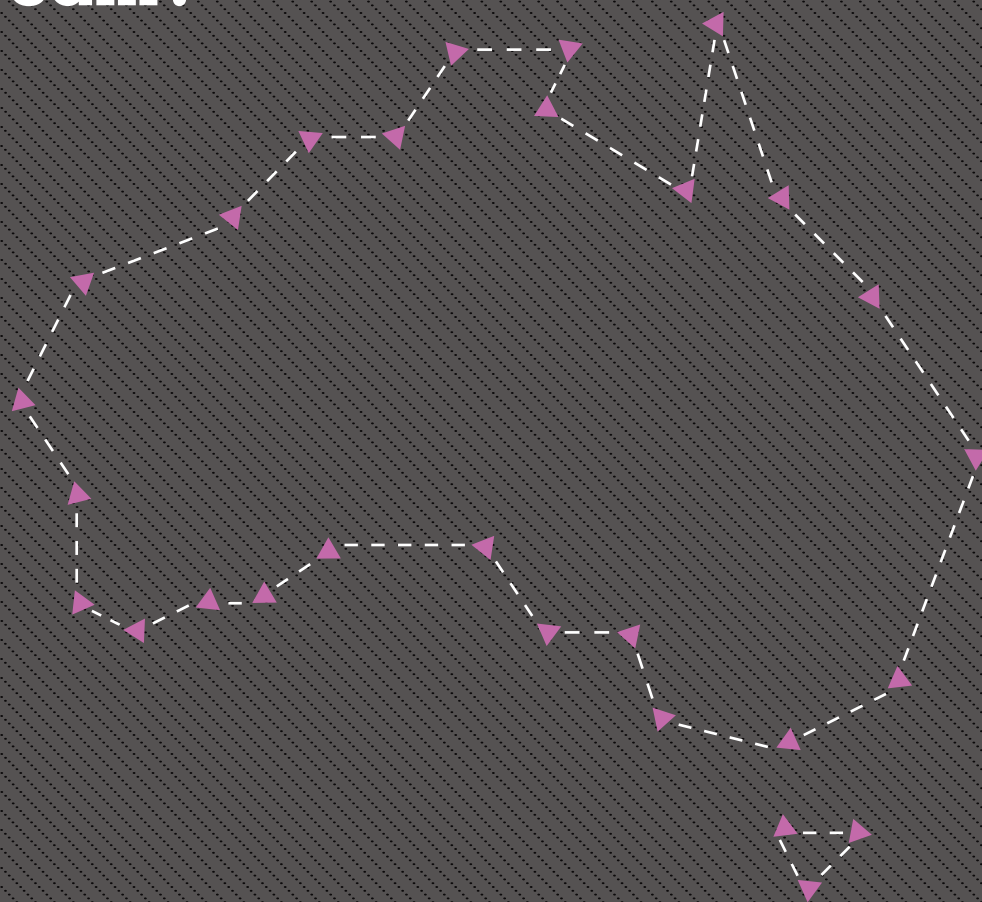


# Pipeline or **Pipe Dream?**



SECURING AUSTRALIA'S  
INVESTMENT FUTURE



**Business Council  
of Australia**



### **About this publication**

This is a study by the Business Council of Australia titled *Pipeline or Pipe Dream? Securing Australia's Investment Future*. An overview of the study is available at [www.bca.com.au](http://www.bca.com.au). Representatives of member companies and other experts provided input and advice for the study through a series of facilitated workshops and individual meetings. Background research commissioned by the Business Council of Australia and referred to within the study includes a report by Deloitte Access Economics titled 'Large Capital Projects: Defining Australia's Investment Challenge', a report from Independent Project Analysis titled 'The Performance of Australian Industrial Projects' and a report by Evans & Peck titled 'Delivering Large-Scale Capital Projects in the Infrastructure Sector: A Baseline of Performance in Australia'.

### **About the Business Council of Australia**

The Business Council of Australia (BCA) brings together the chief executives of 100 of Australia's leading companies. For almost 30 years, the BCA has provided a unique forum for some of Australia's most experienced corporate leaders to contribute to public policy reform that affects business and the community as a whole. Our vision is for Australia to be the best place in the world in which to live, learn, work and do business.

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## 1. Introduction

### Why the Business Council of Australia has undertaken this study

#### Key points

- ▶ Australia has become a high-investment economy characterised by an unprecedented pipeline of \$921 billion of capital projects.
- ▶ BCA members have highlighted that capacity constraints and efficiency issues are placing some of these projects at risk of not being delivered or being delivered at an unnecessarily high cost.
- ▶ This is diverting funds that could otherwise be reinvested in the economy and putting at risk Australia's future prosperity.

This study was intended to:

1. understand the nature of Australia's investment pipeline and the opportunities it presents for the entire Australian community
  2. understand how well Australian investment projects are delivered
  3. identify the risks of failure or cost blowouts on projects
  4. understand the barriers or problems impacting on efficient infrastructure project delivery
  5. provide some practical ideas for improving the delivery of investment projects.
- ▶ The findings and recommendations arising from the study focus on the policy levers that governments can control. The BCA recognises that companies also have a vital role to play in lifting the performance of major project planning, design and management.

Australia is in the midst of an investment boom that has the potential to deliver real long-term improvements in our standard of living. Over the next two years business investment is forecast to grow by 12.5 per cent and 8 per cent. Investment is heading towards 30 per cent of GDP and expected to remain there through this decade.

We are set to become the most highly investment-intensive economy among our peers in the Organisation for Economic Co-operation and Development (OECD).

There are several reasons why high levels of investment are anticipated over the remainder of this decade. The extended phase of growth in the economies of the Asia-Pacific region means Australia is fortuitously positioned to experience sustained strong demand for our commodities. Demographic change and estimated growth in the population to 36 million by 2050 are other key drivers.

The public and private capital projects that constitute this investment spending are hugely important to Australia's economic and social prosperity. Private business investments, notably the large investments in the resources and energy sectors, will underpin significant export growth and income generation for Australia. The long list of infrastructure projects underway and in planning will provide the energy, transport, water, communication, urban infrastructure and social services to make our cities and regions better places to live and do business.

To ensure we secure our investment opportunities we will need to deliver these projects well. That means we need to develop world-class capabilities and performance for planning, funding and delivering capital projects. The experience to date, however, with respect to the costs and time of major project delivery in Australia suggests we fall short of world best practice.

Major investments are complex and risky and are exposed to many external factors that can blow out costs and schedule performance.

Australia is a relatively high-cost place to invest. Research sourced by the BCA shows resources projects are 40 per cent more costly than in the United States. Infrastructure projects are also more expensive than the United States, for example, costs for hospitals are 62 per cent higher and

schools 26 per cent higher. We have not been able to offset higher costs with productivity growth. Productivity on major Australian resource projects is typically benchmarked at 30 to 35 per cent below the United States. However, many project owners are now reporting productivity is getting worse and heading towards twice that difference or more. Sustaining a high-income economy will require us to lift our productivity performance.

For many investors it is becoming more difficult to do business in Australia. As one BCA member commented, "Australia has a lot of great reasons to invest, but is not an easy place to execute projects".

This study finds that the Australia faces these challenges with delivering investment effectively:

- low levels of community acceptance towards some projects based on factors operating locally and at the national level
- Australia's economy is running up against capacity constraints that are making it difficult to source the skilled and experienced labour needed to deliver multiple, large projects
- a number of factors are impacting on the efficient delivery of projects in Australia – notably our inefficient project approvals processes, increasing concerns for workplace productivity and the quality of project design and management on some projects
- a drift in investor confidence in Australia due to concerns about the competitiveness and predictability of the policy environment – two features of policy that are so important to creating an environment in which investors will risk large amounts of capital over long time frames
- specific concerns for the planning and funding of the public infrastructure pipeline that need to be addressed to ensure a regular flow of projects and the adequate provision of utilities, transport and social infrastructure in our fast-growing regions and our cities.

It is a critical time to ask whether Australia's markets and policy settings are supporting the effective delivery of investment projects. Importantly governments need to evaluate how well they understand the pipeline of investment, the challenges for effective project delivery and whether their institutions and policies are appropriately configured to play a supportive role in securing its delivery.

As a community we need to better understand the implications of the shift to a high investment economy and how important it is to our future. Unnecessary delay or costly project delivery puts at risk the jobs and the broader economic, social and environmental benefits that investment projects bring. The costs of poor investment performance are ultimately borne by the Australian community.

The BCA has undertaken this research to develop a wider understanding of the increasing importance of investment projects in Australia's economic and social development and the factors that will support or impede their effective delivery. Our report identifies key areas of policy for all governments to address to ensure Australia secures our investment opportunities ahead.

## 2. What is Australia's investment pipeline?

### Key points

- ▶ Australia has a large portfolio of investment projects that are set to make us the most investment-intensive economy in the OECD.
- ▶ Investment will rise to over 30 per cent of GDP and remain at an elevated level through the 2010s. This has implications for our industry structure and for the types of skills and capabilities that will be needed in the workforce.
- ▶ The investment is characterised by a pipeline of over \$921 billion of major projects.

### Australia is becoming a highly investment-intensive economy

Australia's economy is undergoing significant change. The key underlying force in economic activity in Australia underway now and expected to continue through the 2010s will be a significant and sustained increase in investment activity. This means that more economic activity and more jobs will be either directly or indirectly associated with delivering an unprecedented pipeline of capital projects notable for its scale, and the size and complexity of individual projects.

The confluence of factors driving this extended phase of growth and investment has been well documented – strong economic growth in our Asia–Pacific region, high terms of trade, strong economic settings following 20 years of reforms and the continuing need to invest in public infrastructure to support steady population growth.

As the Treasurer said in his 2012 post-budget address, one of the primary factors that will contribute to Australia's economic growth and fiscal stability is our investment pipeline:

Our nation walks tall in the global economy, with solid growth, low unemployment, contained inflation, sound public finances and a huge investment pipeline.

– Speech by the Treasurer of Australia, 9 May 2012

The International Monetary Fund (IMF) has observed Australia's GDP growth is strongly dependant on the realisation of investments.

We believe that Australia will be affected by these downgrades everywhere in the world only to a limited extent and the reason is that growth in Australia is importantly driven by major investment projects that are in the pipeline and these are funded by strong multinationals that do not have problems accessing funding so growth in Australia will be somewhat lower but not by a whole lot.

J. Decressin, Deputy Director of the IMF's research department and lead author of the IMF's latest *World Economic Outlook* report, in an interview on the ABC Radio National *Breakfast* program on 25 January 2012.

The OECD forecasts growth in the Australian economy of 3.1 per cent in 2012 and 3.7 per cent in 2013 largely driven by investment growth of 8.3 per cent and 9.1 per cent in those years respectively.<sup>1</sup>

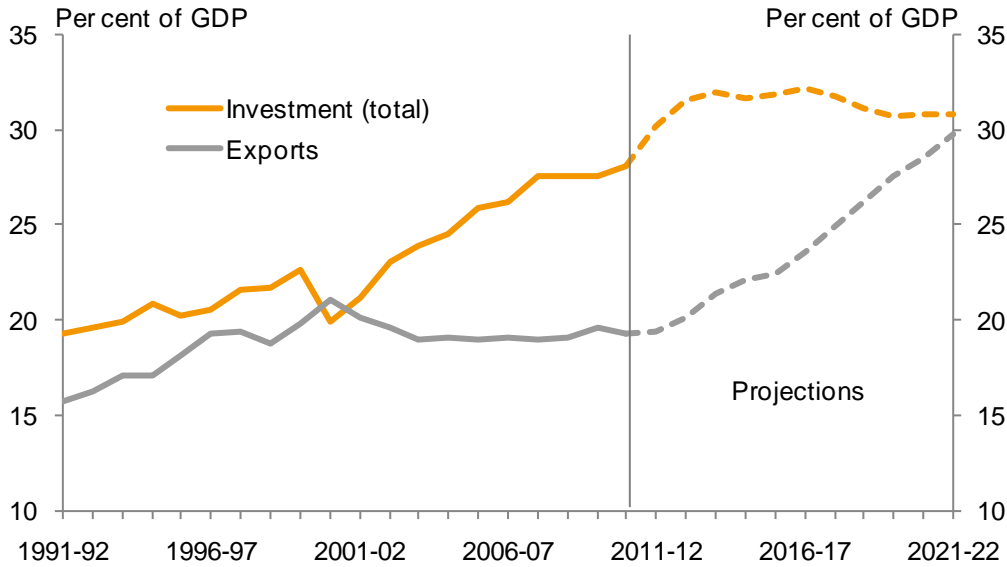
Reflecting the increasing importance of capital projects, Australia's investment to GDP ratio has been climbing steadily through the past two decades. Remarkably it is expected to continue to grow to over 30 per cent of GDP as a string of projects are delivered or commenced, and remain there through the 2010s.

Figure 1 shows the ramp-up in investment and its projected continuing importance to the economy over the coming decade. It also shows the importance of the investment-spending boom to the generation of income through strong growth in exports in the latter half of this decade. A key reason behind the growth in exports in the chart is the expectation of successful delivery of the estimated \$450 billion of investments in resources projects as well as the infrastructure that will be needed to transport export goods to foreign buyers.

Those exports in turn will provide a greater proportion of Australia's GDP and will be critical in growing the incomes of Australians. Deloitte Access Economics forecasts Australia's total exports

to grow from almost 20 per cent of GDP to almost 30 per cent of GDP by 2020 – rising from \$263 billion to \$558 billion.

**Figure 1: Investment and exports as a per cent of GDP**



Source: Deloitte Access Economics, *Business Outlook*, background data, March 2012.

Note: GDP shares are real ratios, as nominal output levels are not projected.

Australia’s growth opportunities will be quite different to the experience of most other advanced economies.

Compared to our peers, we are set to become the most investment-intensive economy in the OECD.

The OECD’s own forecasts are for our investment share of GDP to rise to 28.5 per cent by 2013 – much higher than in most other industrialised economies – and topping Korea for the position of most investment-intensive OECD economy in 2013.

**Table 1: Investment as a share of GDP, forecast, selected OECD countries**

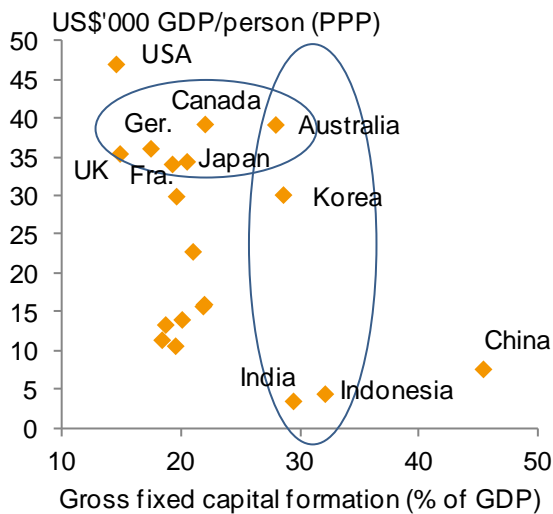
OECD Rank	Country	2012	2013
1	Australia	27.7	28.5
2	Korea	27.6	27.5
4	Canada	23.7	24.1
	OECD Average	18.8	19.2
30	USA	15.7	16.0
33	UK	14.1	14.7

Source: OECD *Economic Outlook* projections, December 2011. Note: OECD area average is constructed.

At this level, our investment-to-GDP ratio looks more like that of one the fast-growing emerging economies of Asia, rather than our traditional advanced economy peers – even as we remain a Top 10 high-income country in terms of GDP per capita.

This puts us in a unique situation amongst the world’s economies. As Figure 2 shows, even in 2010 (the most recent year with comparable data), Australia stood out among G20 countries as being both a high-income and high-investment economy.

Figure 2: G20 economies – investment share and per capita income levels in 2010



Source: IMF, *World Economic Outlook*, April 2012, and World Bank website at <http://databank.worldbank.org>.  
Note: all data for 2010; PPP = Purchasing Power Parity.

Most of the investment is in the fast-growing resources sector. The 2012–13 Budget forecasts resources and resources-related sectors of the economy to account for 15 to 20 per cent of GDP and to grow by an average of nearly 9 per cent a year.

A substantial amount of investment in economic infrastructure is also contributing to the heightened levels overall.<sup>2</sup>

The possible flow on effects of the economic problems in Europe and remaining troubles in world capital markets give cause for caution, but the medium to longer-term economic and demographic trends driving Asia–Pacific region growth are strong, and we should plan for the future with confidence. On these grounds Australia's investment boom is likely to be sustained for some time to come.

Despite its importance to our economy there has been little considered analysis of the nature of the investment and the challenges for Australia to transition to this new investment-oriented economic structure to date. Because of its importance to our economy the BCA has commissioned research to better understand what will be involved in delivering this large pipeline of investment.

For Australia the current investment pipeline is the biggest we have seen and contains some of the largest projects in Australia's history. While clearly much attention has been paid to Australia's considerable portfolio of resources and energy investments, we are also embarking on a number of significant infrastructure projects in urban and regional areas that should require us to contemplate how they will be effectively resourced and delivered.

Not only do we need to be concerned about the effective delivery of each individual project, the scale of the pipeline as a whole means we should also be concerned for Australia's capacity to deliver the combined total investment associated with multiple projects.

### Multiple large-capital projects are driving the investment

#### *The investment pipeline*

Research provided by Deloitte Access Economics for the BCA reveals the capital investment in Australia is underpinned by a record pipeline of \$921 billion in capital projects either underway, in planning or being considered.

Large projects in the resources and energy (\$412.5 billion) and infrastructure (\$377.9 billion) sectors will dominate Australia's future capital investment portfolio. Deloitte Access Economics



estimates that the projects underway now and in planning in those sectors would sustain high levels of investment for some time:

- for resources it is indicatively six years of investment
- for transport infrastructure it is indicatively nine years of investment
- for utilities infrastructure it is indicatively two years of investment.<sup>3</sup>

**Table 2: Australia's investment pipeline (\$b)**

	Economic infrastructure	Mining, oil and gas	Other	All sectors
Under construction	137.3	168.7	78.1	384.0
Committed	6.6	54.2	5.5	66.2
Under consideration	39.0	125.8	26.7	191.5
Possible	195.0	63.8	20.5	279.4
<b>Total</b>	<b>377.9</b>	<b>412.5</b>	<b>130.9</b>	<b>921.2</b>

Source: Internal report for the BCA by Deloitte Access Economics, and the Deloitte Access Economics *Investment Monitor*, March 2012.

The data that underpin these estimates is collected and maintained by Deloitte Access Economics. The following definitions are used to describe the status of the projects:<sup>4</sup>

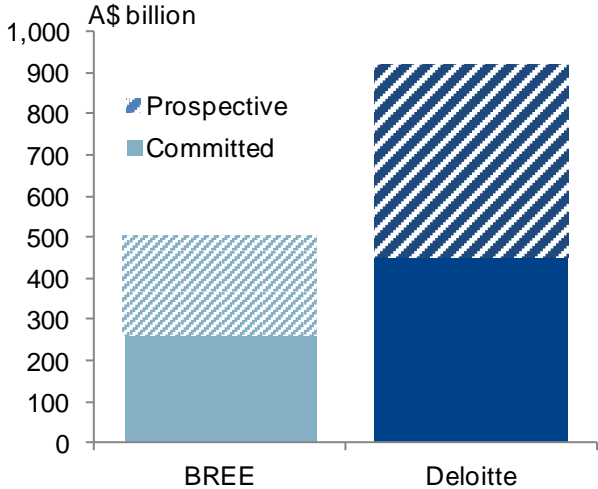
- Projects "under construction" are those where work has commenced on the project.
- Projects where a decision to proceed has been announced but construction has not yet started are shown as "committed".
- Projects "under consideration" are those where a decision whether to proceed with the project is expected in the reasonably near future.
- Projects with "possible" status are those projects that have been announced but where no early decision on whether to proceed with the project is likely.

The \$921 billion investment pipeline therefore is not all guaranteed investment but gives the best overall view of the projects currently underway and that are being considered. It should also be noted that many projects on the horizon and which are being mooted by governments are not currently included in the pipeline – for instance a second airport for Sydney, or the East-West Freeway link in Melbourne.

Over 45 per cent of the pipeline, totalling \$415 billion, are projects either under construction or committed and so are considered as definite investments. Of the remaining projects, \$221 billion are under active consideration (with an estimated 80 per cent chance of proceeding) and \$276 billion are considered "possible" (meaning they have a slightly better than 50 per cent chance of occurring).

BCA commissioned this analysis from Deloitte Access Economics because it is the most comprehensive source of information on future investment in Australia. Figure 3, for instance, compares Deloitte's comprehensive estimate of \$921 billion in investment opportunities in Australia with the database used by the government, which currently estimates \$504 billion of investment opportunities. The government's estimate is derived from the Bureau of Resources and Energy Economics (BREE) in the Department of Resources, Energy and Tourism and counts resources projects and some related infrastructure projects but leaves out all other infrastructure projects and major capital investment in the economy.<sup>5</sup>

Figure 3: Estimates of committed and prospective investment in Australia



Source: Bureau of Resources and Energy Economics, *Mining Industry Major Projects April 2012*, and Deloitte Access Economics, *Investment Monitor*, March 2012. Note: the BREE list covers minerals and energy major projects (and some related infrastructure), while the Deloitte list covers major investment projects across all economic sectors.

The *Investment Monitor* includes: mining, oil and gas, roads, ports, water, communications and industrial complexes, hotels and tourist facilities, office buildings, major urban developments, universities, sport and cultural facilities and major social infrastructure such as schools and hospital (it does not include residential development).

How Australia’s investment opportunities are measured is important for designing policy. As Exhibit 1 below explains, there are a number of published lists of capital projects in Australia that serve different purposes. We argue that government should draw upon the most comprehensive information possible and take a whole-of-economy perspective when formulating policies and programs to facilitate (or at least to take care not to hinder) effective investment project delivery.

### **Exhibit 1: Measures of major capital project activity in Australia**

The most comprehensive list of major capital projects in Australia is published by Deloitte Access Economics in its quarterly *Investment Monitor* publication. This covers all Australian industries and includes projects that embody gross fixed capital expenditure of \$20 million or more. The list is available by subscription and has been published since March 2001.

Projects are broken down by state, industry sector and status (i.e. under consideration, committed, under construction and possible). The *Investment Monitor* currently lists projects with a total of \$921 billion and informs the analysis in this report.

The federal government publishes several lists of capital projects for specific purposes and which each offer a partial record of Australia's capital projects activity.

The Bureau of Resources and Energy Economics publishes a list of projects in the resources and energy sector which includes energy and minerals commodities projects and mineral processing projects as well as some resources-related infrastructure projects. As of May 2012, there were 98 projects listed at an advanced stage of development, with a record capital expenditure of around \$261 billion. Together with the less advanced projects listed, BREE estimates a total of around \$504 billion in resource and related projects.

Infrastructure Australia publishes a list of national priority infrastructure projects being assessed to qualify for federal funding, currently totalling \$86 billion.

The Department of Infrastructure and Transport has just released a National Infrastructure Construction Schedule that displays all public (but not private) infrastructure projects in planning for the purpose of providing forward-looking information on tenders for potential bidders. In May 2012 it listed 56 available projects, worth over \$50 billion.

Two states publish lists of investments within their jurisdictions:

- The South Australian government publishes a list of all investment projects in the state which exceed \$5 million. The list covers most sectors and has been published since 2004.
- The West Australian Department of State Development publishes a list of projects within that state that is mostly resources projects they oversee.

Additionally, estimates of future investment spending are published by the Australian Bureau of Statistics in its quarterly new capital expenditure series (cat. no. 5625.0). This is aggregate data rather than a list of major project expenditures. Total nominal capital expenditure is expected to be around \$173 billion in 2012–13, representing a rise of around 24 per cent on the 2011–12 estimate, with mining industry expenditure expected to be the main contributor to the increase.

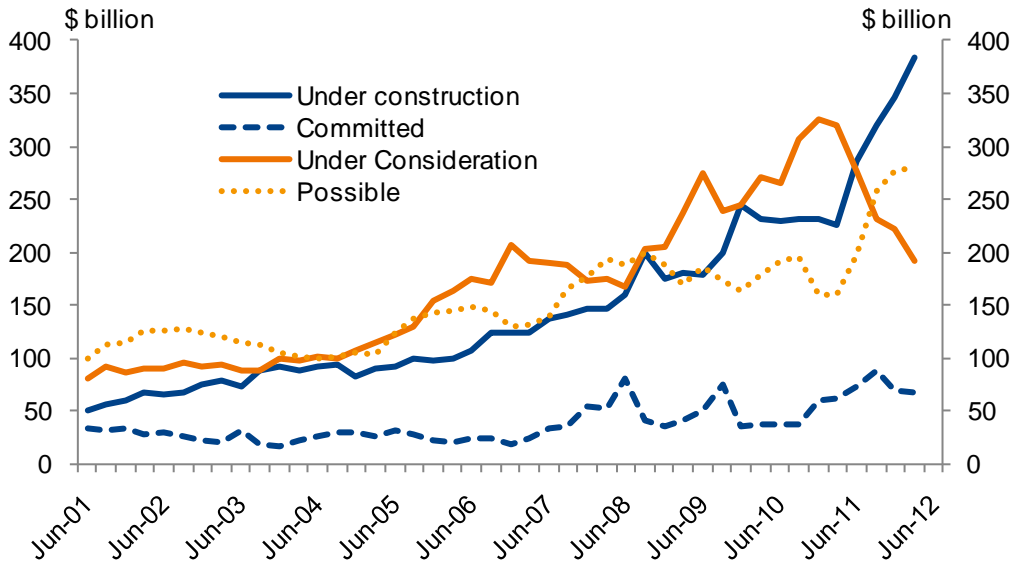
The scope of information collected is important because what is measured influences how policy is determined. For governments to set policies and programs that support good project delivery performance across the entire economy it will be important to have as an evidence base the most up-to-date and comprehensive information on all investments underway and in planning.

Source: Business Council of Australia research.

*Australia’s investment pipeline has grown considerably*

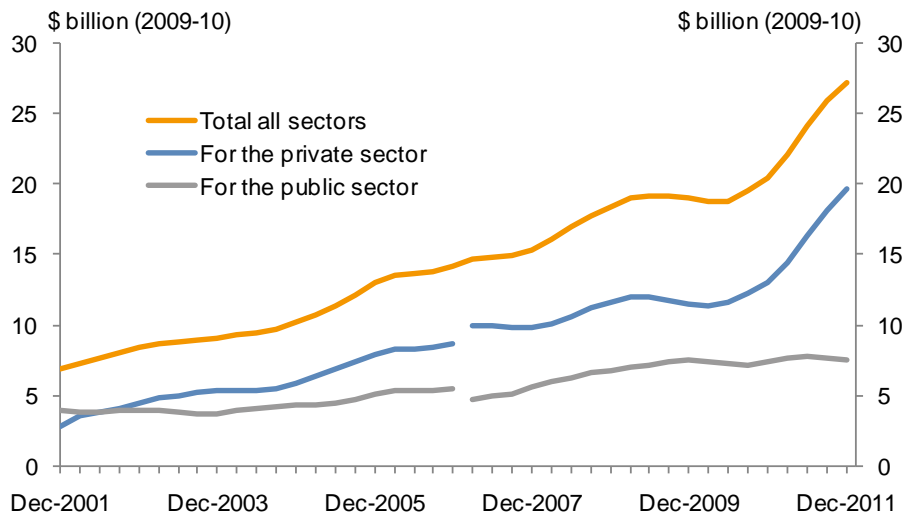
A feature of Australia’s economic transition has been the steady growth in investment activity since early in the 2000s. Figure 4 provides an indication of how rapidly the investment pipeline for projects has grown over that time.

**Figure 4: Growth in the investment pipeline since 2001**



Source: Deloitte Access Economics, *Investment Monitor*, background data, March 2012. Note: figures are current dollars.

This growth has been reflected in the detailed engineering construction data, which show total real engineering work done increased at a compound rate of over 15 per cent from mid-2004 to December 2011, which led to a total rise of over 186 per cent (see Figure 5). New engineering construction has almost quintupled as a share of GDP, rising from around 1 per cent of GDP in the early 2000s to over 5 per cent of GDP at the end of 2011.

**Figure 5: Real value of engineering work done, Australia (chain volume)**

Source: ABS, *Engineering Construction Activity*, cat. no. 8762.0, Table 1, December 2011. Note: series break between December 2006 and March 2007, data are trend, public includes work done by the private sector for the public sector.

#### *Australia's investment projects are larger and more numerous than ever before*

Getting a better understanding of the types of projects that make up the investment pipeline is critical to understanding the challenges and potential risks in delivering these major investments in the years ahead and for making a deeper assessment of the implications for Australia's economy and society.

The first point to make is that the size of the largest individual projects is unprecedented in Australia's history. The largest completed single project in Australia's history was Woodside's Pluto stage 1 gas development at \$14 billion.<sup>6</sup> There are nine projects underway or about to commence that are larger than that project, ranging from \$43 billion to \$15 billion. By comparison, it is estimated that the Snowy River scheme would have been only \$8 billion in today's dollars – notwithstanding it was a very large project taking 25 years to complete.

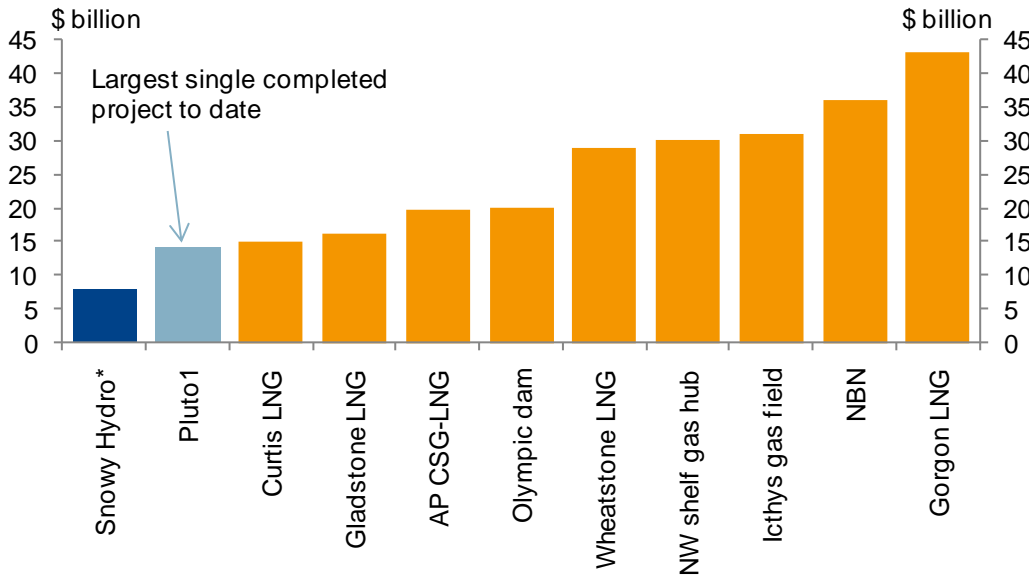
Secondly, the investment projects are numerous. There are 160 projects in the pipeline with a capital value of over \$1 billion at various stages of development, with 72 of those projects already underway. Each project over \$1 billion essentially qualifies as a megaproject meaning they are typically complex and subject to more risks in delivery than projects of a more normal scale. Megaprojects require substantial time and resource to do the extensive upfront planning and project design and to completely manage the complex project schedules that are needed to deliver projects successfully.

Third, the projects are larger on average than we are used to. Across the pipeline the average value of a resource and infrastructure project has increased from \$294 million in 2001 to \$1.5 billion in 2010.

Fourth, much of this investment is occurring in regional and remote Australia. There are a number of civil engineering projects in the capital cities, but the majority of very large projects are occurring outside those centres. To illustrate this, Deloitte locates 53 per cent of project expenditure north west of the "Brisbane Line" (i.e. line between Brisbane and Adelaide), while only 20 per cent of Australia's workforce resides there. It should be noted, however, that this is not wholly reflective of the location of spending as in reality a lot of the expenditure for remote projects will be on goods and services that are supplied from our capital cities or from offshore.

And finally, to repeat an earlier point, the investment is narrowly based with 86 per cent of the project spend in infrastructure and resources. At the same time forward investment in Australia’s other industry sectors is muted at best. So while these projects offer a great opportunity our economy is also depending heavily on them succeeding as we do not have an obvious industrial fallback option if they fail.

**Figure 6: Mega project pipeline – scale comparison –**  
**Nine current and prospective projects are bigger than anything we have delivered before**



Source: Deloitte Access Economics internal report for the BCA. Note: projects to the right are either under construction, committed or under consideration. \*2011 dollars.

The clear conclusion to draw from this data is that not only are we a more investment-intensive economy, we are also depending on some very large projects to be successful to drive economic growth and the improvements we are seeking in our wealth and standard of living.

**The likelihood and staging of major capital projects**

It is helpful to consider how likely all this investment is to occur and how it will be staged over time.

*Likelihood of the projects*

The estimate of \$921 billion includes projects of varying degrees of likelihood to be commenced. Based on past performance at least 80 per cent of the pipeline in total, or over \$750 billion, can be expected to be delivered.

\$450 billion is characterised as “under construction” or “committed” and can be counted on with almost complete certainty.

Applying Deloitte’s project realisation ratio to the remaining \$471 billion of the projects on the list not yet commenced, that is, projects listed as “under consideration” and “possible”:

- Around 80 per cent of the \$192 billion in investment that is “under consideration” can be reasonably expected to eventuate.
- Around 54 per cent of the \$279 billion in “possible” projects have a chance of proceeding based on past experience. This includes the largest two projects on Deloitte’s projects list – Project Iron Boomerang and high-speed rail.

These projects could be realised if the economic and regulatory environment is conducive to their commencement.

**Table 3: The top 20 investment projects in the investment pipeline**

Project	Cost	Status
High-speed rail (Commonwealth Government)	\$61b	Possible
Project Iron Boomerang railway from Port Hedland to Bowen Basin	\$45b	Possible
Gorgon joint venture	\$43b	Under construction
National Broadband Network	\$36b	Under construction
Ichthys Gas Field (Inpex Pty Ltd)	\$30.8b	Committed
North West Shelf Kimberley Gas Hub	\$30b	Under consideration
Wheatstone Liquefied Natural Gas (LNG) project	\$29b	Under construction
Olympic Dam expansion	\$20b	Under consideration
Asia–Pacific LNG	\$19.8b	Under construction
Gladstone LNG	\$16.2b	Under construction
Curtis LNG	\$15b	Under construction
Pluto stage 2 LNG	\$14b	Possible
Qantas fleet expansion	\$11b	Under construction
Port of Hastings development	\$9.4b	Possible
Prelude LNG	\$8.9b	Committed
Galilee Basin coal	\$8.3b	Under consideration
Brisbane underground rail	\$8.2b	Possible
Alpha coal project	\$7.5b	Under consideration
CPL/ARL Coal production plant	\$7.5b	Possible
Roy Hill 1 iron ore project and rail	\$7.2b	Committed

Source: Deloitte Access Economics, *Investment Monitor*, background data, March 2012. Note: the Qantas fleet expansion is not a construction project but qualifies for inclusion on this list as a major capital investment.

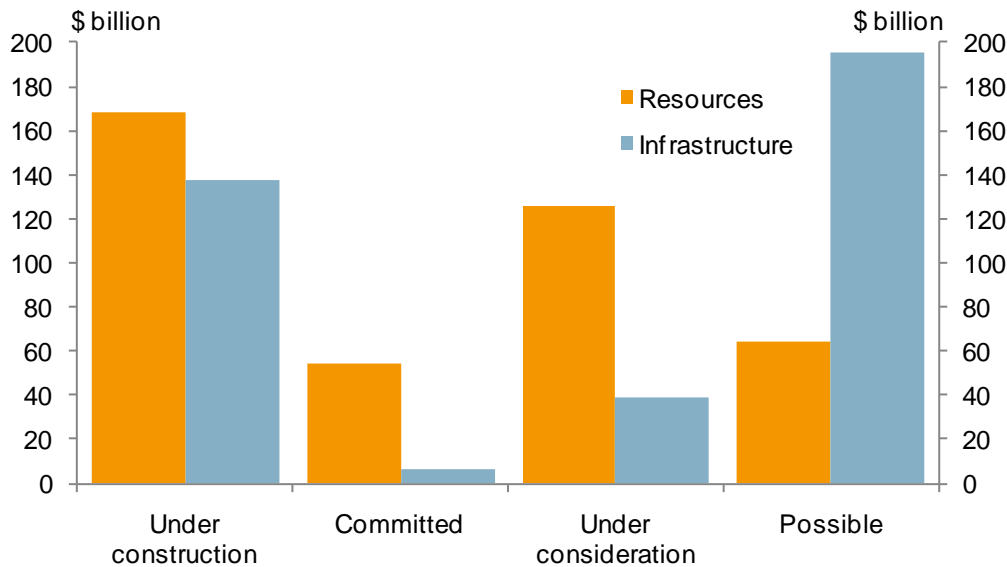
#### *Staging of the projects*

It is also useful to consider in more detail the staging of projects as this will give some indication of the likely timing of the need for the resources to be available for project delivery. The chart below shows the profile of those investments and their current approval status by sector.

It points to significant investment to come if we can bring projects listed as “possible” to fruition. It is notable that resources projects are further advanced than infrastructure projects – pointing to potential blockages in infrastructure commitments. This theme is explored in more detail later in this paper.



**Figure 7: Current value of resources and infrastructure projects underway and in planning**



Source: Internal report for the BCA by Deloitte Access Economics.

*Beyond the pipeline: strong investment levels to remain for some time*

As noted earlier, it is likely that Australia's investment-to-GDP ratio will remain elevated at over 30 per cent through the rest of the 2010s. As well as the projects on the pipeline list, there are many other reasons to expect investment to remain high.

Growth in Australia's population to a projected 36 million by 2050 and the continuation of strong Pacific region growth are set to drive sustained demand for Australian goods and services. Long-range forecasts for investment in transport, energy and water utilities and communications suggest they will remain around their high current levels of GDP.<sup>7</sup>

There are many large infrastructure projects not yet even on the drawing board that are likely to be countenanced as our population grows: a second airport in Sydney, city metro public transport systems, major highway duplications, to name but a few.

Crucially, we have only just begun to contemplate the investment task needed to transform our energy sector to meet the needs of households and business in a carbon constrained world. The investment task will be substantial. It is estimated that investment in excess of \$240 billion in energy generation, transmissions and distribution will be needed to transition to low carbon energy by 2030. This includes between \$72 billion and \$80 billion for new generation and electricity transmissions which compares to only \$12 billion invested since 1998.<sup>8</sup>

The growth in our region will provide an ongoing growing source of demand for our exports. The IMF's projections to 2016 are for China to grow at around 9.5 per cent per annum, India by 8.1 per cent, and Indonesia by 7 per cent.<sup>9</sup> Growth in imports in those countries is expected to be even higher by 2016 at 15.9 per cent, 10.2 per cent and 8 per cent respectively. Even Japan, with a much lower rate of forecast economic growth, is expected to grow its imports by around 8 per cent a year. Because of this our capital-intensive mining and energy industries are expected to continue to grow in line with the growth in our major trading partners. Mining investment is forecast to remain elevated at above 5 per cent GDP through to the end of the decade.<sup>10</sup>

The federal Treasury has laid out a long-term vision for Australia to be a premium service provider to the growing Asian middle class in the decades ahead. This is a likely and potentially desirable transition for the economy into the future, but for the reasons above in the foreseeable period high levels of capital investment are the most likely scenario for Australia.

If we get this phase of growth right and deliver projects well we will indeed be in a strong position to invest the proceeds of that success in the capabilities that will underpin a highly productive services-oriented economy of the future.

### 3. What is the importance of the pipeline?

#### **Investment is the main game in town – we must get it right**

The investment now being put in place will be crucial to securing our future prosperity raising the living standards of future generations.

- Successful delivery of the pipeline will create better and higher-paying employment opportunities, both directly and indirectly.
  - Many projects are in areas that create opportunities for Indigenous employment and economic development.
  - Many will also support growth in regional communities and major cities, like Townsville, Cairns and Perth.
- Broader economic benefits will also flow through to other parts of the economy.
  - Local supply chains will gain opportunities to provide goods and services direct to major developments.
  - The income generated by capital projects, for example, export income, will also create higher demand for other goods and services throughout the economy.
- A bigger pie will also boost government revenues, allowing for more investment in public economic and social infrastructure – such as better road and public transport networks, and health and education services.

#### ***Delivering investment well is essential for growing national prosperity***

The successful delivery of investment projects will be vital to building national wealth and providing the economic and social infrastructure needed to earn national income from exports, support productivity growth and raise living standards in our cities and regions.

#### *Output growth*

Australia's economic output as measured by GDP will rise through direct capital expenditure during project delivery. More moderate gains will occur through the operational and production phase of the projects, where goods and services are being produced for sale into domestic and international markets.

- In the nearer term, Treasury's budget forecasts project new business investment to grow by 12.5 per cent in 2012–13 and 8 per cent in 2013–14.
- Treasury estimates that the resources and resources-related sectors of the economy will account for 15–20 per cent of GDP over the next two years and to grow by an average of nearly 9 per cent a year.
  - By comparison the non-resources part of the economy is forecast to grow only 2 per cent a year over the next two years. The expected growth in the economy overall is 3.25 per cent and 3 per cent in each of the next two years.
- Longer-term projections, by Deloitte Access Economics, suggest that investment will remain at or slightly above its current elevated share of GDP over the next 10 years. A significant proportion of this expenditure will be in major projects.
- This level of investment is expected to help drive a significant ramp-up in our exports, which will be the main driver of GDP growth over the coming decade – the export share is projected to rise by around 10 percentage points to almost 30 per cent of GDP by 2021–22.
  - To put this in perspective, over the last 10 years the volume of exports grew by around 29 per cent, whereas exports are expected to expand by over 112 per cent over the next 10 years. This equates to \$295 billion in extra real output exported.

### *Employment growth*

Investment project activity will create direct and indirect employment opportunities. During the construction phase projects generate large numbers of onsite jobs as well as employment opportunities in companies operating throughout the project supply chain, for example, mining services. Upon completion, projects continue to employ an operational workforce and generate more employment opportunities in the processing and distribution of goods and services.

We have already seen the mining and construction industries deliver over 202,000 new skilled positions over the last 10 years. Mining's share of total employment rose from just under 1 per cent in 2001 to over 2 per cent, and construction's share rose by 1½ percentage points, from around 7½ to 9 per cent of employment. Managerial, professional and technical occupations have grown strongly (see Exhibit 3).

Specifically, based on the projects listed in BREE's more narrow major resource projects list, Skills Australia projects that up to 73,000 additional construction positions may be created by 2014.<sup>11</sup> (No agency has projected the wider employment impacts of the more comprehensive Deloitte Access Economics measure of the investment pipeline preferred in this report).

### *Regional development*

Much of the investment boom underway and in planning will be in regional parts of Australia. Over \$400 billion of projects currently in the pipeline are located outside of Australia's capital cities. Over the last 10 years, almost 37 per cent of all new jobs have been in non-metropolitan areas. Capital projects are transforming the economies of regional areas in Western Australia, Queensland and South Australia (see Exhibit 2).

### *Fiscal stability*

Successful projects will have a significant impact on the federal Budget through their contribution to economic activity and employment. This is crucial for the government's fiscal strategy of a return to surplus. The government's strategy to return the surplus is based on achieving over 3 per cent economic growth in the next two years, which in turn is counting on business investment to grow annually by 12.5 per cent and 8 per cent respectively.

Projects in the resources sector, if successfully delivered, will provide substantial profits-based and commodity-based taxes in the future through royalty payments, company tax and the collection of the Mining Resource Rent Tax and the Petroleum Resource Rent Tax. In 2010–11, states received \$9.6 billion in mining revenue, up from \$6.5 billion just a year earlier. Since 2001–02, mining royalties have more than quadrupled.

### *Exports and national income generation*

The developments in the investment pipeline will enhance our ability to export Australian products and grow national income. That income will allow project owners to service and pay back the debt that has been accrued in the development phase of projects. It will allow dividends to be paid to shareholders, taxes paid to governments and wages to workers on projects. That income will then flow through into other sectors of the economy.

The amount of commodities products we can export is directly related to the successful investment in the mines, extraction facilities and processing plant in our resources sector that produce commodities and the road, rail and ports to deliver products. These infrastructures are also important for exporting Australia's broader set of goods and services from agriculture, manufacturing and our services industries. Efficient airports, urban transport and modern communications networks allow people, goods and services to move efficiently between countries.

To repeat the forecast by Deloitte Access Economics earlier in Figure 1, Australia's total exports are to grow from almost 20 per cent of GDP to almost 30 per cent of GDP by 2020 – rising from \$263 billion to \$558 billion.

The main export earner will continue to be minerals and energy exports, which are expected to grow from \$190 billion in 2011 to \$225 billion by 2016–17 (in today's dollars).<sup>12</sup> Much of the

increase will come from a trebling of LNG export earnings to \$30 billion. Export volumes are forecast to increase for iron ore (62 per cent), metallurgical coal (47 per cent), thermal coal (65 per cent), copper ores and concentrates (77 per cent) and alumina (29 per cent).

Looking further ahead another recent report by Port Jackson Partners for the ANZ Bank projected that Australia's commodity exports could reach \$480 billion in real terms by 2030 if we can sufficiently expand economic capacity. The report identifies required investment of \$1.8 trillion over the next 20 years to achieve this export outcome.<sup>13</sup>

#### *Private sector growth and entrepreneurship*

Many projects in Australia's investment pipeline represent opportunities that have been discovered, identified or created against which businesses and investors are prepared to put capital at. The challenge is to ensure the right incentives are in place to reward them for taking that risk – they obtain an appropriate reward for their risk and effort.

Businesses must have access to the inputs needed to execute their investments, including supporting infrastructure. Governments must ensure that their processes and policies support an environment where business is encouraged to innovate and invest.

#### *External financial stability*

Earning income from the rest of the world through exporting is important for maintaining our external financial stability. Australia is a growing country with a highly capital-intensive economy and is therefore a net importer of capital – our collective net foreign liabilities stood at \$854.7 billion (59.3 per cent of GDP) at the end of 2011. This is a sound national investment strategy so long as we are investing that borrowed capital wisely and efficiently to generate future income.

#### *Funding infrastructure and services*

Future income streams from exports will contribute to a better resourced and more productive economy. The income and wealth generated by the private investments will allow us:

- to fund delivery of the nation's stock of economic infrastructure (transport, energy, water and communications infrastructure) that raises productivity and supports higher-quality service provision for users of infrastructure
- to fund delivery of hospitals, schools, and other important social infrastructure to meet the needs of a growing and ageing population in our cities and regions and lift standards of living
- to fund public services to a growing but also ageing population. The growth in the cost of services to address ageing will be substantial – health, aged care and the pension are expected to grow from 25 per cent to 50 per cent of the federal Budget by 2050.

#### *Knowledge transfer and capability building*

Investment projects will facilitate the development of Australian expertise for managing and delivering investment projects. On-the-job learning, skills transferred from foreign workers engaged in projects, and the importation of new technologies, new machinery and equipment will add to Australia's project-delivery capabilities.

There is an opportunity to build a world-class capability for project delivery that can be the platform for sustained success in project delivery in Australia and to form the basis for a growing export industry of the future.

#### *Transitioning to a lower-emission economy*

We have a major investment challenge to transition our energy sector to meet our climate change commitments. Investment projects in the energy sector can successfully, efficiently and sustainably enable a reduction in greenhouse gases over time. It is estimated that investment in excess of \$240 billion will be needed to transition to low-carbon energy by 2030.

**Exhibit 2: Regional contributions of projects: economic and employment gains**

Major projects provide major economic opportunities for regional Australia, with over \$400 billion of projects currently in the pipeline located outside of Australia's capital cities.

The boom has already been a key influence on regional employment – both directly and indirectly. Over the last 10 years, non-metropolitan jobs have grown faster than the national average, increasing almost 28 per cent – adding around 847,000 jobs (almost 37 per cent of all new jobs).

Non-metropolitan Queensland was the fastest-growing region in Australia over the decade – with employment growing almost 40 per cent (360,000 jobs) – with Perth, Brisbane and non-metropolitan Western Australia rounding out the top four fastest-growing regions. Key non-metropolitan Queensland job gains were: 68,200 in healthcare; 65,800 in construction; 43,100 in retail trade; and 32,500 in mining.

Broader economic flow-through benefits for Queensland from the boom have also been substantial. Research indicates that resources sector business supply and employment effects are generating approximately \$50.1 billion in Gross State Product – \$22.1 billion directly and \$28.1 billion in value added effects. The resources sector was found to be responsible for generating approximately 292,000 jobs – including 254,000 indirect jobs.

Even at an individual project level, the economic contribution of major projects is considerable. For example, the Curtis LNG project will boost the Queensland economy by 1.3 per cent, including creating 60,000 jobs and adding \$1.2 billion a year into regional areas.

Similarly, in South Australia, the proposed Olympic Dam project is forecast to have a significant economic impact. At full production, the expanded mine is expected to boost Gross State Product by \$48.4 billion in net present value terms, with up to 13,000 full-time jobs created over the long term, most (7,000) will be created in the regions.

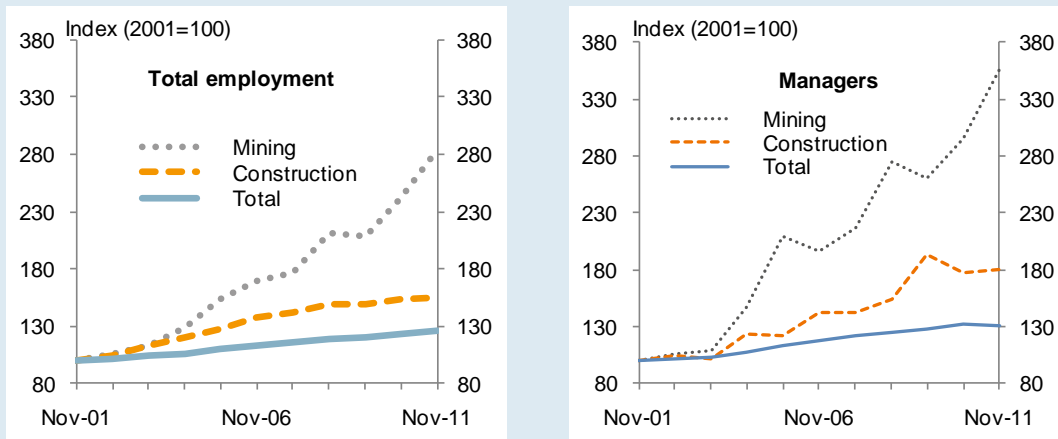
This increased economic opportunity also delivers increased revenue for governments to provide the critical services and infrastructure that communities need. For example, the South Australia Olympic Dam expansion will result in government revenues of around \$6 billion. Delays to construction could see these revenues drop by a quarter, highlighting the importance of timely delivery of these projects on the ground.

Source: Business Council of Australia.

### Exhibit 3: Boom-related employment and wage effects (2001–2011)

Australia's construction boom started mid-2002 but accelerated from 2004 as the surging terms of trade drove investment in resource extraction. Since the early 2000s, investment in new engineering construction has risen to almost 5 per cent of GDP in 2011, up from around 1¼ per cent of GDP in 2001. This boom has already had important implications for employment and wages.

#### Employment growth – mining and construction jobs have grown markedly



Source: ABS, *Labour Force Detailed* (quarterly), cat. no. 6291.0.55.003, Datacube E09, November 2011.

Over the 10 years to the end of 2011, 2.3 million new jobs were created in the economy, an increase of almost 26 per cent. Most new jobs over that time were created in the services sector but the highest rates of growth were in the mining and construction sectors.

The mining industry saw jobs expand strongly, ending the decade up about 184 per cent – the highest growth of any sector. Construction employment grew by the third largest percentage, rising by around 56 per cent (see the “Total Employment” chart). Employment in both sectors surged ahead of average within a year or so of the onset of the boom.

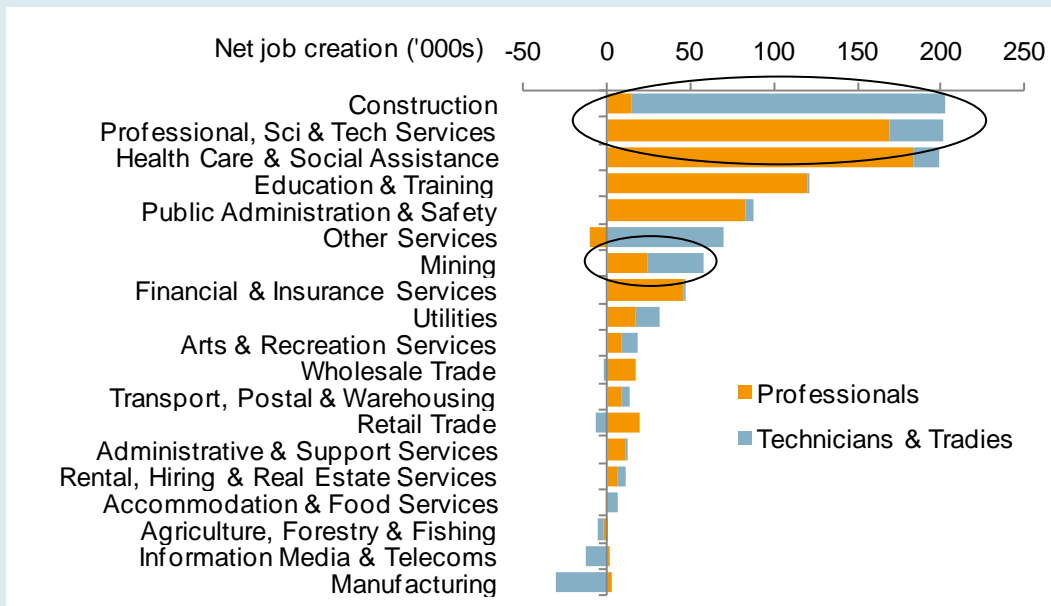
Mining's share of total employment rose from just under 1 per cent in 2001 to over 2 per cent, reflecting the creation of over 144,000 new mining jobs. Construction's share rose by 1½ percentage points, from around 7½ to 9 per cent of employment, adding over 370,000 jobs – the second largest absolute gain by any sector.

Consistent with an economy-wide employment trend towards higher-skilled occupations, the number of manager positions in mining grew by 257 per cent. Construction industry manager positions – which include project managers – grew by almost 80 per cent. Both these grew by significantly more than the 31 per cent rise in managers recorded across the economy (see “Managers” chart). Labourer positions also increased solidly in both sectors (though off a low base in mining).

**Exhibit 3: Boom-related employment and wage effects (2001–2011) (continued)**

Skilled employment – jobs in the professional and technical occupational categories – surged in the boom-related sectors over the decade. The construction industry created the highest number of skilled positions over the decade, adding over 202,000 new jobs. This was just ahead of professional services (201,000 new jobs), another sector which is, in part, helping to provide design and other key services to construction projects. Mining itself created 58,000 professional and technical jobs.

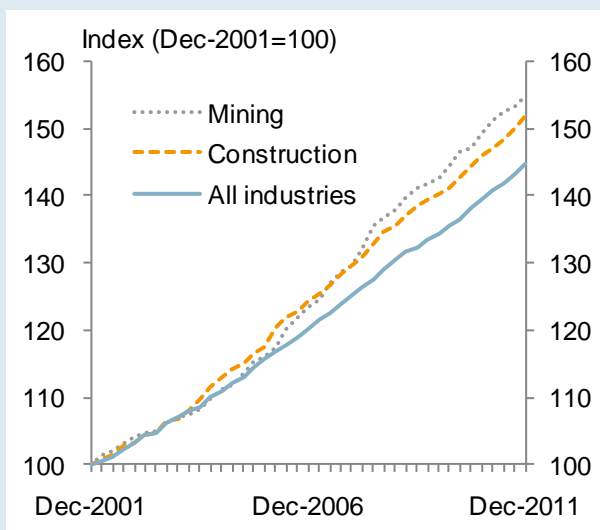
**Skilled employment changes – net industry job creation (2001–2011)**



Source: ABS, *Labour Force Detailed* (quarterly), cat. no. 6291.0.55.003, Datacube E09, November 2011.

Wages in the mining and construction sectors, unsurprisingly, grew more rapidly than the average across the economy. Over the decade to December 2011, nominal wages in the construction and mining sectors rose by around 52 and 55 per cent respectively, outpacing general wages growth of around 45 per cent over the same period.

**Nominal wages – mining and construction wage price growth has exceeded average**



Source: ABS, *Labour Price Index*, cat. no. 6345.0, Table 5b, December 2011.



***High investment is part of a reshaping of our economy***

The shift towards a higher investment share in national output is integral to the changes happening in the broader economy. A shift of workers and business outputs into project-related jobs and supporting service industries is reflective of a transition underway as we respond to high levels of demand for our commodities.

Outside the resources and infrastructure sectors, investment intentions are generally muted or in decline – investment in all non-mining sectors combined is projected to decline by 25 per cent in 2012–13 compared with the previous year.<sup>14</sup> National Australia Bank reported the gap in business conditions between strong and weak sectors of Australia's economy in the September quarter 2011 was the largest in history.<sup>15</sup>

These trends are in part caused by the high level of the Australian dollar that has risen in line with our record high terms of trade.

There are important considerations here for Australia's macroeconomic performance. These shifts in the economy add to the importance of delivering projects well.

Many sectors in Australia's economy are growing (or surviving) by transitioning towards the delivery of major capital projects and capital-related employment. Providers of mining services, engineering services, construction, steel, professional services, software services etc. are all key suppliers of inputs to major capital projects in Australia, and increasingly rely on the success of those projects for furthering their own prospects. Australia has the prospect of developing these sectors and building world-class capabilities around major project delivery.

For employees in industries or firms that are no longer viable, these capital projects are creating potential replacement job opportunities though this requires retraining and relocation, as well as a conducive industrial relations system.

Importantly, the success of Australia's investment projects will result in higher incomes, ultimately flowing through to higher domestic demand for the goods and services produced in other industries.

## 4. Summary of findings on project performance

### Key points

- ▶ Input costs for infrastructure projects (labour, materials, fuels, etc.) rose by around 6 per cent a year through the 2000s compared to 3 per cent annual growth in the Consumer Price Index (CPI). Fuel, labour and materials were the biggest cost drivers. Infrastructure costs fell during the global financial crisis (GFC) but are now rising again and remain elevated above CPI levels.
- ▶ Cost pressures are likely to remain through the next decade led by forecast growth in labour costs of 5.8 per cent per annum and materials costs of 3.8 per cent per annum.
- ▶ Australia's productivity on resources projects is around 30 to 35 per cent lower than in the US. There are serious concerns in industry that productivity is worsening on projects and is significantly lower on some project sites especially in regional areas, around 60 per cent.
- ▶ Australia's major resource projects on average cost around 40 per cent higher than in the United States.
- ▶ Similar results are found for selected infrastructure projects like schools and hospitals. There is little data available benchmarking major economic infrastructure projects like roads, rails and ports. This research would be helpful for project owners in business and in government as a source of data for performance benchmarking.
- ▶ Project performance against budget and schedule in Australia is in line with international experience for most projects, with the exception of some notable project blowouts and failures.
- ▶ Project performance risks increase as the size and complexity of the project increase and as the number of concurrent projects increases. As Section 2 showed, these are attributes of Australia's investment boom.

### How well do we perform delivering major capital projects?

Given the importance of capital project delivery to Australia's current and future prosperity, it is timely to ask how well we deliver investment. This report provides the latest available data on how well major projects are delivered in Australia.

The BCA has sourced the best available information on project performance to seek to answer this question. Two points need to be made upfront.

First, there is generally a lack of publicly available data on project performance in Australia and very little official data to draw upon. We have sourced the data to make our findings on Australia's relative performance in the resources and infrastructure sectors from private consulting firms Independent Project Analysis, Turner & Townsend and Macromonitor.<sup>16</sup> Evans & Peck provided a literature review of project costs studies for the infrastructure sector.

Second, no two projects are the same, so comparing project performance either within a country or across countries needs to make allowances for that fact.

Despite these caveats, we present here what we consider to be the best available data on project performance in order to generate a discussion in business and government about Australia's relative performance and where opportunities for reforming our economic and regulatory system to lift performance should be targeted.

The analysis below looks at the relative performance of Australian projects through metrics showing:

- the input costs for infrastructure projects – historic and projected
- the cost of project delivery in Australia compared to other countries
- productivity levels in Australia.

We then look at how well projects perform against budget and schedule in Australia in comparison to the experience overseas.

In the sections of the report that follow we explore some of the issues for project delivery.

### ***The cost of delivering investment projects in Australia***

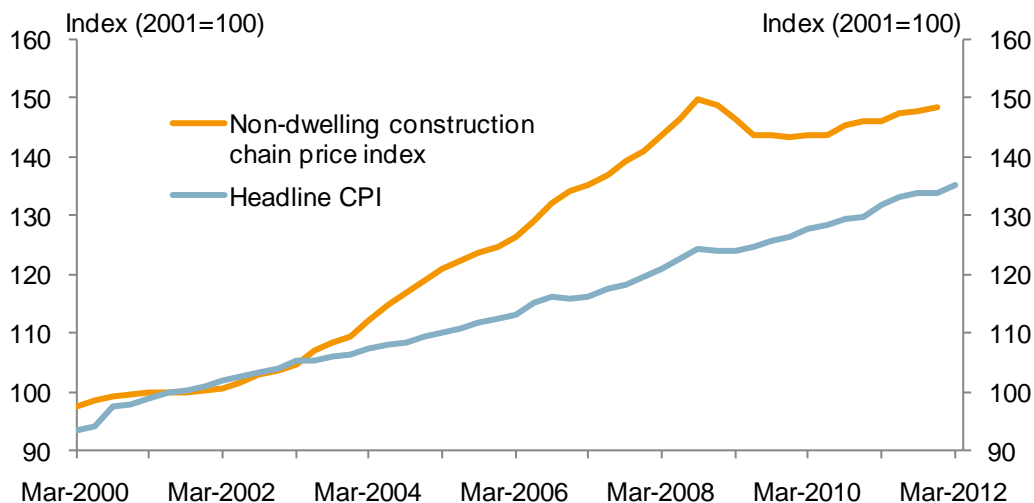
#### *Major project input costs*

The costs of capital project delivery in Australia over the past decade have increased above the CPI and remain elevated, despite a dip during the global financial crisis.

Figure 8 shows that between 2001 and 2008, non-dwelling construction costs increased at an average annual pace of almost 6 per cent – roughly double the pace of CPI growth over the same period. This represented an overall increase of almost 50 per cent in costs over that period. It also coincided with a steady increase in investment activity through that period (both increased infrastructure investment and “Mining Boom Mark I”).

However, in the period immediately following September 2008, non-dwelling construction costs fell. Although they have again risen over the past two years, infrastructure costs remain below the peak of 2008. They do, however, remain elevated relative to the general level of prices in the economy.

**Figure 8: Growth in infrastructure construction costs have exceeded CPI**



Source: ABS, *Consumer Price Index*, cat. no. 6401.0, Table 1, March 2012, and *National Accounts*, cat. no. 5206.0, Table 4, December 2011. All data are original.

It should be noted that this is an aggregate cost measure and blurs the different cost trends across construction subsectors. For example, it represents an average of the costs being faced by remote resources projects (where cost pressures are high) and the costs of urban construction projects (where activity has fallen away and cost pressure is more muted).

#### *Cost components for major capital projects*

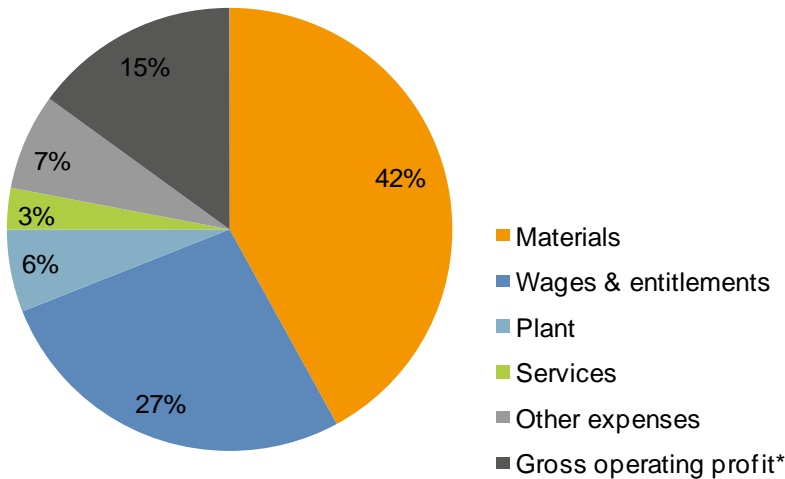
The total cost of a typical construction project consists of the following components:

- the cost of labour
- materials inputs costs
- the hiring and use of plant and machinery
- the use of fuel
- other business inputs such as the cost of professional business services

- gross operating profit for the project owner (which includes project overheads and net profit).

Macromonitor estimates that for a typical construction project in 2011 these components broke down in the following proportions (see Figure 9).

**Figure 9: Indicative breakdown of construction sector income**



Source: Macromonitor, *Australian Construction Cost Trends 2011*, p. 7. \*including overheads.

Over the past 10 years Macromonitor notes that the fastest rising cost components for construction projects have been labour and fuel (note fuel is included in materials in the chart above but is broken out and recorded separately in the table below).

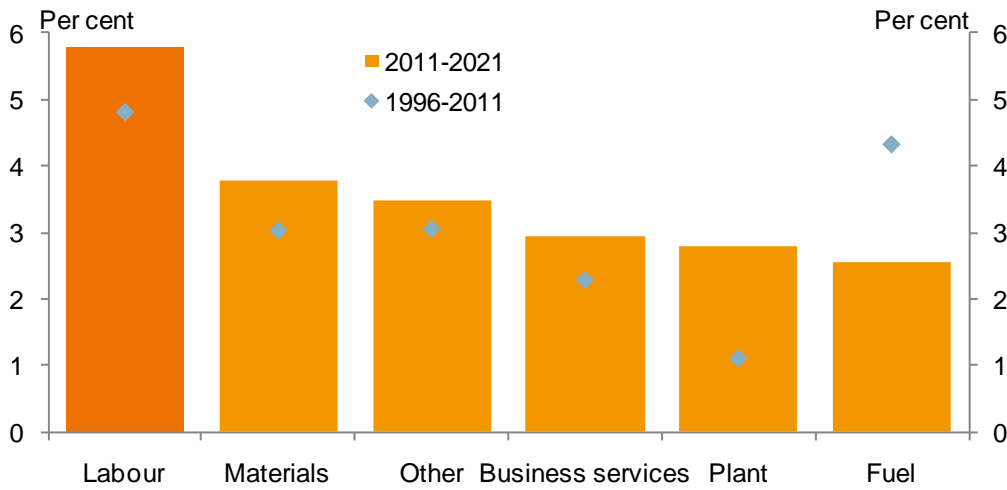
**Table 4: Construction input costs, average annual growth rates**

	Materials	Labour	Plant hire	Fuel	Business services	Other inputs
2001–2006	3.8	5.2	1.9	8.3	2.9	3.7
2006–2011	3.9	7.0	2.5	0.5	2.5	3.5
2011–2021 forecast	3.8	5.8	2.8	2.6	2.9	3.5

Source: Macromonitor, *Australian Construction Cost Trends 2011*. Note: The GDP price index is used as the proxy for forecasting the cost of “other inputs”.

Over the next 10 years Macromonitor projects that labour costs will rise fastest, at 5.8 per cent a year, followed by materials at 3.8 per cent per annum. This growth in labour costs is based on estimates of full-time average weekly earnings. These data can be influenced by increases in hours worked or changes in the composition of labour employed, for example, by the move to higher paid, more skilled workers over time.

Figure 10: Forecast annual construction input cost growth



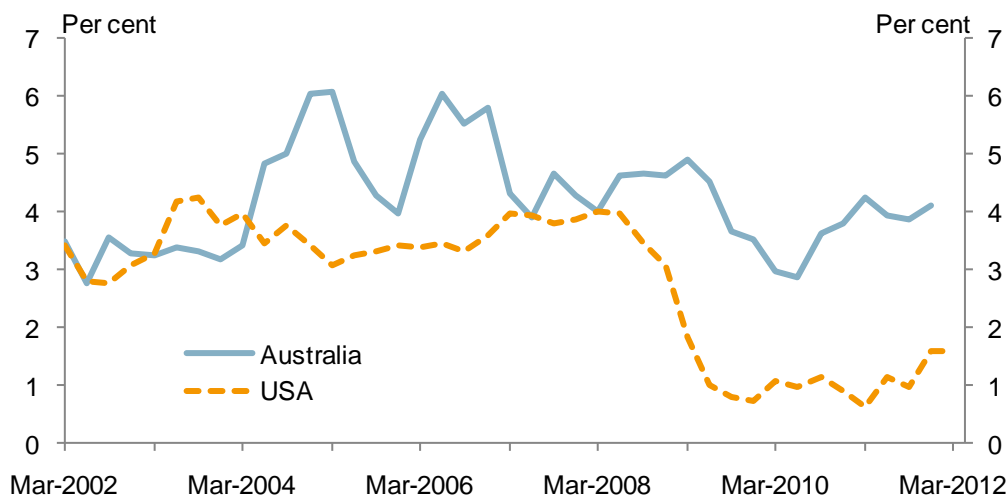
Source: Macromonitor, *Australian Construction Cost Trends 2011*.

**Benchmarking Australian construction costs – international comparisons**

**Labour input costs**

Construction industry wages have grown more solidly in Australia in the post-GFC period compared to the softer wage pressures in the United States that reflect weaker economic conditions. For instance, Figure 11 shows the wages growth in the construction sector is rising 3 to 4 per cent per annum in Australia against a rise of only around one per cent in the US. (This chart shows more moderate labour cost growth for Australia compared to Table 4 and Figure 10 because of the different bases of measurement. The Macromonitor weekly earnings measure includes changes in the mix of labour over time, for example, more highly skilled workers, and thus aligns more closely with changes in the total cost of labour that projects themselves experience. In contrast the ABS wage price measure controls for quality and quantity changes and thus is a better measure of pure labour price changes.)

Figure 11: Comparison of construction industry wage growth (through the year)



Source: ABS, *Labour Price Index*, cat. no. 6345.0, Table 5b, December 2011, and US Bureau of Labor Statistics, *Employment Cost Index* release, March 2012. Note: data are for private construction, with growth rates calculated on original data.

While overall labour cost growth has been solid, there is no doubt labour cost pressures are more pronounced within specific occupational groups and industry subsectors. These pressures reflect a number of factors, including increased project complexity and skills requirements, which have increased demand for skilled workers at a time of skills shortages. Competition for labour and the isolation of some projects have also led to increases in bonuses, loadings and allowances, which are not included in the above labour cost growth estimates. Anecdotal and other evidence corroborates growing price pressures in specific areas. For example, Engineers Australia's *Salary and Benefits Survey 2011* notes that professional engineers saw an average base salary increase of 9 per cent in 2011, up from a 4 per cent increase in 2010. Overall, comparatively high labour pressures such as these are set to further weigh on total project costs going forward.

### **Project output costs**

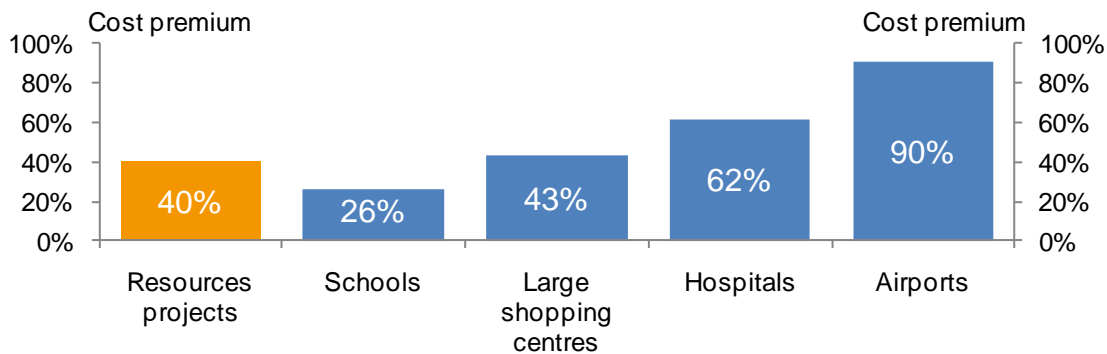
#### *Australian projects are high cost relative to other countries*

Available data on relative project cost performance find that Australian resources and infrastructure projects are typically delivered at a significant cost premium when compared to the United States.

Data are available for some types of infrastructure projects (schools, hospitals) and for resources projects. We were unable to find comparative cross-country data for major economic infrastructure projects such as road and rail (a significant gap in the public research).

Data obtained from Independent Project Analysis (IPA) and Turner & Townsend reveal that, notwithstanding a moderation in overall construction costs across the board in recent years (Figure 8), Australia remains a high-cost destination for delivering capital projects relative to other comparable countries (see Figure 12).

**Figure 12: Australian construction cost premium relative to the US for certain project types**



Source: Resources projects data by Independent Project Analysis; other data from Turner & Townsend, *International Construction Costs Survey 2012*. Note: Turner & Townsend sourced costs are US dollar relativities per m<sup>2</sup>.

#### *Resources and industrial projects*

Research for the BCA by Independent Project Analysis reveals that resources projects are 40 per cent more expensive to deliver in Australia than in the United States Gulf Coast (expressed in US dollars). IPA finds that from a global perspective Australian project costs are “driven up by a combination of the high exchange rate between the Australian dollar and the US dollar, the high cost of engineering and construction wages in Australia, reducing construction productivity and a range of other project management factors”.

On average, Australian resources and industrial projects are about 40 per cent more expensive compared to similar projects conducted on the US Gulf Coast.

**Table 5: Summary of Australian resources and industrial project cost performance**

Project group	Average US\$ cost premium compared to US Gulf Coast	Comments
Sustaining capital projects	40 per cent higher	Average performance has steadily improved over the last 15 years
Iron ore and coal developments	38 per cent higher	Projects are generally predictable. Average cost and schedule overruns were about 5 per cent
Large complex processing projects	50 per cent higher	Costs are highly variable. Benchmark does not include the cost of projects that were abandoned during execution
Offshore oil and gas developments	200 per cent higher (offshore platform and pipeline components only)	Prices for lay barges and drilling rigs in Australian waters have risen steeply over the last five years

Source: Internal report for the BCA by Independent Project Analysis.

Table 5 shows that when examined across project types, the cost premium changes depending on the scale and complexity of resources projects. Smaller capital projects that augment existing investments tend to be well delivered; however, larger, more complex projects such as those in the processing of raw materials have had a mixed record.

More work is needed to clearly identify the components of the cost difference. Higher labour costs combined with lower productivity in Australia are clearly a key factor. Applying conservative assumptions to wage rates and productivity, US\$1 of construction in Australia would cost US\$0.65 on the US Gulf Coast. Due to factors discussed below, this falls to US\$0.20 for remote Australian projects, which means the cost of construction work on remote Australian projects is around five times the cost of construction work in US Gulf Coast.

**Table 6: Construction labour cost comparison**

	Australia	US Gulf Coast
All-in construction wage rate close to a capital city	\$80/hour (\$120/hour on remote projects)	\$68/hour
Productivity factor	1.3 (1.6 on remote projects)	1.0

Source: Internal report for the BCA by Independent Project Analysis. US\$1 of construction work in Australia is  $68/(80 \times 1.3) = \text{US\$}0.65$  in the United States.

The higher the difference in wages and productivity per project, the greater is the contribution of labour costs to the difference in total project costs.

*Productivity difference:* using the results of a 2004 twinning study, IPA applies a measured Australian labour productivity of 1.3 compared to US Gulf Coast (meaning that it takes 1.3 hours in Australia to conduct work that would take 1.0 hours on the US Gulf Coast). Anecdotally, the productivity factor has increased over the last decade and IPA says it is now at least 1.35. On some projects it is considerably worse and heading to twice that difference, especially for complex projects that are struggling to employ the required skilled labour.

*All-in construction wage difference:* the \$80 assumed wage rate does not reflect that for a remote Australian location such as in North West Western Australia the typical all-in rate is around

\$120 per hour and productivity difference is 1.6 compared to the US Gulf Coast. Note that that rate of \$120 per hour does not include fly-in, fly-out, or camp and accommodation costs. If these are included, the rate exceeds \$200 per hour.

IPA, in its report to the BCA, adjusted its project cost calculations for the higher cost of wages and lower productivity in Table 6, along with some other factors such as the change in the Australian dollar. After doing this IPA still found that a 19 per cent cost premium remains for Australian projects. This additional cost difference is likely to reflect:

- even greater deterioration in productivity than is reflected in the 30 per cent differential that was applied based on past studies
- it may be other factors affecting project performance in Australia that are under the domain of project owners and policymakers.

These calculations support the case for undertaking further analysis of the reasons for higher project costs in Australia.

#### *Infrastructure projects*

The available data on Australia's relative cost performance in delivering infrastructure projects are limited. Data are available from Turner & Townsend's publicly available *International Construction Costs Survey 2012*. Using Turner & Townsend's estimates, the following cost premiums relative to the United States were calculated by the BCA for infrastructure projects:<sup>17</sup>

- hospitals 62 per cent
- schools 26 per cent
- airports 90 per cent
- large shopping centres 43 per cent.

We are unable to find data comparing the cost of Australian road, rail and ports projects against that of the rest of the world. This is a deficiency in Australia's data collection that makes it difficult to get a full understanding of our relative performance delivering infrastructure projects. The collection and analysis of this data would be useful for guiding policies that could lift the efficiency of infrastructure project delivery.

#### *General analysis on productivity performance*

As discussed above, one of the potential drivers of higher project costs in Australia is our productivity levels. Economy wide, Australia's productivity performance has been sluggish over recent years. Since the mining boom began to intensify from 2003–04, Australia's multifactor productivity levels have in fact declined (rather than increased), as overall labour productivity growth has softened markedly.

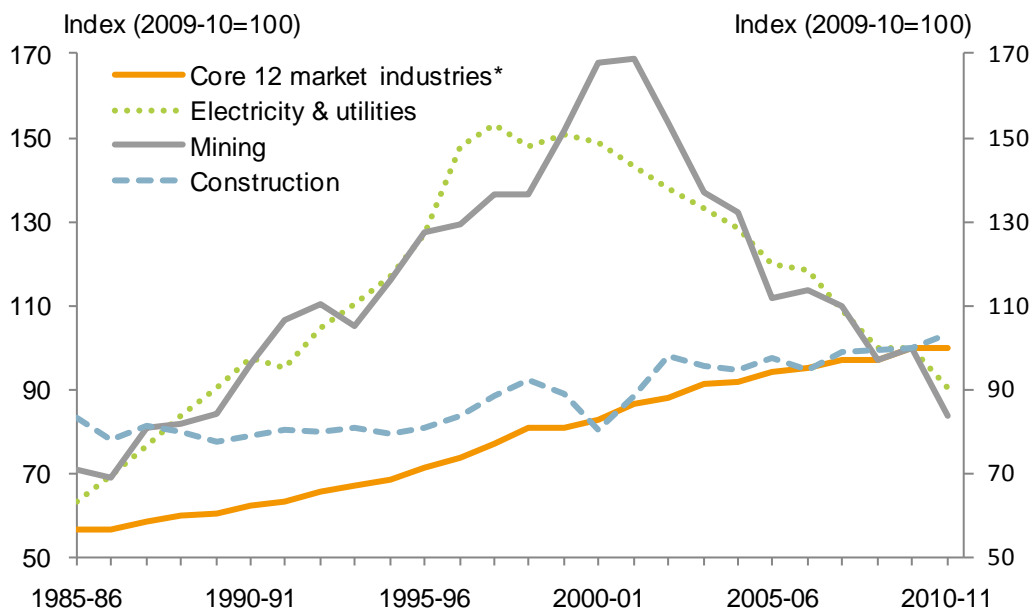


It is difficult to draw firm conclusions about project productivity from ABS national or even industry productivity data. The ABS does release experimental estimates of labour productivity growth by sector. In terms of using a sector as a proxy for major project productivity levels, construction is probably the nearest proxy. The ABS data suggest that labour productivity growth in the construction sector has been around the average of the rest of the market-based economy in the period since 2003–04.

**Table 7: Labour productivity growth in the construction, mining and utilities sectors**

	Mining	Electricity & utilities	Construction	Core 12 market industries*
1993–94 to 1998–99	5.3	6.0	2.7	3.8
1998–99 to 2003–04	0.0	-2.1	0.7	2.5
2003–04 to 2007–08	-5.4	-4.9	0.8	1.6
2007–08 to 2010–11 <sup>†</sup>	-8.6	-6.1	1.5	1.0

**Figure 13: Labour productivity levels vs the market sector\***



Source: ABS, *Experimental Estimates of Industry Multifactor Productivity*, cat. no. 5260.0.55.002, Table 6, December 2011. \*Divisions A to K and R (12 industries). <sup>†</sup>Most recent productivity cycle is incomplete.

Measured productivity in two key sectors also commonly associated with capital projects – “mining” and “utilities” – has been poor, but this is frequently attributed to factors affecting productivity measurement and other factors, rather than the delivery of the actual capital projects per se. For example, one reason given for poor productivity growth in mining and utilities is the time lag between investment occurring and corresponding increases in output being delivered. Once projects are completed, then recorded productivity in these sectors is expected to recover somewhat. Another reason given for weak mining performance is that the grade of ores is increasingly being depleted, which means more labour and capital inputs are required to extract harder-to-access, lower-quality minerals.

There was growing concern expressed during our consultations about how poor productivity is impacting on project performance. Many individual examples of poor productivity on project sites

were raised through the course of this study that do not necessarily get picked up in the aggregate data. There is a clear need for better official data collection on project productivity.

The concern is that productivity on major projects will continue to erode due to industrial problems, key on-site skilled trades resources being stretched and inefficiencies in project scheduling becoming apparent from multiple concurrent trades operating on the same site. In addition there are concerns for the depth of Australia's project management experience and the project-related capabilities of Australia's skilled workforce and how that will impact on project outcomes. These issues are explored in more detail in the next section.

### ***How do Australian projects perform against budget?***

A key measure of project performance is how well projects are delivered against budget in terms of cost and schedule.

The BCA commissioned research from Independent Project Analysis and Evans & Peck to understand project performance against budget in Australia in the resources and infrastructure sectors respectively.

#### *International benchmarks*

International and Australian studies show the complexities involved in effectively delivering large-scale projects and the wide variation in project outcomes compared to budget. For every successful project there are many examples where projects have blown out in cost and time or simply failed. Bigger projects are more prone to problems.

Bent Flyvbjerg<sup>18</sup> in an international study of 258 major transport projects found average cost overrun of 26.7 per cent for all projects with 90 per cent of projects running over time and cost schedule. By project type, the average cost overrun for rail projects was 44.7 per cent, bridges and tunnels 33.8 per cent and roads 20.4 per cent (compares actual cost to estimated cost at decision to build). Projects are especially at risk where complex IT is involved, with cost overruns ranging up to 400 per cent.

Independent Project Analysis finds that megaprojects worldwide (those greater than \$10 billion) have a 60 per cent failure rate (i.e. 25 per cent cost and/or schedule overrun).

These international benchmarks immediately suggest we should prepare for and guard against significant delays and overruns in the budgets for Australia's portfolio.

#### *Australian infrastructure projects*

Case studies of infrastructure projects in Australia, as expected, reveal a mixed performance, but do show that Australian projects on the whole can perform reasonably well against budgeted cost and time. There have also been some notable examples of project failure.

In an assessment of 23 recently completed transport and water infrastructure projects, Evans & Peck found average cost overruns were between minus 10 per cent and plus 20 per cent against budget. Average time overruns were between minus 10 per cent and plus 10 per cent. The results are in Table 6, which also shows the poor performance of one project in the information and communications technology sector.

**Table 8: Mean ration for infrastructure projects assessed**

Sector	No. of projects investigated	Cost ratio* (mean)	Time ratio+ (mean)
Road	12	1.1	0.9
Rail	4	1.2	1.1
Ports	2	0.9	1.0
Airports	0	-	-
Water	4	1.0	1.0
ICT	1	1.7	2.8

Source: Internal report for the BCA by Evans & Peck. \*Cost ratio is calculated as actual final cost to deliver project vs budget as at contract award. +Time ratio is calculated as actual time to deliver project vs planned time to deliver project, as at contract award.

While the presence of cost overruns of up to 20 per cent for some projects may seem high, by comparison that is lower than the international average performance in Flyvbjerg's research.

The conclusions from the Evans & Peck analysis of the performance of 23 recent infrastructure projects and a comparison with Flyvbjerg's international findings are presented in Table 9.

**Table 9: Cost overrun comparisons – Australia vs international**

Project type	Australian benchmark		International benchmark	
	No. of projects	Average cost overrun (%)	No. of projects	Average cost overrun (%)
Road	12	10	167	20.4
Rail	4	20	58	44.7

Source: internal report for the BCA by Evans & Peck.

Evans & Peck also observes that the link between project size and complexity and project performance that is observed internationally is being seen in the challenges with the provision of large infrastructure projects in Australia. Several large infrastructure projects that are still underway and therefore not considered in the Evans & Peck analysis – the National Broadband Network (NBN), Brisbane airport link, Victorian desalination plant and Oakajee Port and Rail – are experiencing delays and/or cost overruns in their delivery, although the reasons for this are different for each project.

Our conclusion is that there is a need for more in-depth analysis of the relative performance of infrastructure projects in Australia and the performance drivers.

*Case study: key performance factors arising from four desalination plants*

Recent investments in large desalination plants in a number of states offer a useful illustration of general factors that can influence successful major project delivery. Project complexity, site logistics and preparatory requirements all influenced the degree of difficulty of each of these projects. That said, careful project pre-planning and management were, unsurprisingly, key markers of project success. Likewise, a holistic and focused team effort, backed by harmonious industrial relations, also appears to have been an element in successful delivery (see Exhibit 4).

*Procurement methods matter for public infrastructure projects*

The cost and time taken to deliver public infrastructure projects have been shown to differ according to the procurement model used – whether traditional procurement, public-private partnerships (PPPs) or alliancing contracts.

Studies in Australia show that the final costs of projects delivered by PPPs are 9 to 17 per cent less expensive than traditional procurement (Evans & Peck). In terms of project performance, a 2007 study of PPPs and traditional projects showed that:

- The costs at project completion against the cost at contract signing was 1.2 per cent higher for PPP projects and 14.8 per cent higher for traditional procurement.
- The time taken for project completion against estimate at contract signing was 3.4 per cent lower for PPPs (i.e. delivered ahead of time) and 23.5 per cent higher for traditional procurement (i.e. delivered behind time).

A 2009 study compared cost uplifts under three procurement models and found that from contractual commitment to project completion:

- PPPs have a cost uplift of approximately 2 per cent
- alliances have an approximate cost uplift of 10 per cent
- traditional projects have an approximate cost uplift of 17 per cent.

These findings point to PPP project procurement as the superior option in terms of cost-effective and timely delivery in most instances. Nevertheless, alliancing contracts have also proven to be a robust method for certain projects where the scope of the project is poorly defined. Ultimately the choice of contracting method should suit the nature of the project to be delivered.

*Resources projects*

Performance levels for resources projects in Australia again vary depending on:

- the size and complexity of the projects
- the number of projects underway concurrently and the competition for capital, labour and materials inputs.

IPA's research shows that small capital projects perform quite well and that some Australian projects are at world's best practice.

Iron ore and coal projects tend to overrun by 5 per cent in terms of cost and 5 per cent in terms of schedule.

Larger and complex minerals processing projects with an average capital cost of \$1 billion (involving chemical and/or thermal processing to produce alumina, chemicals, iron and steel, nickel, or other refined minerals) have faced more difficulties. Of 28 projects analysed, only six projects were deemed to have acceptable final outcomes with cost and schedule overruns under 25 per cent.

Very large oil and gas megaprojects historically have either been delivered well or been significant failures.

The state of the market is a factor – an important consideration as we enter a period of multiple simultaneous projects in Australia. Research by IPA shows for projects authorised after the start of 2003 when the market began to heat up, 40 per cent exceeded their approved cost budget by more than 20 per cent after correcting for price escalation, and 30 per cent had cost indices more than 50 per cent more expensive than international benchmarks. Furthermore, most of the projects had significant cost overruns.

Partly these results reflected the “competition for resources” and other factors associated with multiple projects occurring at one time.

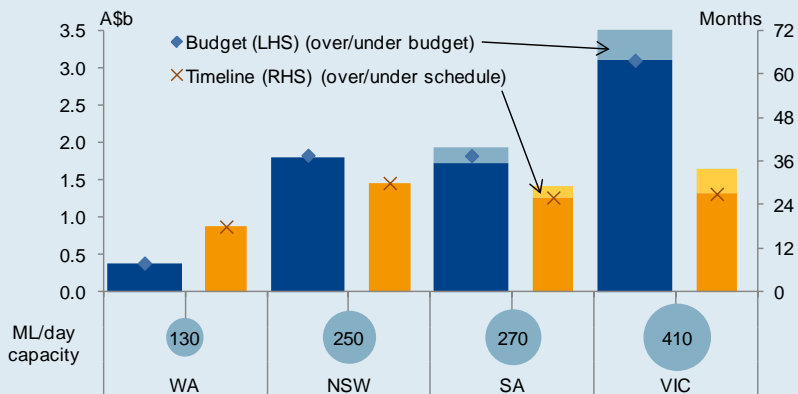
### Exhibit 4: State desalination plants

Against the backdrop of drought and concerns about the security of capital city water supplies in the second half of the 2000s, several state governments added to their water delivery infrastructure by approving major desalination plants.

This box examines key elements of the scope and performance of the four largest desalination projects that commenced in this time frame. Because of their similar nature and timing, these investments offer a good opportunity to compare project performance and identify factors that aided or inhibited effective project delivery.

The chart below illustrates the performance of the four largest desalination plants against the key project criteria of cost and timeliness of construction (as well as listing their output capacity). From left to right projects are listed in order of completion (or expected completion). States have opted for larger and more costly projects over time, noting that each project has entailed different engineering and site challenges. (This makes simple comparisons difficult, for example, the Western Australia Kwinana plant required only a 26km supply pipeline and has the smallest daily capacity (130ML), whereas the Victorian Wonthaggi plant is projected to be the largest (410ML/day) and requires the longest supply pipeline (84km).)

**Selected state desalination projects – budget/schedule performance**



Source: public websites, BCA research and internal report for the BCA by Evans & Peck.

The thick blue bars on the chart represent the current estimates of project cost, with the diamonds marking the initial project budget, and the lighter shade possible cost overruns (for the two as yet unfinished plants). The Kwinana project was brought in at budget, while the Kurnell plant was slightly under. The final cost of the South Australian Port Stanvac project is not yet available, so it is not clear whether it will be delivered above or below budget. In contrast, cost increases at the Wonthaggi plant are expected to see it exceed its initial budget by at least \$400 million.

#### **Exhibit 4 State desalination plants (continued)**

The thinner orange columns represent the number of months of project construction, with the crosses representing the initial schedule, and the lighter shade indicating any time overruns/extensions. The Kwinana and Kurnell plants were completed on time, while construction delays and an expanded scope saw the South Australia plant's initial commencement delayed until July 2009 (full final capacity is expected to be reached later in 2012). The project builder has attributed construction delays at the Victorian Wonthaggi plant to poor weather and industrial relations issues. These delays are expected to see completion by around late 2012, some 6 to 12 months behind schedule.

In assessing the execution of these projects, project pre-planning and management, and industrial relations appear to have played a role in timely delivery.

Pre-planning (with an experienced commissioning team and procurement management), coordination and sequencing of construction, and quality assurance (testing) have been attributed as key elements of the NSW project – which was delivered on time and under budget. Similarly, pre-planning and a committed workforce assisted in the delivery of the Western Australia project. Trade union involvement and relationship management may have helped ensure that all Western Australia project participants were focused on delivering a successful outcome. Against the backdrop of water restrictions and the need to secure Perth's water supplies ahead of the 2006 summer, it is reported that the Kwinana project's success is evidenced by the fact that it recorded more down time due to poor weather than accumulated industrial-related events.

In contrast, industrial issues and inadequate preparatory work have affected the Victorian project (for example, it appears as though initial site investigations were inadequate and risks around site complexity and logistics may have been underestimated). Construction has also been affected by poor weather and industrial disputes.

Finally, it appears as though expedited planning processes – the South Australia and New South Wales plants were declared a “major development” and “critical infrastructure” respectively under state law – may have assisted in ensuring these plants avoided planning delays that might have otherwise occurred under traditional approaches.

Source: BCA research and internal report for the BCA by Evans & Peck.

#### ***Delivery performance summary***

##### *Costs and productivity*

- Australian projects appear to be comparatively more costly
  - comparisons are difficult to make but on the available evidence Australian projects cost around 40 per cent more than projects in the United States.
- Project productivity is relatively low – our projects require 30 to 35 per cent more man-hours to completion than in the United States
  - project proponents are concerned that productivity is worsening due to a number of factors, including industrial relations and skilled personnel shortages
  - under conservative assumptions, US\$1 of Australian construction work would cost US\$0.65 in the US Gulf Coast.
- Project cost pressures are rising again
  - project costs in Australia rose twice as fast as broad inflation through the 2000s, were subdued during the GFC and have begun to rise again
  - cost pressures are higher where there is intense competition for scarce labour resources and other project inputs.

- Labour costs are expected to be the fastest-growing input cost over the next decade with forecasts of annual growth of around 5.8 per cent.

#### *Project performance*

- The international literature shows that 90 per cent of projects overrun in cost and time.
- Australian projects typically perform relatively well against budget, where they are well managed and carefully pre-planned; however, performance does vary.
- The remote location and rising complexity and scale of many coming Australian projects pose performance delivery risks.

#### *Consequences for Australia*

- Past experience in Australia and overseas suggests that we should work now to identify and address looming challenges to the effective delivery of Australia's \$921 billion portfolio of current and potential projects.
- Authorities have a limited understanding of the \$921 billion of estimated projects that constitute our investment pipeline. There is no holistic, economy-wide oversight over the mix of project resourcing and project scheduling
  - Australia's understanding of the labour requirements of major investment projects is not well founded. Estimates to date have been largely piecemeal and sectoral. Skills Australia estimates 73,000 extra employees are needed for resource capital projects by 2014. We don't have an economy-wide estimate of employment requirements.



## 5. The risks of investment underperformance

The rise in investment activity in Australia offers many benefits but also comes with considerable economic risks if we fail to invest successfully.

Capital projects often occur over long time periods which makes them susceptible to many risks in delivery. They can also be subject to economic risks associated with changes in demand, for example, a dramatic fall in commodity prices.

The delivery risks require concerted thinking by governments and businesses about the factors impacting on project performance and what needs to be done to give these projects the best opportunities to succeed. Now is the time to identify and address risks of investment performance before the investment boom reaches its peak in the next year or two. Section 6 examines those risks in more detail.

Project investors face the risks of project underperformance in the first instance but all of us in the community ultimately also bear these risks. Investors are currently risking large amounts of capital in Australia's major capital projects and are making decisions on whether they will invest in the projects in the pipeline that are yet to be committed. Poor project performance puts the expected returns to capital, and in some cases the capital itself, at risk of not being recovered.

If investors are not prepared to risk their capital in these projects then opportunities are foregone for the community to benefit from the employment, income generation and other benefits that the projects can provide.

Australia's aim should be to lead the world in project delivery and capital efficiency. We currently fall short of that mark.

We need to guard against:

- the risk that project costs will rise and make Australia an uncompetitive place to invest
  - labour costs are the main concern if we cannot increase the supply of labour or deal with productivity problems
  - some of the high costs of projects in Australia are unavoidable due to Australia's high standards for occupational health and safety and environmental protection. This makes it all the more important to lift productivity on projects
  - the high Australian dollar also causes a relative cost disadvantage, although it does also make it cheaper to import equipment and easier to attract foreign workers to Australia.
- the risk that projects will blow out in cost and time against budget which lowers returns to investors and taxpayers
  - it is most likely from international experience that projects are delivered over rather than under budget
  - if we apply Flyvbjerg's finding of an average cost overrun of 26.7 per cent for transport infrastructure projects to our entire \$921 billion investment pipeline it would mean the projects would cost \$1,167 billion to deliver, a difference of \$246 billion.
- the risk that delays in delivering projects will mean opportunities are missed
  - for private resources investments delays in completing projects not only result in the financial cost of funds being locked up in projects but also create a risk of missing the opportunity to sell the products from the projects
  - other projects in other countries could lock in major buyers in contracts for output like natural gas
  - we'll have built the infrastructure, but it took too long to build and becomes a deadweight asset.
- the risk that projects underway will be abandoned before completion
  - projects become uneconomic and are abandoned before completion at significant cost to the investors and the community

- the risk that projects currently under consideration or in planning will not be commenced
  - there are \$192 billion of projects under consideration (historically with a 80 per cent chance of commencing) and \$280 billion of projects that are classed as possible (with a 50 per cent chance of commencing). In effect close to \$300 billion of this planned future investment is expected to proceed
  - there is a fragility to these investments occurring – if the likelihood of these projects proceeding is halved due to changed circumstances in Australia, only \$150 billion would be likely to proceed
  - as argued above, this will have flow-on effects well beyond those sectors directly impacted. It will impact on the growth of wages throughout the economy. If the economy grows at a trend over the next 10 years, at a rate of around 3 per cent annually, Australia's GDP will grow from \$1.3 trillion to \$1.8 trillion (in today's dollars), or by 34 per cent. We know that structural changes are occurring with lower consumption and investment and exports will likely be the main contributors of future growth. If we don't succeed in executing this investment and get the exports that come with it there will be few other sources of growth
  - poor project performance might discourage governments and private investors from bringing forward many needed projects in the future, such as the second Sydney airport.
- the risk that the wrong projects will be commenced or that over-investment will occur in projects that do not have matching benefits where:
  - we fail to identify and prioritise the best infrastructure projects needed to complement private projects and to make our cities and regions better places to live and work
  - we invest in public or private projects that do not have a strong commercial or public benefit rationale and waste scarce resources that could be deployed on other projects offering higher returns. This is in particular a problem where public infrastructure projects have not been subjected to a rigorous cost–benefit analysis.

#### *The dividends of success*

The benefits from delivering these projects were discussed in Section 3. A further point is worth making here about the benefits that will flow by lifting our performance in project delivery.

If for argument's sake we could lift project performance to achieve a 10 per cent increase in project efficiency, it would mean \$90 billion in cost avoided on the \$921 billion investment pipeline. That could pay for high-speed rail or make a large down payment on capital city metro systems in Australia's major cities.

Conversely, a realistic scenario for many projects underway based on the available evidence presented so far is that they will suffer from overruns against cost and schedule.

As we argue later in this study, a Productivity Commission review of construction costs that considers these risks and highlights a constructive policy agenda is needed and very timely. It offers a chance to identify ways to improve project performance and earn the dividends from success.

## 6. The barriers to successful delivery

### Key points

Five key conditions will need to be met if we are to effectively deliver high levels of capital investment in Australia characterised by an unprecedented number of large capital projects.

- ▶ We need to build community acceptance of Australia's growth story and ensure the licence to operate of individual projects.
- ▶ Australia's productive capacity needs to grow to deliver projects, in particular by growing and developing our workforce.
- ▶ We need to be more efficient at delivering projects by raising the efficiency of projects approvals, improving project design and management practices and working to achieve higher workplace productivity.
- ▶ We need investors to have the confidence to invest in Australia for the long term.
- ▶ Australia's public infrastructure pipeline needs to be fixed to alleviate blockages in the supply of economic and social infrastructure.

### Overview

As we enter a period of significant investment activity the BCA has investigated the key issues that impact on project delivery in Australia.

Many BCA members are involved in the delivery of Australia's major investment projects. We consulted widely with BCA members as well as with a number of key stakeholders and experts in the private sector and government.

We asked participants in the consultation process the following key questions relating to the financing and cost-effective delivery of large capital projects in Australia:

- What is your organisation's experience in the financing and delivery of large capital projects in Australia?
- What are the main factors, now and going into the future, that are supporting or hindering the timely and cost-effective delivery of those projects?
- What are the implications for successful project delivery and for economic growth in Australia arising from the factors you have identified?
- What actions do you think business and governments can take to support the successful delivery of large capital projects in Australia?
- Are there government policy reforms that relate to large capital project delivery that need to be prioritised?

Many issues arose in response to these questions – and a lot of the issues have been raised prominently in the media and in the public debate about Australia's major project pipeline. We grouped the issues broadly into five main categories:

- A growing issue for many project proponents is low levels of community support for some projects. These **community concerns** are based on a mix of factors operating locally and at the national level.
- There were a set of issues around **capacity constraints** in Australia's economy to deliver multiple large-scale investments simultaneously. It was frequently noted that there are a number of large projects simultaneously calling on limited capital, labour and materials inputs markets, and a concern for the "competition for resources" that creates scarcity of project inputs. But there is a sense that we don't really have a good overall understanding of how this will play out or what can be done to resolve it. The most pressing of these factors was the capacity of Australia's labour market to provide the skills and capabilities needed to deliver multiple projects.

- Many **efficiency problems** were raised for the delivery of individual projects that can result in cost and time blowouts. The three biggest concerns for the efficient delivery of projects were, first, the efficiency of government development approvals processes, secondly, the quality of project design and management on projects and, thirdly, the productivity of the workforce on project sites.
- Many concerns were raised over the **timely funding and delivery of public infrastructure**. The key issues were raised in relation to the blockages in the infrastructure pipeline associated with problems in Australia’s infrastructure markets and funding and planning models. While there are many projects at the feasibility or planning stage, there was an overriding view that project commencements are currently stalled with a lack of project funding the problem. The cost and risk for businesses tendering for the public infrastructure work that is available in Australia were other issues.
- The importance of maintaining **investor confidence** was frequently raised in a competitive global economy where project investors can choose to invest anywhere in the world along with concerns that confidence had been affected in recent times by unpredictable and harmful changes to policy settings.

Table 10 sets out the key issues that arose in our consultations and research. The remainder of this section will take each of these issues in turn and discuss the problem in more detail, provide evidence and look to some possible solutions for governments and industry.

**Table 10: key barriers identified for the successful delivery of major projects**

Community concerns	Capacity constraints	Efficiency problems	Timely funding and delivery of public infrastructure	Investor confidence
<ul style="list-style-type: none"> <li>• Lack of economic and social development in communities</li> <li>• Lack of informed national discussion on Australia’s growth challenge</li> <li>• Lack of political leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Size of projects and sequencing</li> <li>• Labour/skills shortage</li> <li>• Equipment and materials supply</li> </ul>	<ul style="list-style-type: none"> <li>• Planning approvals (including conditions) red tape</li> <li>• Project design and project management</li> <li>• Workplace productivity</li> </ul>	<ul style="list-style-type: none"> <li>• Shortage of infrastructure that underpins private investment (ports, etc.)</li> <li>• Shortage of infrastructure which is vital to increasing city productivity and supporting overall economic growth</li> <li>• Funding and financing barriers</li> </ul>	<ul style="list-style-type: none"> <li>• Quality and predictability of the policy environment</li> <li>• Effects on investor confidence</li> </ul>

Source: Business Council of Australia analysis.

### **Economic policy and efficiency**

This study draws upon two core concepts of economic efficiency that increase national welfare – allocative efficiency and technical efficiency. Allocative efficiency refers to how scarce labour, land and capital resources are allocated to the highest-value investments or production opportunities in an economy. Technical efficiency refers to how productively those resources are then used in delivering the individual investment or in the production process.

Many of the issues raised in this study relate to how effectively Australia allocates resources to the task of delivering its investment opportunities and the efficiency with which those projects are delivered.

Ensuring projects can be resourced and raising the efficiency of major project delivery will help to achieve our objectives to grow the welfare of Australians.

These concepts are relevant to both government and business decision making and are also widely considered by organisations with a focus on economic policy, such as Treasury and the Productivity Commission.

### **Community concerns**

#### ***Lack of economic and social development in communities***

##### *Problem*

Many regional areas where large projects are being commissioned and delivered are going through significant changes to their economies and communities. Communities are concerned that governments do not have adequate strategies for managing the impact of that change on them and ensuring that they are broadly benefiting. Instead in many cases they see a lack of strategic planning and an absence of supporting development in local infrastructure and provision of services.

##### *Evidence*

In a submission to a parliamentary committee, BCA member Fortescue Metals Group Limited pointed to a number of constraints to a residential workforce in Port Hedland, including:

- inadequate volume and timing of government release of serviced land
- it can take years for housing to become available compared to only six months to build a 250-bed camp for fly-in fly-out (FIFO) workers
- escalating housing and accommodation costs in the Pilbara that are now three times more expensive than FIFO costs
- the cost of housing inhibits the growth in local business development and service provision
- a legacy of inadequate planning by local and state governments (notwithstanding the Pilbara Cities initiative)
- lack of access to quality secondary education inhibits attraction of workers to live locally.<sup>19</sup>

##### *Implications*

Without effective local economic development strategies the communities where major investments occur will not experience the potential benefits from these projects.

##### *Possible solutions*

- State and federal governments to implement effective city and regional planning with a commitment to plan for public infrastructure that will support economic and population growth in areas linked to major resources investments.

- Regional development plans around major resource projects to be carried out by state governments. Special development zones could be established to expedite approvals of land use for local infrastructure.
- The GST distribution should be reformed so that it takes account of the costs associated with rapid economic growth, including the public infrastructure necessary to fully exploit opportunities flowing from strong demand for commodities from resource states. It should also recognise the potential diseconomies of scale in delivering services in rapidly growing cities.

### ***Lack of informed national discussion on Australia's growth challenge***

#### *Problem*

An issue for many major capital projects is the “social licence to operate”, which broadly reflects the level of community acceptance for the project. Many projects have high levels of acceptance in their communities and are welcomed as providing the catalyst for employment and business opportunities in the local area. Others are encountering local community opposition relating to the environmental impact of projects, the impact on local amenity or any number of other local factors. The level of opposition can range from disquiet to hostility and can occur in both regional and urban areas.

The level of acceptance or opposition depends on the project with the types of projects encountering opposition recently including coal seam gas projects, wind-turbine power generation projects in regional areas, wireless communications towers in regional areas, new urban roads such as interlinking freeways, opposition to new high-density housing developments, etc. These are all projects of potentially very high value to the economy and communities.

The situation is compounded when there is a lack of informed discussion about the importance and the benefits of the investment and growth that is occurring, which can lead to an unbalanced public debate.

#### *Evidence*

Community concerns can be heightened where projects emerge suddenly or where poor engagement/communication of the project and its benefits occurs, even at the early feasibility stages. Many in the community are concerned about how our economy is evolving. For example, 78 per cent of Queensland voters favour no mining on prime agricultural land.<sup>20</sup>

#### *Implications*

Without informed discussion early in the project there are risks that the rules for the investment can change through its life. There are significant costs to business and the community when governments change their position in relation to private or public projects in an ad hoc way.

There can be significant uncertainties for project owners when regulatory approvals follow processes that allow for community input, but community opposition then strengthens when the project is imminent or underway.

#### *Possible solutions*

Publication of longer-terms plans for infrastructure proposals would give communities time to adjust to change, be fully informed about projects and be comfortable with projects. The importance of these projects to living standards and growth should be explained to the community.

Better strategic land use planning should include effective processes to resolve in a timely manner community issues (recognising that the community might still be concerned after that).

Government and business should develop best practice guidelines for community engagement around major projects that have significant impacts on communities, including:

- engagement early (including during feasibility phase)
- community liaison groups

- provision of information including on project impacts and how the community will be involved in the project
- leaving a lasting positive legacy for communities.

### ***Lack of leadership***

#### *Problem*

Australia's governments have historically overseen policies that increase the population by between one and two per cent a year on average. This is in Australia's long-term strategic interests and will not change for the foreseeable future.

However, community concerns exist about how well Australia is managing the growth in our population and economy and the structural change that is part of Australia's shift to a high-investment economy.

The failure to provide leadership to explain the reasons for population and economic growth is linked to a failure in some of our cities and regions to adequately plan and invest for a growing Australia. Where this occurs the community bears costs of poorly managed growth through congestion, higher utilities prices and all the other consequences, leading some to reject growth and others to question its value to society. In some sections of the community anti-growth views are strongly held and form the core of organised political expression.

#### *Evidence*

According to the *Intergenerational Report 2010*, Australia's population by 2050 is estimated to be 36 million. This assumes a decline in Australia's rate of population growth. Australia's population will grow moderately by 1.2 per cent on average over the next 40 years, compared to an average rate of growth of 1.4 per cent over the past 40 years.

However, recent polling shows that 52 per cent of Australians would prefer our population to stay at current levels or be lower.<sup>21</sup>

Perhaps because of this governments in more recent times have been averse to speaking plainly with the Australian people about the growth that is occurring and the reasons why it is in Australia's best interests.<sup>22</sup> For instance, the federal government chose not to use the Sustainable Population Strategy to explain the reasons why its current policy settings are supporting population growth nor to give any direction in terms of the expected future population of Australia. It failed to include any population growth projections at all.

By contrast the government did demonstrate clear leadership by earlier publishing population projections in the *Intergenerational Report 2010*. The Department of Immigration and Citizenship published modelling work that demonstrated optimal economic outcomes in terms of GDP per capita growth arising from the population growth assumptions in the Intergenerational Report (IGR) – that is, an assumption that the fertility rate will remain at 1.9 babies per woman and that net overseas migration will average 180,000 persons per annum.<sup>23</sup>

#### *Implications*

Attitudes against population and economic growth within the community can feed into a broader level of resistance towards the investment projects that are a critical element of a successful growth strategy. This can in turn result in a tendency towards inefficient and lengthy project planning and approvals and regulatory overreach by governments.

Strong federal government leadership on future population growth can provide the signals and information that all levels of government and businesses need to plan and invest for a larger population. By contrast where these signals are not evident or mixed messages are provided by our leaders this creates an uncertain environment for making long-term investments. These investments are core to improving the amenity and convenience of our cities, for promoting productivity growth and for achieving higher living standards.

Without this leadership sections of the community will continue to resist growth and governments and businesses will be flying blind in investing and catering for the demands of the future population and will be unwilling to commit to investment projects. This has direct implications for the effective delivery of Australia's investment opportunities.

#### *Possible solutions*

Business and governments need to continually make the effort to explain the reasons for the growth in our population and economy and the importance and benefits of major resource and infrastructure projects ultimately to improve the lives of Australians.

This also places a responsibility on governments to ensure that the growth in our population and economy is well managed and that adequate infrastructure and services are provided.

The government's current strategy for growing the population should be communicated clearly to the community. This can be done by painting a picture of the changes that are likely to occur over time and by providing confidence that governments have a strategy for ensuring it will be well managed.

The IGR population projections may have caused some discomfort in political circles, but its reporting should be maintained and strengthened when the next version is published as scheduled by 2015. The IGR provides a valuable public service by charting many of Australia's future public policy challenges and by publicly raising issues around workforce challenges and ageing that are critical aspects of the population and economic growth debate.

The government should regularly publish population projections and analysis on the implications of different population scenarios for the federal budget position and for Australia's future economic performance.

### **Capacity constraints**

#### ***Size of projects and sequencing***

##### *Problem*

As observed earlier investment activity has increased significantly due to an unprecedented pipeline of large-scale projects, many being delivered at the same time. Multiple projects can cause a "competition for resources" – there are only so many resources to draw upon from Australia's markets for capital, labour and the materials and equipment needed. This situation is compromised by the regional location of so many projects where labour is scarce and infrastructure capacity is insufficient to move people and materials onto the project sites. The main problems are in sourcing physical inputs like labour and materials rather than sourcing financial capital to projects.

Notwithstanding the current problems in global capital markets, generally the consensus is that good projects with a reliable revenue stream will be able to raise the finance to undertake them. Still there are some things that can be done to improve financial markets to develop the bond markets or introduce better taxation arrangements that don't penalise long-lived investments.

##### *Evidence*

- There has been a rapid increase in investment activity that is expected to remain at elevated levels over the next decade.
- The nine largest projects delivered in Australia's history are either underway or about to commence.
- There are 160 projects of over \$1 billion in the pipeline, all competing for a limited pool of personnel skilled in project design, management and delivery.

##### *Implications*

Where projects are not able to access labour, materials and financial inputs this could result in projects being physically incapable of commencing or being delivered.



*Possible solutions*

- prioritise an economic strategy that grows the productive capacity of the economy to enable us to deliver viable projects, with an emphasis on policies that grow economic capacity in regional areas most at risk from an undersupply of resources
- open trading and investment policies that enable project owners to source foreign inputs from global markets wherever necessary
- governments to better measure and monitor Australia's investment pipeline to better understand where capacity constraints will occur and how best to target policies that will alleviate those constraints.

**Labour/skills shortage***Problem*

Skills and labour shortages are the most significant of the capacity constraints threatening the effective delivery of investments. The problem is most acute in regional locations but affects all major projects around the country given projects in resources and infrastructure compete for the same limited and specialised skill sets.

The types of skills most needed tend to be in the areas of project design and planning, construction engineering, construction trades and project management.

For project owners, the need to source people with the required capabilities and experience is considered as important as sourcing the right skill sets. People with experience managing and delivering large and complex project schedules are highly valued but not always commonly available. The pool of highly experienced personnel in Australia is quickly exhausted in certain fields.

Three key areas relating to workforce development are causing concern:

- labour mobility: there is still difficulty in attracting Australian workers to where the new jobs are being created. It is very expensive to move workers around the country under FIFO-type schemes
- skills training and retraining: Australia's training system is struggling to keep up with the sudden shifts in workforce skill sets and capabilities required by the investment projects and the other new industries that are emerging
- migration: while there has been added flexibility built into Australia's migration schemes there remain some barriers to businesses sourcing the workers they need to deliver projects well.

*Labour mobility*

It is commonly acknowledged that Australia has a problem with matching the location of growing jobs opportunities with our major population centres. One of the reasons is that there is an undersupply of social infrastructure in regional and remote communities that make a permanent shift to those areas unattractive for workers. The failure to keep up with growing housing and other infrastructure needs is in part a cause of poor planning and slow state government approvals of land release or a lack of funding for local infrastructure.

These deficiencies are exacerbating the trend to fly in and fly out workforces. FIFO is a useful strategy that can suit both company and worker and can avoid the need for excessive investment in social infrastructure for a short-term high-construction workforce. But FIFO is a costly option and there may be a better solution in some areas if the local investments are made. At a minimum sufficient infrastructure investments in these growing towns and regions should be made to accommodate the future operational workforce once the project is completed.

There do remain some regulatory and administrative barriers to workers using their qualifications in other state jurisdictions. Different occupational standards create an unnecessary cost and time burden to have to reapply for recognition, including potentially undertaking further professional

testing, to transfer what should be commonly recognised skill sets across state borders. This makes finishing the business of recognising occupational licensing across states and territories a priority.

### *Skills training and retraining*

If we are to ensure Australians are to play a significant role in delivering projects it will be important that our education and training system is generating graduates with the skills to match the job opportunities – both higher education and vocational education and training (VET).

Skills Australia has identified the need for a change in the VET sector from “business as usual” and for it to be “responsive to structural pressures arising from abrupt changes in the Australian economy”.<sup>24</sup> This is an important principle for reforming the training system.

To a large extent whether the training system works effectively will depend on students selecting courses that align with current and future job opportunities. This raises a question as to how students can make that informed choice and whose role it is to inform students about the employment opportunities associated with the choices they make when entering the VET system.

A further challenge is that the cost of training for the types of specialised skills required can be high due to the need for specialist equipment, technical specialist trainers, etc. This can make these types of courses less attractive than a cheaper course. High-cost and high-return courses are at a disadvantage if the additional required funding is not provided by students (upfront fees), governments (course subsidies) or industry (fee contributions). All three stakeholders need to take a longer-term view of the benefits of some higher-cost courses and be prepared to lift their funding contributions where the longer-term benefits justify this.

There is also a pressing need for the system to support the development of project site capabilities to add to the skills. For example, a skilled heavy-truck driver wanting to work in the mining industry would need to acquire a certain set of capabilities that would enable them to work on a mine site. These could be gained through attending a course on a simulator. Who pays for the training equipment and services and who provides them are issues that have not been properly resolved in many cases.

To more quickly allow the system to adapt to a changing external environment, a more responsive VET system should allow providers to compete more equally with government TAFE providers to design and deliver courses that are relevant to industry’s needs.

Longer-term deficiencies identified in the education system include a drop in the number of students taking maths and science subjects at school. More students need to be taking these subjects at school to prepare themselves for the technical aspects of higher education and skilled qualifications later in their educational development.

Some observers in our consultations thought the teaching of project management skills to engineers at universities also could be expanded and improved.

### *Migration*

The skills training system won’t be able to meet all our needs. Where local workers cannot be sourced or trained to provide the experienced, skilled and semi-skilled workforce that is in such high demand on projects this will need to be met through flexible migration settings that allow the best people in the world to come to Australia to lend their experience to delivering our investment opportunities.

The Australian community can only benefit from these projects if they are delivered successfully rather than being shelved or delayed due to a lack of available workers. The government has been willing to make changes to improve the flexibility of the migration system. Yet rigidities remain and, as IPA says, “one area that is not fully open to global competition is access to competitive engineering and construction resources”.

We will undoubtedly need to avoid adding restrictions to temporary migration if we are to enable companies to source the personnel they need to complete projects. Any tightening of the current settings would add to red tape and be harmful to investment.

In recognition of the serious challenges some projects face, changed policies have made it easier to source a wider category of skilled workers using 457 visas under programs like the Enterprise Migration Agreement (EMA) program. These have been good developments although feedback is that the consultation process can take too long. Overall the EMA process requires applicants to comply with a number of conditions including that they are required to demonstrate:

- why sufficient Australian workers cannot be found to fill semi-skilled vacancies
- that they have followed a prescribed consultation process with relevant stakeholders (that must include unions that cover employees in the occupations specified under the EMA)
- commitment to ongoing local recruitment efforts
- commitment to training and social inclusion targets for a project.<sup>25</sup>

All of the requirements of a 457 visa apply under an EMA, including the payment of equivalent Australian terms and conditions.

With a number of applications being prepared, it will be important to deliver the EMA program efficiently and to allow 457 visas and EMAs to remain a flexible and fast means for addressing skills shortages on eligible projects given the importance of the timeliness of work schedules to project success.<sup>26</sup>

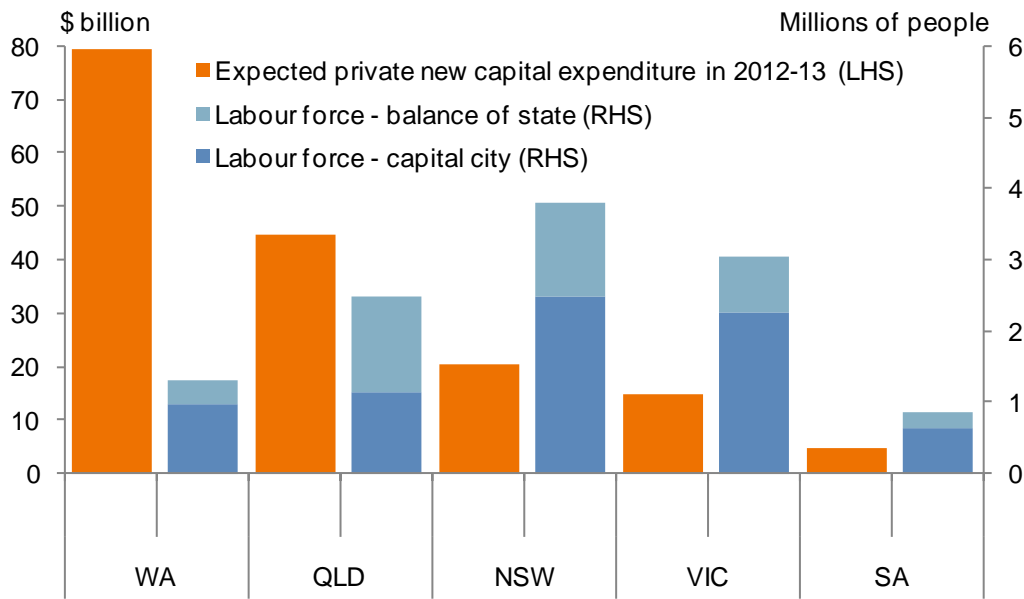
Migration is very important but can also be risky and expensive and doesn't always provide the quality of personnel needed. It is only one tool. Some of the feedback we received was that is actually becoming more difficult to attract the very best people to our cities because for all their liveability attributes, they are also viewed as expensive places in which to buy housing and to live.

#### *Evidence*

The evidence for the skills shortages has been widely reported, particularly for the resources sector.

A stark demonstration of the mismatch of the location of many of Australia's major investments and where the bulk of Australia's workforce resides is shown in Figure 14 below. The challenge of finding workers is particularly acute in Western Australia where the unemployment rate is 3.8 per cent.

Figure 14: location of expected building expenditures vs state labour force



Source: ABS, *Private New Capital Expenditure and Expected Expenditure*, cat. no. 5625.0, Tables 6A–10A, December 2011; and *Labour Force Detailed* (electronic), cat. no. 6291.0.55.001, datacube LM2, March 2012. Note: labour force levels are the average over the year to March 2012.

An initial observation, however, is that there is currently no comprehensive estimate of the skilled workforce needed to deliver Australia’s investment pipeline in its entirety. This should be the starting point for considering workforce needs because of the transferability of project-related skills. We are to a large extent flying blind when it comes to understanding our skills needs in relation to major investment projects in Australia.

For the whole economy, Skills Australia in 2009 modelled a looming economy-wide shortage of skilled workers caused by economic growth and demographic factors (i.e. expected retirements) that is estimated to be between 35,000 and 240,000 by 2015. This work is currently being updated by Skills Australia.

Skills Australia has identified a need for up to 73,000 additional workers for resources projects by 2014. These estimates are based on the BREE list of Australia’s resource projects and some related infrastructure projects.

Australia’s current permanent migration program allows for 190,000 migrants of which 129,500 are skilled migrants. These settings should be considered a minimum to meet Australia’s needs now and in the longer term and the levels should be increased if workforce pressures do become more acute across the board.

Migration is particularly important for addressing acute skills shortages in specific disciplines. For example, over 50 per cent of the skilled engineering labour force are estimated to be overseas migrants.<sup>27</sup>

*Implications*

The availability of labour is a key factor determining whether projects can be resourced and how efficiently they can be delivered. Unless the supply of skilled labour is increased there will be increasing levels of competition for the same limited pool of workers across all major investment projects. We are already seeing that now with significant workforce shortages, high levels of turnover due to poaching (among other factors) and escalating wage rates.

Shortfalls are acute in key professional disciplines associated with projects. An Engineers Australia survey found that 63 per cent of businesses experienced an engineering personnel skills shortage

over the past 12 months and 60 per cent expect to experience a shortage over the next 12 months. In identifying the consequences of professional engineering skills shortages:

- 28 per cent of respondents said it resulted in major problems including project delays and cost
- 6 per cent of respondents did not proceed with the available project.<sup>28</sup>

#### *Possible solutions*

To their credit governments have recognised that many jobs will need to be undertaken by people moving interstate or by foreign workers coming into Australia on a temporary or permanent basis and have implemented programs to lift labour mobility and skilled migration. Doing this in order to ensure the projects are completed is absolutely necessary if we are to reap all of the other long-lasting benefits that these major investment projects will make to national welfare.

There is more that can be done, however, to properly measure the workforce needs of Australia's investment pipeline and to set policies to enable projects to be resourced with the required skill sets:

- task Skills Australia with estimating the skilled workforce needs of all major capital investments in Australia
- one way to do this is to identify investment-related skills needs from the detailed collection of information on all major investments in Australia. DEEWR's pilot scheme for collecting "workforce impact statements", arising from the National Resource Sector Workforce Strategy could be expanded to all major capital projects including those outside the resources sector, so long as it does not impose an excessively bureaucratic burden on business or government
- use that data to better target training and migration programs to alleviate skills shortages.

Governments should remove regulatory and social barriers to labour mobility:

- complete the occupational licensing reforms to recognise licences across state and territory jurisdictions
- enhance labour mobility for remote jobs through state governments establishing special development authorities for new regional growth areas to expedite land approvals and the development of supporting social and economic infrastructure.

Governments can add to workforce capacity through more adaptive and flexible training and retraining systems that match skilling outcomes to job opportunities.

Governments to work with industry to overcome funding and regulatory barriers to the effective development of training systems that develop workforce-ready capabilities:

- training systems to be more flexible and adaptive to industry needs, including making it easier for private training providers to design the types of training courses demanded by industry and to get course accreditation
- resolving the challenge of who pays for skills training in an environment where companies are concerned about poaching

Continue to pursue migration policies that address Australia's skills shortages and build a larger, more skilled workforce for the future:

- maintain permanent migration program at current levels at a minimum (190,000 total; 129,250 of those skilled migration)
- ensure a high degree of flexibility in uncapped temporary migration schemes such as 457 visas and do not make the requirements to comply with the Enterprise Migration Agreement program any more onerous for eligible projects
- as part of a commitment to a moderate population growth strategy to 2050 and to implement a strategy to increase the productive capacity of the Australian economy, migration settings over the long term should be broadly consistent with Australia's net overseas migration averaging

around 180,000 per annum in accordance with the projections in the *Intergenerational Report 2010*

- more project managers with skills and experience to oversee very large projects are needed in Australia and this should be factored into all workforce-related policy settings. Universities that are not already promoting project management in engineering courses should do so.

### ***Equipment and materials supply***

#### *Problem*

The ability to source materials inputs and equipment for projects such as fuel, tools, building products, steel machinery etc., is crucial to project viability and timely delivery. From the perspective of project performance and cost what matters is that the best and lowest cost inputs can be sourced from anywhere in the world. Projects in Australia generally have little difficulty sourcing intermediate products they need, with some exceptions when complex and scarce machinery is required.

The sheer volume of investment in Australia means a significant amount of project materials and capital inputs are being imported. There has, however, more recently been a debate about whether government should require greater local content in the delivery of projects. There is a valid case to consider how to raise the participation of local suppliers by raising their competitiveness and removing any barriers to local suppliers competing to be involved, but not through mandatory local content.

#### *Evidence*

The type of work being outsourced includes steel fabrication, engineering and design work. A greater proportion of this work is now being sourced from overseas. That being said, the sheer size of these projects means that the level of domestic expenditure will remain substantial. For example, the Gorgon LNG project will involve expenditure of \$20 billion on Australian goods and services over the next four to five years.<sup>29</sup>

#### *Implications*

Projects are more expensive to deliver or take longer to deliver when the most competitively priced and quality materials or equipment inputs are not able to be sourced.

#### *Possible solutions*

An open investment and trading regime is key to making materials inputs and finance accessible for project investors. This also means that Australian equipment and material inputs suppliers should be able to compete on a level playing field with foreign suppliers.

Pursuing opportunities to grow local content can benefit both project delivery and local economic development through:

- economic policies that improve the competitiveness of local suppliers, especially where local suppliers can leverage the cost advantages of proximity to projects
- overcoming barriers to participate in new supply chains arising around major projects.

## Efficiency problems

### ***Planning approvals (including conditions) red tape***

#### *Problem*

Governments have an important role in safeguarding environmental, safety and cultural standards. Australia has multiple, inefficient processes across governments to do this that are poorly resourced and can add significantly to project costs and can unduly delay the commencement of projects. These are characterised by unclear roles, confused accountabilities and a lack of expertise.

We heard of many examples where approvals processes have resulted in unnecessary costs. Our research showed this to be a significant issue for project performance that is explored in greater detail below.

The concern is magnified when considering the increasing project activity. Australia's development approvals processes are not well set up to deal with multiple large projects working their way through the system. They are failing to support efficient project delivery and while that may not be their primary objective, for the sake of Australia's broader economic and strategic interests, this needs to be given higher consideration when designing approvals processes.

Our consultations provided numerous experiences of business interaction with the planning and approvals system that:

- were excessively bureaucratic and overly complex with compliance requiring many different permits per project
- involved processes that take too long and that have uncertain time periods – a significant disincentive to investment
- were under-resourced with poorly qualified personnel in government handling the approvals
- involved duplication across governments and/or poor coordination.

Where respondents said that approvals processes had worked well was in jurisdictions that had a single point of contact for businesses, where properly qualified people were engaged in conducting the approvals and where there was a time limit on the approvals process to give business certainty that the process would not be dragged out.

The Development Assessment Forum is an organisation established in 1998 with the aim of improving Australia's development assessment processes. It has had representatives from all three tiers of government as well as sections of industry, mainly in property development. The Productivity Commission said in its 2011 report that it "particularly supports" the practices in Exhibit 5, many of which were previously recommended by the Development Assessment Forum:<sup>30</sup>

The Productivity Commission has also made these important observations including that:

- government should engage the community early in developing strategic land use plans in order to get better community buy-in for plans and their amendments
- more extensive use of time frames for planning purposes would provide better discipline on agencies and give developers more certainty. Statutory time frames, limited "stop the clock" provisions and deemed-to-comply provisions would be beneficial. The commission points to the Queensland practice of adjusting statutory time frames for structure planning according to the particular characteristics of each major project as providing certainty and flexibility
- transparency and accountability can be improved including through better publication of rules and regulations as well as assessment outcomes, stronger probity and appropriate third party appeal processes.

### **Exhibit 5: Productivity Commission support for Development Assessment Forum's recommendations for development approvals**

A summary of the attributes of a good development assessment system according to the Productivity Commission.

- link development assessment requirements to their objectives in stated policies and eliminate impacts on the viability of existing businesses as a consideration for development and rezoning approval
- use a risk-based approach that streams development and rezoning applications into assessment "tracks" (exempt, prohibited, self assess, code assess, merit assess and impact assess) and facilitate more "as-of-right" development processes
- facilitate the timely completion of referrals through memoranda of understanding between referral bodies and planning authorities, clear and concise pro forma development approval conditions ("model conditions"), all referral requirements collectively detailed and located in one place and resolve referrals simultaneously rather than sequentially
- adopt electronic development assessment systems to reduce costs for businesses and residents and improve consistency, accountability, public reporting and information collection/benchmarking
- ensure the skill base of local council development assessment staff includes a good understanding of the commercial implications of requests and decisions
- adopt practices to facilitate access to relevant information on land uses for different zones, notify the community of proposed planning scheme amendments and hold open meetings for significant rezoning
- provide transparent and independent regional, city and state-based assessment mechanisms, have panels or commissions take input from all interested parties, including local interests, and publish the basis for the decision.

Source: Taken from Productivity Commission, *Performance Benchmarking of Australian Business Regulation: Planning, Zoning and Development Assessment*, Research Report and related material, 2011.

### *Evidence*

Some of the problems with approvals processes that arose in our consultations and research include that:

- processes are too complex and too many permits are required: for example, the \$7.2 billion Roy Hill project in Western Australia required 3104 permits and approvals for mine, railway and port developments.<sup>31</sup> A BCA member told us it required 70 approvals and 19 different decision points to build two bitumen import terminals in Queensland. Complex environmental approvals associated with exploration have been estimated to cost up to 60 cents in every \$1 raised for exploration purposes<sup>32</sup>
- processes take too long: a BCA member told us it took 10 years to get some basic Service Centres approved in Western Australia. Another said it took over five years to have a relatively straightforward mine deepening application approved. These are just two of many examples from BCA members. The average time taken from referral to approval under the Environmental Protection and Biodiversity Conservation Act for "controlled actions" for developments in urban areas was one year, seven months (Productivity Commission). APPEA has estimated that for each year that a \$2.7 billion LNG project is delayed there is an opportunity cost of \$300 million
- processes are too bureaucratic: there is a view that compared to other countries it is "harder" to get through approvals processes in Australia but not necessarily because the system is any stricter in its requirements. Internal processes and policies in large companies often impose



environmental and safety obligations on projects that are stricter than those imposed by governments yet internal company processes of evaluating projects are considered to be more efficient

- there are too many conditions: too many ad hoc conditions are being attached to project approval which not only add significant costs to proponents, which can be prohibitive, but also can be simply unmanageable and unable to be properly monitored by regulators, resulting in high cost from red tape for no real benefit
- decision making can be too risk averse: a tendency has been observed for governments to become too risk averse in managing their own projects and be less willing to make decisions without needing to commission external advice. For example, it was pointed out that the Barangaroo development in Sydney has been slow when compared to a similar Singapore marina development with one of the key reasons cited that the government in New South Wales outsourced accountability to external advisers, which slowed the process. The two projects were conceived at about the same time, but while the Singapore marina is substantially developed Barangaroo has only just commenced
- there is poor coordination across federal and state governments: the duplication and overlap of project approvals across governments is a major headache for project proponents. For instance, the lack of accreditation for state processes and excessive duplication of process under the EPBC Act is causing project proponents to pay the cost of going through two administrative processes when one process could suffice. There is also added uncertainty associated with two approval processes
- there are poor resources in government: regulatory administration functions are not adequately staffed to manage the increasing number and depth of approval processes demanded by government legislation. Personnel are frequently inexperienced in undertaking the assessment. Staff who do have the experience are leaving to work on the projects themselves. Inexperience is thought to be a reason for the large number of conditions that are being placed on projects.

The experience of a BCA member company in seeking approval for a major resources project provides an illustrative example of the complexities of the government approvals process. The environmental assessment for the project was done under Australian Government and state legislation. The assessment took more than two years, involved more than 4000 meetings, briefings and presentations across interest groups, and resulted in a 12,000-page report. The assessment was advertised widely across Australia for comment and resulted in about 40 submissions. When approved, more than 1500 conditions – 1200 from the state and 300 from the Commonwealth – were imposed. These conditions have a further 8000 sub-conditions attached to them. In total, the company invested more than \$25 million in the environmental impact assessment.

#### *State government approval processes*

The states have different approaches to approval processes in Australia (see Exhibit 6). In our assessment of the models available it would appear that the South Australian model offers the best approach. Elements of this approach are also in the new model introduced in New South Wales.

### Exhibit 6: State major project planning provisions and coordination agencies: where are we now?

Drawing on the Productivity Commission's May 2011 Planning, Zoning and Development report, this exhibit summarises key project coordination agencies and specific planning provisions for major project investments.

NSW	With the October 2011 repeal of the former Environmental Planning and Assessment Act 1979 Part 3A "major projects" system, New South Wales now has new provisions to process State Significant Developments (SSD) and State Significant Infrastructure (SSI) projects. SSD projects have a new pathway under Part 4 and SSI projects under Part 5.1, with applicants required to obtain landowner consent or provide landowner notification and to prepare an Environment Impact Statement. At the end of the process the Director-General prepares an assessment report and makes a recommendation for approval, with conditions, or refusal.
VIC	A streamlined assessment process for declared major transport projects is available under the Major Transport Projects Facilitation Act 2009. The Act allows the Planning Minister to grant certain approvals for declared projects and provides for a curtailed assessment process where the subject land is already government owned and no heritage approvals, planning scheme amendments or planning permits are required. The state Department of Business and Innovation Invest Assist program is also available to facilitate and assist with the coordination of private sector investments in Victoria.
QLD	The State Development & Public Works Organisation Act 1971 allows the Environment Impact Statement component of the approval process to be managed by the Coordinator-General for declared projects. (A key part of the Coordinator-General's role is the coordination of major development projects in Queensland.) The Act also allows for development applications in declared State Development Areas to be determined by the Coordinator-General of the Department of Infrastructure and Planning. The Sustainable Planning Act 2009 provides that certain designated community infrastructure does not require approval under a planning scheme, nor need meet any scheme requirements. The state Major Projects Office also works to facilitate and coordinate planning and approval processes (as a "one stop shop") for major projects. (This does not obviate the need for local government to assess projects.)
WA	The Lead Agency Framework provides a "coordinated pathway" through the approvals process. For major resource, industry and infrastructure projects, – where the proposed investment is "significant or of strategic importance to the State" – the Department of State Development is the "Lead Agency". This entails close work with approvals agencies, with the department providing proponents with a primary contact and case manager for government processes.
SA	Under the Development Act 1993, Crown development processes apply to public infrastructure projects – this process applies to private sector providers if they are government endorsed or licensed. (A proposed development may be declared a "Major Development" where the minister views the project as of "major environmental, social or economic importance"). The Crown development process entails a curtailed public consultation process and limits the powers of the referral agencies in deciding the application. The application is decided by the Planning Minister and once that approval is granted, no other approvals are required.
TAS	A dedicated planning panel is formed under the Major Infrastructure Development Approvals Act 1999 to assess and decide each declared infrastructure project.

Source: Productivity Commission, *Performance Benchmarking of Australian Business Regulation: Planning, Zoning and Development Assessments* report, May 2011; public websites; and BCA research.

International comparisons with best practice should be undertaken to match Australia's systems against the most efficient and effective approvals process occurring in other countries. For instance, the New Zealand Government has successfully introduced a nine-month maximum time limit for project environmental approvals under its Resource Management Act.

### *Implications*

It is important to restate that the concerns raised here are not about the environmental, safety and other standards that need to be met for delivering projects; it is the inefficiency of the approvals processes of government and the unnecessary costs these impose on projects and ultimately the wider community.

Where these processes are excessively costly or timely they can significantly impact on project viability through the project approvals phase and through the life of the project in monitoring and reporting obligations.

One of the problems with the long time taken to make a decision and its variability is the inherent uncertainty for investors – not knowing how long the approval process will take is a big deterrent to business investment. The New Zealand Government's nine-month cap on development approvals processes is the type of initiative that could provide greater certainty over the time of the process and should be explored for Australia.

### *Possible solutions*

- In general, jurisdictions should adopt a risk-based approach to regulation to ensure that regulatory effort is directed to the areas of development approvals where it will have most impact.
- As discussed with the Council of Australian Governments (COAG) Business Advisory Forum and then announced at COAG in April 2012, the Productivity Commission should be tasked to benchmark Australia's major development assessment processes against international best practice in terms of timelines for approvals, cost of administration and compliance and the additional costs arising from conditions imposed on projects. The findings from this study should inform the reform of Australia's approval processes with an objective to have the world's best processes that meet their objectives in a way that imposes the least cost and time burden on investment projects.
- Australia's governments should better coordinate and streamline their approval functions by:
  - the federal government accrediting state government environmental approvals processes for making more of the approvals decisions required under the EPBC Act
  - speeding up the use of strategic assessments and land use plans under the EPBC Act
  - ensuring government approvals functions are adequately resourced to meet the likely assessment needs from the forward investment pipeline
  - state governments adopting the single agency model for assessment of significant projects (e.g. as applies in South Australia) where a single minister is the consent authority and all development, pollution and licensing approvals are under a single major project approval process with clear time frames and no other agency able to "stop-the-clock". The desirable characteristics of state government major approvals process are in Exhibit 7.
  - having a 'critical infrastructure' status that means major projects which fall into this category are deemed approved from the outset and not subject to third party approval
  - reducing the excessive number of conditions attached to investments approvals
- To improve strategic planning processes and speed up the time for approving developments and land use decisions state governments should:
  - undertake regional planning (as well as capital city planning) to identify major land uses
  - use new planning instruments to allow all policy matters to be brought forward into a rezoning decision, which then allows for subsequent developments to be deemed complying development and then tested against a set of performance standards. Many states are using structure plans to plan a site or corridor. Most planning Acts do not adequately cater for them
  - reserve areas for designated activity, for example, mining exploration, primary production activities which are then permissible.

### **Exhibit 7: Desirable characteristics of state processes for major approvals**

- Major project approval status where the minister is the consent authority must make explicit the types of projects to be dealt with by the state, rather than local government.
- States developing a “critical infrastructure” status that means major projects which fall into this category are deemed approved from the outset and not subject to third party approval.
- A single agency must have responsibility for development assessment.
- Major project assessment should require state authorities to issue upfront the standards, requirements, and the technical studies that need to be incorporated as preconditions for consent to be granted.
- These requirements should incorporate the Commonwealth’s Environmental Protection and Biodiversity Conservation Act requirements so that both levels of government have stipulated these standards for consent and the two levels of government are compelled to work together.
- Timeframes for assessment should be made explicit. If a development which is complying (i.e. permissible within the zoning provisions and the local planning scheme) should be deemed approved once the time frame has elapsed.
- There should be no “stop the clock” provisions for any agency other than the agency with consent powers.
- The development consent should be able to be issued in the form of a concept approval, which would allow very complex developments to be staged in over long periods. This would mean a project, which is currently subject to new approvals at various stages, would only be subject to meeting certain conditions, or providing updated information, etc. The merit of the proposal should not be subject to assessment. This would give “bankable” long-term approvals to major projects to facilitate financing.
- Specialist major project assessment teams should be established in state planning agencies. These should have improved resources and specialist expertise. Developer fees could contribute to a “blind trust” to support these units, who should have the power to command other agencies.
- States should set up a major project coordinator (e.g. in South Australia) so there is one point of contact to ensure all approvals are timely.
- States should bring all development, pollution and licensing approvals under a major project approval.

Source: Business Council of Australia.

### ***Project design and project management***

#### *Problem*

Research highlights the importance of high-quality project design and management to the successful delivery of major investment projects. This applies to both private and public projects.

In the design phase of a project, overly optimistic economic assumptions can lead to significant under-estimation of costs or over-estimation of revenues. Problems can occur where corners are cut to meet time pressures. Underfunding of the design task or under-provision of the skilled personnel needed to ensure a thorough and realistic design of the project schedule and the risks of investment can add to project risk.

In the delivery phase of a project, having experienced managers who have worked previously to successfully deliver large, complex project schedules is invaluable for dealing with unexpected events or difficulties emerging on site due to any number of factors such as industrial disputes and weather interruptions.

There are limited numbers of these highly capable and experienced personnel to perform these roles in Australia and chronic shortages mean often skilled personnel are needing to be brought in from overseas. Many projects are currently having to appoint staff with little experience, which is adding to the project risk.

#### *Evidence*

The number of manager positions in mining over the past decade grew by 257 per cent, while construction industry manager positions – which includes project managers – grew by almost 80 per cent. Both these grew by significantly more than the 31 per cent rise in managers recorded across the economy. There is an emerging shortage of skilled and experienced managerial personnel.

Most case studies of large capital projects emphasise the importance of good project design and pre-planning to future project success.

IPA finds a strong correlation between the level of project definition achieved prior to project authorisation and the project's safety, cost, schedule and operability performance.

Evans & Peck evaluates a number of recent major infrastructure projects in Australia and also comes to the conclusion that the quality of pre-planning is critical to project performance.

#### *Implications*

Project owners will achieve superior project performance where high-quality project design and planning takes place, and conversely are at greater risk of project failure where that doesn't occur. With so many projects in the pipeline and the increasing size and complexity of projects, proper design and planning will become very important to Australia's successful delivery of projects. It will also become more difficult to achieve given the difficulties project owners will have in sourcing the best planners with the right capabilities working on Australian projects. Proponents should avoid the temptation to rush projects before they are ready.

#### *Possible solutions*

There is a role for government to ensure our migration and training systems are providing the project managers with the skills and experience needed, as discussed in the previous section. The project owner – be that a private business, government business or government department – is responsible for how project design and management are undertaken and for improving performance where they can:

- for project owners: commit sufficient time and resources to project design and pre-planning, especially with the prospect of significant “competition for resources” occurring through the life of the project and the impacts that might have on personnel availability and for sourcing materials and equipment
- for governments: ensure that migration and training policies place a high priority on raising Australia's project design, planning and management capabilities.

### ***Workplace productivity***

#### *Problem*

##### *A multitude of factors impact on productivity*

There is a concern for how declining productivity levels that are being recorded on project sites are impacting on project performance. Many instances of declining on-site productivity were raised in our consultations and research – looking ahead the challenges include:

- efficiently scheduling large capital projects with multiple tasks, including:
  - managing concurrence of the workforce, that is, getting the order of tasks right in a way that limits downtime of work crews and ensuring no slippage on the critical path
  - dealing with unexpected departures of skilled staff and finding replacements

- getting critical machinery and equipment on site when it is needed
- ensuring a capacity for innovation as a project develops and dealing with barriers to innovation in the regulatory systems
- flexibility in the workplace and shortages of employees with the appropriate technical and supervisory skills and the experience to go with them
- poor worksite culture and highly rigid work practices in some cases
- the impacts of poor weather.

#### *Industrial relations*

Industrial relations was raised as a significant issue in consultations for this study and for the BCA's submission to the Fair Work Act review.

Research by the BCA is showing that the combination of Fair Work Act arrangements for greenfield sites and the lack of agreement options for employers coupled with labour shortages and time-critical nature of projects are forcing up labour costs for projects. An absence of alternatives in the Fair Work Act for bargaining creates pressure to accede to unnecessarily high labour rates, particularly in Victoria.

As the BCA's recent submission to the review of the Fair Work Act has described, BCA members are concerned about the growing industrial unrest and disruption in workplaces since the Act came into operation and the lengthy agreement-making processes that now prevail. These have been particularly difficult and cumbersome in the construction and resources sectors and have led to significant increases in wages and allowances. Certain provisions within the Act are being used by some unions where labour shortages and time-critical projects, together with reduced employment options for employers, have meant there is little capacity for employers to achieve reasonable or timely agreements. That submission sets out a range of recommended amendments to the Act.

Productivity in the construction sector looks to have been improved by the introduction of the Australian Building and Construction Commission (ABCC) – the concern is what will replace it.

#### *Evidence*

Many companies engaged in major projects expressed serious concerns for low project productivity levels, particularly where the performance declines over the course of a project and the productivity experienced is far worse than budgeted.

Data on productivity in the construction sector suggests productivity growth has more or less tracked productivity for the economy as a whole up to the time of the most recent estimates.

This is an issue that warrants closer analysis on a project-by-project basis as to the reasons why some projects experience good or standard rates of productivity and are delivered on time while others suffer very low productivity and are delivered well beyond schedule.

As discussed in Section 3, productivity factors for Australian resources projects are commonly set at about 30 to 35 per cent higher than the US Gulf Coast benchmark. This assumes a task in Australia requires 30 to 35 per cent more man-hours to perform.

Reports from project owners and industry analysts are that this relative productivity factor may have intensified further on some projects due a major fall in relative productivity. The productivity differential is heading towards more than twice the industry benchmark of a 30 per cent difference and this is causing industry major concerns.

#### *Implications*

Low or worsening productivity threatens to blow out the time and costs of delivering projects and give Australia a poor reputation for project delivery. International investors will look to other countries in which to invest with better productivity and more reliable project performance.

*Possible solutions*

- Australia's governments and businesses should commit to training and migration programs that build world-class project design and management capabilities for deployment on Australian projects.
- The Fair Work Act should be amended to allow more agreement options for employers in setting or agreeing terms and conditions prior to projects starting, or access to impasse-breaking processes
  - as a long-term principle, the BCA believes that there should be an option for employer-own agreements, the terms of which match the duration of the relevant project
  - remove ambiguity arising from previous decisions by outlawing clauses that are intended to/have the effect of inhibiting use of contractors/labour hire
  - government to continue to support the continuation of strong enforcement of IR laws in building and construction and reinstate the ABCC
- The Productivity Commission to analyse all factors impacting on major project costs and delivery performance in Australia including construction industry costs and productivity. There should be no limits to the scope of this review. For example, workforce issues and industrial relations should be within the scope of the terms of reference.
- In the absence of a comprehensive Productivity Commission study, the BCA will examine options to commission its own inquiry into these issues.

**Timely funding and delivery of public infrastructure*****Shortage of infrastructure that underpins private investment****Problem*

The capacity of Australia's economic infrastructure to service projects is a key concern for project owners. Good management of the transport and logistical supply chain is critical to making projects viable in regional and remote parts of Australia. There is a real challenge to provide the freight, energy, water and communications infrastructure at the same pace as projects are being commissioned in fast-growing parts of regional and remote Australia.

This infrastructure is important for servicing projects in the construction phase and then also for distributing product coming out of resources projects. For example, rail and port expansion is necessary to allow Australia to increase its exports of coal, iron ore and other commodities.

Government agencies, such as port authorities, have an important role to plan and invest for growth. Planning should start now for the investments needed. Experience demonstrates projects can take a long time to be approved and implemented. The dredging of Port Phillip Bay was an important and greatly needed expansion project to accommodate growth although that project took six years in planning and to complete the required assessments and consultations.

Many private operators have invested in their own infrastructure in remote areas. But for smaller investors, or where multi-user facilities make more economic sense, there needs to be government involvement in the planning, approval and potentially the funding of infrastructure.

In many cases an arrangement that allows a new entrant access to existing private infrastructure on reasonable terms is a more efficient solution than building new and duplicative infrastructure. Australia's access arrangements are governed by Part IIIA of the Consumer and Competition Act (formerly the Trade Practices Act).

The process for granting access to infrastructure should be clear, transparent, consistent and timely.

In practice, access agreements are complex and subject to the individual nature of the specific infrastructure being considered. Outcomes from applications for access are highly uncertain and

can involve lengthy time frames and considerable costs. These issues will be subject to a review of the national access regime later this year.

The increasing volume of activity in regional areas of Australia may result in an increase in access disputes requiring regulatory intervention. Consideration of how best to do this efficiently is therefore warranted by regulators.

#### *Evidence*

The dredging of Port Phillip Bay took 21 months from February 2008 to November 2009 and was preceded by six years of project development and planning to get government approval.<sup>33</sup>

In a 2011 report, KPMG detailed some of the infrastructure needed to support major private resource investments, including:<sup>34</sup>

- numerous upgrades to ports, roads, rails, airports and community infrastructure in the Kimberley, Pilbara, mid-west and goldfields regions
- in the Hunter Valley region of NSW, a need for road and rail capacity and gas pipelines for gas fired power stations
- in Queensland significant rail and port infrastructure to support coalmining
- South Australian regional ports do not have sufficient capacity required to cater for growth
- Darwin port needs upgrading to handle a higher throughput of minerals.

#### *Implications*

Regional and remote projects are large users of transport, communications, water and energy and need to have these services supplied efficiently and reliably. Poor-quality infrastructure services add to project costs and make it more difficult to successfully deliver projects.

Once completed, projects need adequate rail, road and port links to export their produce out to markets.

The process for resolving access to infrastructure can be lengthy and can also impose a considerable financial burden on the interested parties.

#### *Possible solutions*

- Australia's governments should step up their efforts to plan for the major infrastructure priorities associated with the growth in our population and economy.
- Planning and funding of regional and remote infrastructure should be strategically linked to the projects in the investment pipeline.
- Ensuring that established access arrangements are clear, transparent, consistent and efficient will be important. The forthcoming Productivity Commission review of the national access regime (currently scheduled for late 2012) represents an opportunity to test the effectiveness of Australia's access regimes.

### ***Shortage of infrastructure that is vital to increasing city productivity and supporting overall economic growth***

#### *Problem*

Infrastructure investment in our cities is vital to support population growth and to grow productivity. In the global economy cities are major centres of economic activity and the productivity of cities is a significant factor in a country's competitiveness.

Sydney and Melbourne are each projected to grow to approximately seven million people by 2050, Brisbane to four million people and Perth to over two million.<sup>35</sup> This represents a significant opportunity for urban renewal and productivity growth with the right investments.



Infrastructure Australia has highlighted the importance of ensuring efficient city gateways at our ports and airports and freight and passenger networks that link those gateways with the rest of the city. Our cities will need new housing investments and infrastructure corridors to cater for future growth need to be reserved.

These forward-looking decisions need to be made in long-term strategic city plans. The COAG Reform Council found governments have made improvements in this area and there are parts of Australia that do long-term planning well but all jurisdictions can improve. Integration within and across governments in particular remains unsatisfactory.

In Australia it takes a long time to deliver major infrastructure projects in our cities. In part this reflects lengthy delays in project scoping and approval through to governments balking at tackling localised community opposition to projects.

#### *Evidence*

- The COAG Reform Council's cities report found no city strategic planning system met all of the criteria for effective planning
- The 2010 Infrastructure Report Card by Engineers Australia found that the condition of local roads, railways and airports had deteriorated since their 2005 Report Card.
- By 2020 it is estimated that the cost of urban congestion will grow to \$20 billion per annum.<sup>36</sup>
- A number of freeway extensions and expansions (e.g. M5 East in Sydney, East-West link in Melbourne) as well as freight projects (e.g. Moorebank in Sydney) have been on the drawing board for some time and need to be progressed.
- Infrastructure Australia has identified \$86 billion of priority infrastructure projects that are yet to be commenced.

#### *Implications*

While we can better use our existing infrastructure, there will always be a need for regular provision of new and upgraded transport infrastructure for our growing cities to lift productivity and address congestion. Poor transport infrastructure increases the cost of transporting Australian products making them internationally uncompetitive. Citizens will increasingly experience the negative effects of congestion as our cities grow.

#### *Possible solutions*

We need infrastructure and population growth strategies for our cities that result in a pipeline of urban infrastructure projects and land use policies that will cater for current economic expansion and future population growth.

Governments should improve their strategic city planning systems to take into account the specific findings for each city in the report of the COAG Reform Council.<sup>37</sup> Ongoing collaboration across governments will share knowledge of best practice.

Cost-benefit analysis of urban infrastructure proposals should factor in assumptions for population and economic growth in line with Australia's growth projections (i.e. to cater for a 60 per cent increase in population to 36 million by 2050) and ensure that infrastructure projects are being properly scoped to capture future benefits for a higher population.

Lifting the productivity of our cities should be a clear objective for city strategic planning systems.

### ***Funding and financing barriers***

#### *Problem*

A shortfall in funding for public infrastructure is probably the most pressing challenge for delivering the next wave of infrastructure needed in our cities and regions.

How we pay for Australia's infrastructure has become a significant issue for infrastructure provision. In particular this problem afflicts infrastructure directly funded from government budgets, especially

transport and social infrastructure provision. Despite a large number of infrastructure projects in planning, there are emerging blockages in the delivery of that project pipeline to address.

The BCA warned of a major infrastructure shortfall in our 2005 *Infrastructure Action Plan for Future Prosperity*. Since then we saw rising infrastructure investment throughout Australia through the latter half of the 2000s and during the global financial crisis. Annual economic infrastructure investment increased by around 50 per cent from 2005–06 to 2009–10, from around \$40 billion to \$60 billion. Spending was underpinned by growing spending commitments from private investors and Government Business Enterprises (GBEs), state governments catching up for past under-provision and the Commonwealth Government increasing its infrastructure funding commitments including for stimulus reasons.

But the signs are now pointing to a fall-away in spending on public infrastructure projects, notwithstanding the considerable opportunities identified as needed.

With governments consolidating their budgets and unwilling to take on debt, funding has dried up. The Commonwealth's Building Australia Fund is almost exhausted and the states are not commencing many new projects. There is a reluctance to expand the use of user pays models. Very few public–private partnerships are currently being made available.

#### *Who pays for Australia's infrastructure?*

Infrastructure Australia in its 2011 report to COAG said that we need to have a mature debate about how we fund infrastructure in Australia – a discussion about who benefits from its provision and who pays for it.<sup>38</sup> The BCA wholly agrees with that assessment.

Ultimately, the community (individuals and businesses) pays for the provision of infrastructure whether it is through direct charges for the use of the infrastructure or through payments made by governments on their behalf. Payments by governments are funded through current taxes or through government borrowing that is repaid by future taxpayers.

The community and business also pays the “cost” of inadequate infrastructure provision, for example, due to traffic congestion or poor quality of education and health services.

In addressing this issue of who pays for infrastructure it is important to make a distinction between the “funding” and “financing” of infrastructure as this has clear implications for policy. Specifically it is the funding of infrastructure that is the main concern. There are frequent calls for more private sector financing of infrastructure as a way to overcome the problem of governments having less capacity to pay for infrastructure. This does not necessarily provide the solution to this funding problem.

Public infrastructure can only be funded in one of two ways – either the users of the infrastructure pay a charge for its use, or governments pay a collective “charge” on behalf of all of us (see Table 11).

**Table 11: The funding and financing of major public infrastructure projects**

Investment type	Example of project	Project funding	Project financing
		Who pays for the project?	How is the mismatch between costs and revenues financed?
A purely business investment by private businesses or GBEs	Electricity transmission line, iron ore mine plus road and rail links; a chemicals manufacturing plant	Revenue received from the sales of goods and services generated by the investment, where prices can be charged to recover the full cost	Includes equity investment – direct equity, initial public offering, reinvested profits Debt investors – purchasers of bonds and loans
A purely public projects owned and paid for by governments	School, hospital, most roads  Projects are usually contracted out to private businesses to deliver under contract	Government expenditure either as: <ul style="list-style-type: none"> <li>• direct expenditure if constructed by the public sector or</li> <li>• payments to the construction and operating business if contracted out</li> </ul>	Taxation and/or government borrowing only
A hybrid project with public and business investment	A road that is partially tolled as a contribution from users with the remainder of costs paid for by government	Project is paid for from a mix of: <ul style="list-style-type: none"> <li>• revenue from direct sales to consumers i.e. user charges/tolls</li> <li>• government expenditure in the form of block grants or regular annual payments to the investor (to represent the public benefit from the investment)</li> </ul>	Private equity, debt of internal reserves for the business contribution Taxation and/or government borrowing for the government contribution

Source: Business Council of Australia analysis.

#### *Building the capacity of governments for funding infrastructure*

Building the capacity to fund infrastructure therefore means that either users will need to pay directly for more of the infrastructure provided in Australia (they already pay more or less the full price of energy, water and communications infrastructure and make significant direct and indirect contributions to paying for transport infrastructure) or governments will need to allocate more of their budgets towards infrastructure provision.

Private investors will invest in projects when they can recover all of their costs and make an adequate return on the investment, adjusted for the risk of the project. If governments can resolve the funding of public infrastructure projects – as these are mostly decisions of governments not businesses – private investors will finance and deliver the projects.

The amount of private investment that can be generated in public infrastructure is then really only limited by the capacity of Australia's economy to provide the finance, labour and materials and other inputs needed to deliver the infrastructure projects.

The points raised throughout this paper about the importance of efficient project delivery are highly relevant to governments resolving these funding problems. If we can become more efficient at delivering projects in Australia we can reduce the cost of projects and therefore available government funds can be allocated to more projects. More efficient project delivery therefore is one of the key solutions for addressing the funding challenge.

Also raised in our research and consultations were the limitations in the current block grant model of funding projects. It is agreed that available funds could be used to commence more projects if spread over time as availability payments on a co-funding basis with the states. This is a model worthy of greater consideration.

A further problem identified is that potential funds are locked up in assets owned by governments that could be sold to private owners.

#### *Who should own Australia's infrastructure?*

The BCA recommends that the criteria below should determine whether an asset is owned privately or by governments:

- governments should sell infrastructure assets where the private sector already owns other like assets and provides other like services (this effectively demonstrates adequate policies are already in place to protect consumers)
- private ownership should be preferred where an appropriate and transparent price can be established for the infrastructure service in any of these three ways:
  - there is a market price set by an effective and contestable market for the infrastructure service
  - there is a regulated price that allows an adequate return on an efficient investment while also protecting the interests of consumers
  - there is a contract price implicit in the availability payments that a government makes to the owner of the infrastructure on behalf of public users (includes community service obligations)
- government ownership should only be preferred where a public benefit test demonstrates that government ownership is necessary for achieving the social objectives of infrastructure provision

Within this framework private ownership of infrastructure is generally preferred to government ownership for two key reasons:

- government ownership of infrastructure locks up limited capital that could be used to fund other worthwhile infrastructure projects
- the private sector is better at innovating and running businesses and more likely to deliver better and more efficient infrastructure investments than government businesses.

It is important, however, that private ownership is consistent with achieving policy objectives for efficient investment in infrastructure and protecting the interests of consumers. The public sector's role should be to set policy and regulation that achieves these aims.

#### *Comment on infrastructure financing*

The issues to do with the financing of infrastructure projects relate to how capital is raised for investment in the project by governments or the private sector. Through a typical project life there are high upfront costs with revenues coming later in the project. Therefore capital is needed to be sourced to cover this mismatch in costs and revenues during the period where the project does not generate enough cash to pay for itself.

For the public sector, capital is essentially raised either through taxation or borrowing. The private sector raises capital from debt and equity markets. Of these sources of finance only taxation does not need to be repaid or incur a financing cost through interest charges or dividend payments.

Governments have an option to fund and finance projects through taking on more debt. Should governments seek to adopt debt financing of infrastructure in the context of Australia's long-term fiscal strategy, our past research has demonstrated a preference for that capital to be raised from general debt financing rather than from infrastructure bonds.

Australian businesses have been active financiers of public infrastructure projects through their involvement in public-private partnerships. PPPs have been a successful way to deliver projects at reduced cost and on time by drawing upon the innovation and management capabilities that the private sector can bring to projects.

However, in our consultations a number of issues arose in relation to PPPs that are affecting the cost and risks of financing projects by the private sector:

- Previous failed tender projects (e.g. cross-city tunnel, Clem7 and airport link in Brisbane) and cancellation of tenders (e.g. national broadband network tenders, Sydney metro project) have affected private sector confidence to engage in public tender processes and added to risk.
- Inefficiencies have crept into PPP tender processes that have added to the cost and time of these processes.

These concerns should be a high priority for governments to address as they add to the cost of project financing which ultimately feeds into higher project funding costs.

Other financing issues raised in our consultations include the depth of Australia's capital markets and issues for tax reform.

The absence of long-term debt has been a cause of failure or created stress in some PPP projects post the GFC. Major refinancing frequently needs to occur in the first few years of a project and it is important that capital markets can support this.

There is a question whether tax reform can or should promote infrastructure financing. Past research undertaken for the BCA has not identified a strong case for introducing specific taxation concessions to support the financing of Australia's future infrastructure needs. Supporting research in our 2009 report *Groundwork for Growth* found that tax reform should remove distortions to private infrastructure investment, but not provide incentives for private infrastructure investment for its own sake, which should occur on its merits.

However, there is a more fundamental issue that is at the core of the international optimal taxation literature and of a number of tax system reviews around the world that affects long-term investment: the harmful long-term effects of a bias in tax systems against savings and investment. Tax reform should aim to address this bias.

### *Evidence*

The following funding barriers have been identified as constraints on bringing forward public infrastructure projects:

- a shortfall of funds at the Commonwealth level as the budget is brought back to balance and the Building Australia Fund is nearly exhausted
- state government budgets are also stretched and the states are constrained in borrowing to add to current levels of spending – though large amounts of capital are locked up in economic infrastructure assets
- disagreements between state and federal governments over who should pay for infrastructure and which projects to prioritise four years after Infrastructure Australia was established to prevent this
- inadequate use of user charging as a means to reduce public subsidies for infrastructure investment. (Cost recovery through user charges also promotes more efficient infrastructure use which may in turn reduce the need for new infrastructure to be funded and provided.)

### *Implications*

Irregularity of project flows means the community misses out when infrastructure is underprovided or the wrong type of infrastructure is provided. Irregular project flow also adds to the cost of infrastructure delivery as it makes it harder for construction businesses to manage/train workforces and for the effective development of a competitive outsourcing market for the long term.

It would be preferable for governments to commit to a consistent flow of projects – if this allows businesses to better manage their resourcing this should in turn result in lower project costs and better value-for-money delivery of public infrastructure.

In recent times, greater recognition of the importance of well-functioning infrastructure markets and greater application of user pays principles have helped to source project funding from the users of the infrastructure and reduce the dependence on governments to fund public infrastructure from budgets. We have seen this in the shift towards full cost recovery in regulated markets for energy, water and communications. The area that has not been subjected to these changes to anywhere near the same extent is transport infrastructure – and it is no coincidence that these projects are arguably the most under-provided and underfunded.

### *Possible solutions*

Systemic design of our public infrastructure planning and funding models should aim to deliver the right amount of public investment in the right projects at the right time and this should happen in perpetuity. Functioning infrastructure systems that support a regular flow of quality, funded public infrastructure projects should be the overriding goal for the system.

#### *Better project planning and selection*

- Australia's governments should step up their efforts to plan for population and economic growth in capital cities and in regions and in the major infrastructure priorities associated with this and ensure we are prioritising the delivery of infrastructure projects most needed:
  - state governments to adopt an infrastructure prioritisation process that allows for the creation of an "infrastructure plan" of priority infrastructure projects. Major public infrastructure projects qualifying for public funding should be subjected to a rigorous and transparent cost–benefit assessment
  - Infrastructure Australia to conduct its own regular top-down strategic assessments to identify prospective infrastructure projects of national significance not identified by states
  - Infrastructure Australia to continue to identify "nationally significant" projects to qualify for national infrastructure funding that are deemed to be a national strategic priority and have been subjected to a full cost–benefit analysis
  - to complement these processes, charge the Productivity Commission with undertaking a regular assessment of the economic benefits of Australia's infrastructure policies. This should be a biannual strategic national infrastructure needs assessment to identify current and future infrastructure policy gaps.

#### *Building funding capacity for projects*

- Policy frameworks should continue to support infrastructure market development so that private and Government Business Enterprise providers can respond to infrastructure pricing models that allow for the full recovery of the efficient costs of investment
  - states to remove all price caps on electricity at the retail level
  - better application of systemic and efficient road user charging models that also sustain road funding, for example, the implementation of the COAG Road Reform Plan to introduce efficient charging for heavy vehicles and to link this to the funding of new and improved road provision
- Fix Australia's infrastructure funding models to get rules in place for determining who pays for infrastructure and speed up funding decisions:

- set out principles formulated with the states for determining the appropriate mix of funding for infrastructure projects. Those principles should emphasise greater application of user charges and agree a consistent methodology for setting the shares of funding to be provided by Commonwealth and state governments where required
- the federal government to commit to ongoing funding towards Australia's infrastructure needs as a catalyst for getting national priority infrastructure projects commenced
- governments should look to obtain funds for investing in new infrastructure projects by pursuing opportunities to privatise existing infrastructure assets and businesses.
- The government should consult widely with business and the community on reforms arising from the report of the Infrastructure Finance Working Group anticipated in mid-2012.

#### *More efficient tendering processes*

- Governments need to fix problems in project tendering that have added to cost and risk for bidders and taxpayers:
  - ensure government departments and agencies are properly resourced with the skilled personnel needed to design, tender and contract manage large complex infrastructure projects
  - use the procurement model most suited to the project (alliancing, PPP, design and construct, etc.) drawing upon past experience and a clear evaluation of the costs and risks of each projects
  - ensure an appropriate allocation of the risk between the public and private parties. This will in part depend on how much funding risk the private sector is being asked to bear where the project is being funded in part or in whole by user charges
  - address deficiencies in project execution processes to keep the costs associated with bidding for projects low. Key matters to address are to:
    - avoid tenders being aborted
    - reduce excessive documentation requirements
    - standardise tendering processes across state governments where possible
    - reduce excessive time for decision making
  - adopt tender processes that get to Preferred Bidder stage much more quickly without requiring the two shortlisted bidders to develop complete documentation including credit-approved finance.

#### *Efficient project delivery by Government Business Enterprises*

- To ensure GBEs are delivering infrastructure efficiently, governments should strengthen governance and accountability of GBEs, ensure timely and comprehensive reporting of GBE compliance with competitive neutrality, and review and strengthen the COAG Competition and Infrastructure Reform Agreement (now overdue).

#### *Tax reform to attract financing*

- Tax reform that reduces taxation of returns to capital can promote investment and innovation and lead to an increase in real wages.

#### *Developing capital markets*

- The creation of a longer-term project bond market could materially assist project financing.

## **Investor confidence**

### ***Quality and predictability of the policy environment***

#### *Problem*

Large-scale capital projects that are constructed and operated over many years – decades in many cases – require policy predictability and stability through the life of the project. When investors make a decision to invest for the long term in Australia they place a high premium on the certainty of how tax and regulations might affect future project returns. Uncertainty is a risk that gets built into the initial business case as a cost. The higher the costs of uncertainty, the less likely the project is to go ahead relative to other investment options around the world.

Concerns have arisen from the way that some recent policy reforms with significant implications for returns on major long-lived investments have been implemented. These are concerns that can build over time and affect investor views towards the relative attractiveness of a country.

Foreign investors already view Australia as a complicated place to invest with our complex tax laws and regulations.

The Productivity Commission is the government's principle adviser for microeconomic reform. It has been sidelined from analysing a number of important policy initiatives with a significant impact on the economy and investment.

#### *Evidence*

An April 2012 Institute of Public Administration Australia paper concludes that public policy making in Australia is adrift. The paper assessed processes for developing 18 important public policies such as the National Broadband Network and the Minerals Resource Rent Tax. It finds that 10 of these policies failed widely accepted best practice policy development processes, the remaining eight policies met more than seven of 10 criteria for best practice policy development.

#### *Implications*

Capital is mobile and any unpredictability in our taxation and regulatory frameworks reduces our relative competitiveness with other countries.

#### *Possible solutions*

Governments should ensure changes in taxation and regulation affecting investment are conducive to long-term investment in Australia. New taxes or regulations should not materially lower investment returns for investments that were commenced under different arrangements.

### ***Risks to investor confidence***

#### *Problem*

Major capital investments are long lived and risky ventures that rely on high levels of investor confidence in the ultimate success of the project for funds to be committed.

As well as the points made above about the need for policy predictability, Australia's competitiveness as an investment destination is a critical factor underpinning investor confidence that attracts capital inflows to Australia.

Some investment projects are location specific and not able to be developed elsewhere due to a natural resource development or because the project is an infrastructure project in a city or region. Even so, investors can make a choice about whether they invest in resources or infrastructure projects in Australia or in other countries. The greater the confidence to invest in Australia the greater will be the availability of finance and the lower the cost of finance.

#### *Evidence*

On the World Economic Forum's scale of global competitiveness Australia has dropped four spots to number 20.<sup>39</sup>



Australia's company tax rate of 30 per cent is the equal sixth highest out of 34 countries. The 10 lowest-taxing countries in the OECD have a company tax rate of 20 per cent or lower.

Other countries are improving their relative competitiveness to attract investment. The New Zealand and UK governments have recently decreased company tax rates.

#### *Implications*

In a global economy with multiple investment opportunities, capital is mobile and will be deployed by investors where the best investment opportunities are located. To secure our investment opportunities investors will need to see Australia as a desirable and safe place to invest and commit large sums of capital over long periods of time.

Alternatively, investors will demand higher cost premiums to invest in Australia relative to other places to compensate them for greater risks associated with project delivery in Australia and this will push up the cost of delivering projects.

The long-term competitiveness of Australia's economy will influence investor confidence.

#### *Possible solutions*

Australia's governments should continually aim to set internationally competitive regulatory and tax regimes and to raise the importance of growing Australia's competitiveness when setting policy. There should be a greater role for the Productivity Commission to analyse economic policy initiatives for the effects on productivity and competitiveness and provide advice to governments on the best policies for growing investment.

The OECD advises that taxes on company profits are harmful to investment and growth. Australia should pursue tax reform that switches the tax mix away from taxing the returns to capital and more on the taxation of consumption as has occurred in New Zealand and the United Kingdom.

## 7. Recommendations and directions for change

### Six strategic priorities for Australia to secure its investment opportunities

**1. Build higher levels of community understanding and acceptance** of the need for Australia's economy and population to grow, as well as for individual investment projects, by showing leadership and explaining the benefits

**2. expand Australia's capacity to deliver multiple capital projects** by growing and developing Australia's workforce and maintaining open and competitive markets for the supply of labour, materials and equipment

**3. improve the efficiency of project delivery in Australia** by reforming government project approvals processes, building Australia's capabilities for project design, innovation and management and by lifting workplace productivity

**4. support investment and growth through the adequate provision of economic and social infrastructure** in our regions and cities by developing growth strategies, addressing deficiencies in the strategic planning and funding of public infrastructure, and developing infrastructure markets coupled with greater private ownership of infrastructure

**5. build the confidence of investors** to risk capital in large, long-lived and complex investment projects in Australia by maintaining a competitive and predictable policy environment, and promoting fiscal stability

**6. ensure supportive government policies and programs** are facilitating efficient capital project delivery by businesses, by the Council of Australian Governments agreeing and acting to secure Australia's investment and growth opportunities and configuring institutions and policies accordingly.

**1. Build higher levels of community understanding of the importance of growing our economy and population, as well as of individual investment projects, by showing leadership and working with communities to explain the benefits.**

**1.1** Governments to commit to publishing clear population growth strategies and projections to facilitate planning for growth.

**1.2** Governments to publish long-term plans for infrastructure proposals which make clear the community benefits of those projects and which give the community time to assess and accept projects.

**1.3** States to fast-track regional economic development strategies to identify and prioritise social and economic infrastructure requirements in areas impacted by substantial economic and population growth.

**1.4** The GST distribution should be reformed to account for the costs associated with rapid economic growth. It should also recognise the potential diseconomies of scale in delivering services in rapidly growing cities.

**1.5** Strategic land use planning processes should be implemented which include effective ways to consider community issues in a timely manner.

**1.6** Government and business to develop best practice guidelines for community engagement around major projects that have significant impacts on communities, including:

- engagement early (including during feasibility phase)
- community liaison groups
- provision of information including on project impacts and how the community will be involved in the project
- identification of the lasting positive legacy for communities.

**2. Expand Australia's capacity to deliver multiple capital projects by growing and developing Australia's workforce and maintaining open and competitive markets for the supply of labour, materials and equipment.**

**2.1** The Commonwealth to request Skills Australia to undertake regular analysis of the skilled workforce needs of the portfolio of all major capital investments in Australia.

**2.2** All governments and relevant agencies to use future workforce estimates to better target training and migration programs to alleviate skills shortages.

**2.3** COAG to meet its commitment to complete the occupational licensing reforms to recognise licences across state and territory jurisdictions by 2013.

**2.4** State governments to establish special development authorities for regional growth areas to expedite land approvals and the development of social and economic infrastructure.

**2.5** Governments to work with industry to overcome funding and regulatory barriers to the effective development of training systems to build workforce-ready capabilities.

**2.6** The Commonwealth to:

- set policies to support a growing Australian population and workforce over time by committing to a long-term strategy in accordance with the projections in the 2010 Intergenerational Report
- maintain the annual permanent migration program at least at its current levels (currently at a minimum of 190,000 total; 129,500 of those are skilled migration)
- ensure flexibility in uncapped temporary migration schemes such as 457 visas and the efficient implementation of the Enterprise Migration Agreement program and do not make the requirements to comply with the EMA program any more onerous for eligible projects
- remove all barriers to the recruiting of engineers and project managers with the appropriate levels of experience to oversee very large projects in Australia.

**2.7** The Commonwealth to continue to maintain an open investment and trading regime that makes materials inputs and finance accessible for investors in Australian capital projects, and to not mandate local content in projects.

**2.8** Governments can play a role to assist Australian companies to overcome information asymmetries in the new emerging global supply chains supporting major capital projects.

**3.** Improve the efficiency of project delivery in Australia by reforming government project approvals processes, building Australia's capabilities for project design, innovation and management and by lifting workplace productivity.

### ***Project approvals***

**3.1** All jurisdictions to adopt a risk-based approach to regulation to ensure that regulatory effort is directed to the areas of development approvals where it will have most impact.

**3.2** COAG to streamline the environmental approvals process and to examine reforms that could be undertaken at the state and territory levels to improve the approval process for major projects:

- all jurisdictions to work together to develop a structured approach to ensure environmental impact assessments for all eligible projects are assessed (where the proponent agrees) using bilateral agreements under the Environmental Protection and Biodiversity Conservation Act
- the Commonwealth to commit to a six-month time frame to accredit state environmental approvals to remove the Commonwealth's concurrence powers (so that state approvals count for Commonwealth approvals).

**3.3** The Productivity Commission to benchmark Australia's major development assessment processes against international best practice in terms of timelines for approvals, cost of administration and compliance and the additional costs arising from conditions imposed on projects.

**3.4** State governments to adopt improved best practice arrangements for assessments of major economic and resource projects. This includes a single agency to deal with major project approvals and removing the concurrence powers of other state government agencies (further details are in Exhibit 1 of this publication).

**3.5** State governments to:

- undertake regional planning (as well as capital city planning) in collaboration with the Commonwealth and local governments to identify major land uses and associated infrastructure requirements
- use new planning instruments to allow all policy matters to be brought forward into rezoning decisions, which provides for subsequent developments to be deemed complying development and then tested against a set of performance standards
- reserve areas for designated activity as part of strategic planning and where possible deem permissible activity as complying, for example, resources exploration.

### ***Workplace legislation***

**3.6** The Fair Work Act needs to be amended to:

- allow more agreement options for employers in setting or agreeing terms and conditions prior to projects starting, or access to impasse-breaking processes
- allow employer-own agreements, the terms of which match the duration of the relevant project
- remove ambiguity arising from previous decisions by outlawing clauses that are intended or have the effect of inhibiting use of contractors and/or labour hire.

**3.7** The Commonwealth to reinstate the Australian Building and Construction Commission, with its original powers.

### ***Productivity Commission review of major project costs***

**3.8** The Productivity Commission to analyse all factors impacting on major project costs and delivery performance in Australia including construction industry costs, delays in project delivery and productivity. There should be no limits to the scope of this review. For example, workforce issues and industrial relations should be within the scope of the terms of reference.

**4. Support investment and growth through the adequate provision of economic and social infrastructure in our regions and cities by developing growth strategies, addressing deficiencies in the strategic planning and funding of public infrastructure, and by developing infrastructure markets coupled with greater private ownership of infrastructure.**

***Efficient markets***

**4.1** Australia's governments should put in place policy frameworks for efficient infrastructure provision and use by:

- formulating clear long-term strategies for sustainable population growth, land use and the development of Australia's energy and water resources that provide important long-term signals to private investors
- producing integrated long-term strategic plans that:
  - identify urban and regional growth corridors and future infrastructure needs
  - list priority projects with the highest economic and social benefits according to rigorous and transparent cost–benefit assessments that factor in future growth
- developing markets for water, energy, communications and transport that apply full cost-efficient pricing regimes and attract private investment:
  - states to remove all price caps on electricity at the retail level
  - move to implement the COAG Road Reform Plan
  - apply competitive neutrality principles in full to the pricing of services provided by Government Business Enterprises and report on compliance
- task Infrastructure Australia to conduct its own regular strategic assessments to identify prospective infrastructure projects of national significance not identified by the states
- the forthcoming Productivity Commission review of the national access regime (currently scheduled for late 2012) should ensure Australia's infrastructure access regimes are clear, transparent, consistent and efficient.

**4.2** Governments should improve their strategic city planning systems to take into account the specific findings for each city in the report of the COAG Reform Council.<sup>40</sup>

***Free up public funds***

**4.3** Reform Australia's infrastructure funding models to allocate funding for public infrastructure projects on a consistent, prioritised basis:

- to build infrastructure funding capacity by freeing up capital in public assets, all governments should use the following criteria to determine whether an asset is owned privately or by government:
  - governments should sell infrastructure assets where the private sector already owns other like assets and provides other like services (this effectively demonstrates adequate policies are already in place to protect consumers)
  - private ownership should be preferred where an appropriate and transparent price can be established for the infrastructure service in any of these three ways:
    - there is a market price set by an effective and contestable market for the infrastructure service
    - there is a regulated price that allows an adequate return on an efficient investment while also protecting the interests of consumers
    - there is a contract price implicit in the availability payments that a government makes to the owner of the infrastructure on behalf of public users (includes community service obligations)

- government ownership should only be preferred where a public benefit test demonstrates that government ownership is necessary for achieving the social objectives of infrastructure provision
- governments to agree principles for funding new infrastructure projects that prioritise the greater application of user charges and which set out a process for quickly determining and agreeing any state and federal funding allocations for each project
- as part of the annual federal budget process, publish a schedule of federal funding contributions towards infrastructure projects of national significance.

#### ***Understanding the economic benefits***

#### **4.4 Charge the Productivity Commission with undertaking a biannual assessment of the economic impact of Australia's infrastructure policies and to identify opportunities for improving national infrastructure policy frameworks to support investment and growth.**

#### ***Improve procurement***

#### **4.5 All governments to improve project procurement and tendering processes:**

- ensure state governments recruit skilled personnel who can identify and manage the procurement model that best suits each project (e.g. public–private partnership, alliances, design and construct)
- reduce tender risks and costs for bidders, by preventing cancellations occurring after the tender process has commenced and through simpler bidding and contracting processes, reducing documentation requirements, standardising tendering processes across state governments where possible, and reducing excessive time for decision making.

**5. Build the confidence of investors to risk capital in large, long-lived and complex investment projects in Australia by maintaining a competitive and predictable policy environment, and promoting fiscal stability**

**5.1** Australia's governments should continually aim to set internationally competitive tax regimes and a best practice regulatory environment to ensure Australia's competitiveness.

**5.2** Governments need to ensure changes in taxation and regulation do not harm the long-term investment environment in Australia.

**5.3** Any additions or alterations to Australia's taxes or regulations should pass a net benefit test and should not materially lower investment returns for investments that were commenced under previously established taxation arrangements. Major changes to Australia's business tax system should only apply prospectively.

**5.4** Australia should aim to move progressively to a tax system less reliant on company tax and personal tax (taxes on mobile factors) and be more reliant on more efficient, indirect taxes such as consumption tax and land tax.

**5.5** Governments should prioritise macroeconomic stability through fiscal discipline and credible policy making that reduces uncertainty for investors and creates an environment conducive to investment and innovation.

**5.6** The Commonwealth to make greater use of the Productivity Commission to analyse economic policy initiatives for the effects on productivity and competitiveness and provide advice to governments on the best policies for growing investment.



**6. Ensure supportive government policies and programs are facilitating efficient capital project delivery by businesses through COAG agreeing and acting to secure Australia's investment and growth opportunities, and configuring institutions and policies accordingly.**

**6.1** Governments at COAG should recognise the high importance of major project delivery to economic growth and agree a common objective to secure Australia's substantial set of investment opportunities. Governments at COAG should develop a national investment strategy that improves coordination of policy in the areas of:

- policies to unblock the delivery of the public infrastructure pipeline
- inefficient and duplicative major project approval processes and excessive conditions
- workforce development to address labour shortages on major investment projects
- lifting productivity on major development sites.

**6.2** Governments and COAG should organise their analytic work around this priority and assess all other economic and regulatory policy through this lens:

- all governments should have a single agency and minister responsible for major projects
- the Commonwealth should appoint a minister responsible for:
  - encouraging and facilitating the delivery of major capital investments
  - measuring and monitoring Australia's major capital project pipeline and its delivery
  - trouble-shooting to help to resolve policy-related problems that emerge
  - assisting in building higher levels of community understanding
- the federal government to review its current departmental structure to ensure it is streamlined and aligned to supporting effective delivery of Australia's major investment opportunities.

**6.3** Treasury should rigorously test its projections about business investment growth against the expected realisation of investments in Australia's investment pipeline list and publish sensitivity analysis in the budget papers.

**6.4** Governments should collect data on the cost and time of public infrastructure project delivery in Australia and benchmark performance across Australia and against global experience to highlight areas for improvement.

## Notes

1. OECD *Economic Outlook* projections, May 2012.
2. Infrastructure includes energy, water, communication and transport.
3. Internal report for the BCA by Deloitte Access Economics.
4. Deloitte Access Economics records only projects located in Australia with gross capital expenditure over \$20 million. Residential housing projects are not included.
5. The total value of advanced projects in the BREE listing was \$260.8 billion in May 2012, compared with a total value of definite mining projects of \$222.8 billion in the *Investment Monitor*. The total value of less advanced projects in the BREE listing was \$243.3 billion. This estimate of the less advanced pipeline is somewhat larger in size than the \$189.7 billion pipeline of possible mining projects in the *Investment Monitor* (noting that for both categories, the BREE estimates include some infrastructure projects).
6. North West Shelf was over \$25 billion, but this was a series of projects over many years.
7. Internal report for the BCA by Deloitte Access Economics.
8. Investment Reference Group, *A Report to the Commonwealth Minister for Resources and Energy*, April 2011.
9. Business Council of Australia, *Assessing Australia's Trade and Investment with Asia*, incorporating report from ITS Global, December 2011.
10. Internal report for the BCA by Deloitte Access Economics.
11. Skills Australia, *Major Projects Schedule of Resource Projects: Construction Workforce Estimates*, September 2011.
12. Bureau of Resources and Energy Economics, 'Resource and Energy Earnings Projected to Break Export Records', Media Release, 21 March 2012.
13. ANZ, *Earth, Wind and Fire: Economic Opportunities and the Australian Commodities Cycle*, report prepared by Port Jackson Partners Limited, August 2011.
14. ABS, *Private New Capital Expenditure and Expected Expenditure, Australia*, cat. no. 5625.0, March 2012.
15. NAB circular, September Quarter 2011, available by subscription.
16. Macromonitor, *Australian Construction Cost Trends 2011*, available by subscription.
17. Turner & Townsend, in its *International Construction Costs Survey 2012*, arrives at its estimates by surveying professionals in its branch offices across the world. The estimates are based on the standard nominal costs per metre squared of producing each project according to local standards in each country. The cost of projects in 2011 are then converted to US dollars based on average exchange rates for the calendar year 2011.
18. B. Flyvbjerg, 'Survival of the Unfittest: Why the Worst Infrastructure Gets Built – and What We Can Do About It', *Oxford Review of Economic Policy*, Volume 25, Number 3, 2009, pp. 344–367.
19. Fortescue Metals Group Limited, *Submission to the Parliamentary Inquiry into the Use of 'Fly-in, Fly-out' (FIFO) Workforce Practices in Regional Australia*, October 2011.
20. ReachTel polling, 'Coal-Seam Gas Polling in Queensland', conducted on 16 August 2011.
21. ANU Poll, 'Public Opinion Towards Population Growth in Australia', October 2010.
22. For an explanation of the pros and cons of continuing moderate population growth versus no or low growth, and the reasons why moderate population growth in line with the Intergenerational Report projections is in Australia's strategic interests, see Business Council of Australia, *Submission on the Development of Australia's Sustainable Population Strategy*, 2011.
23. P. McDonald and J. Temple, *Immigration, Labour Supply and Per Capita Gross Domestic Product: Australia 2010–2050*, Australian National University, Canberra, May 2010.
24. Skills Australia, *Skills for Prosperity*, 2011.
25. Commonwealth of Australia, Enterprise Migration Agreements Submission Guidelines, Department of Immigration and Citizenship.
26. Enterprise Migration Agreements are made between the project owner and the government and are available for resource projects with over \$2 billion capital expenditure and a peak workforce of 1,500 workers.
27. Engineers Australia, *The Engineering Profession, A Statistical Overview*, Eighth Edition, 2011.
28. Engineers Australia, *Salary and Benefits Survey*, 2011.
29. Internal report for the BCA by Deloitte Access Economics.
30. Productivity Commission, *Performance Benchmarking of Australian Business Regulation: Planning, Zoning and Development Assessment*, Research Report and related material, 2011.

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31. G. Rinehart, 'West Australia: Business Hub in the Twenty First Century?', speech to the Commonwealth Heads of Government Meeting, October 2011.
  32. Business Regulation and Competition Working Group, Future COAG Regulatory Reform Agenda Stakeholder Consultation Paper, 2011.
  33. Infrastructure Australia, *Infrastructure Planning and Delivery Case Studies*, 2010.
  34. KPMG, *Australia's Resources Boom: The Infrastructure Ripple Effect*, 2011.
  35. ABS, *Population Projections, Australia, 2006 to 2101*, cat. no. 3222.0, Canberra, 2012.
  36. Bureau of Transport and Regional Economics, *Estimating Urban Traffic and Congestion Costs*, Working Paper No. 71, 2007.
  37. COAG Reform Council, *Review of Capital City Strategic Planning Systems*, Sydney, 2012.
  38. Infrastructure Australia, *Communicating the Imperative for Action*, report to COAG, June 2011.
  39. World Economic Forum, *The Global Competitiveness Report 2011–12*, 2011.
  40. COAG Reform Council, *Review of Capital City Strategic Planning Systems*, Sydney, 2012.

Note: all currency references in this study, and the overview of the study, are in Australian dollars unless otherwise noted.

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