galilee	600	450	Expected	2020/21						50	100
WATER MAJOR PROJECTS	Work Done							1440	820	165	0	310	720	1020
	Funded							1440	820	165	0	0	0	0
	Not Funded							0	0	0	0	310	720	1020
SEWERAGE														
S1 Sewer Upgrade – Brisbane	BCC	Pipeline	Brisbane	160	120	Probable	2015/16			60	60			
SEWERAGE MAJOR PROJECTS	Work Done							0	0	60	60	0	0	0
	Funded							0	0	0	0	0	0	0
	Not Funded							0	0	60	60	0	0	0

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ELECTRICITY														
Kogan Creek Solar Boost	CS Energy	Generation	Surat	105	53	Under Construction	2013/14	17	5	20				
Springdale to Blackwall Transmission Line	Powerlink	Distribution / Supply	South East Queensland	125	50	Expected	2016/17				25	25		
Galilee Basin Transmission Project *	Adani	Distribution / Supply	Galilee	300	200	Expected	2017/18					50	150	
ELECTRICITY MAJOR PROJECTS	Work Done							343	58	20	25	75	150	0
	Funded							343	58	20	0	0	0	0
	Not Funded							0	0	0	25	75	150	0
PIPELINES														
Bowen to Gladstone Pipeline Work for Shell Arrow LNG (or Merger)	Shell/Arrow/Bow	CSG	Surat	450	360	Expected	2018/19					100	200	250
PIPELINES MAJOR PROJECTS	Work Done							1000	420	0	0	100	200	250
	Funded							1000	420	0	0	0	0	0
	Not Funded							0	0	0	0	100	200	250
TELECOMMUNICATIONS														
National Broadband Network – Qld component	NBN Co.	Telecomms	Other	6928	4850	Under Construction	>2016/17	40	50	202	372	408	458	432
TELECOMMUNICATIONS MAJOR PROJECTS	Work Done							40	50	202	372	408	458	432
	Funded							40	50	202	372	408	458	432
	Not Funded							0	0	0	0	0	0	0
OIL & GAS														
Queensland Curtis LNG Upstream Field Development	QGC & BG Group	LNG	Surat	4700	3700	Under Construction	2018/19	320	600	600	200	450	550	550
Queensland Curtis LNG Downstream (2 trains, 8.5mtpa)	QGC & BG Group	LNG	Gladstone	14840	7590	Under Construction	2014/15	2000	2250	1500				
Queensland Curtis LNG Stage 2 (Expansion to 12mtpa – 3rd train)	QGC & BG Group	LNG	Gladstone	8000	6400	Possible	2019/20						1200	2000
Queensland Curtis LNG Upstream Field Development (3rd train)	QGC & BG Group	LNG	Surat	3000	2000	Possible	2022/23					300	300	300
Queensland Curtis LNG Brine Concentrator	QGC & BG Group	LNG	Surat	150	150	Possible	2017/18					100	50	
Gladstone LNG Upstream Field Development	Santos & Petronas	LNG	Surat	4500	3600	Under Construction	2018/19	320	600	600	600	500	400	400
Gladstone LNG Project Downstream (2 trains, 7.8 mtpa)	Santos & Petronas	LNG	Gladstone	14350	7500	Under Construction	2015/16	2000	2250	2250	1000			
Australia Pacific LNG Upstream Field Development	Origin/Conoco Phillips	LNG	Surat	6500	5200	Under Construction	2018/19	320	600	600	300	450	450	450
Australia Pacific LNG Project (2 trains, 9mtpa)	Origin/Conoco Phillips	LNG	Gladstone	15000	8000	Under Construction	2015/16	2000	2250	2250	1000			

Appendix – 2015 Major Projects List

■ Funded ■ Not Funded ■ Key Assumptions

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$m)	Engineering Value (\$m)	Project Status	Completion Date	2012/13 (\$m)	2013/14 (\$m)	2014/15 (\$m)	2015/16 (\$m)	2016/17 (\$m)	2017/18 (\$m)	2018/19 (\$m)
Ironbark Gas Facility (Domestic Supply)	Origin	LNG	Surat	250	250	Expected	2017/18				150	100		
Australia Pacific LNG Salt Handling Facility	Origin/Conoco Phillips	LNG	Surat	150	150	Expected	2017/18					50	100	
Shell LNG Surat Basin Upstream Field Development	Shell/Arrow/Bow	LNG	Surat	2000	1600	Under Construction	2018/19	200	200	150		300	300	300
OIL & GAS MAJOR PROJECTS	Work Done							7160	8750	7950	3250	2250	3350	4000
	Funded							7160	8750	7950	3250	1950	1850	1700
	Not Funded							0	0	0	0	300	1500	2300
BAUXITE, ALUMINA & ALUMINIUM														
South of Embley	Rio Tinto Alcan	Bauxite	Northern Queensland	600	400	Probable	2017/18				150	180	70	
BAUXITE, ALUMINA & ALUMIN. MAJOR PROJECTS	Work Done							0	0	0	150	180	70	0
	Funded							0	0	0	150	180	70	0
	Not Funded							0	0	0	0	0	0	0
OTHER HEAVY INDUSTRY MAJOR PROJECTS														
North Queensland Bio Energy – Ethanol Plant	North Queensland Bio Energy	Ethanol	Northern Queensland	300	200	Probable	2020/21							100
OTHER HEAVY INDUSTRY MAJOR PROJECTS	Work Done							0	0	0	0	0	0	100
	Funded							0	0	0	0	0	0	0
	Not Funded							0	0	0	0	0	0	100
COAL MAJOR PROJECTS														
Grosvenor Coking Coal Mine	Anglo Coal	Coal	Bowen	1400	1000	Under Construction	2014/15	225	370	370				
Rolleston Thermal Coal Mine Expansion	Xstrata	Coal	Bowen	300	200	Under Construction	2014/15	50	100	50				
Baralaba South Open Cut Expansion	Cockatoo Coal	Coal	Bowen	200	100	Under Construction	2014/15			15	75	10		
Aquila Coal Mine	Anglo Coal	Coal	Bowen	250	200	Probable	2016/17				50	150		
Eagle Downs Coking Coal	Aquila / Vale	Coal	Bowen	1250	813	On Hold	2020/21						88	158
Baralaba North Open Cut Expansion	Cockatoo Coal	Coal	Bowen	200	160	Probable	2017/18					80	80	
Byerwen	Qcoal	Coal	Bowen	200	100	Possible	2017/18					50	50	
Yarrabee	Yancoal	Coal	Bowen	260	150	Possible	2017/18					50	100	
New Acland Stage 3 Expansion	New Hope Corporation	Coal	Other	700	490	Possible	2018/19					70	210	210
Middlemount Coking Coal Mine Stage 2	Peabody / Yancoal	Coal	Bowen	325	284	Possible	2019/20					65	135	88

Appendix – 2015 Major Projects List

■ Funded ■ Not Funded ■ Key Assumptions

Queensland Project Description	Sponsor	Sector	Region	Total Project Value (\$m)	Engineering Value (\$m)	Project Status	Completion Date	2012/13 (\$m)	2013/14 (\$m)	2014/15 (\$m)	2015/16 (\$m)	2016/17 (\$m)	2017/18 (\$m)	2018/19 (\$m)
Minyango Coal Project	Caledon Resources	Coal	Bowen	750	600	Probable	2018/19					120	240	240
Foxleigh Plains Project	Anglo Coal, Steel Companies	Coal	Bowen	200	140	Possible	2018/19						70	70
Ellensfield Coking Coal	Vale	Coal	Bowen	400	280	Possible	2019/20						70	105
Caval Ridge	BMA	Coal	Bowen	200	160	Possible	2019/20						80	80
Hail Creek Extension – Underground	Rio Tinto	Coal	Bowen	1100	660	Possible	2020/21							50
Gaililee Basin Coal Project	Adani	Coal	Galilee	1000	500	Possible	2017/18				100	200	200	
Gaililee Basin Coal Project	GVK	Coal	Galilee	2200	500	Possible	2018/19					100	200	200
COAL MAJOR PROJECTS WORK DONE	Work Done							1835	1430	435	225	895	1523	1201
	Funded							1835	1430	435	125	160	88	158
	Not Funded							0	0	0	100	735	1435	1043
OTHER MINERALS MAJOR PROJECTS														
Rocklands Copper	Cudoco	Copper	Northern Queensland	250	125	Under Construction	2014/15	50	75	30				
Mt Garnet Tin	MGT Resources	Tin	Northern Queensland	124	50	Expected	2016/17				10	40		
Paradise Phosphate South Project	Legand International Holdings	Phosphates	Northern Queensland	400	300	Expected	2019/20						113	145
Merlin Project Molybdenum	Inova Mines	Molybdenum	Northern Queensland	345	180	Expected	2019/20						40	40
Dugald River	MMG	Zinc	Northern Queensland	1456	728	Expected	2020/21						75	75
Roseby Copper (Little Eva)	Altona Resources	Copper	Northern Queensland	320	96	Possible	2019/20						30	36
Red Dome Mungana	Mungana gold mines	Gold	Northern Queensland	330	215	Expected	2020/21							65
Sarsfield	Resoulte Mining	Gold	Northern Queensland	500	100	Possible	2020/21							50
OTHER MINERALS MAJOR PROJECTS	Work Done							306	129	30	10	40	258	411
	Funded							306	129	30	0	0	0	0
	Not Funded							0	0	0	10	40	258	411
TOTAL MAJOR PROJECTS	Work Done							14661	14071	10494	6353	8375	11705	11798
	Funded							14661	14071	10494	5548	4520	4016	3305
	Not Funded							0	0	60	805	3856	7689	8493





QUEENSLAND MAJOR
CONTRACTORS ASSOCIATION

CSQ

STRONGER FUTURES
IN CONSTRUCTION