QUEENSLAND MAJOR CONTRACTORS ASSOCIATION

CSQ STRONGER FUTURES IN CONSTRUCTION

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

2016

Major Projects Report

Queensland Engineering Construction Outlook

BIS Shrapnel
BUSINESS RESEARCH AND FORECASTING

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Foreword

We are proud to introduce the 2016 Major Projects Report – an important partnership between the Queensland Major Contractors Association and Construction Skills Queensland.

This is the eighth 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.

This Report demonstrates that the challenges facing the Queensland economy in 2015 have continued into 2016. Public and private construction activity has declined significantly, with Major Project investment and employment collapsing by more than half since its peak in 2012/13. The outlook is expected to worsen into 2016/17 as Major Project work declines by more than 75% off its 2012/13 peak. The fall represents a decline in annual Major Project investment from more than $15 billion in 2012/13 to just $4.4 billion in 2016/17. Of greatest concern is the significant risk that Major Project work will not meet the future infrastructure demands of the Queensland economy.

The need for public infrastructure investment has never been more acute and certainty is needed if the expected upturn in Major Projects work is to be achieved as projected during 2017/18. There are significant opportunities in Queensland's Major Project's pipeline, but much of this work remains unfunded. While other states are increasing their investment in infrastructure, the outlook for Queensland looks particularly uncertain.

As this year's Report shows Queensland is facing a Major Projects challenge which should also be seen as an opportunity. That opportunity presents itself in the form of industry and government working together to secure the benefits of the economy's new tourism and trade drivers.

To achieve this we must have a more effective approach to realising sustainable infrastructure investment and development, including such issues as cost-benefit analysis for project selection and a cooperative approach to future funding solutions.

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.

Iain Ward
President

Queensland Major Contractors Association

Graham Carpenter
Chairman

Construction Skills Queensland

March 2016

Executive Summary

This is the eighth Major Projects Report, with earlier Reports published between 2006 and 2015. During this period, Queensland has experienced a substantial boom and bust cycle in construction activity and Major Project work.

Now, with falling commodity prices continuing to put new resources projects on hold and government funding for public infrastructure projects constrained, the outlook for Major Project work remains highly uncertain and volatile. The aim of this Report is to cut through some of this uncertainty by building a profile of Major Project work and demand for construction labour based on the completion of existing projects coupled with the most likely potential projects proceeding. The Report provides forecasts for the five years to the year ended June 2020. Along the way, the Report discusses the key drivers of Major Project activity, their outlooks, and the implications of the outlook for Queensland.

As detailed within this Report, falling public and private investment in Queensland has driven a sharp decline in Major Project work which has already impacted heavily on the Queensland economy, and especially those businesses operated by Queensland construction contractors and suppliers.

This is the key challenge now facing the Major Project market in Queensland as well as the broader Queensland economy, given the strong economic multipliers inherent in construction activity. The collapse in construction work done is affecting construction employment. From a peak of over 240,000 persons employed in the Queensland construction industry in early 2013, employment has slumped to approximately 204,000 persons as at the end of calendar 2015. On major projects, the decline has been even more severe, with employment (and work done) already down around 50% from the 2012/13 peak. Further declines in construction employment are expected over the next few years, presenting challenges for the sustainability of the construction industry in Queensland.

While infrastructure investment is not an end in itself, it provides a boost to employment and economic activity in the short term (during the construction phase) and can boost both productivity and productive capacity in the long term (during the operations phase), increasing the Queensland economy's potential "speed limit" into the future.

Despite nearly a decade of increased infrastructure investment, servicing both the resources industry and the broader Queensland economy, infrastructure gaps remain and will worsen over coming decades unless solutions are found. Existing policy norms and funding settings have failed to deliver sustainable, long run growth in Queensland infrastructure investment to meet demand. Unless addressed, the result will be a return to an overall widening in Queensland's infrastructure deficit which will further impact on state productivity and economic performance.

However, the next few years not only presents an infrastructure challenge to Queensland, but also an opportunity.

In particular, the Queensland economy is expected to benefit from new drivers of growth through tourism and trade that will boost demand for infrastructure.

Taking full advantage of this opportunity requires implementing better processes and funding/financing mechanisms to support timely and sustainable infrastructure development and investment. This includes better project selection based on transparent cost-benefit analyses, keeping an open mind on the range of funding mechanisms available and having industry, government and the workforce working together on solutions to improve efficiency and productivity in the construction industry so that the best can be made of funds available.

In this regard, the challenge for Queensland is not the choice whether to increase investment in infrastructure or not, but rather which infrastructure choices to make, how these choices will be funded, and in what ways the industry can boost productivity to get the best value for the funding available.

Key Findings

With the boom in Major Project work now turned to bust, 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 – 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 2016 Major Projects Report are as follows:

- Major Project work done in 2014/15 fell substantially and is now down 50% from the 2012/13 peak of $18.7 billion (see Figure A). Similarly, the estimated workforce on major engineering construction projects (over $100 million in value) has fallen by a collective 52% from a record 23,500 positions in 2012/13. Despite the widely publicised decline in mining and heavy industry investment, non-mining investment also weakened significantly in 2014/15 as public finances remained stretched.
- The sharp contraction in Major Project work is forecast to continue into 2015/16, before reaching a trough in 2016/17, with a much lower profile of work projected through the forecast period than in the 2015 Report (see Figure B). While the decline in 2014/15 was challenging, the fall in 2015/16 will be twice as steep, with Major Project work done expected to slump 50% in this financial year alone to just $5.3 billion. In aggregate, Major Project work done is forecast to decline nearly 75% from the 2012/13 peak to a trough of $4.4 billion in 2016/17.
- Most engineering segments are expected to contribute to declining activity, but mining and heavy industry construction will continue to dominate the overall contraction of activity going forward. In terms of the construction workforce, mining and heavy industry Major Project work alone is anticipated to shed over 11,000 full time workers over the next five years to 2020.
- An upswing in Major Project work is expected from 2017/18, but growth will plateau from 2018/19. However, even this recovery is predicated on currently unfunded projects proceeding, including large public sector road and rail projects, as well as another (much smaller) round of resources investment. As such, the outlook is highly susceptible to risk.
- The expected trough in activity will be well below the 2012/13 peak and, though equivalent to levels of work occurring in the mid-2000s, future Major Project work may not be enough to meet future infrastructure demands. The experience of the past two years illustrates that the twin booms of mining and public investment over the past decade was an unusual phenomenon that, in terms of scale, are unlikely to be repeated soon. Even so, public investment (and Major Project work) will need to rise again in future to meet projected infrastructure demands.
- With other states such as New South Wales ramping up infrastructure investment, challenges will remain in procuring construction services. Queensland needs to apply a longer-term approach to planning for the future workforce in a way that links workforce planning and skills development to both current and future activity. We need to remain vigilant about workforce development, skills acquisition, attracting new entrants and retaining skilled workers particularly during periods of cyclical weakness. The process of workforce planning needs to be linked to infrastructure planning so that Queensland has the right skills available at the right time to deliver Major Projects.
- 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.
- There will be significant shifts in the regional location of Major Projects and labour demand over the next five years (Figure C). This not just reflects investment in different types of infrastructure than the recent past (such as regional airports and ports, water storages, public transport and freight) but also very different regional investment profiles where the investment will take place (focusing on tourism regions, urban centres, agricultural areas and key transport hubs). In particular, Major Project work is expected to pick up strongly (and be more focused) in South East Queensland and Northern Queensland.

Figure A

Major Projects Work Done & Workforce Demand – All Segments

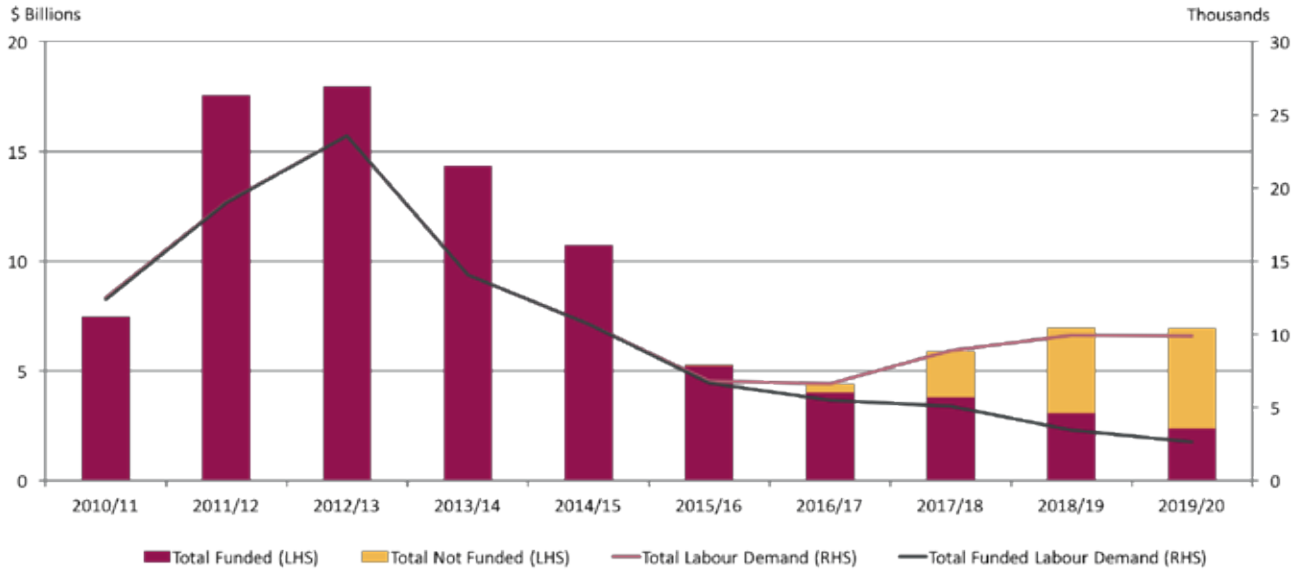


Figure B

Total Work Done Forecast 2015/16 Forecast vs 2014/15 Forecasts

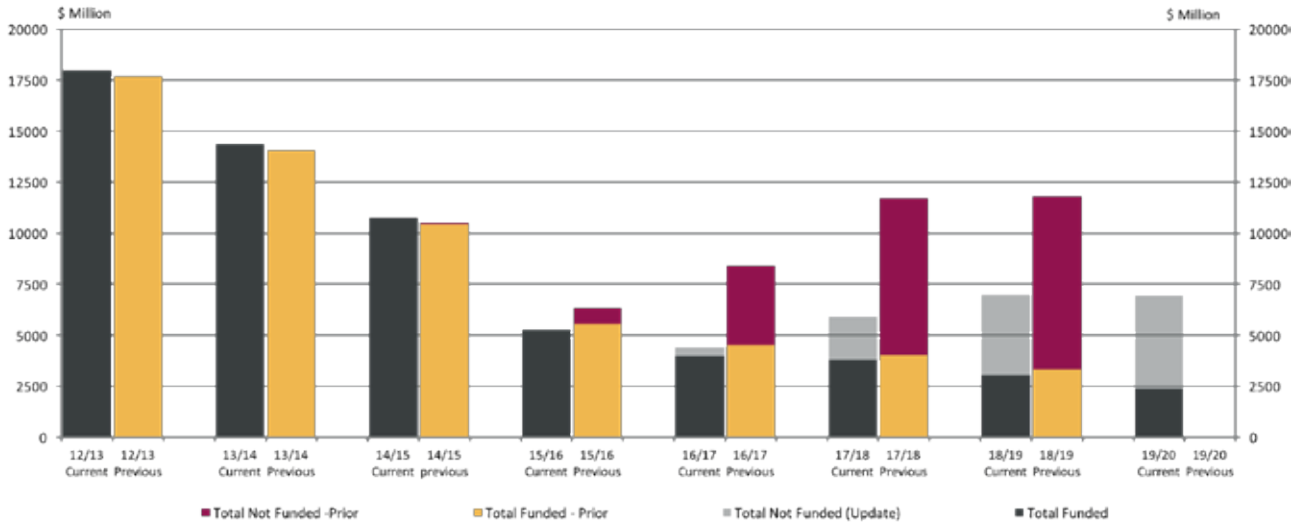
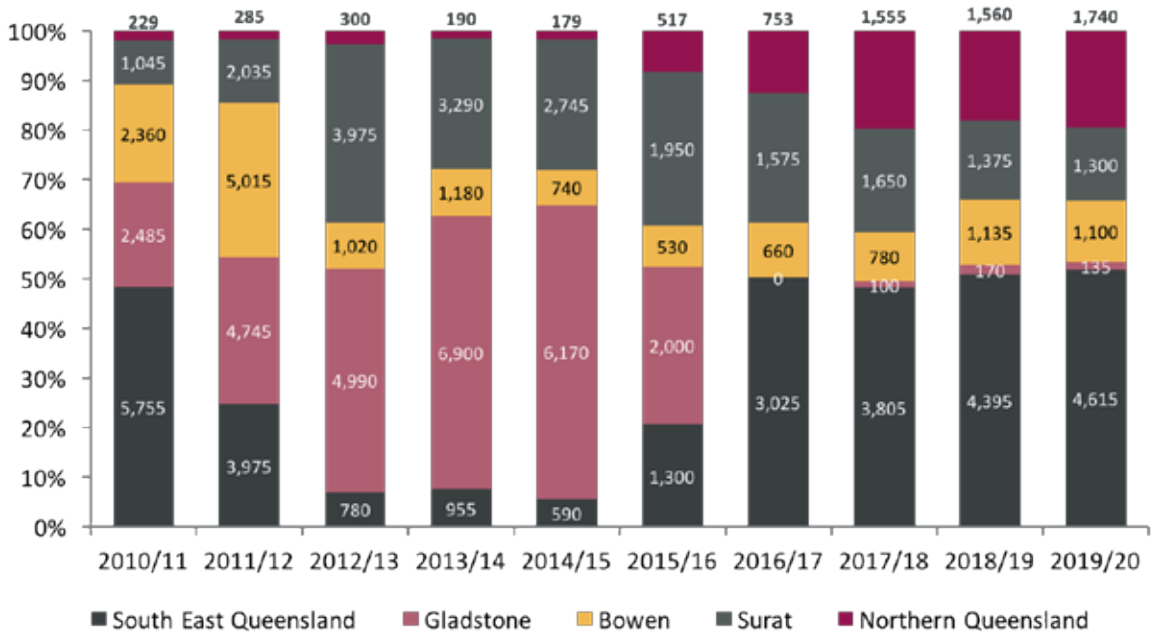


Figure C

Major Project Workforce Demand – All Segments by Region (Share LHS, Employment by Column)



Challenges and Recommendations

Investment is the key driver of growth in domestic demand and employment in the Queensland economy. It was the boom in resources investment and public investment in infrastructure which underwrote growth in the Queensland economy during the 2000s, and it is the absence of investment growth which is now responsible for the state's economic weakness. Consequently, a return to stronger growth in domestic demand (and employment) in Queensland requires new investment drivers.

Much higher levels of infrastructure investment over much of the past decade have narrowed, but not eliminated, Queensland's infrastructure deficit. While non-mining private sector investment, spurred by a lower dollar and weaker growth in domestic costs, is expected to recover through the next few years, the bulk of the "heavy lifting" in terms of infrastructure investment will fall to the public sector. With this comes the responsibility that public infrastructure investment is undertaken wisely, efficiently and transparently targets infrastructure gaps. It should also complement these next "waves" of growth in industries that are expected to grow strongly from here, including tourism, education, agriculture and manufacturing.

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, industry, governments and the workforce should work together to promote policies which:

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

In this regard, the development of Building Queensland to provide independent expert advice is a vital first step. Regardless of how infrastructure is funded and financed, it is important for Queenslanders to understand, first and foremost, which infrastructure projects provide the best "bang for the buck" in terms of its net economic benefits and how the new projects will mesh with existing infrastructure to boost productivity over the long term.

But much more needs to be done, particularly in the debates surrounding infrastructure funding, which is the most significant barrier to sustainable infrastructure investment. Here, it is important that an eclectic approach is adopted, with no solutions barred from consideration including capital recycling (asset sales or long term leases to the private sector), wholesale reform of tax and expenditure policies (which frees up resources for infrastructure funding) or utilising debt finance. In regards to the latter, there are powerful equity and efficiency grounds for increasing the use of debt to support infrastructure development over the long term, and avoiding the boom/bust cycle of

Investment based on funding mechanisms linked to the economic cycle. During 2015, increasing debt funding for infrastructure investment in Australia has been specifically championed by both the International Monetary Fund (IMF) and the Reserve Bank of Australia. Policies should be put in place between the Queensland and Federal Governments to take better advantage of record low interest rates, excess industry capacity and falling construction costs by utilising debt finance for productive infrastructure investment.

In this context, this Report makes the following recommendations:

- Given the projected weakness in domestic demand and employment growth in Queensland as it continues to transition from the resources investment boom, that the State and Federal Governments expand the scope of productivity-enhancing public infrastructure provision in Queensland in their 2016-17 Budgets.
- Steep losses in employment in the Queensland civil construction sector, combined with rising demand for skilled labour to support infrastructure development in New South Wales and Victoria, require industry and Government to work together to develop a workforce planning response that ensures this critical sector of the economy has a sustainable workforce that can deliver Queensland's future infrastructure requirements.
- Both the State and Federal Governments also need to develop a consistent, financially sustainable long term infrastructure investment program that meets long run growth in demand for infrastructure services, is resilient to the political and economic cycle, and provides industry confidence and certainty. This requires a plan which avoids boom/bust construction cycles as well as an eclectic approach to funding solutions, encompassing debt, tax and expenditure reforms as well as private sector involvement where benefits exceed costs through capital recycling, direct investment through unsolicited proposals and the use of PPPs.
- Both short term and long term public investment programs should be based on maximising economic benefits through transparent Cost Benefit Analysis (CBA).
- To maximise efficiencies in public infrastructure provision and reduce costs, both the State and Federal Governments should follow through with reforms to the public infrastructure procurement process, as outlined by the Productivity Commission's review in 2014.
- Industry, governments and the workforce should continue to work together to tackle risks to productivity within the construction industry.
- Both State and Federal Governments to continue to make concerted efforts to eliminate structural deficits in Budgets through wholesale tax and expenditure reforms, providing greater fiscal headroom for investment in necessary and productive infrastructure.

Risks to the Outlook

The outlook contained in this Report is subject to significant upside and downside risks. Despite the reasonably flat profile of work projected, there is still the potential for further, more volatile, 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.

Picking the timing and strength of the next upturn in Major Project work remains difficult to forecast, as many of the Major Projects identified in this Report are currently unfunded. In this respect, 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.
- **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 helps drive investment in other tradeables sectors of the Queensland economy, including tourism, agriculture, education and manufacturing.
- **Decisions by State and Federal Governments in tackling debts and deficits,** and how this may play out in terms of funding public infrastructure projects through the forecast period.

While most of these risks are outside of the control of those operating in the construction of Major Projects, 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.

1. Queensland Major Projects

The 2016 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 throughout November and December 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 2015/16 to 2019/20 based on the 2016 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 2014/15, with employment demand also following suit.** Queensland engineering construction for Major Projects continued to fall sharply in 2014/15, down a collective 50% from the 2012/13 peak of $18.7 billion to $10.7 billion, as activity fell across all sectors. Similarly, the estimated workforce on major engineering construction projects (over $100 million in value) has fallen by a collective 52% from a record 23,500 positions in 2012/13. Despite the widely publicised decline in mining and heavy industry investment, non-mining investment also weakened significantly in 2014/15 as public finances remained stretched. Accordingly, the mining and heavy industry share of total Major Project work increased slightly in 2014/15, commanding 80% of the work done and the Major Project workforce.
- **Sharp contraction in Major Project work forecast to continue into 2015/16, before the pace of decline slows to a final trough in 2016/17.** In aggregate, Major Project work done is forecast to decline nearly 75% from the 2012/13 peak to a trough of $4.4 billion in 2016/17. Furthermore, Major Project activity will be lower in 2015/16 and 2016/17 than 2010/11 reflecting the weakness in major mining and mining related projects.
- **Most engineering segments are expected to contribute to declining activity (Figure 1.2A and 1.2B), but mining and heavy industry construction will continue to dominate the overall shape of activity going forward.** The completion of three major LNG projects on Curtis Island and in the Surat Basin, and the substantial retreat in coal and coal related works, will drive the largest declines in Major Project work done between 2012/13 and 2016/17. In terms of the construction workforce, mining and heavy industry alone is anticipated to shed over 11,000 full time workers over the same period. This will be a significant shift for the Queensland economy that will pose many challenges for contractors and governments alike.
- **An upswing in Major Project work is expected from 2017/18, but growth will plateau from 2018/19, with work done forecast to rise back towards $6.5 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. As such, the outlook is highly susceptible to risk.
- **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 72% to around 6,600 persons by 2016/17, before recovering back above 9,900 persons in 2017/18 and 2018/19. There is also a sectoral and regional shift in employment demand, with Gladstone oil and gas demand substantially falling as a share of total workforce demand after 2014/15, and a rising share of demand for transport and utilities workforces, particularly in South East Queensland (See Figures 1.9 and 1.10).

Funded Versus Unfunded Projects

This projection 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 exercise were simply narrowed to consider just 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.

Figure 1.1

Major Projects Work Done & Workforce Demand – All Segments

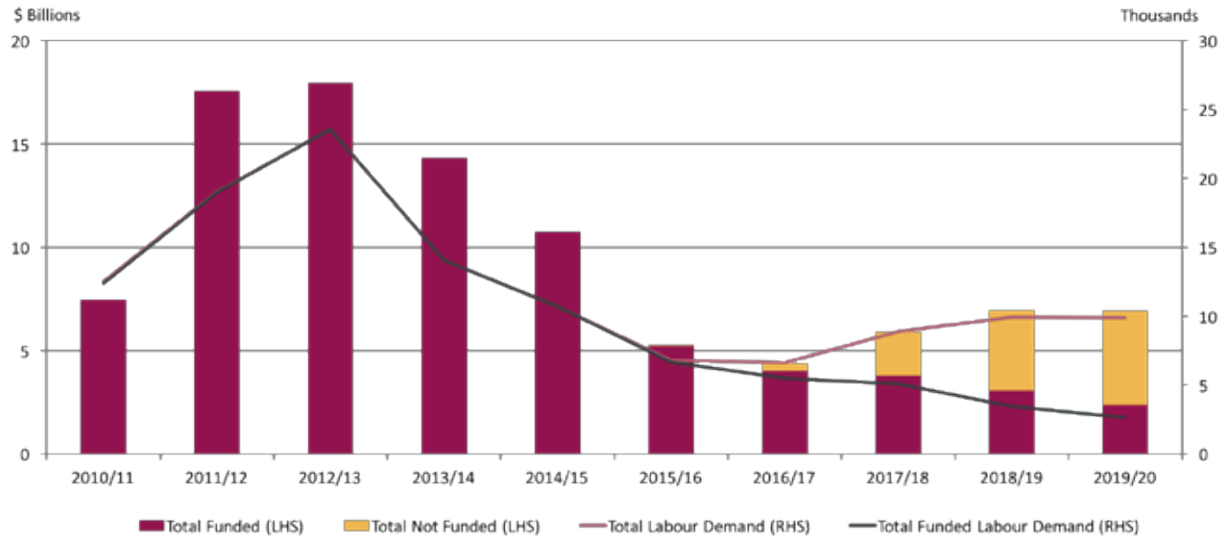
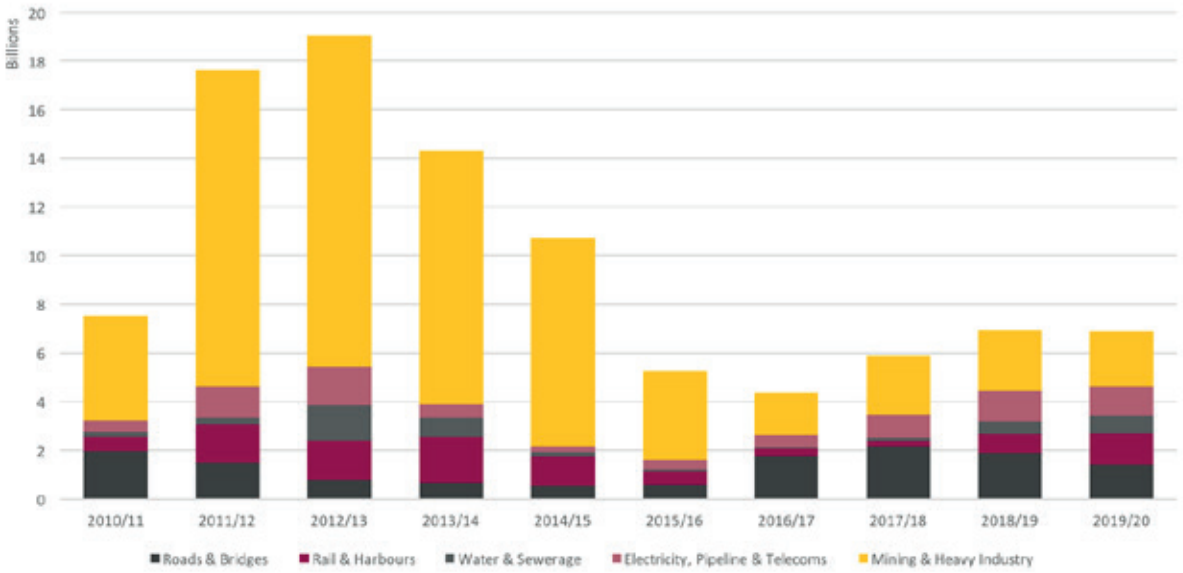


Figure 1.2A

Major Project Work Done by Sector



Towards an Addressable Market for Local Contractors

Given the high level of imported materials, equipment, and buildings and structures attached to LNG projects, as well as 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 shows BIS Shrapnel's estimates of local contractor work done versus offshore (imported)

Figure 1.2B

Major Project Work Done by Sector (Excluding Mining and Heavy Industry)

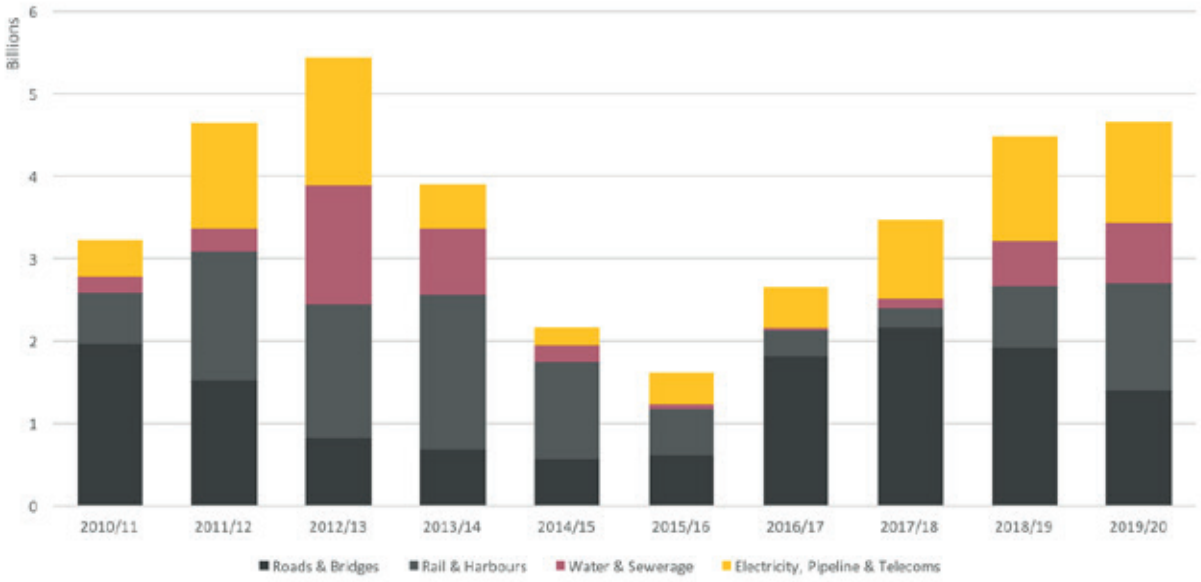
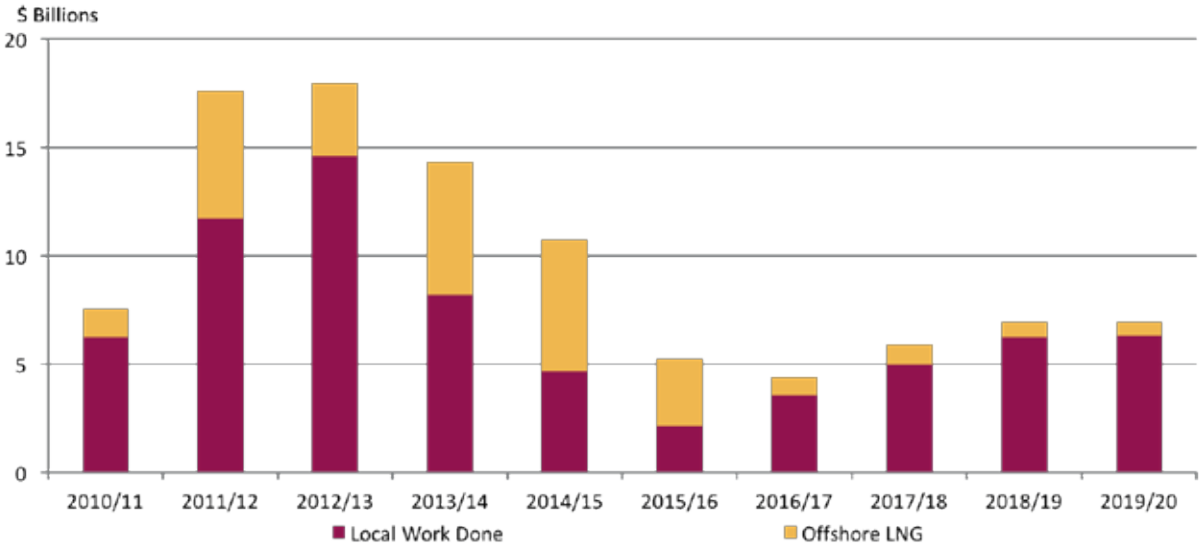


Figure 1.3

Local Major Project Work Done by Sector (Excluding Offshore LNG) – All Segments



LNG construction elements. 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. The analysis shows, however, that the local contract market continued to grow into 2012/13, corresponding well with the data on construction employment which also rose during the same year. A downturn in local contractor work occurred from 2013/14, with declines forecast to continue into 2015/16 before stabilising thereafter.

By contrast, a much greater proportion of Major Project work after 2016/17 is assumed to be won by local contractors, being more upstream related LNG work, other inland resources projects and public infrastructure.

Roads and Bridges

Major Project work for roads and bridges is expected to edge up slightly in 2015/16, before surging from 2016/17.

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 and the addition of the Toowoomba Second Range Crossing, Gateway Upgrade North (GUN), the Kingsford Smith Drive and Caloundra to Sunshine Motorway upgrades it is expected that Queensland's road construction will be set up for quite a strong period.

Given the project pipeline, Queensland roads and bridge Major Projects work is expected to reach a new peak of over $2.2 billion by 2017/18, before easing into 2018/19 and falling back towards $1.4 billion by 2019/20.

As shown in Figure 1.4, Major Project road and bridge construction work done contracted by nearly 65% by 2014/15 compared to the peak of 2010/11. Major Project workforce demand declined by a similar proportion over the same period. The next round of IIP projects is expected to trigger the next upswing from 2015/16, with work done climbing by nearly 250% collective 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. However, as with previous reported 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 moved to a higher plane over the last few years, with work done peaking in 2013/14 at over $1.75 billion (Figure 1.5). Workforce demand requirements mirror the work done profile, with major railways and harbours construction employment having grown to 3,300 persons in 2012/13 and remained at this level in 2013/14.

Harbours Major Project construction work 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 (due for completion in 2016). In aggregate, the pause in new resource project commencements during the second half of calendar 2012 is driving a lower volume of Major Project work across railways and harbours through 2014/15 and 2015/16.

Activity remained 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 and the $2.4 billion Wiggins Island Stage 1 (both now completed).

Figure 1.4

Major Roads and Bridges – Projects Work Done & Workforce Demand Forecast

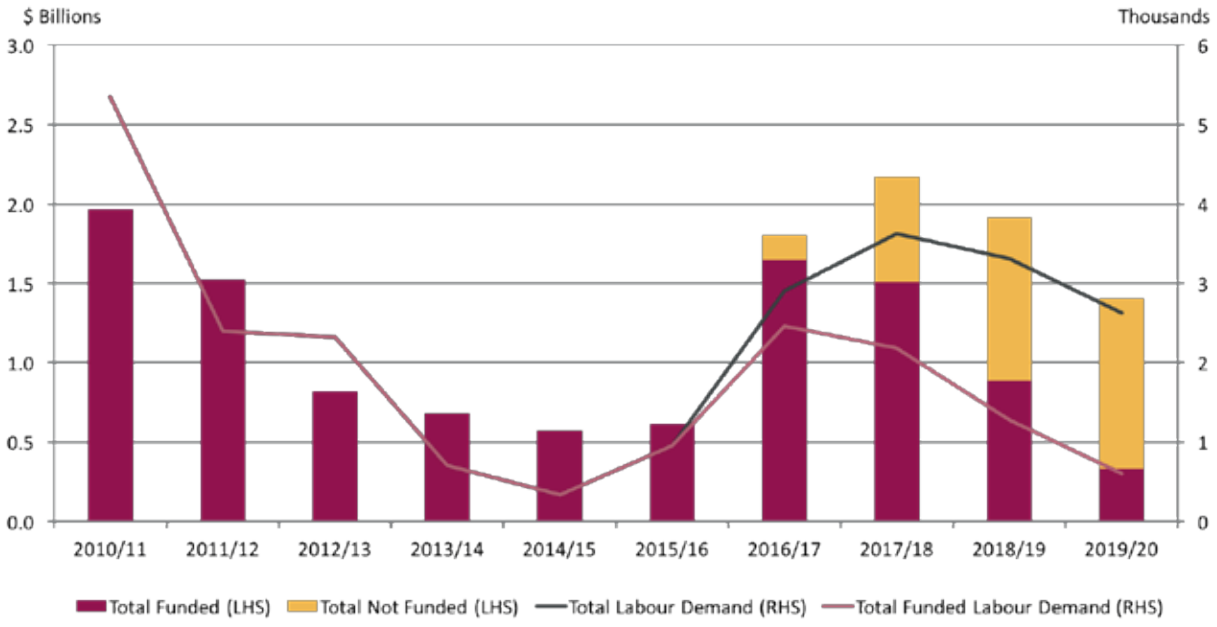
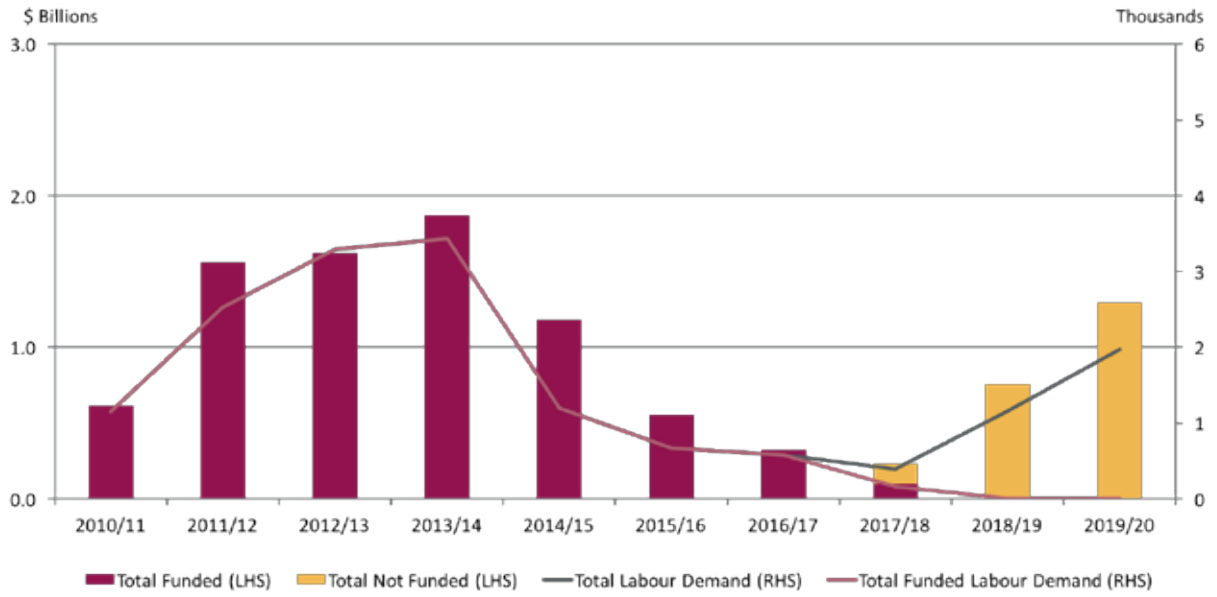


Figure 1.5

Major Railways and Harbours – Projects Work Done & Workforce Demand Forecast



The dearth of new mining related projects as well as delays to major public sector projects (notably the former Brisbane Bus and Train Tunnel (BAT) project) due to funding constraints is forecast to see Major Project work done fall to $231 million by 2017/18. During this period, we expect the Gold Coast Light Rail – Stage 2 and the Coomera to Helensvale: Second Track as well as Weipa bauxite upgrade to support work done at anaemic levels.

As the State and Federal Governments' budgetary position improves and the next round of mining projects gets underway, work done is forecast to rise sharply, climbing to over $1 billion by 2019/20. Key projects include the Beerburrum to Landsborough duplication, Cross River Rail, Goonyella Coal Rail upgrades as well as projects related to the Inland Mainline Freight Upgrade – Queensland Border to Acacia Ridge. In this regard, we have estimated projects in this region to be in excess of $2.5 billion, with a further $2.5 billion likely needed to be invested between Acacia Ridge and the Port of Brisbane itself. However, the timing of this latter project is likely to fall outside the scope of this Report (>2019/20) with substantial planning required given the urban nature of this project.

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 just over $1.4 billion and employ around 1,050 persons (Figure 1.6). This rapid growth was largely underpinned by new water treatment facilities and pipeline construction projects supporting upstream CSG field development in the Surat Basin.

However, as these projects move towards completion, work done and employment weakened substantially, falling to just under $200 million and 400 positions in 2014/15.

This trend is set to continue as these projects finish, with activity anticipated to decline further, bottoming out at just $30 million and 75 persons in 2016/17, a new low for these sectors.

From 2017/18, activity is expected to rise strongly again due to a stronger pipeline of 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, and potentially agricultural food-bowl opportunities.

With regards to the latter, the establishment of a Federal water infrastructure ministerial working group in 2014 could help accelerate the identification and development of water infrastructure projects that could have the potential for Federal Government involvement. Taken together, work done is expected to reach a new cyclical peak of just over $730 million by 2019/20, employing over 550 persons.

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 or oil and gas related 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 persons in 2012/13, two thirds of which 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 (Figure 1.7). The growth in 2012/13 was delivered by a simultaneous increase in activity in the electricity and pipeline segments. In the electricity sector, a host of new Powerlink distribution and supply projects were a key driver. In the pipeline sector, the South West Queensland Pipeline and a series of CSG pipelines took activity to a whole new level.

Since the completion of these Major Projects, electricity, pipelines and telecoms work done has contracted sharply, settling at under $300 million in 2014/15. A similar decrease in workforce employment has also been experienced.

From here, we are forecasting work done to shift higher, climbing back over $1 billion in 2018/19 and 2019/20, as the roll out of the NBN ramps up and is joined by the North East Gas Interconnector (Queensland Section) as well as a number of renewable energy projects.

Over the medium to long term, the picture is much different sector by sector. With regards to electricity, weaker forecasts of electricity demand from the Australian Energy Market Operator (AEMO) suggest that new baseload generation capacity will not be required until the mid to late 2020s. However, this has been trumped recently by the 2020 Renewable Energy Target (RET), which will require the installation of between 4000-6000 MW of new renewables generation nationwide. For Queensland, this is expected to be realised in the construction of new solar energy farms (given the state's natural abundance of sunlight) but may also include the occasional hydro or wind project.

Ongoing development of the CSG fields to feed the LNG trains will require continual upstream investment in pipelines (and other infrastructure) over the long term. In addition, the move by Shell to buy BG Group may bring some upside to our forecasts, with Shell owning proven untapped gas reserves in the Bowen Basin which could be developed as feedstock for BG Group's existing Gladstone facility via a new pipeline project to Gladstone. Finally, Major Project telecoms activity is planned 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 has experienced a period of unprecedented expansion between 2010/11 to 2012/13, increasing collectively by over 200% to reach a new peak of $13.6 billion

Figure 1.6

Major Water and Sewerage – Projects Work Done & Workforce Demand Forecast

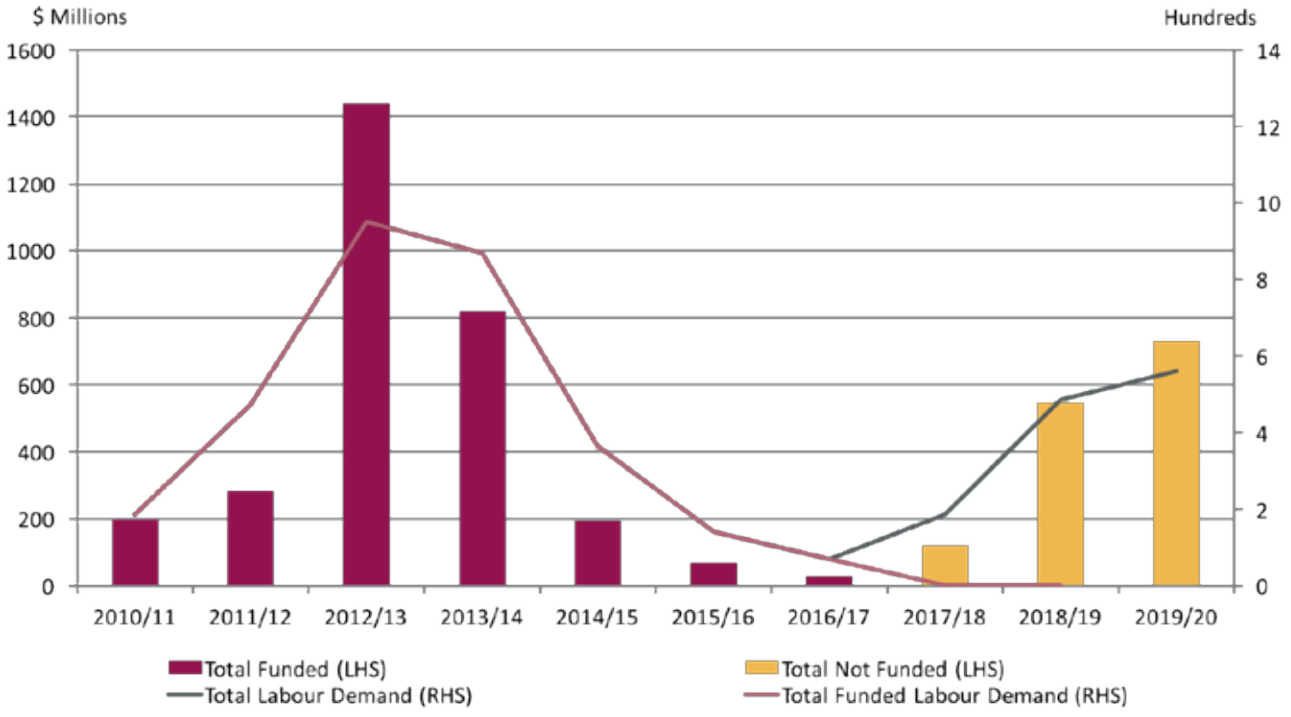
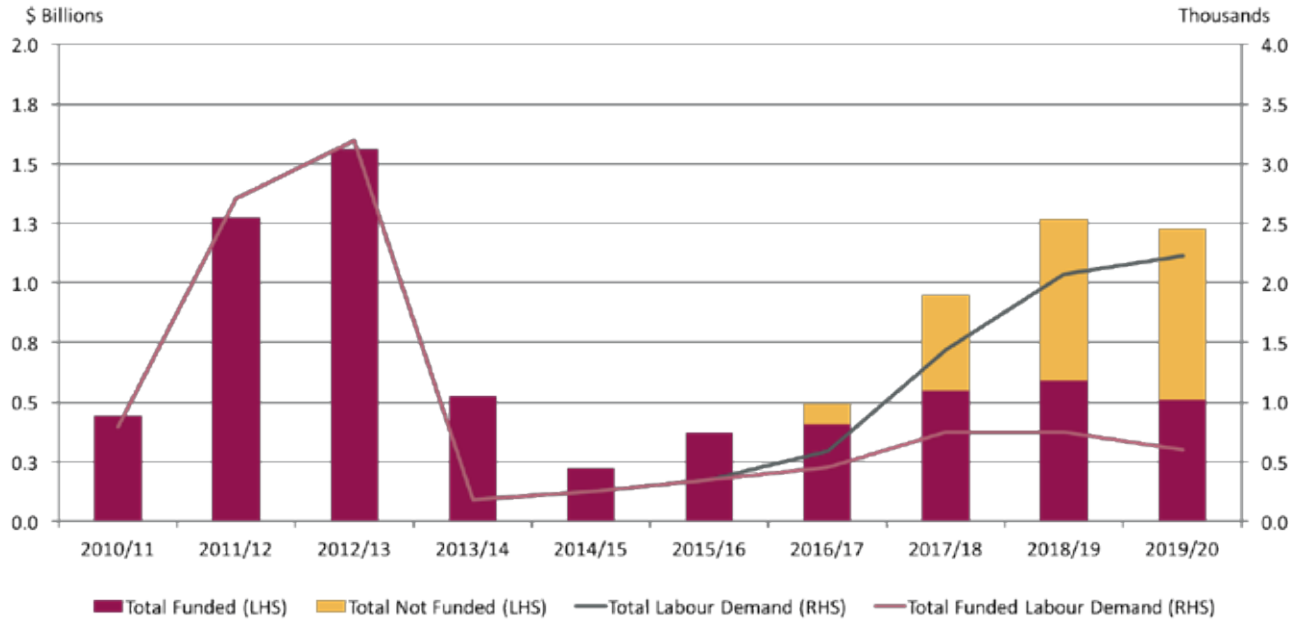


Figure 1.7

Major Electricity, Pipeline and Telecom – Projects Work Done & Workforce Demand Forecast



(Figure 1.8). From a Major Project workforce perspective, the number employed in Queensland's mining and heavy industry space doubled over the same period to 14,000 persons. 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.

Major Project work done shifted back towards $10 billion in 2013/14, before falling to $8.6 billion in 2014/15. Measured labour demand followed a very similar path to work done, to 8,500 persons. The rapid acceleration and subsequent demise of mining and heavy industry work done has been predominately driven by the once in a generation CSG-LNG driven boom around Gladstone.

Given the completion of these projects, 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 move to completion. Altogether, we are forecasting an 87% decline in Major Project work for the mining and heavy industry sector, from $13.6 billion during the 2012/13 peak to just $1.75 billion for 2016/17.

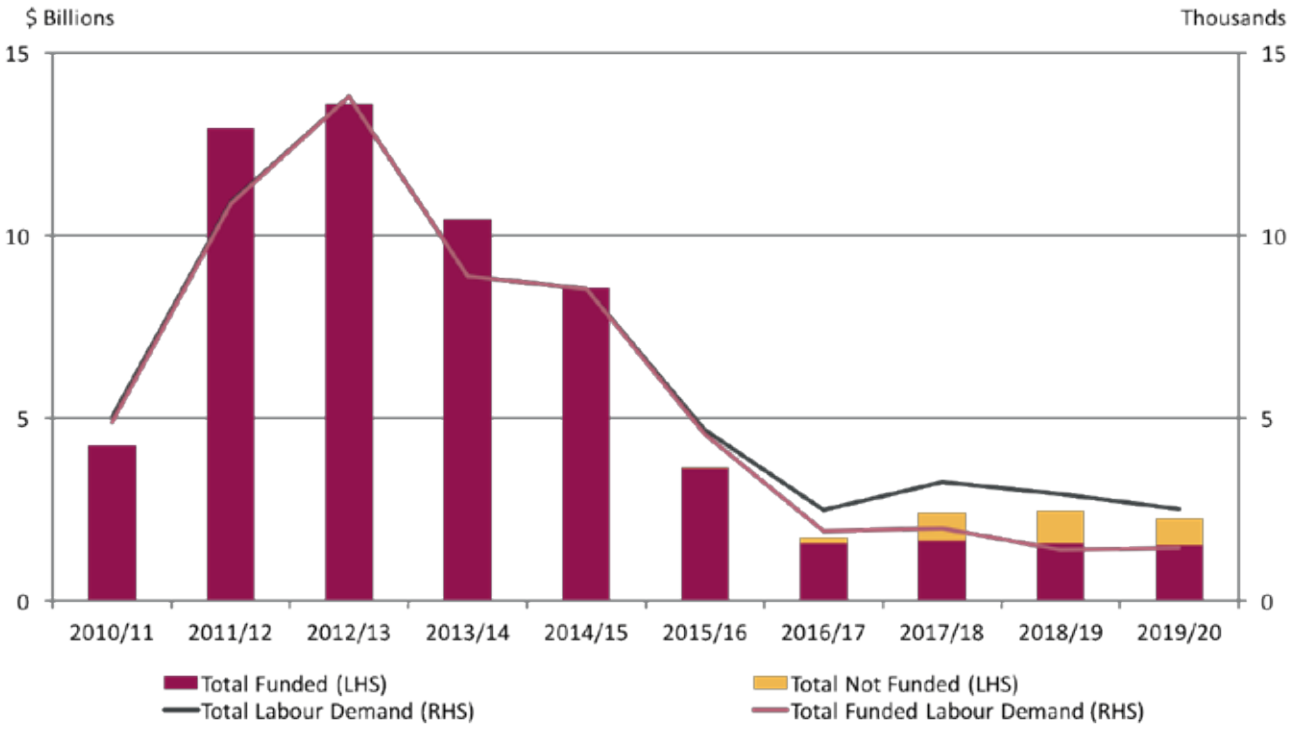
Thereafter, investment is forecast to move higher as the next round of mineral and coal projects gets underway alongside Rio Tinto's Amrun (South of Embley) project.

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 resource developments such as the Paradise phosphate project and ethanol projects in North Queensland which may see more certainty with the passing of State Government bio-fuel legislation in December 2015.

Regarding LNG, it has been assumed no new expansions will take place given recent declines in oil prices and associated spot LNG cargo prices. 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 as significant as downstream infrastructure projects, in aggregate, they will lift the volume of sector activity compared to pre-CSG times.

Figure 1.8

Major Mining and Heavy Industry – Projects Work Done & Workforce Demand Forecast



Queensland Regional Focus

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 Surat Basin, Northern Queensland and South East Queensland over the next two to three years.

The completion of the LNG investment boom will be the key driver of this switch and will see South East Queensland once again reign supreme. This recovery 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, presented a number of challenges to local communities and projects. The construction workforce more than doubled to meet the construction schedule of the LNG projects.

With the completion of major LNG projects in Gladstone, the workforce shift that took place will reverse with other regions such as South East Queensland and Northern Queensland picking up the slack.

While the pace of this change will be slower than that which occurred in Gladstone, remote regions such as Northern Queensland, will have their own challenges to overcome. The regional towns that will inevitably service projects in these regions will undertake a number of social and economic changes. This will require detailed planning by Federal, State and Local Governments in conjunction with project proponents in order to maintain harmonious and sustainable communities.

As history has proven, the South East Queensland region has experience in 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 undergoing increasing levels of Major Project investment. This will likely see competition for skilled labour and plant and equipment intensify, which will create a challenging period for procurement in Queensland.

Figure 1.9

Major Projects Workforce Demand – All Segments by Region (Share LHS, Employment by Column)

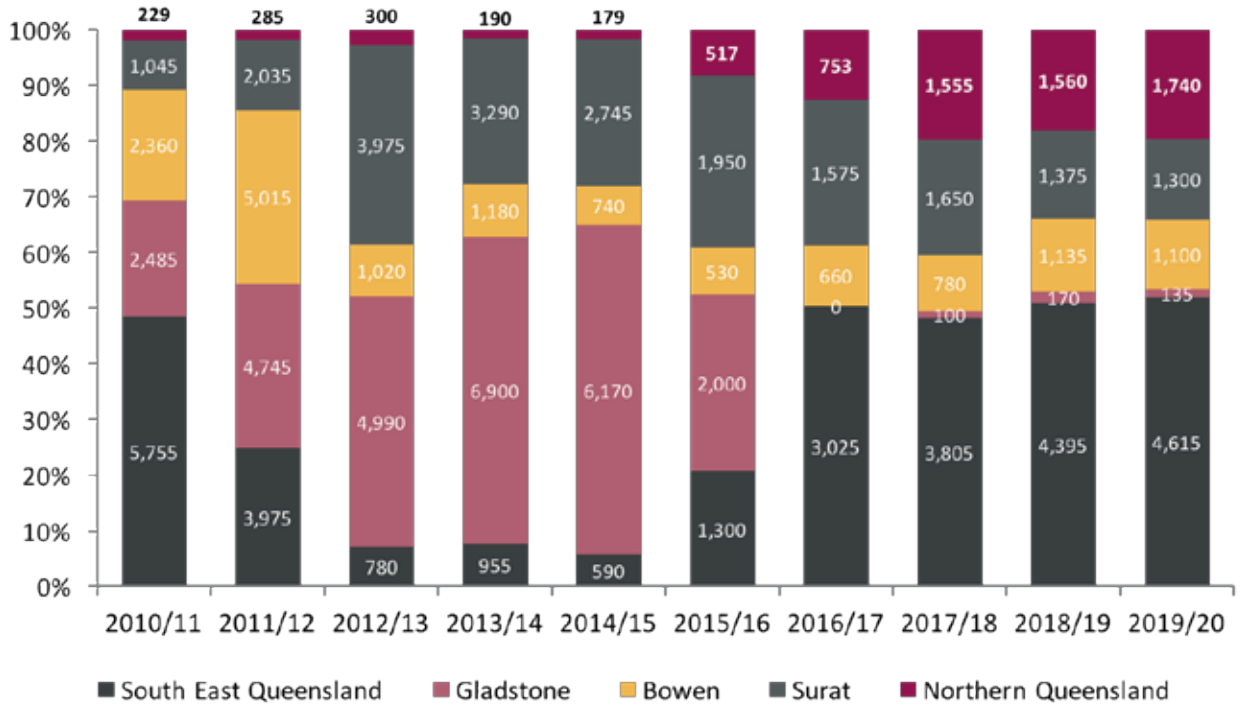
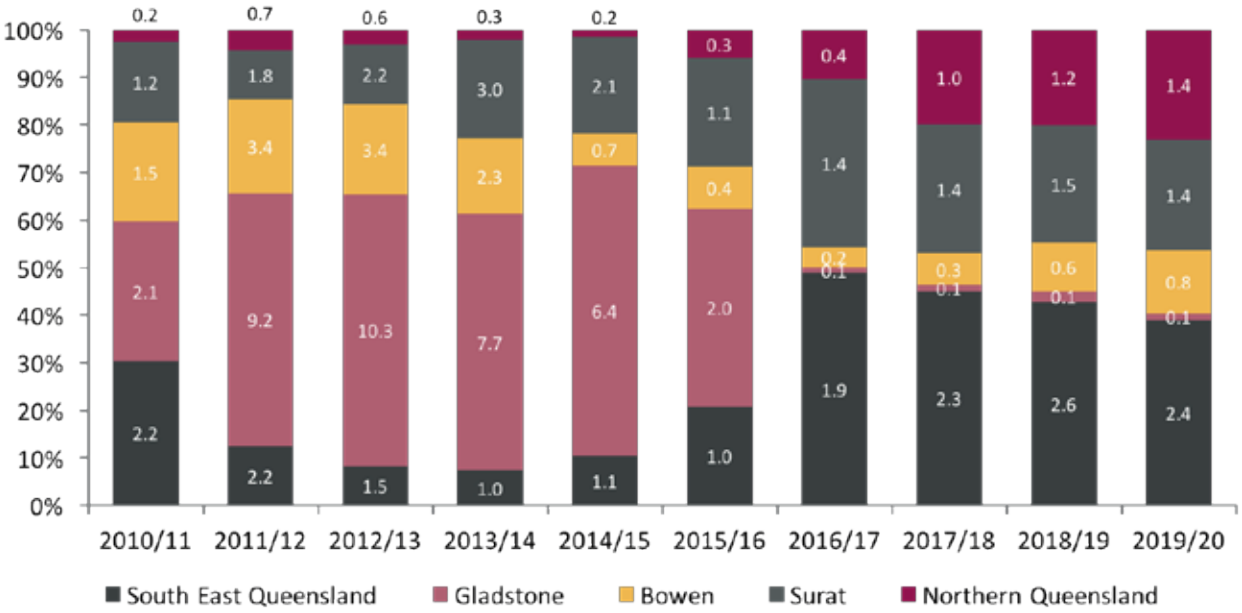


Figure 1.10

Major Projects Work Done – All Segments by Region (Share LHS, $Billions)



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 from 2016/17, 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. Major Project demands peaked in 2013/14 and has since declined sharply given the completion of various LNG projects and the Wiggins Island Coal Export Terminal (WICET). Whether the decline becomes more substantial later on depends on whether further stages to 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). In this year's edition we have assumed the latter to be true, with the next major LNG development occurring beyond 2019/20.

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 remain under threat. In particular, a number of producers with allocations to the Wiggins Island Coal Terminal remain unable to access finance and further delays or cancellations cannot be ruled out. In this Report, it is assumed that a select few 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

While several very large Galilee Basin projects remain on the 2016 Major Projects List, these projects are not expected to commence over the forecast period and there is a high risk that they will not occur at all. We believe the current price of coal, lack of funding, cost, remoteness and environmental issues have all negatively impacted on prospective coal projects in this region. Consequently, there is substantial upside to our forecasts if any of these projects were to proceed.

Surat Basin

Ongoing 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. If economic conditions permit the Wandoan Coal Project to proceed, for example, then 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, although 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 growing interconnectedness with the rest of the world (and particularly Asia) through trade in its abundant, high quality minerals and energy resources, as well as trade in other industries including agriculture, manufacturing, tourism and education have profound implications for local investment and construction activity.

The key points to this outlook include:

- **Global economic growth remains relatively weak. While a mild improvement is expected, the outlook differs by region** – while there are positive signs for growth in the US and UK, China's economic growth (and demand for metals and minerals) is moderating, while prospects for Japan and the Euro Zone economies remain weak.
- **Commodity prices remain weak, impacting the viability of some domestic mining operations as well as new investment** – commodity prices remain weak due to significant oversupply on global markets, driven by both weaker demand growth coupled with strong increases in supply from the previous investment boom. While efficiency gains and a lower Australian dollar are helping to restore Queensland's global competitiveness, the next round of major resource projects will require significantly higher commodity prices to proceed. This may take several years at least to materialise.
- **The Australian economy remains weak, growing 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. Economic growth through 2014/15 (2.5%) mirrors the performance of the two previous years.
- **Longer term prospects are brighter for the Australian economy** – while falling mining investment will remain a drag on the Australian economy over the next 2–3 years, the combination of a lower dollar, high consumer spending and rising public investment is expected to see national economic growth return above 3% later this decade.

Outlook for the Global Economy

Global economy remains relatively weak, but a pickup is expected...

The world economy grew by a sluggish 3.4% in calendar 2014 (Figure 2.1), weighed down by problems in Japan and ongoing concerns in Europe. The first part of 2015 did not fare any better with growth faltering once again. This slowdown in the first half of this year reflects, in part, the weakness of the US economy in the early months of the year, which was the result of a combination of transitory factors (such as an unusually harsh winter in some regions) and some loss of momentum. The Chinese economy is slowing amid an ongoing process of rebalancing to a more sustainable growth path. At the same time, oil-exporting countries have had to adjust to the deterioration in their terms of trade. In the Euro area, a tentative recovery continues, despite the uncertainty associated with the Greek debt crisis. Financial conditions remain accommodative globally and should continue to provide much-needed support to economic activity.

Global economic growth is expected to have strengthened somewhat over the second half of 2015, although world growth is expected to remain at 3.4% for the calendar year (i.e. same as last year). Growth should then accelerate over the next two years, as global demand strengthens, peaking at 3.9% in 2017 before rising interest rates induces a mild slowdown.

. . . but growth profiles of major economies have significant differences

The US economy ended 2014 strongly following a patchy start to the year. Employment growth was exceptionally strong, taking the unemployment rate down to 5.6% by December (from 6.7% the previous year). However, as mentioned, the US economy stumbled in the first quarter of 2015. A number of factors were responsible for the setback, including temporary disruptions to activity from severe weather and the West Coast port strike that briefly restrained

international trade and caused disruptions in manufacturing supply chains. A strong US dollar and the negative impact of the oil price shock on investment were also a drag on growth.

However, the US is a net importer of oil. Hence, the decline in oil prices is expected to have a net benefit on its economy as it increases household real disposable income, even though investment in the US energy sector has contracted sharply. The recent surge in motor vehicle sales and, more broadly, the momentum in retail sales are positive signs that the pace of household spending is picking up. This rise in consumer spending, combined with positive indicators of activity in the housing sector, exports and non-residential construction, saw a notable rebound in growth in the second quarter. Real GDP grew at an annual rate of 3.9% in the June 2015 quarter. As consumption increasingly responds to low oil prices and the effects of one-off factors dissipate, US economic growth is expected to be solid over the second half of the year and beyond.

On some measures, China is now regarded as the world's largest economy. The economy is rebalancing, shifting away from a heavy construction focus

Figure 2.1

Economic Growth by Region and Country

Year Ended December	Real GDP/GNP							
	OECD	US	Japan	Euro Area	China	India	Other East Asia	World GDP
2006	3.1	2.7	1.7	3.4	12.7	9.3	5.6	5.5
2007	2.7	1.9	2.2	3.1	14.2	9.8	6.0	5.7
2008	0.1	-0.3	-1.0	0.4	9.6	3.9	3.2	3.1
2009	-3.5	-2.8	-5.5	-4.3	9.2	8.5	0.7	0.0
2010	3.0	2.5	4.7	1.9	10.4	10.3	7.9	5.4
2011	1.8	1.6	-0.5	1.5	9.3	6.7	4.3	4.2
2012	1.4	2.3	1.7	-0.8	7.7	5.1	4.3	3.4
2013	1.4	2.2	1.6	-0.5	7.7	6.9	4.0	3.4
2014	1.8	2.4	-0.1	0.9	7.3	7.3	4.0	3.4
2015E	2.0	2.4	0.6	1.6	6.9	7.4	3.4	3.2
FORECASTS								
2016	2.2	2.4	1.2	1.8	6.5	7.6	3.7	3.4
2017	2.2	2.6	0.7	1.6	6.4	7.7	4.1	3.7

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, Ireland, 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) Other East Asia: Indonesia, South Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam. (4) OECD, Euro area, Other East Asia and World GDP are estimates.

(residential and infrastructure) to a more consumption driven approach. Growth slowed to 7.4% during 2014, with a weaker property market impacting fixed capital investment, while exports were hampered by the continued poor performance of the European economies.

Growth in China fell below 6% in the first quarter on a seasonally adjusted basis as restrictions on local government credit, the correction in the housing market and weak exports weighed on activity. Growth is expected to improve through the remainder of the year as exports strengthen, the housing market correction runs its course and targeted stimulus measures provide some support to activity. Since there is considerable uncertainty around the timing and impact of each of these developments, the authorities' stated growth target of approximately 7% for 2015 may be at risk. The sharp correction in major Chinese stock indices in mid-2015 reflects, in part, these concerns and could have broader negative effects on confidence. Through 2016 and 2017, the managed slowing of economic growth in China is expected to continue as the authorities rebalance the economy away from investment and address financial vulnerabilities. This process will be protracted and challenging and could involve some volatility along the adjustment path while authorities formulate and implement structural reform policies.

The Euro area economies are struggling from a lack of competitiveness. This is due to the imbalance in cost structures exacerbated by a fixed exchange rate system which is impeding the necessary adjustments. Within the Euro area, Germany is undervalued while the other countries are overvalued. Hence, the lack of growth and high unemployment across the Euro zone. While conditions in Germany are more favourable, debt is of concern. However, debt is not the central issue holding back growth – it is the cost imbalances. The current deflationary pressures are a natural consequence of the current imbalances as countries attempt to reset their cost bases to a lower level to compete against a low inflation German economy. Quantitative easing can help boost demand. But the key concerns are supply side issues. Unfortunately, these issues cannot be solved quickly and will ultimately result in years of weakness before activity turns around. We expect growth to average a modest 1.6% per annum over the next five years.

Over the past year, the Japanese government and central bank introduced some strong stimulus measures to boost growth prospects and eliminate the persistent threat of deflation. Unfortunately, the government also introduced a significant increase in the sales tax in April 2014 which triggered a sharp contraction in domestic consumption. Although the economy shrank through the middle of the year, prospects have improved as the stimulus measures have gained traction. Employment growth has picked up and the unemployment rate has dropped to 3.4%, the lowest level since the late 1990s.

Economic activity in the first quarter was considerably stronger than anticipated. However, consumption and wage growth remain muted, and inflation has been stubbornly weak. Looking ahead, demographics will continue to plague the Japanese economy as a declining workforce population limits overall growth potential. Attempts to increase female participation will help but the economy will continue to be held back by a lack of capacity and will ultimately limit the level of overall growth to under 2% annually over the next five years.

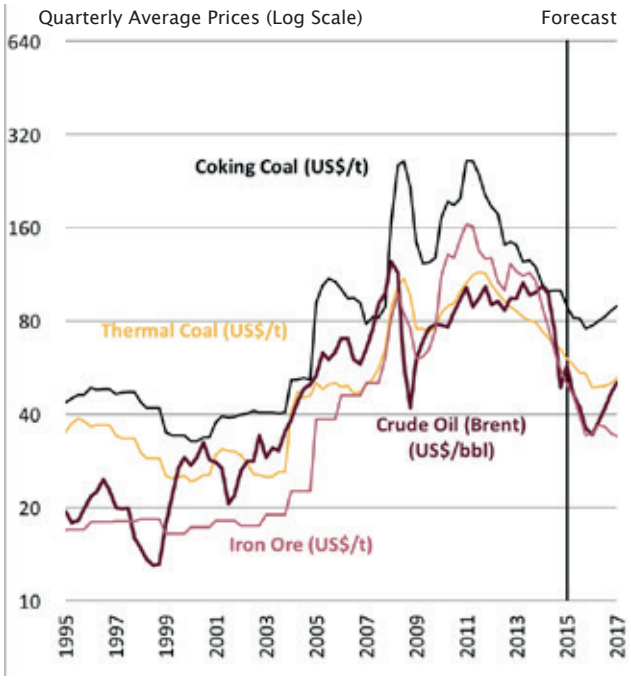
Outlook for Commodity Prices

Commodity price outlook remains weak, but expected to rise as fundamentals improve

The current climate of low commodity prices is set to continue (Figures 2.2 and 2.3) in the short term given the poor demand environment stemming from a slowdown in China and an increase in production across several commodities. In US$ terms, most metals and energy prices peaked during 2011, and then fell sharply through 2012 as global economic growth faltered. Further declines were seen in 2014 and the slowdown gathered pace extending to the first half of 2015. Slow growth prospects from lower steel production in China and increased supply from producers negatively

Figure 2.2

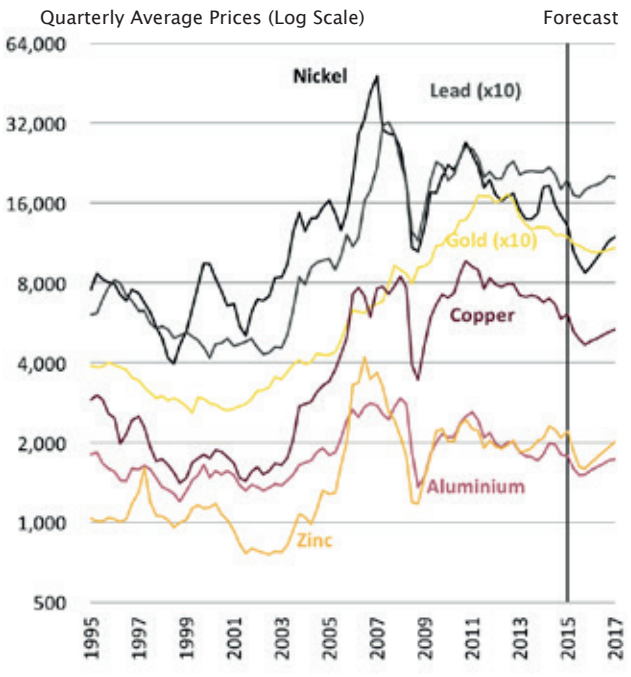
Commodity Prices ($US)



Source: BIS Shrapnel, BREE data

Figure 2.3

Commodity Prices ($US/Tonne)



Source: BIS Shrapnel, BREE data

impacted price for Australia's main commodity exports, iron ore, metallurgical and thermal coal – which all progressively declined throughout 2015. Base metal prices have also shown relative weakness throughout 2015 as the systemic impact of a demand slowdown and robust production levels from low cost producers weigh down on prices.

With China's slowing economic growth, commodity prices are expected to be under some pressure in the medium term and are expected to be at levels well below the peaks reached during 2011.

Despite the slowdown, China is still expected to account for a significant portion of commodities demand over the medium term. The US economy, India and the OECD economies are forecast to record robust growth rates over the medium term adding to the demand fundamentals to commodities and support commodity prices.

Coming off a low base, commodity prices are expected to rebound in ($US terms) but at a level well below the price peaks achieved over the past five years. The price increase is partly offset by an increase in production, although these levels are much lower. New production supply will place downward pressure on key commodity prices including iron ore and coal, although the sensitivity of the price reaction to changes in demand/supply fundamentals will be impacted by the lack of investment across the commodity industry in the current period as producers look to reduce capital expenditure.

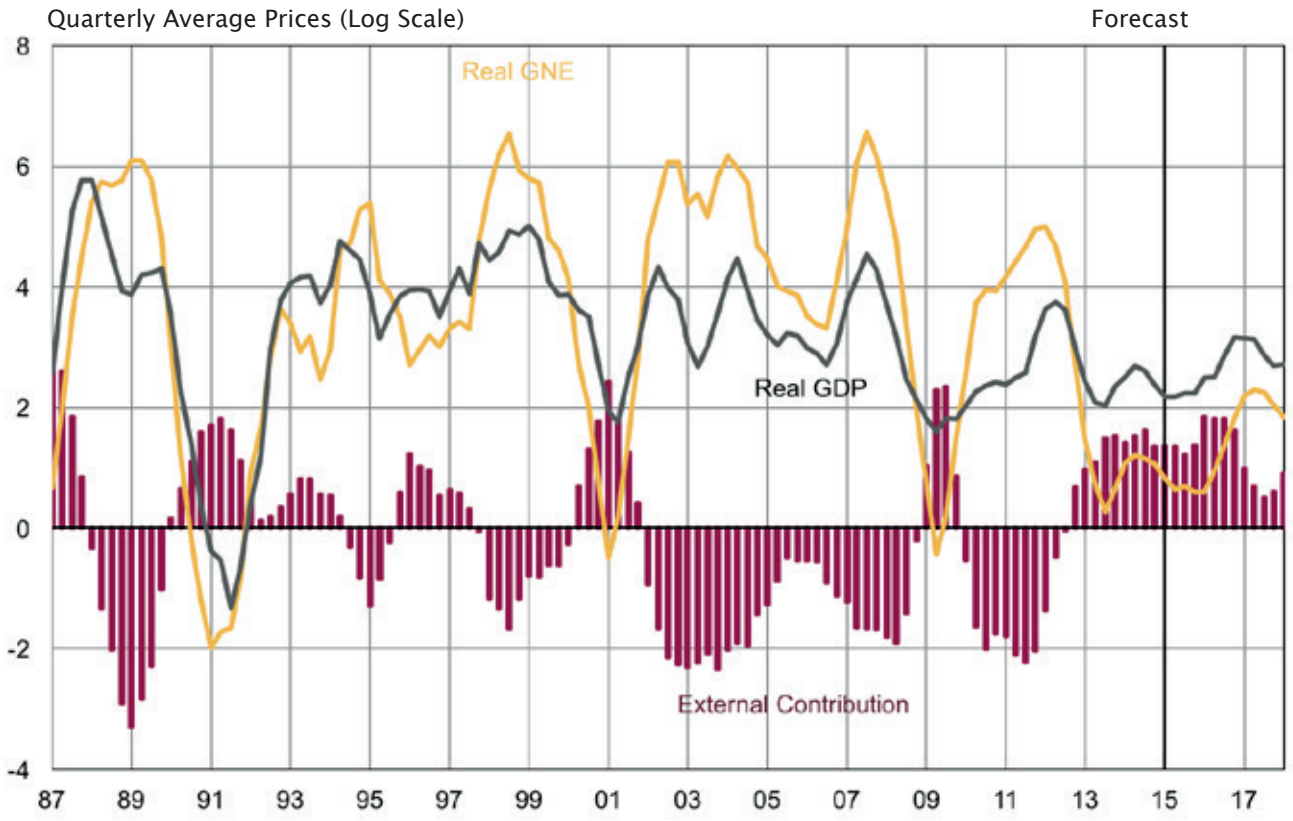
Outlook for the Australian Economy

Current State of Play

- Growth in the Australian economy remains weak. Since the end of the commodity price boom in 2012/13, economic growth in Australia has levelled out at around 2.5% per annum annual average growth. Falling mining investment (as well as declining public investment since 2009/10) has been the main drag on growth in Gross National Expenditure (GNE) (down from 4–5% growth per annum during the investment boom to just 1.1% currently), with a strong contribution from resources exports keeping overall economic growth (in Gross Domestic Product or GDP terms) above 2% (Figure 2.4).

Figure 2.4

Australia GNE & GDP: Moving Annual Total, Annual % Change



Source: BIS Shrapnel, ABS data

- Australia's real GDP grew by just 0.2% in the June 2015 quarter (seasonally adjusted), bringing the through-the-year growth (June 2015 compared to June 2014) to just 2.0%. As expected, private engineering construction was down heavily (20.6% through-the-year decline) in the June quarter driven by sharp declines in resources construction, although there was a pickup in public investment.

Short to Medium Term Outlook

- The Australian economy will continue to experience relatively weaker growth through the next two to three years as it absorbs the ongoing downturn in resources investment. At present, the economy is only in the second year of an expected four year decline in mining-related construction. By 2017/18, resources construction is expected to be 60.4% lower than the peak of $60.1 billion (in constant prices) reached in 2013/14. Much of this downturn will be focused in the largest mining investment component – oil and gas – which has been supercharged in recent years by the construction of multiple, multi-billion dollar LNG projects. Another drag on the economy is likely to be the peaking (in 2015/16) and then decline in residential building activity, driven by more balanced capital city markets (except Sydney) where the recent recovery in supply will eventually eliminate dwelling stock deficiencies, and as rising interest rates and weaker price growth delay purchase and investment decisions.
- Despite this, there are positive signs for the Australian economy looking forward. A recession – at the national level – is highly unlikely. Economic growth will recover. The Australian economy is still in transition from the resources investment boom, but already there are signs of other sectors taking up the mantle of growth. A key contributor to economic growth from here will be exports. Export growth is expected to accelerate not just through new resources facilities coming into operation (particularly in LNG) but also through the competitive boost from the lower Australian dollar on import and export competition industries, ranging from tourism, education and financial services to agriculture, manufacturing and even mining. Consumer demand is robust and is expected to build momentum over the next two years supported by relatively low interest rates and the wealth effects from recent house price gains across most capital cities. Importantly, public investment in infrastructure is also likely to reaccelerate, particularly on new road and rail transport projects as well as for the roll-out of the NBN.

Longer Term Outlook for the Australian Economy

- In the longer term (post 2017/18), Australian economic growth is expected to accelerate and achieve growth rates consistently above 3% per annum. By this time, the negative impact of falling resources investment on economic growth will have run its course, and public investment should be in the midst of a significant upswing. While interest rates will be reverting to more "normal" levels, consumer spending is expected to remain robust given rising incomes, employment and confidence.
- Most importantly, a recovery in non-mining business investment is also likely to take place by 2017/18 given rising demand, profitability and tightening industrial capacity (given a paucity of new business investment outside of mining since the GFC). As growth in public investment begins to wane late this decade, the mantle of growth in the economy is expected to shift back towards the private sector.

3. Queensland Economy

The Queensland economy has traditionally been one of the stronger state performers in Australia, but is now suffering the effects of a prolonged downturn in resources investment. While one of Australia's key 'resources' states – and one of the largest exporters of coal (and soon gas) – the state economy is actually highly diversified and increasingly linked into global trade networks through tourism, agriculture and education industries.

The key points:

- **The Queensland economy has stalled** – the combination of the mining investment bust and weaker public spending (both consumption and investment) has seen the Queensland economy substantially under perform against the national economy since 2013/14, both in terms of economic growth as well as growth in domestic demand (Figure 3.1). The state – as well as mining regions – is effectively in the midst of a three year "demand recession".
- **Falling state final demand has impacted the labour market** – the unemployment rate in Queensland is expected to remain stubbornly high. 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).
- **Queensland's economic transition will take more time yet** – the mining investment bust will continue to be a drag on growth for the next two years. The transition from mining 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 opportunities.
- **There is reason for optimism going forward** – While Queensland and Western Australia are Australia's largest "resources states", they are also very different. Queensland has the more diversified economy of the two, and should benefit from a lower Australian dollar boosting its key trading sectors. Prior to the mining boom, the state experienced an extended period of strong, balanced growth, and it will return to balanced growth in the future.

The Current Economic Conditions

Queensland Economy Hits Bottom in 2015/16

The Queensland economy has just experienced its worst three consecutive years, with growth weakening markedly since mid 2012, driven by falling mining investment and public investment. Growth in Gross State Product (GSP) – i.e. state economic growth – has decelerated from the boom-time 2011/12 growth of 4.8%, to 3.0 and 2.3% respectively over 2012/13 and 2013/14, and then weakened further to an estimated 1.1% growth in 2014/15.

Meanwhile, State Final Demand (SFD) – i.e. state domestic demand (Figure 3.2) – has slowed to 1.5 and 0.3% respectively in 2012/13 and 2013/14, but then fell 2.6% in 2014/15 in real terms. Employment growth has also weakened and has averaged just 0.9% per annum over the last three years, much slower than the average growth in the working age population of 1.7% (Figure 3.3). The end result has been a sharp rise in the unemployment rate from an average of 5.5% in 2011/12 to 6.5% in 2014/15, although it has improved a little over recent months.

In one important sense, the Queensland economy has been partially sheltered from the severity of the downturn in mining investment. Significant components of mining and mining-related investment and equipment were sourced from overseas, and were therefore classed as imports, detracting from GSP. As mining investment retreats, so do these imports, so although the local economy did not receive all the benefits of the resources construction boom during the upswing, conversely it will not suffer the whole negative magnitude of the downturn.

But the downturn in resources investment still remains a hefty negative for the Queensland economy, both now and into the future. Most of the resources investment downturn is concentrated in privately funded engineering construction undertaken in the mining regions (including Gladstone). At the 2013/14 peak, mining and heavy industry construction, pipelines construction and railways construction accounted for 88% (or $30.8 billion of the total $35 billion) of private engineering construction.

Resources-related engineering construction plummeted 41% in 2014/15 and is expected to plunge another 60% through 2015/16. Further declines are expected ahead.

Figure 3.1

Queensland State Final Demand vs Australia Gross National Expenditure Moving Annual Average Percent Change, Year Ended June

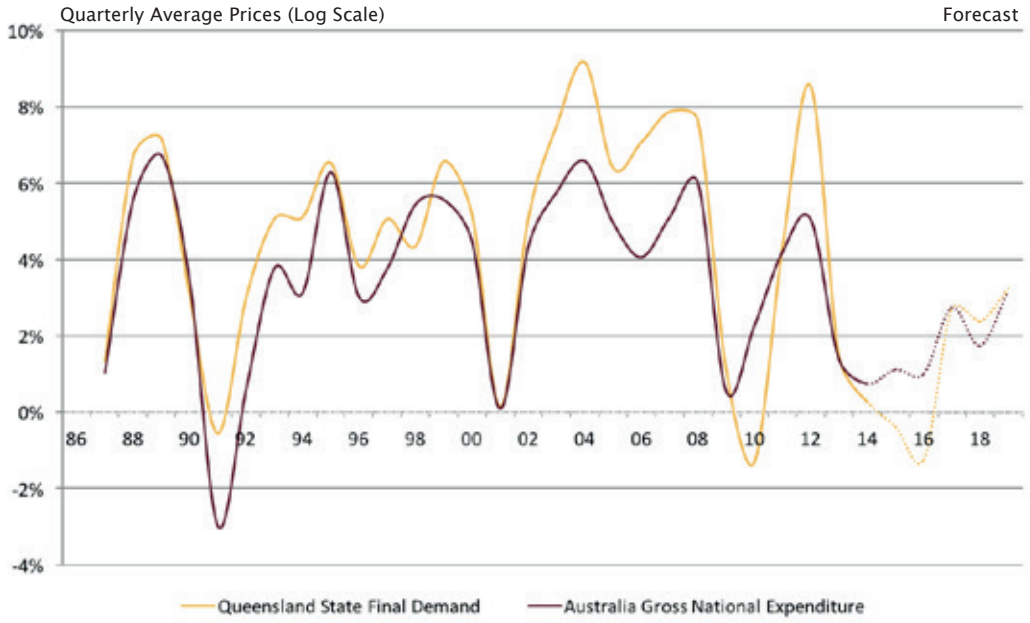
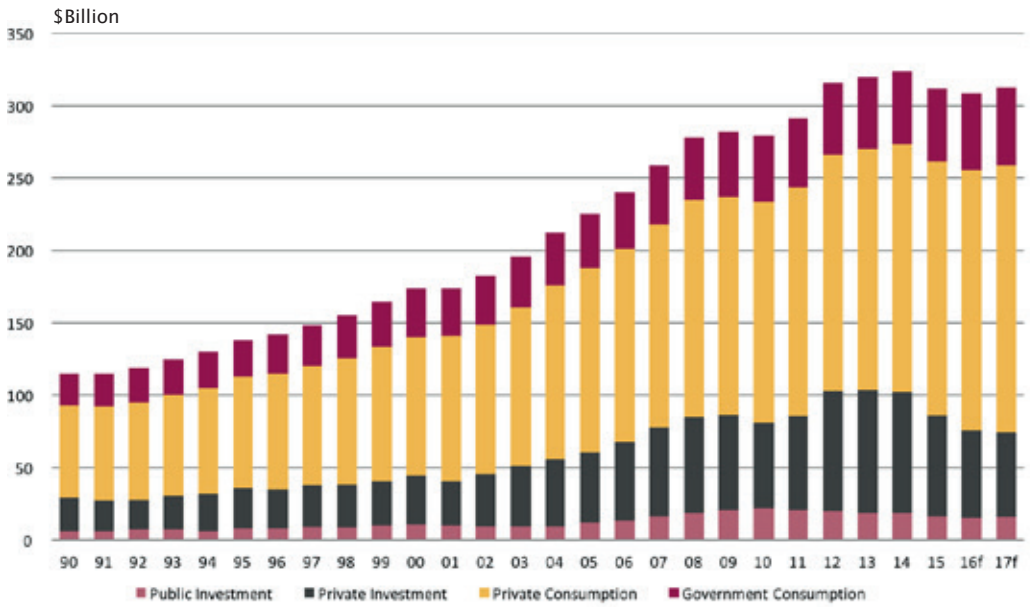


Figure 3.2

Queensland Economy – Components of State Final Demand $Billion, Year Ended June



The mining regions themselves are effectively in a sharp "demand recession" (i.e. falling levels of expenditure from households, businesses and government), a situation mirrored (in a milder form) at the state level.

Further working against the Queensland economy has been a 25% decline in public investment (driven by all levels of government) over the past three years. While this gave private investment "room to move" during the second massive phase of the resources boom following the GFC, more recently its impact has been to magnify the impact of the downturn in resources investment.

But it has not all been bad news. The main positives over the past two years for the Queensland economy have been rising levels of dwelling investment, strong growth in mining production and exports (which boost GSP, but not SFD), higher private non-residential building and a pick-up in government recurrent spending. Meanwhile, the fall in the Australian dollar is helping to restore competitiveness to Queensland's substantial tradeables sectors (including tourism, agriculture, mining, manufacturing, education and retail trade). Further growth in these industries will be required over the next two years to help offset further declines in resources investment.

Queensland Economic Outlook

Queensland economy to pick up mildly in 2016/17, with stronger growth expected towards the end of the decade

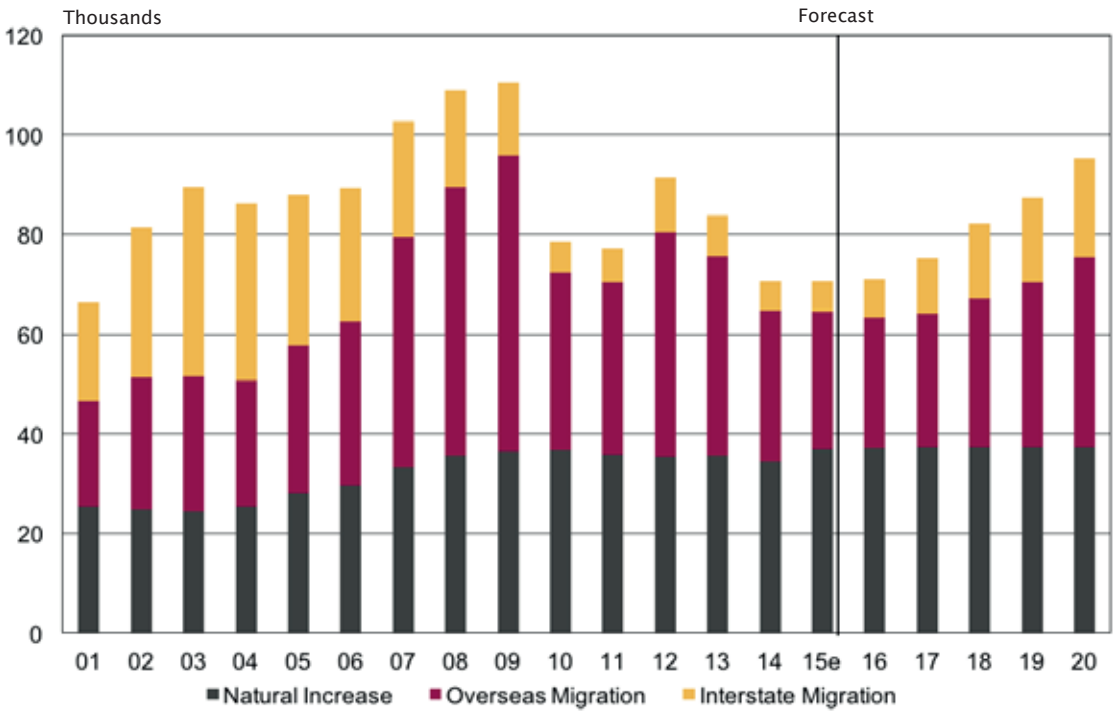
The Queensland economy continues to rebalance away from the extraordinary resources boom, and this transition process is expected to continue over the next two years. Consequently, the Queensland economy will continue to struggle for the next 12 to 18 months. The shift from the investment phase of the mining boom to the production phase has two key consequences for Queensland's economy.

Firstly, the production (operational) phase is less labour-intensive than the investment (construction) phase, so employment growth will continue to be constrained and the unemployment rate will stay stubbornly high. Whilst big in economic production value (around $30 billion in mining industry output is estimated for 2015/16, or 10% of the value of production across the Queensland economy), it is a relatively small employer given its capital-intensive methods of production (employing 62,000 persons, or roughly 2.5% of the state's workforce). And despite the strong growth in mining output expected over the next few years, mining's employment share of total employment is expected to decline further as operations become even more capital intensive.

Secondly, as mining production and exports escalate strongly over the next few years (particularly through new gas exports), the mining industry's share of the Queensland economy will increase significantly. However, the gross economic multiplier on mining production (i.e. the positive spending effects that

Figure 3.3

Queensland Annual Population Increase by Source, Thousands of Persons



"spill over" to the rest of the economy) is much smaller than the multiplier effect of local construction activity, the latter of which feeds strongly into parts of manufacturing, transport and particularly engineering and other related consulting services (often located in and around Brisbane). In short, the Queensland economy requires new drivers of growth beyond mining production if the aim is to boost employment, incomes and living standards for Queenslanders.

A renewed increase in public investment is expected to be one key driver, although the upswing is expected to be very mild at first before accelerating later in the decade. While falling public investment has also been a drag on the state economy in recent years, this negative influence is expected to trough in 2015/16 and make a modest contribution to Queensland economic growth from 2016/17. With publicly funded non-dwelling building (mainly health and education building) expected to decline further, the growth is expected to be sourced from rising levels of publicly funded engineering construction activity. Initially this will be focused in roads (i.e. major highways projects) and telecommunications (i.e. the NBN rollout) but is later expected to broaden to railways, water and sewerage infrastructure. A sizeable chunk of the funding for this pick-up in activity will come from Commonwealth infrastructure allocations, given the relatively poor shape of the Queensland State Government's finances. State Government revenues should eventually benefit from higher royalties and stamp duties from rising residential property transactions, providing a source of funding for infrastructure investment later in the decade. However, with commodity prices likely to stay lower for longer, royalty revenues may not be as strong as previously thought, requiring the consideration of alternative funding mechanisms for public investment.

Private dwelling investment should also be a positive driver for Queensland economic growth in the short to medium term – but there are longer term risks. Having grown significantly for the past two years, Queensland dwelling construction should rise for another one to two years (including alterations and additions activity) given a shortage of housing stock relative to demand, higher housing prices, and low interest rates. New dwellings not only have strong multiplier impacts on the local economy during the construction phase (particularly for construction and manufacturing) but also drive a spur in household consumption upon completion (e.g. furniture and floor coverings, electrical appliances). Stamp duties from residential property sales are also a strong source of funding for the State Government. However, there are longer term risks for dwelling investment, and it is not expected to be a consistent positive driver for the state economy through the next five years. Not only will rising interest rates (expected from 2017/18, as economic conditions normalise) dampen demand, but housing completions are already catching up to demand given much weaker population growth in recent years as the mining investment boom expired. While a re-acceleration in population growth is expected eventually, it may take until close to the end of the decade for the residential property market to move back into an investment phase.

However, arguably the greatest driver of growth in the Queensland economy over the next few years will be the lower Australian dollar. The currency has already depreciated by 30% against the $US (less so against other currencies) over the past two and a half years which is already boosting Queensland's tradeable sectors, particularly tourism (both inbound from Asia, particularly, as well as from interstate) and retail trade.

Further falls in the currency should be welcomed, but it is by no means a done deal. On one hand, with commodity prices likely reaching a trough in 2015/16 and gradually increasing again in subsequent years, this will possibly provide some upward impetus to the Australian dollar. On the other hand, stronger economic growth in the US has already seen their Federal Reserve start the process of moving US interest rates back towards a more 'normal' setting in December 2015, with further (albeit very gradual) upward movements expected which will have a downward impact on the Australian dollar. Predicting which effect will dominate over the next few years is difficult, particularly given the Australian dollar's ability to overshoot or undershoot on confidence and speculation. While most economic commentators would suggest that the Australian dollar should continue to fall, there is the risk that the dollar will remain stubbornly around the US$0.70 mark for some time, and may even appreciate, particularly as the Australian economy improves later this decade. Consequently, it will be important for Queensland businesses to take advantage of the competitive gains already rendered by the fall in the dollar now – and not wait or rely on further falls in the currency as part of a longer term growth strategy.

Overall, while 2015/16 will be very tough, a pick up in the Queensland economy is expected in 2016/17 (supported by strong growth in exports), with GSP growth forecast to be around 3.5% in that year – above the national average. Longer term, Queensland economic growth is expected to be sustained in the 3-4% per annum range as growth becomes more broadly based, and its benefits more evenly distributed. Queensland has a diversified economy, and the competitive realignment of its key trade-exposed industries – including agriculture, manufacturing, tourism, education and mining, is expected to be the main spur to economic growth through the remainder of the decade.

4. Queensland Construction Review

Following the boom in mining and infrastructure investment during the 2000s, the Queensland construction market (encompassing residential building, non-residential building and engineering construction) remains dominated by the engineering construction segment. This trend looks set to continue, despite further falls expected in engineering construction work and a further pickup in building. Within the engineering construction market, the Major Projects segment – represented by projects valued at over $100 million and focused on for this Report – will be hit particularly hard.

The key points can be summarised:

- **The Queensland construction market is in steep decline.** From a low of $16.7 billion in 2000/01, total construction work done (encompassing residential building, non-residential building and engineering construction) in Queensland rose to a peak of $58.5 billion in 2013/14. However, construction work done slumped 24% in 2014/15 and a similar percentage decline is expected in 2015/16 as the resources boom unwinds.
- **Much of this decline is occurring in the dominant engineering construction segment (including Major Projects)**, with work done falling from an official peak of $42 billion in 2013/14 to $27.4 billion in 2014/15 and forecast by BIS Shrapnel to reach a trough of $15.5 billion by 2016/17. As outlined in Section 1 of this Report, the decline in Major Project work done (a subset of the engineering construction market comprising projects valued over $100 million) is the key driver of the downturn, declining from nearly $18 billion in 2012/13 to a forecast $4.4 billion by 2016/17. Consequently, 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 that have stronger growth potential.
- **The collapse in construction work done is affecting construction employment.** From a peak of over 240,000 persons employed in the Queensland construction industry (including residential building, non-residential building and engineering construction) in early 2013, employment has slumped to approximately 204,000 persons as at the end of calendar 2015. For the Major Projects segment, employment has fallen 54% from 23,500 persons in 2012/13 to an estimated 10,700 persons in 2014/15. Further declines in employment, both in Major Projects and across the broader construction industry, are expected over the next few years, presenting challenges for the sustainability of the construction industry in Queensland.
- **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 and labour, 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 further in order to make private projects competitive against global rivals, particularly in mining and resources.

Recent Trends and Outlook for Queensland Construction Activity

Since the mid-2000s, measured construction activity in Queensland has been dominated by the tremendous cycle in resources investment, primarily coal and LNG related projects. Total construction activity (including residential building, non-residential building (Figure 4.1) and engineering construction) peaked at $57.2 billion in 2013/14, around 133% higher than 2004/05 levels. Over 2014/15, however, the value of total construction work done fell by around one quarter, as the major LNG projects reached or neared completion and investment in coal projects continued to decline sharply.

Over 2015/16 and 2016/17, total construction is forecast to fall by a further 26% to $32.3 billion, almost entirely due to an expected steep decline in engineering

construction activity. Residential building construction is expected to rise through 2015/16, but will only partially offset the decline in engineering construction. Total construction is forecast to recover through the remainder of the decade, reaching around $38 billion by 2019/20. Again, much of this increase will be based in the engineering construction segment though, unlike the 2000s boom will be more driven by rising public investment in infrastructure than resources investment.

Residential Building

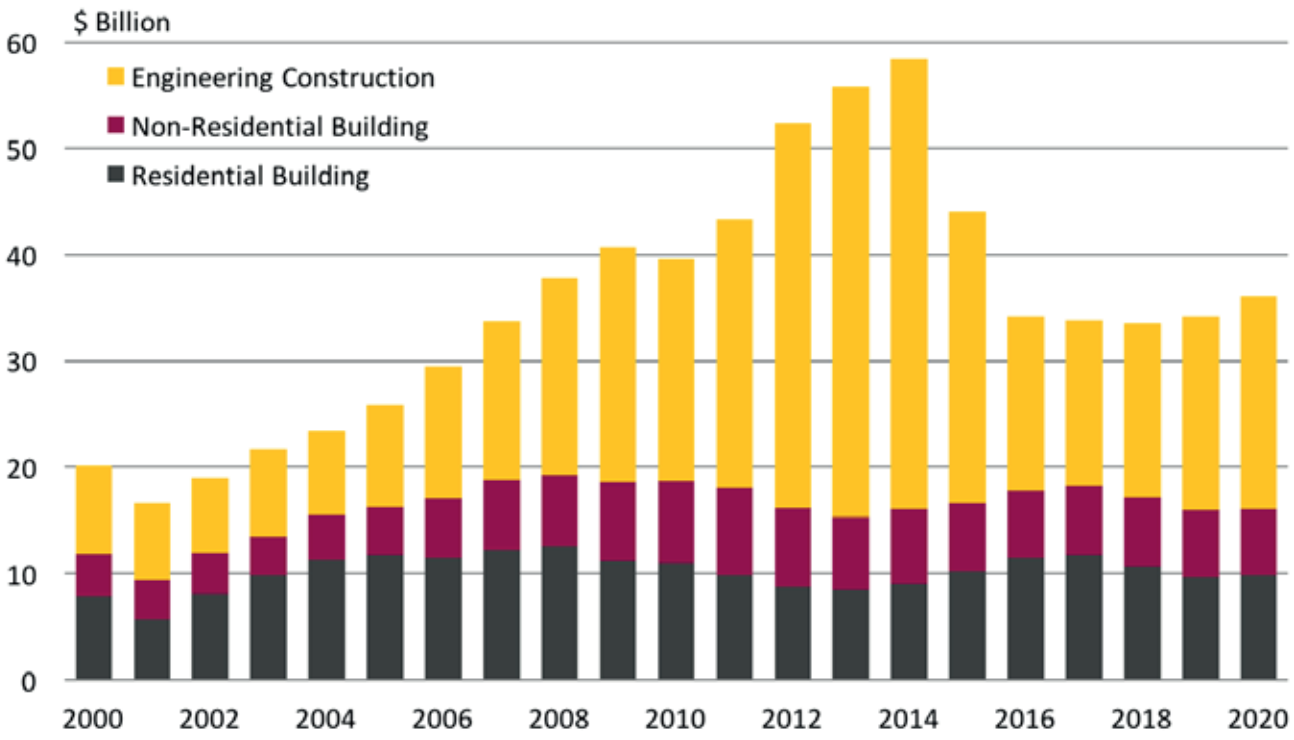
After experiencing a sustained decline in the wake of the GFC, residential building in Queensland has bounced back solidly in the two years to June 2015. Total residential building work done reached $10.3 billion in 2014/15, which is the strongest level of activity since 2009/10, but remains well down on the pre-GFC levels of activity. Similarly to the rest of the country, the current strength in activity has been primarily driven by medium to high density housing, which has surged to a new all-time high in 2014/15, rather than detached housing.

Whilst population growth has slowed in recent years, there exists sufficient underlying pressure in property markets to promote price growth and attract demand, particularly with interest rates at their current levels. Consequently, activity is expected to rise further over the next two years, peaking in 2016/17. Growth will be primarily centred in the south east of Queensland, with the Gold Coast and Sunshine Coast joining Brisbane in attracting investor demand.

With interest rates forecast to rise in 2017 – coupled with the significant addition to dwelling supply helping to ease pressure in property markets – residential building will begin to soften again from 2017/18.

Figure 4.1

Queensland Construction Work Done by Segment: $Billion, Constant 2012/13 Prices



Source: BIS Shrapnel, ABS

Non-Residential Building

Non-residential building activity in Queensland has fared poorly since GFC-inspired stimulus spending (the Building the Education revolution scheme) was removed. From its high of $8.2 billion in 2010/11, non-residential building work done fell to $6.4 billion in 2014/15, its lowest level since 2005/06. This decline was overwhelmingly due to falls in the social and institutional sectors such as education and health. While commercial and industrial building has steadily trended up over this period, its rise has been insufficient to prevent the overall decline in work done.

Queensland non-residential building is expected to remain relatively flat from here. Whilst commercial and industrial building is expected to soon peak and move into decline, social and institutional building is generally expected to do the reverse. Retail, offices and accommodation building (following a recent spurt) will likely fare the worst over the next few years, whilst education, entertainment and recreation, and a resurrection in health building will balance the ledger on the upside. Here, the $3 billion Queens Wharf Brisbane Integrated Resort Development which is timed to commence in 2017 is a step in the right direction, and could be followed by other service-oriented building developments in other parts of Queensland.

Engineering Construction

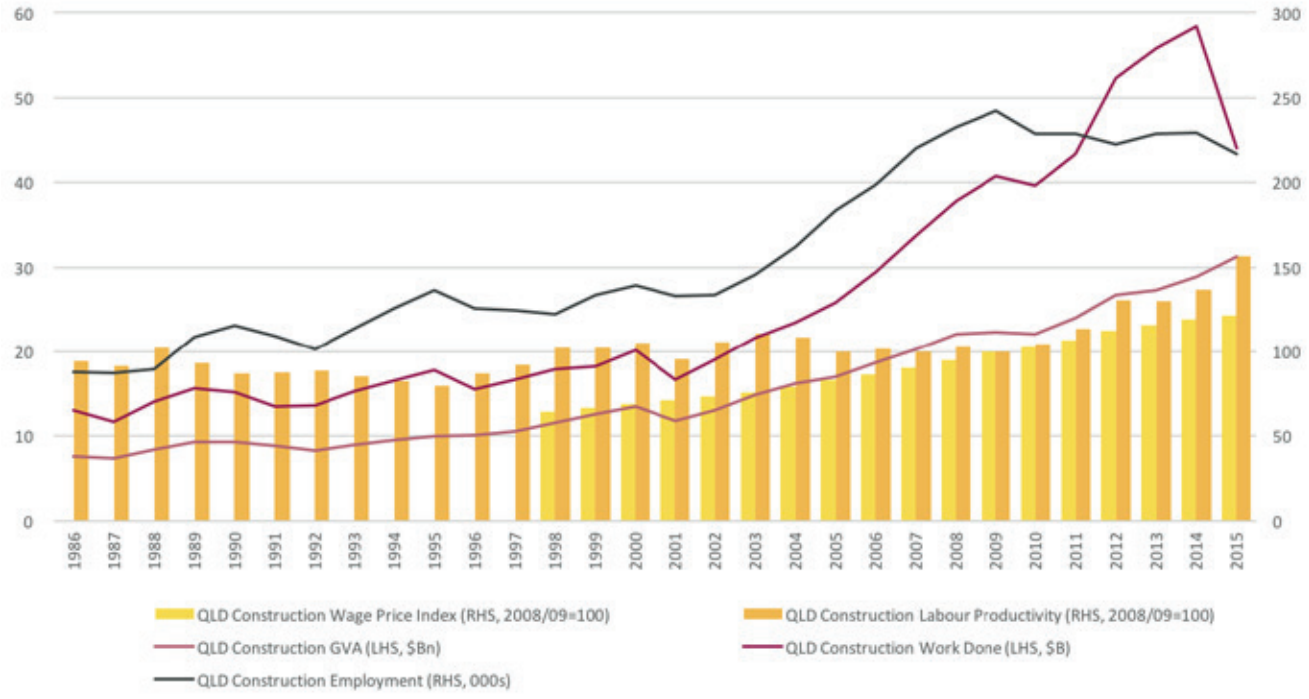
Over 2014/15, Queensland engineering construction work done crashed 35%, mostly driven by a 40% slump in privately funded work as the major LNG projects in Gladstone reached or neared completion, and new coal investment declined significantly.

But publicly funded engineering construction also fell by a substantial 16% through the year – and, at $6.2 billion, is exactly 40% below its peak in 2008/09. Much of the decline in publicly funded engineering construction during this period has been focused on water (-77%), bridges (-82%), sewerage (-47%), roads (-39%) and railways (-37%). While the 2008/09 peak in publicly funded infrastructure work was extraordinary (and supercharged by the construction of drought busting water infrastructure), it has also represented an extensive amount of 'catch up' infrastructure construction, with annual average publicly funded engineering construction from the 1970s right through the 1990s generally fixed between $2-3 billion per annum (in real terms), despite substantial growth in the Queensland population and infrastructure demand.

Over 2015/16 and 2016/17, Queensland engineering construction is forecast to fall by a further 40-45%, as all LNG projects reach completion and coal investment

Figure 4.2

Queensland Construction Industry Indicators



declines further. Coal investment, the former backbone of the Queensland mining industry, will continue to weaken while coal prices remain low. Almost every engineering construction sector is forecast to decline over the next two years, with the main exceptions being roads and telecommunications work.

However, the increases in these sectors will be dwarfed by a magnitude of the decline in mining and heavy industry construction.

The next upswing in total engineering construction work is expected to be driven by public infrastructure projects and, later this decade, further resource related projects. However, the magnitude of the next upswing is unlikely to be anywhere near as significant as the previous, resources investment-fuelled cycle, with the next cyclical peak expected to be half that of 2013/14.

Construction Employment, Wages and Productivity

While construction activity in Queensland has declined significantly from record high levels, it is expected to remain higher than any year prior to 2007, with another uptick in activity expected later this decade. This has implications for Queensland construction skills demand, employment and wage growth.

Queensland construction employment ballooned to 248,000 persons in 2008/09 according to official ABS statistics, before easing after the onset of the GFC. While construction employment edged up slightly in 2012/13, the increase was very likely understated given strong increases in mining employment which was likely to have been related to the construction phase of major coal and LNG projects. Conversely, a sizeable winding down in non-resources work saw construction employment fall to 217,000 persons in Queensland during 2014/15 despite an uptick in residential building work. With construction activity set to decline further as the mining investment boom unwinds, residential building peaks, and only a gradual recovery in other building and construction work, construction employment is expected to fall further over the next few years.

Queensland construction wages (measured by construction industry Wage Price Index data) grew significantly through the construction boom – rising 42% between 2003 and 2012 at an annual average pace of 4.5% per annum. However, the slowdown in growth in domestic construction work (i.e. excluding the offshored value of oil and gas fabrication) has seen construction wage growth slow significantly. In the three years since 2012, growth in the wage price index has averaged just 2.6% per annum (and just 1.8% in 2014/15 – the slowest rate of wage growth since the ABS started records for this measure in 1997/98).

Queensland construction labour productivity growth has historically been near zero since the mid-1980s, reflecting international trends. However, recent data from the ABS on Construction Gross Value Added (i.e. the output of the domestic construction industry in Queensland, as opposed to "work done") and employment suggest that this long term trend has been broken; that there has been a significant improvement in Queensland's construction labour productivity in recent years. However, this productivity surge is likely to be overstated given the likely understatement of employment growth in the industry between 2009 and 2013 (as Queensland construction workers may have been misclassified as mining employees in the official statistics) coupled with unusually large increases in construction industry GVA in 2014/15 despite a 25% slump in work done. Consequently, there are significant doubts as to whether labour productivity has increased in a sustainable way in Queensland's construction industry. This is important, as developing ways to improve construction labour productivity – through better training and skills development, removing outdated inefficient work practices that do not impinge on safety or environmental standards, or simply labour-saving capital investment – will be vital in improving the long term cost competitiveness of the industry.

Queensland Construction Costs

Along with much higher volumes of Queensland construction activity during the 2000s, there was also a marked acceleration in the costs of delivering construction projects. High and rising construction costs are an important issue for the Major Projects industry as well as the broader economy as:

- It limits the quantum of publicly funded projects that can be delivered against given State and Commonwealth budgets. Where unplanned increases in construction costs occur, it can effectively reduce the funding available for further work.
- It worsens the competitiveness of developing private sector industrial projects (e.g. in mining or manufacturing) in Australia relative to the rest of the world, in turn potentially impacting on decisions to invest in Australian projects.

That rapid increases in construction activity can go hand in hand with accelerating construction costs is not surprising. High (and rising) levels of demand (i.e. construction activity) not only places pressure on the existing supply of inputs, boosting input prices, but also allows construction companies to raise their prices (and possibly margins). Where capacity constraints exist, rising construction activity can lead to strong increases in input prices as investment in new capacity is itself costly and takes time to come on stream.

But construction costs may also vary due to changes in input prices determined in global markets (for example, steel and oil products such as bitumen and diesel fuel). These price changes may occur independently from domestic construction activity.

Quantifying Growth in Queensland Civil Construction Costs

The ABS publishes broad aggregate data series which provide an insight into the cost trends experienced in Queensland's 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.

Two indexes pertinent to the engineering construction segment are:

- The Implicit Price Deflator (IPD) for engineering construction work done, which is derived by dividing current price (nominal) engineering construction data from the ABS 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 Index, also published by the ABS as part of the Producer Price Index at the state level.

The history of both of these construction cost measures is shown in Figure 4.3 and 4.4.

As shown in Figure 4.3, prior to 2002/03, growth in Queensland engineering construction activity was relatively mild, leading to only moderate increases in costs. However, with the full onset of the resources boom (accompanied by a surge in publicly funded engineering construction projects), construction costs as captured by the engineering construction IPD rapidly increased. In the five years to 2007/08, the national engineering construction IPD rose by 37% (approximately 6.5% per annum on average) while the Queensland engineering construction IPD rose by just over 40% (7.0% per annum on average).

Construction costs fell 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 the prospects for the major resources projects. Costs resumed their upward trend from 2009/10, 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. Between 2008/09 and 2013/14 construction costs grew at a milder, though still significant pace, averaging 1.3% per annum growth in Queensland (and 1.5% per annum growth nationally).

With construction activity falling sharply in Queensland (and also declining at the national level) through 2014/15, growth in the engineering construction IPD has actually reversed. Between June 2014 and June 2015, the engineering construction IPD fell 3.6% in Queensland (and 1.0% nationally), meaning that construction costs in Queensland are roughly in line with what they were back in 2007/08 prior to the GFC shock. Even so, construction costs remain 40-50% higher than what they were in the early 2000s.

From an international perspective, the Australian construction industry has become more cost competitive in recent years given both declines in construction costs (measured in Australian dollars) coupled with a depreciation in the Australian dollar itself. One simple way of measuring the impact of the exchange rate on domestic construction costs is to adjust the engineering construction implicit price deflator for changes in the movement of the Australia dollar. This is shown as the "Exchange Rate Adjusted" series in Figure 4.3 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, or SDRs (a weighted basket of major currencies representing claims of IMF member countries).

Viewed in this way, a slightly different historical picture of Australia's competitiveness emerges. Firstly, rather than increasing between 1997 and 2003, a falling Australian dollar actually made local construction more internationally competitive during this period. This likely helped place Australia at the front of the queue as a destination for investment and, along with the rise of China in supercharging global demand, helped kick-start the domestic boom in resources development. By contrast, the relentless rise in the Australian dollar between 2003 and 2008 reversed these gains and exacerbated the loss of competitiveness from rising domestic costs. The sharp fall in the dollar in the immediate aftermath of the GFC in 2008/09 restored some of this competitiveness (and, fortuitously, at a time when major investment decisions were being made on three massive LNG projects in Queensland). The strong rise in the dollar between 2008 and 2012 once again placed Australia at a competitive disadvantage, but this has been partially unwound by the 21% depreciation of the dollar against the SDR basket of currencies in recent years.

As can be seen in the chart (Figure 4.4), however, there is still a long way to go to restore the international competitiveness of Australia's construction industry even to 2008 levels, let alone the super-competitive levels seen in 2001.

The growth path for the broad engineering construction IPD is mirrored by the historical experience of both the Queensland and national Road and Bridge Indexes (RBI) also published by the ABS (Figure 4.4). Here, growth in road and bridge construction costs in Queensland ran well ahead of the national average during the 2000s. Between 2000/01 and 2007/08 the Queensland RBI grew by 53% (or 6.2% per annum on average) whereas

Figure 4.3

Engineering Construction Implicit Price Deflators vs Queensland Work Done

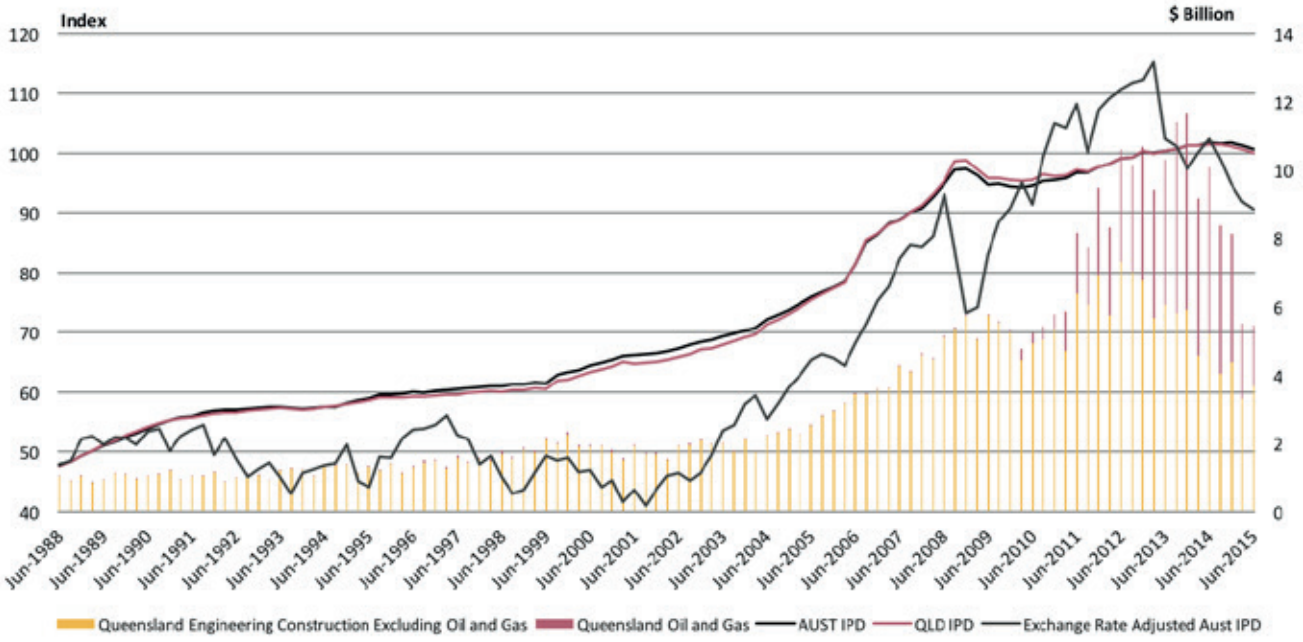
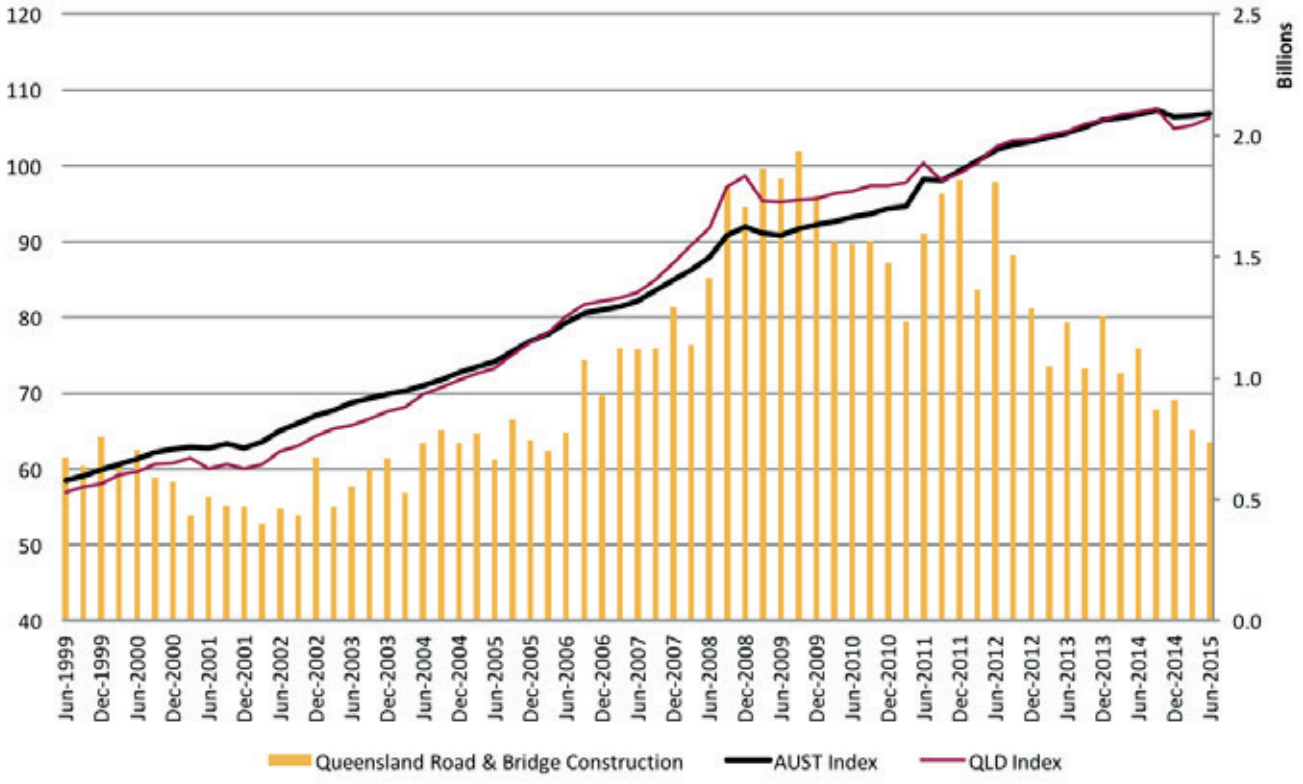


Figure 4.4

Road & Bridge Construction Price Indexes vs Queensland Work Done



nationally it grew by 40% over the same period (or 4.9% per annum on average). Between 2007/08 and 2011/12 cost growth in Queensland was relatively slower and the two RBI indexes gradually converged. Both RBI indexes tracked closely together in the period between 2011/12 and 2013/14, but there has been a more substantial weakening in the Queensland RBI over 2014/15 (0.7% decline).

While falling construction activity has played a part in slowing down the growth in construction costs – particularly through its impact on slowing growth in construction wages and the pricing of local equipment and materials – the fall in the Queensland engineering construction IPD and the Queensland Road and Bridge Index has also likely been heavily influenced by international factors. In particular, slowing global demand for commodities coupled with rapid increases in supply courtesy of the resources investment boom in Australia and elsewhere has resulted in a commodities glut and substantial falls in prices for those commodities used in the construction process (particularly for oil and related products – such as bitumen and fuel – as well as steel). While the Australian dollar has itself fallen, offsetting some of the benefits of the price fall, it has not fallen by nearly as much, resulting in cheaper inputs to the construction industry.

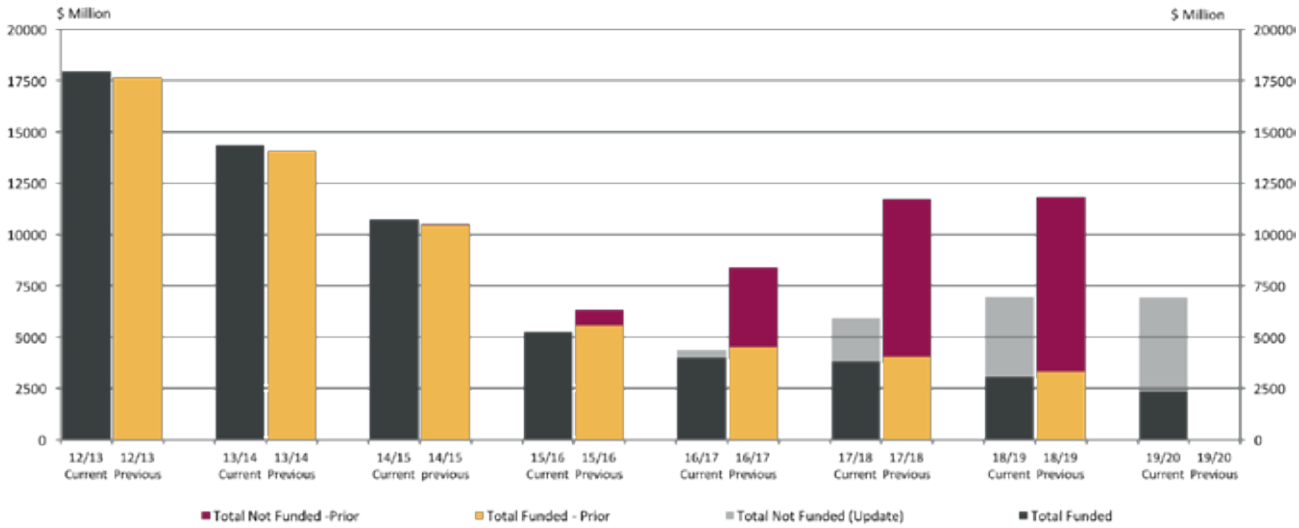
5. Key Implications, Challenges and Risks

Figure 5.1 compares last year's Major Projects five-year outlook to the present forecast (note 2014/15 is now historical rather than forecast). Several key points are worth emphasising:

- Major Project work done in 2014/15 has nearly halved from its 2012/13 peak. Queensland Major Projects activity is now down almost 50% from the 2012/13 peak of $18 billion. Similarly, Major Project workforce employment has already fallen by a collective 54% from a record 23,500 positions in 2012/13. Despite the widely publicised decline in mining and heavy industry investment, non-mining investment also weakened significantly in 2014/15 as public finances remained stretched.
- The sharp contraction in Major Project work and employment is forecast to continue into 2015/16, before reaching a trough in 2016/17 – with the magnitude of the downturn even worse than predicted by the 2015 Major Projects Report. While the decline in 2014/15 was challenging, the fall in 2015/16 will be twice as steep, with Major Project work done expected to slump 50% in this financial year alone to just $5.3 billion. In aggregate, Major Project work done is forecast to decline nearly 75% from the 2012/13 peak to a trough of $4.4 billion in 2016/17. Weakness in major mining and mining related projects is the key reason for the lower forecast for Major Project work compared to last year's Major Projects Report. However, as per last year, the prospect of any upswing materialising at all requires new funding commitments to existing projects – particularly public infrastructure 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 LNG projects on Curtis Island and in the Surat Basin, and the substantial retreat in coal and coal related works, will drive the largest declines in Major Project work done between 2012/13 and 2016/17. In terms of the Major Projects workforce, the mining and heavy industry segment is anticipated to shed over 11,000 full time workers during this period (representing two thirds of the overall Major Projects workforce decline of 16,900 full time workers during the same period). Meanwhile, most of the other third of Major Projects jobs lost (5,900 positions) are from resources-related projects across gas pipelines, electricity, railways and harbours.
- An upswing in Major Project work is expected from 2017/18, but growth will plateau from 2018/19. However, even this mild recovery is predicated on currently unfunded projects proceeding, including large public sector road and rail projects, as well as another (much smaller) round of resources investment. As such, the outlook is highly susceptible to risk.
- The expected trough in activity will be well below the 2012/13 peak and, though equivalent to levels of work occurring in the mid-2000s, future works may not be enough to meet future infrastructure demands. The experience of the past two years illustrates that the twin booms of mining and public investment over the past decade was an unusual phenomenon that, in terms of scale, are unlikely to be repeated soon. Even so, public investment (and Major Project work) will need to rise again in future to meet projected infrastructure demands and Queensland's economy and population grows.
- With other states, such as New South Wales, ramping up infrastructure investment, challenges will remain in procuring construction services. Queensland needs to apply a longer-term approach to planning for the future workforce in a way that links workforce planning and skills development to both current and future activity. We need to remain vigilant about workforce development, skills acquisition, attracting new entrants and retaining skilled workers, particularly during periods of cyclical weakness. The process of workforce planning needs to be linked to infrastructure planning so that Queensland has the right skills available at the right time to deliver Major Projects.
- 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.

Figure 5.1

Major Project Work Done Forecast: 2016 vs 2015 Reports



Implications and Challenges

The key finding of the 2016 QMCA Major Projects Report is that Major Project work and associated employment will continue its steep decline in activity since the 2012/13 peak, with only limited prospects for growth through the next five years. While activity overall should remain higher than historical averages, it may not be enough to eliminate existing infrastructure deficits or cater for Queensland's growth into the future.

Falling public and private investment in Queensland has driven a sharp decline in Major Project work which has already impacted heavily on the Queensland economy, and especially those businesses operated by Queensland construction contractors and suppliers. Falling coal and oil prices have seen new resources investment dry up and, combined with falling public infrastructure investment in Queensland since 2010, this has been a key driver of the slump in Major Project work. Without an immediate recovery in commodity prices or substantially stronger funding for infrastructure investment, Queensland faces the prospect of a long period of stagnation in Major Project activity.

This is the challenge now facing the Major Project market in Queensland as well as the broader Queensland economy, given the strong economic multipliers inherent in construction activity. While infrastructure investment is not an end in itself, it provides a boost to employment and economic activity in the short term (during the construction phase) and can be a vital productivity enhancer which adds to productive capacity in the long term (during the operations phase), so long as the best available projects are chosen. While there has been a tremendous boom in infrastructure investment during the 2000s to service the resources industry as well as catering for Queensland's typically strong rate of population growth and development, this higher rate of investment has not been sustainable. Although some infrastructure "gaps" have narrowed for now, other gaps remain and new ones will emerge unless investment is increased again in future.

The simple fact is the existing policy norms and funding settings have failed to deliver sustainable, long run growth in Queensland infrastructure investment to meet demand. Unless addressed, the result will be a return to an overall widening in Queensland's infrastructure deficit which will further impact on state productivity and economic performance. Indeed, current public infrastructure funding arrangements, in tandem with volatile resources investment, continues to produce severe boom/bust cycles in Major Project activity in Queensland which, in turn, has deleterious consequences for skills development and the sustainability of the Queensland construction industry.

However, the next few years not only provides an infrastructure challenge to Queensland, but also an opportunity. In particular, the Queensland economy is expected to benefit from new drivers of growth that will increase demand for infrastructure. Trade will be boosted by strongly rising demand for Queensland non-resource exports – including tourism, education, financial services, manufacturing and agriculture – and supported by the lower Australian dollar. As opportunities arise in Queensland's tradeable sectors (as well as across other industries and regions that were negatively affected by the resources boom), stronger population growth is expected to return. Recent reports by Infrastructure Australia and the Federal Government, including the Australian Infrastructure Audit, the Northern Australia Audit and the White Paper on Developing Northern Australia, highlight where the

economic infrastructure gaps in Queensland currently are, and where they will be over coming decades as the Queensland economy continues to develop. Overall, while the near term economic outlook is weak, the medium to longer term prospects for Queensland's economy remain fundamentally sound – with economic growth expected to re-accelerate on the back of exports – and the opportunity for investment in the infrastructure that Queenslanders need is greater than ever.

However, taking full advantage of this opportunity requires implementing better processes and funding/financing mechanisms to support infrastructure development and investment. In this regard, the development of Building Queensland to provide independent expert advice is a vital first step. Regardless of how infrastructure is funded and financed, it is important for Queenslanders to understand, first and foremost, which infrastructure projects provide the best "bang for the buck" in terms of their net economic benefits and how the new projects will mesh with existing infrastructure to boost productivity over the long term. With this comes the recognition that the biggest and most expensive infrastructure projects may not necessarily be the best; that programs of smaller works (including timely maintenance spending) can have large economic benefits; and that driving greater efficiencies from our existing infrastructure base through smart technologies, demand management tools and pricing (as per the 2015 Competition Policy Review chaired by Ian Harper) will also be vital.

On the funding and financing side, much more needs to be done, but the strategies outlined in the Draft State Infrastructure Plan, released by the Queensland State Government in October 2015, are a welcome development. Here, there is recognition that the opportunities for investment in infrastructure may well exceed the financial capacity of local, State and Federal governments[1], and so plans should be put in place to allow for greater private sector involvement in developing and financing infrastructure solutions via public private partnerships (PPPs) and catering for unsolicited market-led infrastructure proposals. However, this does not mean that governments can completely outsource their responsibility in seeking new ways to finance productive infrastructure. To the contrary, there is much that governments can and should do in the short term and long term, whether it be providing a fair debate whether to pursue "asset recycling" initiatives (which is supporting the growth in infrastructure spending in other states such as New South Wales) or the greater use of debt finance (given historically low borrowing costs coupled with excess construction industry capacity and low margins) or developing a more sustainable revenue base across all levels of government which can fund Queensland's long term infrastructure needs.

Overall, readjusting to the "new normal" level of Major Project activity will continue to provide the biggest test to government, industry, and the broader economy. Yet this "new normal" should involve a higher level of infrastructure investment on average (and hence higher Major Project work) than what occurred in the years prior to the 2000s investment boom; characterised as they were by chronic underinvestment in infrastructure. While governments grapple with project selection, funding and finance for Major Projects, the construction industry has the challenge of dealing with further sharp cycles of work. During the 2000s, the industry met the boom in investment head on by driving "transformational thinking" to meet the challenge it presented to costs and capability. Solutions such as FIFO/DIDO, offshore fabrication, flexible workforces and intense regional planning are likely to remain part of the contractor landscape.

But now, with the investment boom turned to bust, the situation has reversed. The tightness in new spending by the public and private sectors has produced the weakest phase of growth in domestic demand and employment in the Queensland state economy since the early 1980s. Much has been made of the decline in mining-related investment and construction work. But governments have also amplified the downturn in the cycle by funding smaller public infrastructure programs as they rein in the higher debts and deficits wrought from higher expenditures (and weaker than optimal revenues) during the boom. Tens of thousands of jobs have already been lost across the Queensland construction industry, and measures may be required – whether through upskilling initiatives or subsidised training – to secure the sustainability of the local industry for the long term, particularly as other states such as New South Wales ramp up their demand for infrastructure skills and labour.

Meanwhile, local Queensland contractors remain locked in survival mode, restricting growth in wages and other business costs, and looking elsewhere (other regions, states and territories, countries, industries and business activities) for work. Strategic planning, coupled with market intelligence gathering, has come back into vogue, with contractors focused on looking for where the next opportunities will arise rather than simply servicing existing demand.

Queensland's Investment and Growth Challenge

Investment is the key driver of growth in domestic demand and employment in the Queensland economy[2]. It was the boom in resources investment and public investment in infrastructure which underwrote growth in the Queensland economy during the 2000s, and it is the absence of investment growth which is now responsible for the state's economic weakness. Consequently, a return to stronger growth in domestic demand (and employment) requires new investment drivers.

In Figure 5.2, domestic demand (also referred to as "State Final Demand" at the Queensland level or "Gross National Expenditure" at the Australia level) is

the sum of expenditures in the economy in real terms (such as household consumption, private investment and expenditures by governments – both recurrent and capital – as per the System of National Accounts), and excludes exports and imports[3]. Growth in investment has been a crucial driver of the economy and explains key turning points: the slumps in 1990/91 and 2000/01 were affected by 15% and 10% slumps in investment respectively, whilst the 2000s boom itself was underwritten by several successive years of double digit growth in investment (mostly realised as the construction of building and structures, but also investment in plant and equipment). Since peaking in 2011/12, total investment in Queensland has eased nearly 20% in real terms, and is expected to fall a further 12% in 2015/16, continuing a weaker phase of growth in the Queensland economy.

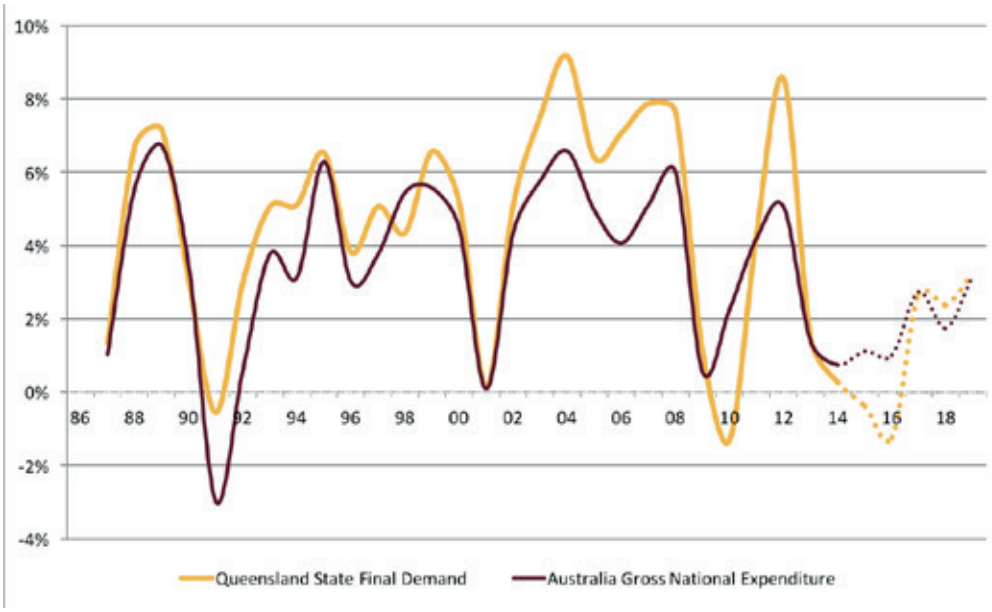
While the downturn in resources investment has been the key issue recently, an often understated challenge has been the simultaneous slump in public investment – particularly in infrastructure – which has amplified the downturn, just as the boom in public infrastructure investment amplified growth in activity during the 2000s. Indeed, as shown in Figure 5.3, while public investment has generally been rising in real terms since the mid-1980s (public investment data is only available from the ABS from 1986), it generally struggled to keep pace with populationgrowth (particularly for engineering construction, which represents the construction of key transport and utilities infrastructure) or the growth in the economy (as a share of GSP) during all of the 1980s and 1990s. The boom in public infrastructure work during the 2000s was the exception, seeing a doubling in publicly funded engineering construction work. However, since the late 2000s, both publicly funded engineering construction activity and broader public investment has been in steep decline, with per capita engineering construction activity falling back to the average of the 1980s and 1990s, and broader public investment as a per cent of GSP heading back to historical lows.

Figure 5.4 shows where the recent boom and bust in public infrastructure investment has been felt:

- Road and bridge construction rising from $1.2 billion in 2003/04 to a peak of $4.8 billion in 2011/12 (supercharged by flood recovery reconstruction works on top of the traditional road construction programme), before returning to $2.4 billion by 2014/15.
- Railways and harbours construction rising strongly towards $1 billion in work per annum between 2007/08 and 2010/11 but fell back to $343 million in 2013/14. Work on the Morton Bay Rail Link has helped activity rise again to $670 million in 2014/15.
- Water and sewerage construction spiking from $588 million in 2005/06 to $3.8 billion in 2007/08, before retreating back to $757 million in 2014/15.
- Electricity and pipelines construction surging above $2 billion in the mid-2000s, but easing back since Telstra's privatisation in the mid-2000s saw public investment in the "Telecoms, recreation and other" category slump by 2007/08, but has picked up somewhat on the back of the NBN in recent years.

Figure 5.2

Domestic Demand Growth: Queensland (SFD) vs Australia (GNE), Moving Annual Average Annual Percent Change



Indeed, the increasing privatisation of traditional public sector infrastructure provision has also magnified the impact of the boom/bust cycle in public infrastructure works. The 2000s saw the construction of several massive Brisbane road projects such as the Clem Jones Tunnel and Airport Link as PPPs and are hence not included in Figure 5.4. By using private sector finance, these projects were able to take place concurrently to publicly funded works, magnifying the overall cycle of investment. Meanwhile the privatisation of Queensland Rail's freight business in mid-2010 saw coal-related rail construction switch to Aurizon.

So, with falling resources and public investment in recent years, what other programs or policies are driving sustainable growth for the Queensland economy? Looser monetary policy from the Reserve Bank is cushioning the extent of the downturn, with low interest rates spurring investment in sectors which have been under supplied (such as housing). However, there is a limit to what low interest rates alone can deliver. By reducing the cost of finance, looser monetary policy can encourage private investment where there is reasonable confidence or "animal spirits". However, it is often not useful in boosting investment in sectors where confidence is absent and capacity utilisation, demand and profitability is weak.

Even in housing, the impact of lower interest rates is likely to be short lived, with housing completions (courtesy of an apartment building boom) now well exceeding underlying demand. Finally, given the very high debt burden already maintained by Australian households which was accumulated through the 1990s and 2000s, lower interest rates are also less reliable as a booster for consumer demand, with households more likely to increase expenditure in line with growth in incomes than taking on more debt.

Figure 5.3

Public Investment and Publicly Funded Engineering Construction, Queensland, Year Ended June

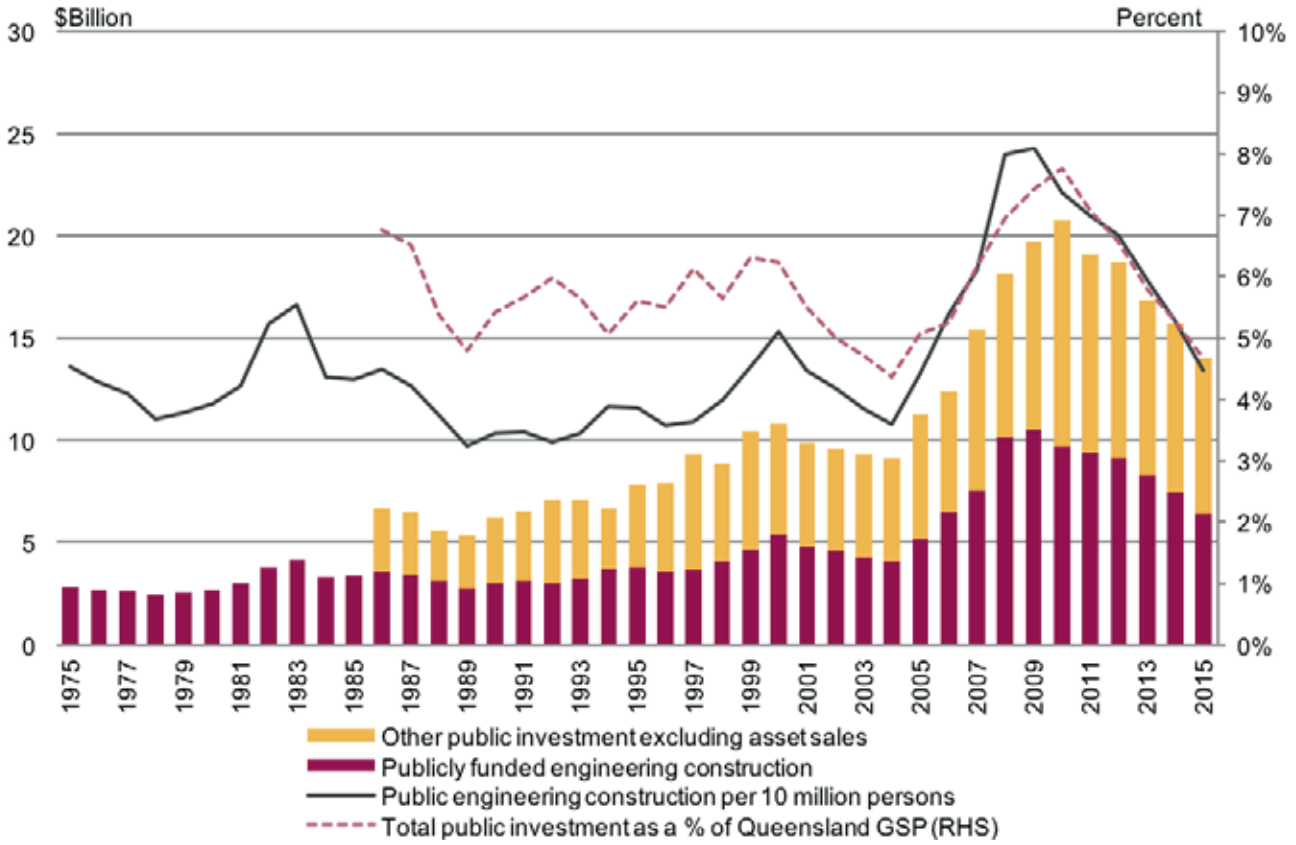
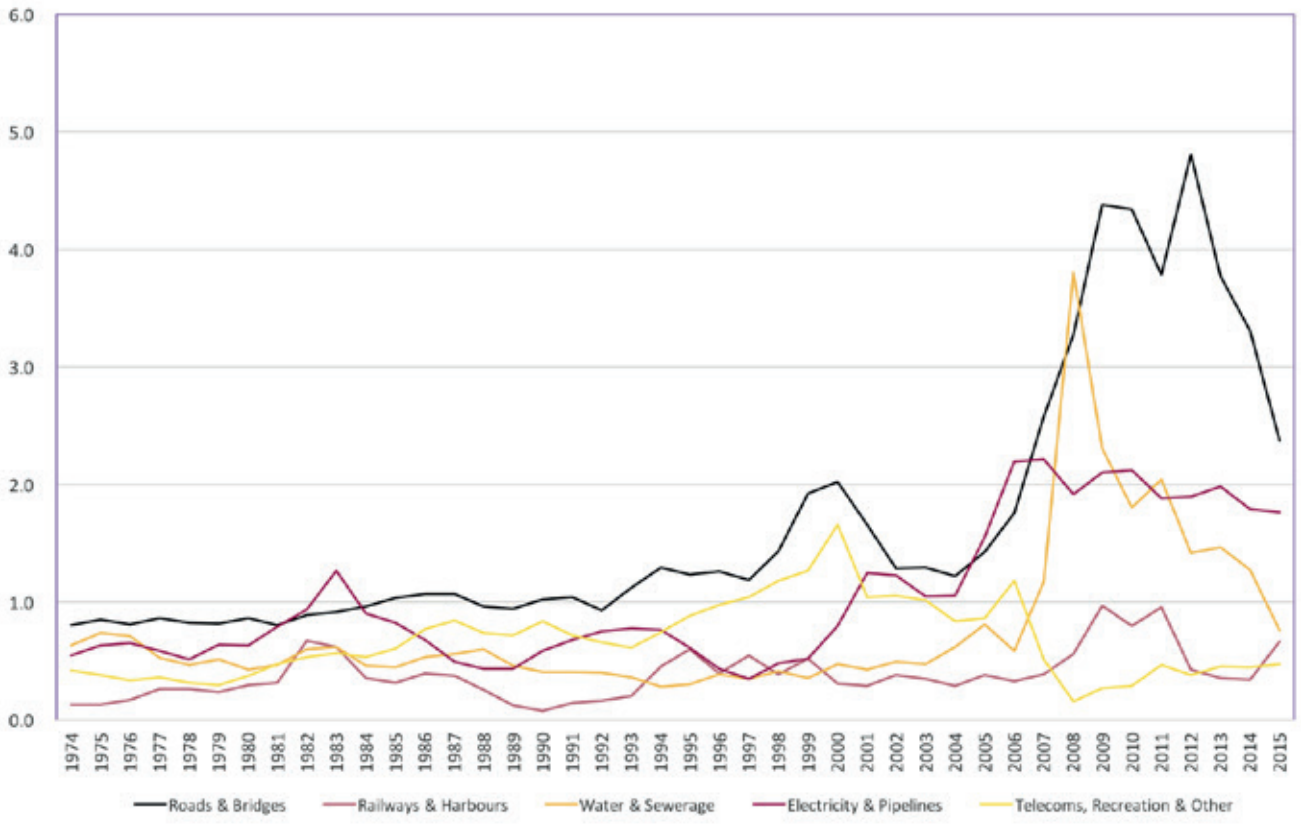


Figure 5.4

Publicly Funded Engineering Construction, Queensland, $Billion, Year Ended June



A Return to Public Infrastructure Investment

Excluding housing, what other investment growth drivers are available for Queensland? For a start, the decline in the Australian dollar which has accompanied the end of the resources investment boom is already providing a benefit for tradeable sectors such as tourism, education, agriculture and parts of manufacturing (and even mining). There could be a further downward lag in the Australian dollar's fall if commodity prices weaken further or (as expected) a normalisation of interest rate settings in other economies – and particularly the US – gets underway. However, for economist Ross Garnaut, Professorial Research Fellow at the University of Melbourne, returning the economy towards full employment after the China boom requires something more – the return of public investment in productive infrastructure coupled with productivity enhancing reform.[4] In this sense, infrastructure investment can be a "win-win" policy in that it both boosts demand in an otherwise weakened economy and, if the projects are chosen well, also improves productivity.

These remarks have been echoed in 2015 by Reserve Bank Governor, Glenn Stevens[5]:

> "Monetary policy alone can't deliver everything we need and expecting too much from it can lead, in time, to much bigger problems. Meanwhile, as often remarked, infrastructure spending has a role to play in sustaining growth and also in generating confidence…The real economy would benefit from the steady pipeline of construction work – as opposed to a boom and bust…. We could unleash large potential benefits that at present are not available because of congestion in our transportation networks… The impediments to this outcome are not financial. The funding would be available, with long term interest rates the lowest we have ever seen or are likely to. (And it is perfectly sensible for some public debt to be used to fund infrastructure that will earn a return.)"

Yet, if investment in productive infrastructure is part of the answer, is this still relevant to Queensland? Despite a decade of stronger infrastructure spending, does Queensland still have an infrastructure "deficit"?

While quantification of existing infrastructure adequacy and measurements or an infrastructure deficit can be difficult, there is substantial evidence to suggest that higher levels of infrastructure investment need to be sustained well into the future – given expected economic

and population growth – to avoid high economic costs from infrastructure bottlenecks and congestion.

At the national level, a range of reports have sought to quantify the levels of investment required for the development of new infrastructure. In 2008, a report by ABN Amro (now the Royal Bank of Scotland) quantified Australia's infrastructure investment task at $455 billion (in 2007 dollar terms) over the next decade. Citigroup, in mid-2008 estimated that the economic infrastructure investment task over the decade ahead was more than $770 billion (in 2007 terms), if the quality of capital stock was to return to a level that will sustain Australia's ongoing prosperity[6]. In 2013 (despite a surge in public sector infrastructure investment over the preceding decade), Infrastructure Australia still estimated the national infrastructure backlog to be approximately $300 billion.

What of Queensland? Engineers Australia rated the quality and adequacy of Queensland's infrastructure assets in 2010 – this still remains as the most recent comprehensive engineering evaluation, and was also the year where public investment in Queensland peaked. While most assets were ranked as "adequate" in the Report, Engineers Australia noted that ratings had slipped since the earlier review in 2004 (with the exceptions of ports, electricity and gas) and that changes were required (both minor and major) to meet future asset adequacy requirements. According to the President of the Engineers Australia Queensland Division, Mike Brady, at the time[7]:

> "Given the scale of under-investment in maintenance and renewals to date, and the ongoing increase in demand driven by population growth and the resources sector, the challenges in addressing current and future infrastructure demands could be rated as somewhere between considerable to highly disturbing."

More recently, the Queensland Infrastructure Alliance went one step further by suggesting that, based on international infrastructure investment to GDP norms, Queensland infrastructure provision has not kept up with infrastructure demand. Despite a surge in infrastructure expenditure during the 2000s, the infrastructure deficit was never eradicated and has widened significantly again over the past five years as public sector infrastructure investment has fallen. Further increases in the infrastructure deficit of $6 billion per annum are projected unless there is a substantial lift in new investment[8].

Importantly, the Australian Infrastructure Audit commissioned by Infrastructure Australia in 2015 also found evidence of an infrastructure deficit at both the national and Queensland level. With Australia's population projected to grow to 30.5 million by 2031 (and with three quarters of this growth to take place in Australia's four largest capital cities – Sydney, Melbourne, Brisbane and Perth), a key finding of the report was that existing infrastructure gaps in urban transport and regional water will continue to widen unless infrastructure investment is increased. Indeed, the problems were likely to be exacerbated in Queensland given the expectation of economic and population growth rising at a rate far above the national average over the 20 years to 2031, putting pressure on transport for South East Queensland (including Brisbane) specifically, but also for key regional centres and along freight routes. Given the state of existing infrastructure, the direct economic cost of congestion along the most trafficked Sunshine Coast-Brisbane-Gold Coast transport network, estimated at $2 billion per annum in 2011, will rise to $9 billion per annum by 2031, if not adequately addressed[9].

Funding of New Infrastructure

Given that Queensland still has a significant infrastructure deficit, the key question is not whether to increase investment in infrastructure but rather how should future infrastructure investment be funded? With the Commonwealth Government's recent Intergenerational Report (along with other reports such as the Infrastructure Audit) suggesting that with the ageing of the population a greater demand will be placed upon governments to fund welfare and health services – potentially affecting their ability to fund infrastructure – there are calls for governments to facilitate greater direct private investment and operation of infrastructure[10].

This issue was addressed substantially in the 2015 Major Projects Report, with several promising routes explored ranging from direct private sector funding, capital recycling (via long term asset leases or sales), public provision of seed capital, increasing public funding directly through tax reforms and, finally, debt financing. Meeting overarching infrastructure goals will no doubt involve a mixture of all of these funding approaches, and it would be counterproductive to limit funding strategies to just one funding source or another, or rule out funding sources entirely. However, in the current context, it is important to re-open several funding debates ranging from asset leases to genuine tax/expenditure reform and the use of debt.

Capital Recycling

Capital recycling is moving ahead quickly in other states and territories, with New South Wales, particularly, developing a substantial infrastructure "war chest" through the long term leases of several ports and the electricity transmission and distribution network – the $10 billion long term lease of TransGrid in late 2015 being the latest contribution. While there can be hidden costs in transferring assets to the private sector (in terms of regulation of the newly privatised assets, potential inefficiencies in targeting the maximum transaction revenue and risks in satisfactory private investment in the asset moving forward) there is no doubt that, with market yields and interest rates very

low, the private sector retains a healthy appetite for purchasing existing (de-risked) infrastructure assets as part of an asset portfolio. In this environment, it makes sense to revisit the costs and benefits of the capital recycling strategy, particularly if there are convincing arguments for productivity gains in the targeted industries and assets through privatisation.

Genuine Tax and Expenditure Reform

Another potential avenue for increased infrastructure funding is via genuine tax and expenditure reforms by State and Federal Governments which free up resources for investment, although progress on this front has been glacial during 2015. Indeed, the real risk is that instead of wholesale reform of tax and expenditure policies (as advised by the Henry Review), our political leaders offer a "Clayton's" solution of small, simple changes such as raising the rate of the GST leaving other "low hanging fruit" untouched.

Ultimately, if infrastructure investment is to be sustained at a rate that meets future demand – and if governments are to help in funding this infrastructure – then sustainable government revenue streams need to be found. This may include, amongst other options, making politically courageous decisions regarding appropriate pricing for the use of public infrastructure (particularly roads, which are currently treated as a free public good), but this approach also infers that existing revenue streams (such as those from pro-cyclical and inefficient taxes such as stamp duties) be realigned or balanced in a way so that they can sustain a known pipeline of infrastructure investment through both upswings and downswings in the economy.

Solving government's debt and deficit challenges at the Queensland and national level will involve not just making changes to both taxes and expenditures (it is not just a revenue problem or an expenditure problem alone), but recognising that investment in productive assets with a long life is very different from recurrent expenditures. This, in turn, entails that governments bring their Budgets in line with modern accounting standards such as separating "capital" and "operation" items so that the debt accumulated to build productive infrastructure can be differentiated from debt accumulated purely to fund the gap in a poorly designed tax/transfer system.

Debt Financing

Despite claims to the contrary, public debt financing of infrastructure is perfectly reasonable on intergenerational equity grounds. Infrastructure, once in place, benefits multiple generations, so it is sensible that the costs of infrastructure (through principal and interest repayments) similarly be spread over multiple generations.

What may be more surprising is that it also makes sense from an economic efficiency perspective, so long as the funds are used for projects with positive net economic benefits (including any costs or benefits associated with debt financing) and are procured efficiently – once again emphasising the need for proper and transparent Cost-Benefit Analysis (CBA) processes to identify viable projects in the first instance. Not only that, borrowing to finance productive infrastructure provision rather than through "budget neutral" policies (such as raising taxes or cutting spending elsewhere) is not only more efficient but may also help reduce public debt as a ratio of GDP[11].

According to IMF analysis, where there is economic slack and efficient public investment processes, an increase of public infrastructure investment amounting to 1% of GDP which is financed by debt increases GDP by 0.9% in the same year and by 2.9% after four years. By contrast a similar infrastructure push which is funded in a revenue neutral manner (i.e. through cutting government expenditure or raising taxes elsewhere) has output effects which are not statistically different from zero. Similarly, the debt financed infrastructure push leads to a slightly greater decline in public debt as a share of GDP (roughly 6%, but varying significantly according to the efficacy of investment, compared to just under 6% for budget neutral funding measures).

While the IMF insists that using debt finance to fund public infrastructure investment is not a "blanket recommendation" to all economies, it appears highly relevant for Australian governments which have relatively low levels of debt (compared to their global peers), economic slack and relatively well developed infrastructure plans that focus on productive investments. Indeed, in June 2015, following an IMF mission to Australia and the Asia- Pacific region, the IMF lamented Australia's focus on "budget discipline" given the weakness of the economy as it transitioned away from resources-driven growth and the greatest terms of trade downgrade in over 50 years. Echoing the remarks of Reserve Bank Governor, Glenn Stevens, the IMF noted specifically for Australia that[12]:

> "Increasing public investment (financed by more borrowing rather than offsetting measures) would support aggregate demand and ensure against downside risks. It would also employ resources released by the mining sector, catalyze private investment, boost productivity, take advantage of record-low borrowing rates, and maintain the government's net worth. Indeed, IMF research suggests that economies like Australia— with an output gap, accommodative monetary policy, and fiscal space—benefit most from debt-financed infrastructure investment, with the growth boost largely containing the impact on the (low) debt-to-GDP ratio."

In all of this, the greatest challenge for governments is not borrowing to fund infrastructure investment, but putting processes in place to ensure that projects are chosen wisely. In the past, this has proved a high hurdle for governments to jump and, unfortunately, there are many examples where public funds have been spent on

projects that have not stacked up on purely economic criteria. However, this is not an argument against debt financing per se, but rather that governments improve their selection criteria for Major Projects – such as what Queensland is aiming for with its development of Building Queensland, and what the Commonwealth Government is attempting through Infrastructure Australia. If anything, the IMF analysis suggests that more resources need to be placed within these types of organisations so they can be truly independent in their evaluation of the net economic benefits of Major Projects, and do not simply rely on the economic analyses provided by project proponents.

To summarise, if governments are to be tasked with the responsibility for boosting investment into the future, it is vital that public infrastructure choices and the procurement process is handled transparently, productively and financed in a way which satisfies both fairness and efficiency objectives. This means:

- **Choosing projects with the greatest economic "bang for the buck".** In a world where finance may be constrained and costly to raise, it is vital that infrastructure projects are selected according to a transparent CBA process which ranks alternative options and uses for funds. This in turn becomes an argument for better economic and industry data to feed into the CBA process and the publication of CBA outcomes to stimulate debate and provide greater transparency to the electorate. As discussed, the most economically sensible projects may not necessarily be the largest, and serious economic analysis should be undertaken to test if more could be done to make greater use of the infrastructure assets already available (e.g. through appropriate pricing, demand management, smart technologies and maintenance) than progressing on the belief that the infrastructure deficit can be eliminated by new investment alone.
- **Undertaking reforms which maximise efficiencies at the procurement stage.** According to the Productivity Commissions' 2014 inquiry in public infrastructure provision, inefficiencies caused by poor procurement processes and regulations can exacerbate infrastructure development costs and deter investment. Boosting public investment in initial designs and bid costs; reduced design requirements at the initial tender stage; packaging projects into contract sizes that foster broader competition and a sustainable contracting industry; and removing inefficient approvals processes or regulations are examples of the types of reforms in mind.
- **Utilising a mix of sustainable funding mechanisms for investment over the longer term,** including user charges (where possible), asset (capital) recycling, tax and expenditure reforms (which provide more headroom for infrastructure investment) and public sector borrowings.

Conclusions and Recommendations

The Queensland economy remains in the midst of a difficult transition period following the end of the resources investment boom, and adjusting to the "new normal" level of investment and construction activity continues to provides challenges for governments, industry and workforce. In particular, sharp falls in private and public investment are responsible for Queensland's weakest period of growth in State Final Demand since the ABS started producing annual state accounts in 1986. New investment drivers are required to provide sustainable growth for Queensland into the future.

While mining production will continue to grow based on recent investment in new capacity (particularly LNG) – boosting Queensland's economic growth – this phase of the resources cycle is less employment intensive than the investment phase and has weaker multiplier impacts on the rest of the economy through its related impacts on population growth, housing and non-mining business investment. Residential building is providing a boost to the Queensland economy now but, with housing completions now running ahead of underlying demand (and interest rate increases likely at some point in coming years), this is only expected to provide temporary benefits.

By contrast, a sustainable recovery in private investment in Queensland will only take shape when industries that were "crowded out" by the resources boom through its impact on the Australian dollar and domestic costs for labour and capital start to reinvest in earnest. Here, the outlook is promising, as the lower dollar coupled with very weak growth in domestic costs (including wages and rents) has provided a long-awaited competitiveness boost to Queensland's non-mining export-orientated industries such as tourism, education, agriculture and manufacturing.

For the Queensland and Federal Governments, it makes sense to target these next "waves" in incentivising private investment or developing its own complementary infrastructure investment program. This may mean not just investment in different types of infrastructure than the recent past (such as regional airports and ports, water storages, public transport and freight) but also very different regional investment profiles where the investment will take place (focusing on tourism regions, urban centres, agricultural areas and key transport hubs).

Overall, public investment in infrastructure has fallen substantially since 2010 as State Government revenue growth slowed and efforts were made to control growth in expenditure and debt. While an economic boom supported the funding of a major phase of infrastructure investment during the 2000s, this came off a very low (and unsatisfactory) base. Given a weak starting position, the 2000s boom in public infrastructure investment spending was not

enough to eliminate the infrastructure deficit. Recent declines in both public and private sector investment in infrastructure has seen the deficit widen again and, on current projections, will widen further in forthcoming years as Queensland's economy and population continues to grow.

Boosting infrastructure investment will be necessary to help close infrastructure gaps – particularly as the Queensland economy and population continues to grow at a rate faster than the national economy over coming decades. Infrastructure investment is also a powerful driver of employment, incomes and economic growth both in the short term and the long term.

In this regard, the challenge for Queensland is not the choice whether to increase investment in infrastructure to a more sustainable level (which should be a given), but rather which infrastructure choices to make, how these choices will be funded, and in what ways industry can boost productivity to get the best value for the funding available.

Meeting this challenge means:

(i) Basing infrastructure decisions on published economic criteria rather than politicking.

(ii) Keeping all funding options on the table and engaging in a sensible debate between the electorate and their government representatives, industry and businesses.

(iii) Greater cooperation between the construction industry, governments and the workforce in finding ways to boost productivity and competitiveness.

With all these perspectives in mind, this Report makes the following recommendations:

- **Given the projected weakness in domestic demand and employment growth in Queensland as it continues to transition from the resources investment boom, that the State and Federal Governments expand the scope of productivity-enhancing public infrastructure provision in Queensland for their 2016/17 Budgets.** This should initially focus on projects which are "ready to go" so that they can take immediate advantage of excess industry capacity, lower construction costs and historically low borrowing costs. The Draft State Infrastructure Plan released in October 2015 nominates twelve Major Projects for inclusion on Infrastructure Australia's Infrastructure Priority List, including Cross River Rail, Bruce Highway Upgrades, Gold Coast Light Rail Stage 2 and the Inland Rail Corridor. While funding is now secured for the Gold Coast Light Rail project, it is now up to Infrastructure Australia to update their Priority List based on a thorough review of the costs and benefits of these projects and the Federal and State Governments to step up their commitment to fund productive and sustainable infrastructure development in their 2016/17 Budgets.
- **Meanwhile, steep losses in employment in the Queensland civil construction sector, combined with rising demand for skilled labour to support infrastructure development in New South Wales and Victoria, require industry and Government to work together to develop a workforce planning response that ensures this critical sector of the economy has a sustainable workforce that can deliver Queensland's future infrastructure requirements.** This response should take into account both short and long-term workforce planning linked to Major Project planning that features continued skills development and attraction and retention strategies and considers the impact of the ageing workforce and technological disruption, movement between industries of skilled workers, workforce projections and skills gaps.
- **Both the State and Federal Governments also need to develop a consistent, financially sustainable long term infrastructure investment plan that meets long run growth in demand for infrastructure services, is resilient to the political and economic cycle, reduces the amplitude of boom/bust construction cycles and provides industry confidence and certainty.** This plan should reference Infrastructure Australia's recent audits of infrastructure in Queensland as well as Northern Australia which identify existing and potential infrastructure gaps by type of asset and industry. Funding programs and projects here may include private projects offered concessional finance through the Federal Government's Northern Australia Infrastructure Facility (NAIF) from mid-2016, as well as the $100 million Northern Australia Beef Roads Fund and the $600 million Northern Australia Roads Package announced with the release of the Northern Australia White Paper. However, more needs to be done by Federal and State Governments to ensure that these funding measures are released promptly to industry.

  Inevitably, long term infrastructure plans should also include details as to how projects will be financed and funded across the full economic cycle whilst reducing the amplitude of the existing boom/bust construction cycle. Ultimately, relying too heavily on one funding strategy alone (or excluding others without adequately considering their true costs and benefits) to fund infrastructure is not a sustainable approach compared to a sensible mix of debt, tax and expenditure reforms and private sector involvement (such as via capital recycling, direct investment or PPPs) which can secure a more sustainable stream of funding through volatile economic cycles.
- **Both short term and long term public investment programs should be based on maximising economic benefits through transparent CBA.**

This, in turn, requires (i) the publication of CBA supporting the public investment decision by independent bodies such as Building Queensland, so it can be rigorously and independently tested, but also (ii) improvement in the quality of the data collected by the ABS which form key inputs to the CBA process, particularly surrounding the value of capital stock, investment, construction, construction costs, productivity and industry sustainability.

- **To maximise efficiencies in public infrastructure provision and reduce costs, both the Federal and State Governments should follow through with reforms to the public infrastructure procurement process, as outlined by the Productivity Commission's review in 2014.** This includes governments investing more in initial designs, 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), packaging projects into contract sizes that foster broader competition and a sustainable contracting industry, and removing unnecessary, duplicating or otherwise inefficient approvals processes or regulations.
- **To further reduce procurement costs and boost efficiency, Federal and State Governments should move towards a uniform contractual framework (characterised by consistent contract risk allocation highlighting Government efficiencies).** Contracts on major construction projects vary between regional and urban areas and also between Council, State and PPP contracts. It is not uncommon for two projects on the same stretch of road to be managed by different contracts with different risk allocations. This is inefficient for both the Government and the private sector. Each Major Project then requires both the Government and private sector to spend significant dollars on legal costs to analyse new contracts. In order to avoid this unnecessary expenditure and reduce disputes between the Government and private sector, the Government should work with the private sector to develop consistent contract documents with a risk allocation position that is acceptable to both parties as a base position.
- **Furthermore, governments and industry should continue to work together in tackling risks to productivity within the construction industry.** Over the long term, construction industry labour productivity growth has been near zero, with recent improvements likely overstated by classifications adopted by the ABS regarding industry of employment (mining versus construction) and the location of work (domestic versus offshore). Stronger growth in productivity would enable Major Projects to be completed more quickly and efficiently and, in future, should provide the fundamental basis for increasing returns to capital and labour. Measures which could boost labour productivity include (i) policies that encourage greater capital investment in the construction industry (e.g. accelerated depreciation write-offs) and a more strategic approach to workforce planning and skilling to ensure that the supply of skills into the future match the likely demand by industry.
- **Both Federal and State Governments should continue to make concerted efforts to eliminate structural deficits in their Budgets through wholesale tax and expenditure reforms.** This would be assisted, in turn, by improvements in the quality of Budget reporting to better isolate capital and recurrent expenditure items and the degree to which each are effectively funded through debt. Better matching of recurrent expenses with recurrent revenues would, in turn, provide greater fiscal headroom for investment in necessary and productive infrastructure.

Risks to the Outlook

A key conclusion of this Report is that Major Project activity will continue to weaken over the next few years before a moderate expansion later this decade. However, it should be noted that this outlook is subject to significant upside and downside risks; that despite the reasonably flat profile of work projected, there is still the potential for further, more volatile, 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 forecast, as many of the Major Projects identified in this Report which, in aggregate would define an upswing, are currently unfunded. For contractors, this means that efficiency, flexibility and innovation is required to navigate their way through the uncertainty. 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.

As in previous Major Project Reports, the biggest global risk still relates to 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. Currently, weaker growth in the economies of key trading partners, as well as tighter environmental conditions limiting the use of thermal coal – have affected resources investment and

profitability. In this Report, it is assumed that these factors continue to colour the outlook for resources demand and investment. Consequently, major developments that were contained in previous Reports (e.g. Galilee Basin coal) have been removed from the outlook. This does not mean that these projects will not happen, only that the balance of probabilities is now suggesting they will not start over the next five years. This means that there is some upside risk to our forecasts if stronger than expected global growth eventuates, or that demand for resources such as thermal coal turns out to be higher than projected.

We have taken the perspective that in a "lower 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, commodity prices have continued to fall through calendar 2015 suggesting there is still a way to go before the bottom can be called on the resources investment cycle.

Falling commodity prices also continue to 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 through other means, 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.

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[1] Department of Infrastructure, Local Government and Planning (2015) Draft State Infrastructure Plan, Part A: Strategy, October, p8.

[2] Investment in economics represents the addition to capital stock or productive capacity. It mostly consists of the construction of buildings and structures and purchases of plant and equipment, but also includes growth in livestock, minerals exploration and intellectual property. This is a very different meaning from finance, where investment refers to the purchase or creation of an asset with the expectation of generating financial returns.

[3] While it is true that the Queensland economy will benefit from a surge in LNG exports over the next few years, this growth driver will not be employment intensive.

[4] Garnaut, R. 2015 "We Need a Plan to Revive the Economy" Australian Financial Review, 8th April, p8.

[5] Stevens, G. 2015 "Economic Conditions and Prospects: Creating the Upside", Address to the Economic Society of Australia Luncheon, 10th June 2016, http://www.rba.gov.au/speeches/2015/sp-gov-2015-06-10.html

[6] Infrastructure Partnerships Australia 2012 "The Role of Superannuation in Building Australia's Future"

[7] Engineers Australia (2010) "Queensland infrastructure report card confirms major improvements required", media release, 16th November 2010, viewed 19th November 2015: https://www.engineersaustralia.org.au/sites/default/files/shado/Infrastructure%20Report%20Cards/Queensla nd/2010%20QLD%20IRC%20Media%20Release%2016%20Nov.pdf

[8] Queensland Infrastructure Alliance (2015) Building Our Future: 2015 Update – Snapshot: A Review of Infrastructure Investment in Queensland, viewed 19th November 2015: http://www.ccfqld.com/wp-content/uploads/2015/11/CCF0538-Building-Our-Future-low-res1.pdf

[9] Infrastructure Australia 2015, "Australian Infrastructure Audit", Commonwealth Government, Canberra, p9, 187

[10] Ibid, p8.

[11] International Monetary Fund (2014), World Economic Outlook, October 2014, pp xvi, 77.

[12] International Monetary Fund (2015), "Australia: Concluding Statement of the 2015 Article IV Mission". https://www.imf.org/external/np/ms/2015/062415a.htm

Appendix – 2016 Major Projects List

Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
ROADS, BRIDGES AND RUNWAYS					
Brisbane City Region					
Wynnum Road Corridor Upgrade – Stage 1	Brisbane City Council	Roads	South East Queensland	100	60
Kingsford Smith Drive Corridor	Brisbane City Council	Roads	South East Queensland	600	480
Brisbane Airport/Port					
Brisbane New Parrellel Runway – Phase 2	Brisbane Airport	Runways	South East Queensland	1000	500
Dryandra Drive	Brisbane Airport	Roads	South East Queensland	250	200
Logan Motorway Upgrade	Transurban	Roads	South East Queensland	450	300
Greater Brisbane					
Yamanto to Ebenezer and Amberley Upgrade	Qld Government	Roads	South East Queensland	345	259
Ipswich Motorway					
Rocklea to Darra Stage 1 – Between Suscatand Street and Oxley Road	Qld Government	Roads	South East Queensland	458	344
Rocklea to Darra – Further Stages	Qld Government	Roads	South East Queensland	1442	1082
Gateway Motorway Upgrade North (GUN)					
GUN – Single Package	Qld Government & Federal Government	Roads	South East Queensland	1162	872
Pacific Motorway					
Section C Daisy Hill to Logan Motorway at Loganholme	Qld Government & Federal Government	Roads	South East Queensland	280	200
Gateway Motorway/Pacific Motorway Merge Upgrade	Qld Government & Federal Government	Roads	South East Queensland	170	128
Mudgeeraba to Varsity Lakes Capacity Upgrade		Roads	South East Queensland	350	263
Sunshine Coast Region					
Sunshine Coast Airport – New East-West Runway and Terminal Upgrade	Qld Government	Runways	South East Queensland	347	174
Toowoomba Region					
Toowoomba Range Second Crossing	Qld Government/ Federal Government/ Private	Roads	South East Queensland	1600	1250

Funded | Not Funded

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
Probable	2018/19	2020/21					30	30
Probable	2016/17	2019/20			40	144	144	120
Expected	2015/16	2019/20		20	75	65	200	140
Expected	2016/17	2017/18			100	100		
Expected	2016/17	2018/19			75	150	75	
Expected	2017/18	2020/21				38	98	98
Expected	2017/18	2019/20				41	135	135
Expected	>2020/21							
Expected	2015/16	2018/19		142	300	300	130	
Expected	2019/20	2021/22						60
Expected	2017/18	2019/20				38	75	15
Probable	2018/19	2020/21					38	90
Expected	2018/19	2021/22					50	100
Expected	2015/16	2018/19		120	450	450	185	

Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
Warrego Highway					
Toowoomba to Miles – Other Stages of WHUP	Qld Government/ Federal Government/ Private	Roads	South East Queensland	525	350
Toowoomba to Oakey Stage 1 – Nugent Pinch to Charlton	Qld Government/ Federal Government/ Private	Roads	South East Queensland	110	100
Port of Brisbane Motorway					
Bruce Highway					
Sarina to Cairns: Duplication from Van Tassel St to Flinders Highway (Townsville Southern Approach)	Federal Government	Roads	Northern Queensland	138	80
Caloundra Road to Sunshine Motorway	Qld Government/ Federal Government	Roads	South East Queensland	850	650
Pine River to Caloundra Interchange	Qld Government/ Federal Government	Roads	South East Queensland	150	113
Cooroy to Curra: (Sections A) Cooroy Southern Interchange to Sankeys Road	Qld Government/ Federal Government	Roads	South East Queensland	590	413
Cairns Southern Access Corridor Stage 3 – Creating Six Lanes from Kate St to Aumuller St	Qld Government/ Federal Government	Roads	Northern Queensland	135	101
Sarina to Cairns – Cattle Creek and Frances Creek Upgrades	Federal Government	Roads	Northern Queensland	174	139
Curra to Sarina – Yeppen Floodplain South	Federal Government	Roads	Northern Queensland	170	119
Caboolture to Caloundra Upgrades (3 Packages)	Federal Government	Roads	South East Queensland	195	137
Sarina to Cairns – Mackay Ring Road/Bypass – Stage 1	Qld Government/ Federal Government	Roads	Northern Queensland	560	370
Bruce Highway – Boundary Road Interchange	Qld Government/ Federal Government	Bridges	South East Queensland	105	74
Cooroy to Curra: (Sections C) Traveston Road to Keefton Road	Qld Government/ Federal Government	Roads	South East Queensland	384	175
Cooroy to Curra: (Section D) – Keefton Road to Curra (Gympie Bypass)	Qld Government/ Federal Government	Roads	South East Queensland	1125	843
Sarina to Cairns – Goorganga Flood Plain (South of Proserpine)	Federal Government	Roads	Northern Queensland	330	241
Sarina to Cairns – Haughton River & Pink Lily Lagoon Upgrade	Federal Government	Roads	Northern Queensland	515	361
Sarina to Cairns: Cairns Southern Approach Stage 2 – Edmonton to Gordonvale Duplication	Federal Government	Roads	Northern Queensland	481	351
Northern Queensland					
Peak Downs Hwy Improvements – Eton Range	Qld Government & Federal Government	Roads	Bowen	189	120

Funded | Not Funded

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
Expected	2016/17	2019/20			75	115	115	31
Under Construction	2015/16	2016/17	8	57	17			
Expected	2013/14	2015/16	52	16				
Expected	2016/17	2017/18			100	200	200	150
Expected	2017/18	2019/20				15	58	40
Under Construction	2013/14	2016/17	109	85	141			
Expected	2018/19	2021/22					6	40
Expected	2017/18	2018/19				75	56	
Under Construction	2013/14	2016/17	44	19	20			
Expected	2014/15	2016/17	18	70	49			
Expected	2017/18	2019/20				115	125	165
Expected	2016/17	2017/18			55	24		
Expected	2016/17	2018/19			75	100		
Expected	2018/19	2021/22					38	90
Expected	2016/17	2018/19			15	75	110	
Expected	2018/19	2021/22					10	101
Expected		>2021/22						
Expected	2015/16	2017/18	8	9	72	62		

Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
Townsville Ring Road – Stage 4: Shaw Rd to Mount Low	Qld Government & Federal Government	Roads	Northern Queensland	200	160
Far North Queensland					
Peninsula Developmental Road (PDR)	Qld Government & Federal Government	Roads	Northern Queensland	261	208
ROADS, BRIDGES AND RUNWAYS	Work Done				
	Funded				
	Not Funded				
RAIL MAJOR PROJECTS					
(Passenger)					
New Generation Rail Stabling Yards	Qld Government	Passenger (Rail)	South East Queensland	116	93
Moreton Bay Rail Link (Redcliffe Rail Link)	Qld Government	Passenger (Rail)	South East Queensland	1147	650
Coomera to Helensvale: 2nd Track	Qld Government	Passenger (Rail)	South East Queensland	164	123
Gold Coast Rapid Transit System – Stage 2	Qld Government/Private	Passenger (Rail)	South East Queensland	600	200
Cross River Rail Brisbane	Qld Government/ Brisbane City Council	Passenger (Rail)	South East Queensland	5000	3500
Beerburrum to Landsborough Duplication	Qld Government/ Queensland Rail	Passenger (Rail)	South East Queensland	278	180
(Coal/Freight)					
Goonyella Coal Rail Further Upgrades	Aurizon	Coal (Rail)	Bowen	500	350
Townsville Eastern Access Rail Corridor	Private Developer	Freight (Rail)	Northern Queensland	200	160
Inland Mainline Freight Upgrade – Queensland Border to Acacia Ridge					
• Rosewood to Kagaru (Qld)	Federal/Queensland Government	Freight (Rail)	South East Queensland	500	350
• Gowrie to Rosewood Inc Toowoomba Range Tunnel (Qld)	Federal/Queensland Government	Freight (Rail)	South East Queensland	1500	1050
• Oakey to Gowrie (Qld)	Federal/Queensland Government	Freight (Rail)	South East Queensland	75	53
• North Star to Oakey (10% NSW, 90% Qld)	Federal/Queensland Government	Freight (Rail)	South East Queensland	400	280
Galilee Basin Coal Rail Infrastructure	GVK or Adani	Coal (Rail)	Galilee	2500	1750
Galilee Basin Coal Rail Infrastructure Spur Line	GVK or Adani	Coal (Rail)	Galilee	600	500
RAIL MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				

Funded Not Funded

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
Under Construction	2014/15	2016/17	15	62	73			
Expected	2015/16	2018/19	16	16	45	45	40	
			572	**616**	**1776**	**2151**	**1914**	**1404**
			572	616	1646	1511	886	330
			0	0	130	640	1028	1074
Under Construction	2015/16	2016/17		36	41			
Under Construction	2013/14	2016/17	554	371	23			
Expected	2015/16	2017/18		50	48	32		
Probable	2015/16	2017/18		50	150	50		
Probable	2019/20	2022/23						105
Probable	2018/19	2020/21					40	120
Probable	2018/19	2021/22					120	120
Probable	2018/19	2021/22					55	80
Probable	2017/18	2019/20				50	100	100
Probable	2017/18	2021/22				50	300	400
Probable	2019/20	2020/21						25
Probable	2019/20	2022/23						40
	>2019/20							
	>2019/20							
			654	**507**	**262**	**182**	**615**	**990**
			654	507	262	82	0	0
			0	0	0	100	615	990

Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
HARBOURS/PORTS					
Port of Cairns Cruise Terminal Dredging	Far North Queensland Ports Corporation Ltd (trading as Ports North)	Other	Northern Queensland	100	50
Gladstone Harbour Dredging – Second Shipping Lane	Gladstone Ports Corporation	Other	Other	400	280
Amrun (South of Embley) Port Upgrade	Rio Tinto	Port Component	Northern Queensland	400	120
HARBOURS MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
WATER					
Lower Fitzroy River Infrastructure Project – Raising Eden Bann Weir Stage 1 (6m)	Gladstone Area Water Board (GAWB)	Dam	Gladstone	171	128
Gladstone to Fitzroy River Pipeline	Gladstone Area Water Board (GAWB)	Pipeline	Gladstone	345	207
Etheridge Integrated Agricultural Project	Integrated Food & Energy Developments Pty Ltd	Other	Northern Queensland	700	500
Shell/Arrow Water Treatment Facilities Bowen	Shell/Arrow/Bow	WTP/Pipeline	Surat	250	175
Wyaralong Dam WTP Stage 1	Qld Government	WTP	South East Queensland	250	175
Cedar Grove Connector (was Southern Regional Pipeline extension)	Qld Government	Pipeline	South East Queensland	100	80
Gorge Weir to Byerwen Coal Project Pipeline project (110km)	Sunwater for QCoal	Pipeline	Bowen	240	180
Nullinga Dam	Qld Government	Dam	Northern Queensland	586	440
Galilee Basin Flood Mitigation and Water Supply Dam	Adani Or GVK	Dam	Galilee	300	225
Galilee Basin Flood Mitigation and Water Supply Pipeline	Adani Or GVK	Pipeline	Galilee	600	450
WATER MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
SEWERAGE					
S1 Sewer Upgrade – Brisbane	Brisbane City Council	Pipeline	Brisbane	160	120
SEWARAGE MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				

Funded Not Funded

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
Under Construction	2014/15	2015/16	0					200
Expected	2017/18	2019/20				35	140	105
Expected	2015/16	2017/18		45	61	14		
			526	**45**	**61**	**49**	**140**	**305**
			526	45	61	14	0	0
			0	0	0	35	140	305
Probable	2017/18	2020/21					40	60
Probable	2017/18	2019/20				70	100	37
Expected	2018/19	2020/21					100	200
Expected	2016/17	2019/20						
Probable	2018/19	2020/21					60	100
Probable	2018/19	2020/21					15	55
Expected	2018/19	2019/20					30	90
Expected	2017/18	2019/20				50	200	190
	>2019/20							
	>2019/20							
			165	0	0	120	545	732
			165	0	0	0	0	0
			0	0	0	120	545	732
Under Construction	2014/15	2016/17	30	68	30			
			30	68	30	0	0	0
			30	68	30	0	0	0
			0	0	0	0	0	0

Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
ELECTRICITY					
Kumbarilla Power Station 450–600MW	QGC/BG	Generation	Surat	500	425
Springdale to Blackwall Transmisson Line	Powerlink	Distribution/ Supply	South East Queensland	125	50
Cooper's Gap Wind Farm – Stage 1	AGL	Generation	South East Queensland	600	360
Kennedy Energy Park near Hughenden Stage 1 (Wind Farm)	Windlab	Generation	South East Queensland	200	130
Kennedy Energy Park near Hughenden Stage 1 (Solar)	Windlab	Generation	South East Queensland	100	80
Bulli Creek Solar Farm – Stage 1 & 2 (100–500MW)	Solar Choice/ SunEdison	Generation	South East Queensland	1500	975
Einasleigh Hydro Project (Burdekin Dam)	Genex Power	Generation	South East Queensland	282	182
Clare Solar Farm Project	FRV	Generation	Northern Queensland	400	350
Galilee Basin Transmission Project	Adani	Distribution/ Supply	Galilee	300	200
ELECTRICITY MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
PIPELINES					
South West Queensland Pipeline (SWQP) – Stage 2 (& 3)	Epic Energy/Origin	Gas	South East Queensland	858	640
Bowen to Gladstone Pipeline Work for Shell Arrow LNG (or Merger)	Shell/Arrow/Bow	CSG	Surat	450	360
PIPELINES MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
TELECOMMUNICATIONS					
National Broadband Network – Qld Component	NBN Co.	Telecomms	Other	6928	4850
TELECOMMUNICATIONS MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
OIL & GAS					
Queensland Curtis LNG Upstream Field Development	QGC & BG Group	LNG	Surat	4700	3700
Curtis LNG Downstream (2 Trains, 8.5mtpa)	QGC & BG Group	LNG	Gladstone	14840	7590
Queensland Curtis LNG – Stage 2 (Expansion to 12mtpa – 3rd Train)	QGC & BG Group	LNG	Gladstone	8000	6400

Funded Not Funded

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
Under Construction	2010/11	2012/13						
Expected								
Possible	2017/18	2019/2020				100	180	80
Possible	2016/17	2019/20			85	85	85	85
Possible	2018/19	2020/21					70	70
Possible	2017/18	2020/21				85	85	85
Possible	2017/18	2018/19				82	100	
Possible	2018/19	2020/21					75	188
	>2019/20							
			20	0	85	402	745	788
			20	0	0	0	70	70
			0	0	85	402	675	718
Completed	2010/11	2012/13						
Expected	>2019/20							
				0	0	0	90	90
				0	0	0	90	90
				0	0	0	0	0
Under Construction	2010/11	>2019/20	202	372	408	458	432	440
			202	372	408	458	432	440
			202	372	408	458	432	440
			0	0	0	0	0	0
Under Construction	2009/10	>2019/20	600	200	450	400	400	400
Under Construction		>2019/20	1500					
	>2019/20							

Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
Queensland Curtis LNG Upstream Field Development (3rd Train)	QGC & BG Group	LNG	Surat	3000	2000
Gladstone LNG Upstream Field Development	Santos & Petronas	LNG	Surat	4500	3600
Gladstone LNG Project Downstream (2 Trains, 7.8 mtpa)	Santos & Petronas	LNG	Gladstone	14350	7500
Australia Pacific LNG Upstream Field Development	Origin/Conoco Phillips	LNG	Surat	6500	5200
Australia Pacific LNG Project (2 Trains, 9mtpa)	Origin/Conoco Phillips	LNG	Gladstone	15000	8000
Ironbark Gas Facility (Domestic Supply)	Origin	LNG	Surat	250	250
Australia Pacific LNG Salt Handling Facility	Origin/Conoco Phillips	LNG	Surat	150	150
Shell LNG Surat Basin Upstream Field Development	Shell/Arrow/Bow	LNG	Surat	2000	1600
OIL & GAS MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
BAUXITE, ALUMINA & ALUMINIUM					
South of Embley	Rio Tinto Alcan	Bauxite	Northern Queensland	600	360
BAUXITE, ALUMINA & ALUMIN. MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
OTHER HEAVY INDUSTRY MAJOR PROJECTS					
North Queensland Bio Energy – Ethanol Plant	North Queensland Bio Energy	Ethanol	Northern Queensland	300	200
OTHER HEAVY INDUSTRY MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
COAL MAJOR PROJECTS					
Jax Open Cut	QCoal	Coal	Bowen	100	80
Baralaba North Open Cut Expansion	Cockatoo Coal	Coal	Bowen	331	232
Eagle Downs Coking Coal	Aqulia/Vale	Coal	Bowen	1250	813
Byerwen	QCoal	Coal	Bowen	500	360
New Acland Stage 3 Expansion	New Hope Corporation	Coal	Other	350	200

Funded Not Funded

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
	>2019/20							
Under Construction	2009/10	>2019/20	600	600	500	400	400	400
Under Construction	2009/10	2015/16	2250	1000				
Under Construction	2009/10	>2019/20	600	300	450	450	450	450
Under Construction	2009/10	2015/16	2250	1000				
Expected	2015/16	2017/18					100	150
Expected	2017/18	2018/19				50	100	
	>2019/20		150					
			7950	3100	1400	1400	1500	1400
			7950	3100	1400	1300	1350	1250
			0	0	0	100	150	150
Probable	2015/16	2017/18		113	150	188	70	
			0	113	150	188	0	0
			0	113	150	188	0	0
			0	0	0	0	0	0
Probable	2018/19	2020/21				75	75	110
				0	0	75	75	110
				0	0	0	0	0
				0	0	75	75	110
Under Construction								
Under Construction	2016/17	2017/18	91.7	70				
On Hold	2017/18	2020/21	87.5	35	35	158	228	284
Possible	2017/18	2019/20			56	120	120	64
Possible	2016/17	2018/19			60	90	60	

Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
Caval Ridge	BMA	Coal	Bowen	200	160
Millenium Expansion	Peabody	Coal	Bowen	400	320
Minyango Coal Project	Caledon Resources	Coal	Bowen	750	600
Gaililee Basin Coal Project	Adani	Coal	Galilee	1000	500
Gaililee Basin Coal Project	GVK	Coal	Galilee	2200	500
COAL MAJOR PROJECTS WORK DONE	Work Done				
	Funded				
	Not Funded				
OTHER MINERALS MAJOR PROJECTS					
Mt Carlton (Silver Hill)	Evolution Mining	Gold	Northern Queensland	127	45
Dugald River	MMG	Zinc	Northern Queensland	1456	728
Cannington Expansion	BHP Billiton	Silver/Lead/Zinc	Northern Queensland	400	120
Merlin Project Molybdenum	Inova Mines	Molybdenum	Northern Queensland	345	173
Roseby Copper (Little Eva)	Altona Resources	Copper	Northern Queensland	320	96
Red Dome Mungana	Mungana Gold Mines	Gold	Northern Queensland	330	215
Watershed Tungsten	Vital Metals	Tungsten	Northern Queensland	172	14.8
SCONI Scandium Project (Phase 1)	Metallica Minerals	Rare Earths	Northern Queensland	247	148.2
Sarsfield	Resolute Mining	Gold	Northern Queensland	500	100
Gold Coast Quarry	Boral	Aggregate	South East Queensland	150	45
Paradise Phosphate South Project	Legand International Holdings	Phosphates	Northern Queensland	400	300

Queensland Project Description	Sponsor	Sector	Region	Total Project Value ($m)	Engineering Value ($m)
OTHER MINERALS MAJOR PROJECTS	Work Done				
	Funded				
	Not Funded				
TOTAL MAJOR PROJECTS	**Work Done**				
	Funded				
	Not Funded				

Funded Not Funded

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
Possible	2017/18	2019/20					80	80
Expected	2018/19	2021/22					40	50
Probable	2016/17	2018/19						120
Possible	>2019/20							
Possible	>2019/20							
			599	425	151	368	528	598
			599	425	35	158	228	284
			0	0	116	210	300	314
Under Construction	2011/12	2012/13		13	25	200	200	
Expected	2017/18	2020/21			20	90	10	
Expected	2016/17	2018/19				70	80	22.5
Expected	2017/18	2019/20				30	45	21
Possible	2017/18	2019/20						65
Expected	2019/20	2021/22						14.8
Expected	2019/20	2022/23						45
Expected	2019/20	2021/22						
Possible		>2019/20						
Expected	2019/20	2020/21						
		>2019/20						

Project Status	Commencement Date	Completion Date	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)	2018/19 ($m)	2019/20 ($m)
			30	13	45	400	375	168
			30	0	0	0	0	0
			0	13	45	400	375	168
			10749	**5258**	**4369**	**5881**	**6959**	**6935**
			10749	5245	3993	3800	3056	2374
			0	13	376	2082	3903	4561

QUEENSLAND MAJOR CONTRACTORS ASSOCIATION

CSQ STRONGER FUTURES IN CONSTRUCTION