Resources & Energy Major Projects Update May 2013

- **The Bureau of Resources and Energy Economics' (BREE) latest biannual update on the state of mining, infrastructure and processing facilities projects in Australia has provided further evidence that the peak in mining investment is quickly approaching.**
- **While capital expenditure continues to occur at a rapid pace, with around $15.3 billion worth of projects progressing to the completed stage in the six months to April, much of this reflects the completion of 'mega' projects.**
- **With no new 'mega' projects added to the list of committed projects over the six months to April 2013, the outlook for completed projects is expected to fall away at a quickening pace over the next five years.**
- **While the investment pipeline remains enormous, there is a real risk that the rate of decline in capital expenditure will be more pronounced than previously anticipated, having a more severe impact on the Australian economy than currently forecast.**

Overview

The Bureau of Resources and Energy Economics (BREE) released its latest biannual Resources and Energy Major Projects report on 22 May, outlining the current state of mining, infrastructure and processing facilities projects in Australia. The report provides an update on project developments over the six months from October 2012 to April 2013, a period when concerns about the approaching peak in mining investment were intensifying.

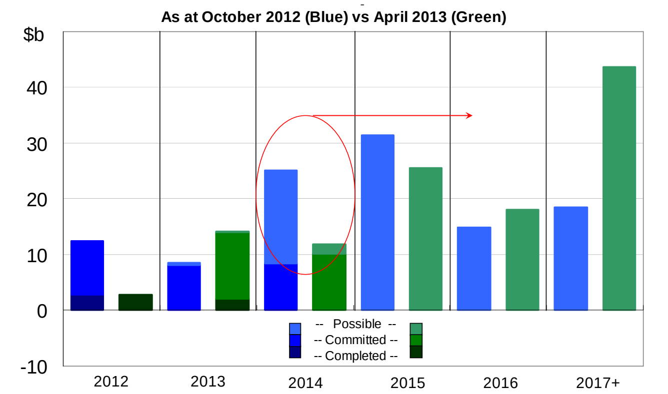
According to BREE, 21 projects reached the **completed** stage in the six months to April 2013, representing $15.3 billion in capital expenditure ($3.4 billion higher than in the previous six months). The total number of **committed** projects fell from 87 in October 2012 to 73 in April 2013. The value of committed projects was broadly unchanged at $268 billion (17.9% of current annual GDP), largely reflecting cost overruns which do not necessarily add to the volume of activity or capacity. In April 2013, 174 projects were at the **feasibility** stage having an estimated investment value of around $232 billion, compared to 171 projects at the feasibility stage in October 2012 valued at around $281 billion. While the value of minerals and energy investment in the pipeline remains enormous – representing around 8% of GDP – there has been a sharp reduction in the value of projects at the feasibility stage, providing further evidence that the peak in mining investment is rapidly approaching. Much of the reduction in the value of projects at the feasibility stage reflects projects being reverted. It should be noted that many of the projects that have reverted back to the publicly announced stage were already viewed as very unlikely to get off the ground. Nonetheless, it is clear that the degree of uncertainty surrounding the eventual commitment of these projects has risen.

Bulk Commodity Projects

Iron Ore

Despite greater uncertainty over the outlook for commodity prices – as Chinese demand growth eases and operating costs rise – BREE continues to report a large pipeline of investment projects for bulk commodities. However, there has still been a degree of rationalisation of investment projects over the past year in response to demand concerns, spurred on by calls to increase returnsl to shareholders. As a result, a number of projects have been delayed, scaled down, and in some cases cancelled, but projects at an advanced stage of development have been left relatively unscathed. Large scale projects recently cancelled include the Cape Lambert Magnetite project (earmarked for completion in 2015) and the Weld range project (post 2017), with a combined value of $5.7 billion.

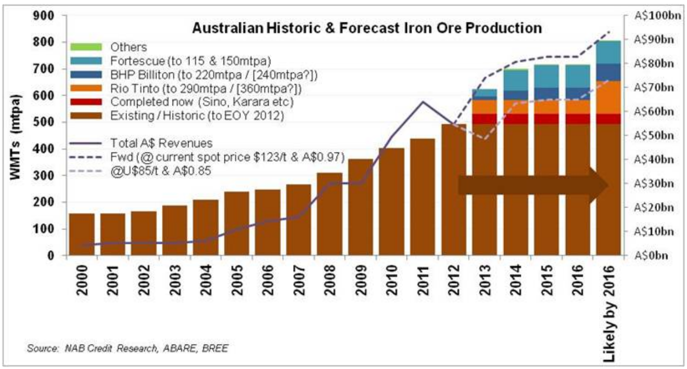
Pipeline of iron ore mining projects'



Overall, the value of committed iron ore projects has fallen by $4.2 billion relative to October 2012, representing the completion of five projects, to a total of $22 billion as at April 2013. There are currently 21 iron ore projects at the feasibility stage in the pipeline, with a combined value of $47 billion, up from $45 billion last October, and another $35-56 billion in less advanced projects (publicly announced), including two new projects: Fortescue's Nyidinghu project (around $2 billion and 30 million tonne capacity), and Macarthur Minerals' Moonshine project ($2.5 5 billion and 10 million tonnes capacity). However, delays have shifted the pipeline of uncommitted projects more heavily towards the out years of the outlook horizon – a reflection of the number of projects that have become 'dead in the water' as their viability is reconsidered. An example is the $7.4 billion West Pilbara project (expected to add 30 million tonnes to capacity) which is now unlikely to reach completion before 2018 (previously expected in 2014 and was downgraded from being at the feasibility stage to the publicly announced stage).

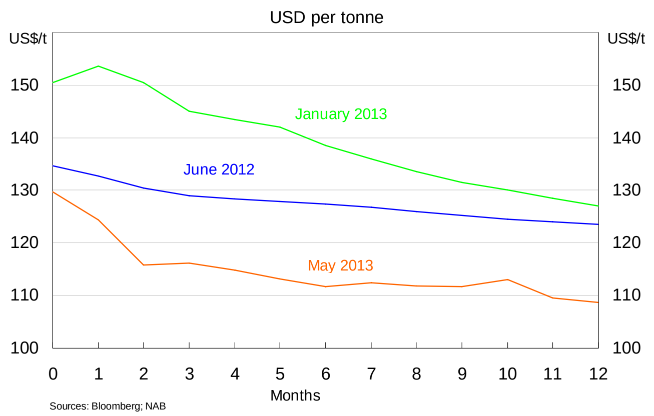
Nevertheless, major iron ore producers have maintained relatively ambitious iron ore expansion plans. The relatively low production costs of these firms – relative to current spot prices – has kept most expansion plans viable despite expectations for lower prices in coming years. But while we expect companies to become more cautious about these expansion plans, they will also be wary of falling into the trap of 'under-investing' and potentially losing market share. For example, Rio Tinto appears to be on track to achieve total capacity of 290mtpa this year (from 230mtpa last year), while BHP Billiton is set to reach 220mtpa by mid-2014. Additional plans to boost Rio Tinto's production capacity to 360mtpa (2015) and BHP to 240mtpa may come under pressure, but still appear likely, and will help to bolster revenues – even under a conservative price assumption (US$85 per tonne). However, producers will also need to be mindful of the rising costs of project development in Australia. BREE reports a total increase in post Final Investment Decision (FID) costs of $5.5 billion for iron ore (the second largest increase after LNG), which represents around one quarter of the current value of committed projects.

Australian Iron Ore Production Forecasts



The scale of the current pipeline of iron ore capacity is likely to have implications for iron ore prices once production eventually comes online, particularly if some of the larger projects at the early stage of development (such as Hancock Prospecting's 55 million tonne Roy Hill project), get off the ground. Currently, there is more than 750 million tonnes of iron ore capacity in the pipeline for completion over the medium to long term, although not all projects are expect to progress to completion. Committed projects are expected to contribute 156 million tonnes of ore to the market over the next couple of years, which is around a third of the volume of Australian iron ore exports in 2012. With Chinese demand growth beginning to slow, these capacity expansions are expected to push the market into surplus over the next year or so, contributing to the backwardation of forward prices.

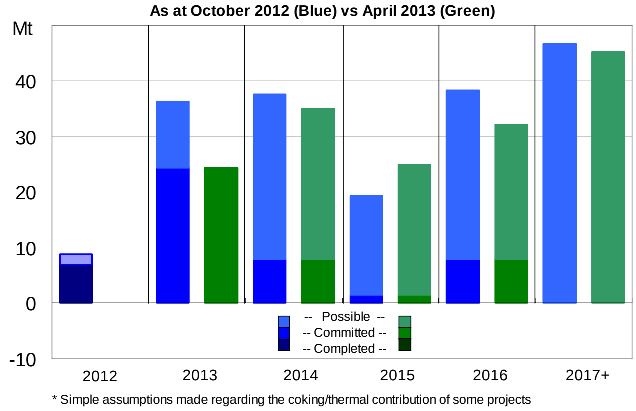
Iron ore futures



Coal

Conditions for coal investment have become less favourable, particularly for thermal coal where current prices have around a quarter of Australian producers operating at a loss (according to estimates from AME). Consequently, no additional coal projects progressed to the committed stage over the six months to April, and the value of committed projects declined by $166 million – largely due to the completion of a major project – to a combined value of $14.2 billion. Most of the remaining committed projects relate to coking coal and are scheduled for completion by end-2014, including BHP's Caval ridge project ($1.9 billion) and Daunia project ($1.6 billion). Coal accounts for the largest number of projects at the feasibility stage, valued at $57 billion in April 2013, but this is down from $76 billion in October 2012 reflecting a shift in projects back to the publicly announced stage as well as some cancellations. However, there were a few projects announced in the six months to April, including Stanmore Coal's Belview, Nucoal Resources' Doyles Creek and Cuesta Coal's Moorlands projects.

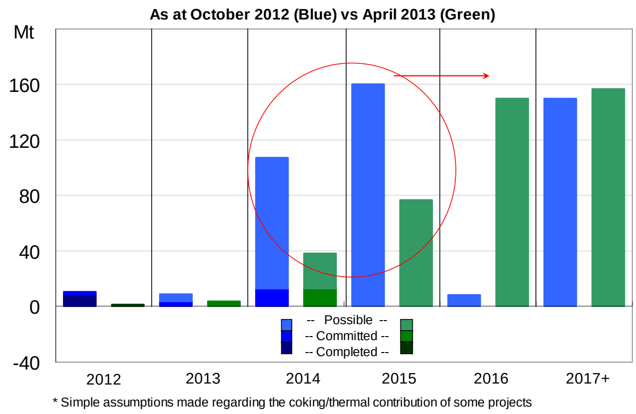
Pipeline of coking coal mining projects'



With Australia accounting for around half of global seaborne coking coal supply, planned additions to Australian output are important to global coking coal markets as well as Australia's investment pipeline. While the pipeline of new projects was relatively modest last year, committed projects are expected to bring an additional 30 million tonnes of capacity online over the next couple of years (representing around 20% of 2012 export volumes). The total pipeline of potential projects suggests a potential addition of 161 million tonnes to capacity, essentially doubling exports over the long run, although this is an unlikely scenario.

Australia is the world's second largest exporter of thermal coal (behind Indonesia) contributing almost 20% of global seaborne coal. While the pipeline of new projects is relatively modest this year, later years are punctuated by significant potential capacity expansions, although very little has been committed. Also, there have been a number of delays announced which have pushed a significant proportion of 'possible' projects (either at the feasibility or publicly announced stage) back to 2016 and beyond.

Pipeline of thermal coal mining projects'



Infrastructure

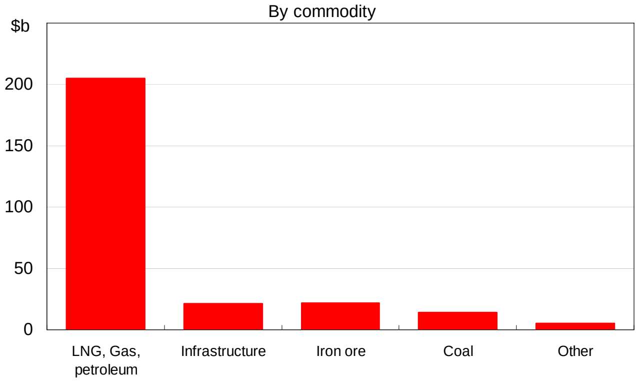
Bulk commodities underpin the majority of resource infrastructure projects. Consistent with changes to resource projects, a number of infrastructure projects have also been delayed, reflected in the rise of Publicly Announced projects. In terms of iron ore infrastructure spending, FMG's Anketell Point port project, with new estimated capacity of 350 million tonnes, has been delayed (previously expected in 2015 and valued at $2.5-5 billion).

There have been no new committed infrastructure projects since last October, while the value of pre-existing projects fell $3.6 billion to $21.1 billion. Further to this, the bulk of the large committed infrastructure projects are scheduled for completion by end-2014. These include Rio Tinto's Cape Lambert port and rail expansion ($5.2 billion) and Fortescue Metals Group's port and rail projects ($4.6 billion). The Wiggins Island Coal Export Terminal ($2.4 billion) and BHP Billiton's Hay Point Terminal 3 ($2.7 billion) are also scheduled for completion in 2014.

Natural gas, oil and petroleum

LNG, gas and petroleum projects continue to dominate the pipeline of current and future investment in Australia. With 18 projects in total, LNG, gas and petroleum projects currently make up $205 billion (76%) of the total $268 billion of committed projects (see Graph).

Projects at the Committed Stage

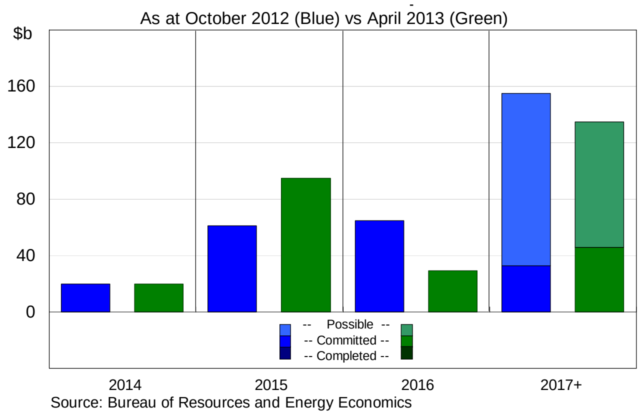


Source: Bureau of Resources and Energy Economics

While the number of LNG projects in April 2013 is unchanged from October 2012, the value of these projects has swelled by $10.5 billion, largely reflecting cost overruns at Gorgon LNG ($9 billion) and Australia Pacific LNG ($1.7 billion). BREE estimates that cost increases for LNG projects have been the largest of all commodities by value, at around $20 billion above FID estimates, or approximately 10% of committed LNG project values and a significant share of cost increases for all mining projects ($29 billion). The value of projects at the feasibility stage declined by $32 billion to $72 billion in the six months to April 2013, reflecting a number of projects – including the Browse LNG and Sunrise LNG projects – being pushed back to the publicly announced stage. Despite this shift, the value of LNG projects at the publicly announced stage was between $1.4 billion and $3.9 billion lower in April 2013, reflecting several projects progressing to the feasibility stage and the removal of the Pluto LNG Expansion (Trains 2 and 3) and Arrow LNG Expansion (Trains 3 and 4) projects from the list.

A major development in April 2013 was the announcement by Woodside Petroleum (on behalf of the Browse LNG project joint venture) to no longer develop the onshore LNG processing plant in north-west Western Australia based on unfavourable project economics. Instead, Woodside Petroleum plans to develop a floating LNG platform for the Browse Basin, enabling the processing of offshore gas. Floating LNG technology offers a less capital intensive and lower cost option that is completed entirely offshore. As a result of the decision to develop offshore, the Browse LNG project is likely to cost much less than the initial estimated cost of $36 billion.

LNG Infrastructure Pipeline



Source: Bureau of Resources and Energy Economics

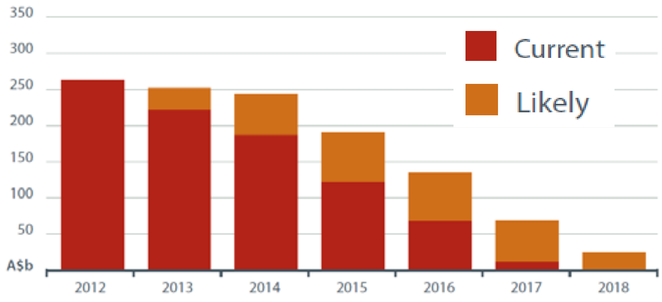
Gold

While gold projects tend to be at the lower end in terms of investment value, there are a large number of gold producing projects in the pipeline and their aggregate contribution remains significant. In the six months to April 2013, seven gold-producing projects with a combined value of $2.6 billion were completed, with Newcrest's Cadia East mine ($1.9 billion) making up the lion's share. A number of projects progressed from the publicly announced stage to the feasibility stage, and in some cases to the committed stage; the number of gold projects at the feasibility stage doubled between October 2012 and April 2013, from six to 12, with the 12 projects having a combined value of $1.6 billion. While the gold price remains elevated compared to history, it is likely that recent sharp price declines will put into question the viability of many of these possible projects over the remainder of this year.

BREE's investment outlook: scenario analysis

In October 2012, BREE introduced a new framework used to analyse the 'likely' value of the future stock of mining investment at the committed stage. Based on historical outcomes, not all projects at the publicly announced and feasibility stages make it to the committed stage. To represent this uncertainty, BREE has undertaken analysis on the 'likelihood' of possible projects entering the committed stage. Projects are identified as 'likely', 'possible' or 'unlikely' and these ratings form the basis of BREE's projections. While there are a number of projects currently at the committed stage which are expected to be completed by the end of 2013 (valued at $43 billion), BREE has assessed that there is around $31 billion worth of projects currently at the feasibility stage that are likely to enter the committed stage by the end of the year, providing some offset to the decline in committed projects. Overall, BREE's scenario analysis suggests that the value of projects at the committed stage will decline by $12 billion to $256 billion at the end of 2013. Thereafter, the outlook for committed projects becomes less certain and the stock of committed investment is expected to fall away sharply, underpinned by the completion of a number of 'mega' projects already under construction (see Graph).

Outlook for committed project investment: BREE's 'likely scenario'

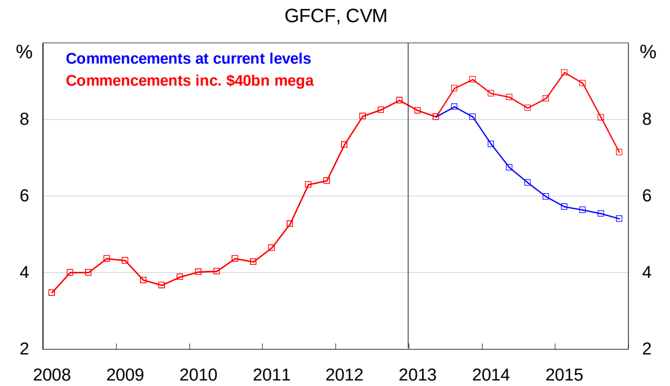


BREE projects that the value of committed projects in 2017 will be comparable to levels in 2007, implying a significant reduction in the flow of capital expenditure over the next five years. Of course, this analysis heavily discounts the probability of a number of currently 'possible' projects getting off the ground. Indeed, there is some upside risk to the outlook for committed projects if these 'possible' project are committed. Furthermore, this analysis does not take into account cost overruns. However, while these significantly boosted the stock of committed projects historically, they may not represent an increase in the volume of activity or capacity. In a world where cost overruns are more prevalent, projects that would otherwise have been committed may become unfeasible and therefore fail to reach the committed stage.

Outlook

BREE's major project listings update combined with ABS data on capex and exploration expectations suggest that mining investment may be approaching a turning point. On the basis of past engineering construction commencements, there are reasons to believe that there is a risk of a decline in 2014 big enough to take 2 percentage points off GDP growth in that year unless another 'mega' project starts soon. Given NAB's expectation for mineral and energy prices to fall further over the forecast horizon, the underlying trend in mining project commencements is likely to be negative (for more details see: [Will mining investment fall off a cliff](#)).

Future mining investment: NAB modelling



Source: NAB modelling

There are a number of challenges facing the resources sector that are expected to reduce the value of committed projects as well as the amount of future capital expenditure undertaken in Australia. Investment at the committed stage remains dominated by 'mega' projects with a valuation greater than $5 billion, with these projects accounting for around 80% of committed projects. 'Mega' projects promote economies of scale in the production process and reduce average costs of production. However, no new 'mega' projects were added to the list of committed projects over the six months to April 2013, there has been an emerging trend for 'mega' and large projects at the feasibility stage to be either cancelled or to revert back to the publicly announced stage. Given our projection for minerals and energy commodity prices to continue on their downward trajectory, the outlook for the commencement of additional 'mega' projects looks grim. As previously commenced 'mega' projects reach completion, the stock of committed projects is expected to become dominated by a larger share of smaller more costly projects, which will limit the amount of mining capital expenditure able to be undertaken and the rate at which construction can occur. While the investment pipeline remains enormous, there is a real risk that the rate of decline in capital expenditure will be more pronounced than previously anticipated, having a more severe impact on the Australian economy than currently forecast.

james.glenn@nab.com.au
alexandra.knight@nab.com.au
rob.brooker@nab.com.au

Global Markets Research

Peter Jolly
Global Head of Research
+61 2 9237 1406

Australia

Economics

Rob Henderson
Chief Economist, Markets
+61 2 9237 1836

Spiros Papadopoulos
Senior Economist
+61 3 8641 0978

David de Garis
Senior Economist
+61 3 8641 3045

FX Strategy

Ray Attrill
Global Co-Head of FX Strategy
+61 2 9237 1848

Emma Lawson
Senior Currency Strategist
+61 2 9237 8154

Interest Rate Strategy

Skye Masters
Head of Interest Rate Strategy
+61 2 9295 1196

Rodrigo Catril
Interest Rate Strategist
+61 2 9293 7109

Credit Research

Michael Bush
Head of Credit Research
+61 3 8641 0575

Ken Hanton
Senior Credit Analyst
+61 2 9237 1405

Equities

Peter Cashmore
Senior Real Estate Equity Analyst
+61 2 9237 8156

Jenny Khamphet
Senior Real Estate Equity Analyst
+61 2 9237 9538

New Zealand

Stephen Toplis
Head of Research, NZ
+64 4 474 6905

Craig Ebert
Senior Economist
+64 4 474 6799

Doug Steel
Markets Economist
+64 4 474 6923

Mike Jones
Currency Strategist
+64 4 924 7652

Kymberly Martin
Strategist
+64 4 924 7654

UK/Europe

Nick Parsons
Head of Research, UK/Europe,
and Global Co-Head of FX Strategy
+ 44 207 710 2993

Gavin Friend
Markets Strategist
+44 207 710 2155

Tom Vosa
Head of Market Economics
+44 207 710 1573

Simon Ballard
Senior Credit Strategist
+44 207 710 2917

Derek Allassani
Research Production Manager
+44 207 710 1532

Group Economics

Alan Oster
Group Chief Economist
+61 3 8634 2927

Tom Taylor
Head of Economics, International
+61 3 8634 1883

Rob Brooker
Head of Australian Economics
+61 3 8634 1663

Alexandra Knight
Economist – Australia
+(61 3) 9208 8035

Vyanne Lai
Economist – Agribusiness
+(61 3) 8634 0198

Dean Pearson
Head of Industry Analysis
+(61 3) 8634 2331

Robert De Iure
Senior Economist – Property
+(61 3) 8634 4611

Brien McDonald
Economist – Industry Analysis
+(61 3) 8634 3837

Gerard Burg
Economist – Industry Analysis
+(61 3) 8634 2778

John Sharma
Economist – Sovereign Risk
+(61 3) 8634 4514

James Glenn
Economist – Asia
+(61 3) 9208 8129

Tony Kelly
Economist – International
+(61 3) 9208 5049

Important Notice

This document has been prepared by National Australia Bank Limited ABN 12 004 044 937 AFSL 230686 ("NAB"). Any advice contained in this document has been prepared without taking into account your objectives, financial situation or needs. Before acting on any advice in this document, NAB recommends that you consider whether the advice is appropriate for your circumstances. NAB recommends that you obtain and consider the relevant Product Disclosure Statement or other disclosure document, before making any decision about a product including whether to acquire or to continue to hold it.

Important Notices

Disclaimer: This document has been prepared by National Australia Bank Limited ABN 12 004 044 937 AFSL 230686 ("NAB"). Any advice contained in this document has been prepared without taking into account your objectives, financial situation or needs. Before acting on any advice in this document, NAB recommends that you consider whether the advice is appropriate for your circumstances. NAB recommends that you obtain and consider the relevant Product Disclosure Statement or other disclosure document, before making any decision about a product including whether to acquire or to continue to hold it. Products are issued by NAB unless otherwise specified.

So far as laws and regulatory requirements permit, NAB, its related companies, associated entities and any officer, employee, agent, adviser or contractor thereof (the "**NAB Group**") does not warrant or represent that the information, recommendations, opinions or conclusions contained in this document ("**Information**") is accurate, reliable, complete or current. The Information is indicative and prepared for information purposes only and does not purport to contain all matters relevant to any particular investment or financial instrument. The Information is not intended to be relied upon and in all cases anyone proposing to use the Information should independently verify and check its accuracy, completeness, reliability and suitability obtain appropriate professional advice. The Information is not intended to create any legal or fiduciary relationship and nothing contained in this document will be considered an invitation to engage in business, a recommendation, guidance, invitation, inducement, proposal, advice or solicitation to provide investment, financial or banking services or an invitation to engage in business or invest, buy, sell or deal in any securities or other financial instruments.

The Information is subject to change without notice, but the NAB Group shall not be under any duty to update or correct it. All statements as to future matters are not guaranteed to be accurate and any statements as to past performance do not represent future performance.

The NAB Group takes various positions and/or roles in relation to financial products and services, and (subject to NAB policies) may hold a position or act as a price-maker in the financial instruments of any company or issuer discussed within this document, or act and receive fees as an underwriter, placement agent, adviser, broker or lender to such company or issuer. The NAB Group may transact, for its own account or for the account of any client(s), the securities of or other financial instruments relating to any company or issuer described in the Information, including in a manner that is inconsistent with or contrary to the Information.

Subject to any terms implied by law and which cannot be excluded, the NAB Group shall not be liable for any errors, omissions, defects or misrepresentations in the Information (including by reasons of negligence, negligent misstatement or otherwise) or for any loss or damage (whether direct or indirect) suffered by persons who use or rely on the Information. If any law prohibits the exclusion of such liability, the NAB Group limits its liability to the re-supply of the Information, provided that such limitation is permitted by law and is fair and reasonable.

This document is intended for clients of the NAB Group only and may not be reproduced or distributed without the consent of NAB. The Information is governed by, and is to be construed in accordance with, the laws in force in the State of Victoria, Australia.

Analyst Disclaimer: The Information accurately reflects the personal views of the author(s) about the securities, issuers and other subject matters discussed, and is based upon sources reasonably believed to be reliable and accurate. The views of the author(s) do not necessarily reflect the views of the NAB Group. No part of the compensation of the author(s) was, is, or will be, directly or indirectly, related to any specific recommendations or views expressed. Research analysts responsible for this report receive compensation based upon, among other factors, the overall profitability of the Global Markets Division of NAB.

United Kingdom: If this document is distributed in the United Kingdom, such distribution is by National Australia Bank Limited, 88 Wood Street, London EC2V 7QQ. Registered in England BR1924. Head Office: 800 Bourke Street, Docklands, Victoria, 3008. Incorporated with limited liability in the State of Victoria, Australia. Authorised and regulated by the Australian Prudential Regulation Authority. Authorised in the UK by the Prudential Regulation Authority. Subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority.

Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request.

USA: If this document is distributed in the United States, such distribution is by nabSecurities, LLC. This document is not intended as an offer or solicitation for the purchase or sale of any securities, financial instrument or product or to provide financial services. It is not the intention of nabSecurities to create legal relations on the basis of information provided herein.

Hong Kong: In Hong Kong this document is for distribution only to "professional investors" within the meaning of Schedule 1 to the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) ("SFO") and any rules made thereunder and may not be redistributed in whole or in part in Hong Kong to any person. Issued by National Australia Bank Limited, a licensed bank under the Banking Ordinance (Cap. 155, Laws of Hong Kong) and a registered institution under the SFO (central entity number: AAO169).

New Zealand: This publication has been provided for general information only. Although every effort has been made to ensure this publication is accurate the contents should not be relied upon or used as a basis for entering into any products described in this publication. To the extent that any information or recommendations in this publication constitute financial advice, they do not take into account any person’s particular financial situation or goals. Bank of New Zealand strongly recommends readers seek independent legal/financial advice prior to acting in relation to any of the matters discussed in this publication. Neither Bank of New Zealand nor any person involved in this publication accepts any liability for any loss or damage whatsoever may directly or indirectly result from any advice, opinion, information, representation or omission, whether negligent or otherwise, contained in this publication. National Australia Bank Limited is not a registered bank in New Zealand.

Japan: National Australia Bank Ltd. has no license of securities-related business in Japan. Therefore, this document is only for your information purpose and is not intended as an offer or solicitation for the purchase or sale of the securities described herein or for any other action.