BHP

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Six months ago, in advance of our full year results for the 2017 financial year, an air of cautious optimism was beginning to permeate commodity markets. On balance, events since have justified that optimism.

While many policy and geopolitical challenges remain, happily the global economy has been resilient to this backdrop, and has performed well.

The result has been a solid price performance by our key commodities.

While uncertainties remain, and prices will be volatile, we continue to feel confident that we have left the cycle trough behind us.

For the year ahead, we assess that the directional risks to prices across our diversified portfolio are mixed. We anticipate that benchmark prices for steel making raw materials are likely to remain above long run marginal cost, on average. However, it may prove difficult to achieve the same average prices in the coming half as in the previous half. Quality differentials are expected to remain wide. The upside and downside risks for oil and copper prices are tilted modestly to the latter, with a lot of actual and potential good news already embedded in spot prices. Notwithstanding that assessment, the near-term fundamentals of both markets are sound; both markets are finely balanced, a supply disruption would likely be material for price; and momentum and investor sentiment are presently favouring both commodities.

Looking beyond the immediate picture, in the medium term, we see the need for additional supply to be induced across most of the sectors in which we operate.

In many cases, this could lead to higher-cost supply entering the cost curve.

This projected steepening of cost curves can reasonably be expected to reward disciplined owner-operators with high quality assets.

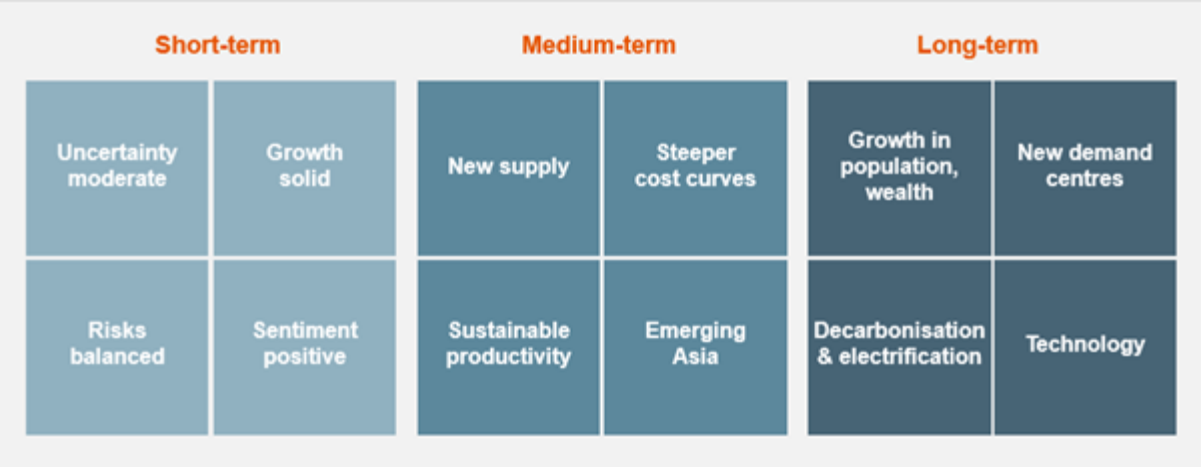
On the demand side, we continue to see emerging Asia as an opportunity rich region, with China, India, ASEAN and the global impact of China's Belt and Road initiative all expected to provide additional demand for our products.

Looking even further ahead, the basic elements of our positive long-term view remain in place.

Population growth and rising living standards are likely to drive demand for energy, metals and fertilisers for decades to come.

New demand centres will emerge where the twin levers of industrialisation and urbanisation are still developing today.

Technology will advance, creating both opportunities and threats, and climate change policy, technology and market responses will evolve.



Global economic growth

World economic growth is likely to be in the range of 3½ to 3¾ per cent in real terms in calendar year 2018, similar to calendar year 2017. That's up from around 3¼ per cent in calendar year 2016. Nominal growth rates are also looking healthy, reflecting the welcome exit from the deflationary risks of the recent past.

> **"Advanced economies could enjoy their strongest collective growth outcome since 2010 in the 2018 calendar year, offsetting a modest growth slowdown in China."**

The recovery of commodity prices has enabled large parts of the emerging world, and resource rich regions in the developed world to stabilise. Calendar year 2017 saw an encouraging lift in international trade despite ongoing political uncertainty. This has helped the manufacturing export economies of Europe and North Asia return to healthier growth trajectories. Nonetheless, the importance of continued advocacy for free trade and open markets remains critical.

Financial conditions have tightened only modestly, with higher policy interest rates in the United States offset by buoyant equity markets and flat benchmark yield curves. Measures of financial volatility have been at low levels, in the main, notwithstanding very recent turbulence. The US dollar has lost ground from six months ago against the currencies of both commodity and manufacturing export nations. For calendar year 2018, the impact of the US Federal Reserve's policy tightening cycle, now to be conducted against a backdrop of fiscal expansion, remains a key source of uncertainty.

Chinese economic growth

China's economic growth is expected to slow modestly in the coming years, following a robust performance in calendar year 2017.

> **"China is expected to remain the largest incremental contributor to global industrial value-added and fixed investment activity through the 2020s even as its growth rates mature."**

For calendar year 2018 specifically, we anticipate a cooling of growth rates in the housing and automobile markets in combination with a continuation of strength in infrastructure and exports. Our expectation is that the policy mix will feature modestly expansionary fiscal policy and modestly restrictive monetary and credit policies. The contribution to GDP growth of fixed investment is likely to be lower than in calendar year 2017, while the contribution from consumption is likely to be similar. This outlook and policy mix is consistent with the ongoing transition from high-speed to sustainable rates of growth.

A positive development in calendar year 2017 was the improvement in Chinese manufactured exports, with the notable exception of its trade in steel. The theme of solid external demand is expected to continue in calendar year 2018.

China's policymakers are anticipated to continue to seek a balance between the pursuit of reform and the maintenance of macroeconomic and financial stability. We expect a continuation of current efforts to address excess capacity; further encouragement for the financial system to focus on supporting the real economy; and additional measures aimed at improving the balance sheet health of over-indebted sectors, including local government.

> **"With unsold residential real estate inventory now a less pressing macroeconomic issue in China, we anticipate housing policies will be directed towards limiting speculation, building rental markets and fine-tuning the shantytown redevelopment program."**

Over the longer term, our view remains that China's economic growth rate should moderate as the working age population falls and the capital stock matures. China's economic structure is expected to continue to rebalance from industry to services and growth drivers are likely to shift from investment and exports towards consumption.

Major advanced economies

The outlook for the US economy has improved with the passage of the tax reform package. Our modelling[1] suggests that average medium term living standards in the US are likely to rise as a result. The most sustainable element of the initial gains are those attributed to the higher investment that may be motivated by the lower corporate tax rate, with positive spill-overs to productivity and job creation.[2] The scale of the growth response is expected to be reduced somewhat by the tighter financial conditions that traditionally result from a unilateral easing of fiscal policy.

With the nation close to full employment based on traditional measures, housing inventories lean and domestic demand growth likely to lift based on the stimulus, the US Federal Reserve's forward policy guidance of three 0.25 per cent rate increases in calendar year 2018 seems reasonable. Despite the policy outlook, and the measured unwinding of quantitative easing that is now under way, long term yields in the US remain below 2013 calendar year levels.

In Europe and Japan, where the limits of monetary policy effectiveness may have been reached and public sector finances are stretched, any upside on growth in the medium term will have to come from external demand sources. Shorter term, both regions have seen improved outcomes over the last year on the back of the recovery in global trade as well as firmer domestic demand. Business confidence, particularly among European manufacturers, has picked up.

[1] We have simulated the tax package in G-Cubed, a large model of the global economy featuring integration of the real and financial markets across economies and intertemporal accounting of both real and financial assets. For more details please refer to: https://www.brookings.edu/wp-content/uploads/2016/06/bdp118.pdf

[2] As the corporate tax rate cut is "permanent" and the personal income tax cuts are "temporary" (expiring in 2027), forward looking consumers are expected to change their behaviour much less than firms.

India

India's economy is on a healthy medium-term growth trajectory. Reform signposts have been positive, underscoring the nation's long run potential. We note in particular its ascent as the number one destination globally for announced greenfield foreign direct investment; the introduction of a nationwide goods and services tax; and the determined efforts of policymakers to address non-performing loans in the banking system. On a short term note, the observed lift in oil prices is likely to drive an increase in Indian inflation, and act as a drag on its balance of payments position, in the coming year. Offsetting that is the anticipated rebound in activity as the disruptive impact of policy reforms fades.

Steel

Global steel production growth regained momentum in the calendar year 2017, with growth running at 5.5 per cent YoY. The recovery has been broad based and synchronous, with China, India, Europe, North and South America, and the Middle East and Africa all seeing growth of 5 per cent or higher. Pig iron output growth has been slower than that of total steel production, at 1.1 per cent YoY in the calendar year 2017, while direct reduced iron output has grown very rapidly. Rising demand from key end-use sectors and Supply Side Reform measures in China have led to higher capacity utilisation rates globally, and much improved profitability for mills.

In line with the expected slowdown in housing and autos, China's steel production growth is expected to moderate in the 2018 calendar year. However, the market could remain relatively tight for some time. Uncertainty with respect to how the authorities will proceed with environmental restrictions is a key unknown.

Our base case is that the winter restrictions expire in staggered fashion across localities, with the blast furnace fleet expected to return to the high utilisation rates that prevailed prior to the winter curtailments sometime in the June quarter of calendar year 2018. This is required due to the gap in construction steel supply, left by the permanent closure of induction furnaces. We estimate that 80 per cent is the long run equilibrium crude steel capacity rate, consistent with the stated objectives in the industry Five Year Plan (2016-2020). That compares to slightly less than 70 per cent at the cycle trough and upwards of 85 per cent at the height of disruptions.

We firmly believe that China will ultimately double its accumulated stock of steel in use, which is currently about 6 tonnes per capita. That stock is about half of the current US level and slightly less than half the German, South Korean and Japanese levels. However, the exact path to this end point for China has become less certain due to increasing protection and aggressive capacity removal actions. Among the range of possibilities we consider, our base case remains that Chinese steel production is yet to peak. The most likely timing of the peak is the middle of next decade. The growth rate we assume is close to 1 per cent.

> **"Notably, the annualised steel production run-rate in China hit 891 Mt in June 2017, while the 2017 calendar year tracked at 832 Mt, despite the winter cuts. Both figures are comfortably above the historical annual high of 822 Mt achieved back in calendar year 2014."**

The recovery in the rest of the world is likely to continue in calendar year 2018. Based on figures from *worldsteel*, global production excluding China was up 5.3 per cent YoY in the calendar year 2017, at 843 Mtpa. India saw growth of 6.2 per cent YoY, with import substitution and export expansion both contributing. Europe has been performing strongly (+5.7 per cent) with broad based growth across key end-use sectors. Eurofer predicts a modest deceleration in end-demand growth from the automotive, construction and machinery sectors in the 2018 calendar year. While the annual growth in North America is a

very respectable 4.8 per cent YoY, the December monthly run rate of 115 Mt translates to a more impressive 7.6 per cent YoY, implying healthy momentum moving into calendar year 2018. The Former Soviet Union has continued to lag behind the rest of the world.

Steel production in developed Asia expanded by 2.0 per cent YoY in the calendar year 2017. Japanese integrated mills have underperformed, keeping steel exports at low levels. However, we have noted a lift in confidence of late, with some of our customers indicating that construction activity is now expected to support solid end-use demand up to, and possibly beyond, the Tokyo Olympic Games in the summer of 2020.

Iron ore

Iron ore prices (62 per cent, CFR) ranged between US$60/dmt and US$80/dmt over the past 6 months, averaging US$68/dmt (+6 per cent YoY). Demand for high grade mainstream iron ore remained firm on the back of elevated pig iron production and exceptionally attractive steel margins created jointly by steel Supply Side Reform and restrictions on winter production. The seaborne lump premia has been volatile, ranging from a record high of US$0.46/dmtu in September amid heightened sintering restrictions, to a low of US$0.08/dmtu at the end of December with the onset of blast furnace production cuts in northern China. Global contestable iron ore demand is estimated to have increased 1.8 per cent YoY to 1,551 Mt (62 per cent Fe equivalent, dry basis) in calendar year 2017, the highest annual growth rate and demand volume since calendar year 2014.

In aggregate, the seaborne majors delivered exports at the lower end of production guidance ranges in the September quarter of the half, adding to the sense of supply tightness, especially with respect to medium and high-grade mainstream iron ore. Stronger production run-rates in the December quarter alleviated some, but not all of that tightness.

Price sensitive suppliers had re-entered the seaborne market in the first half of calendar year 2017, notably from India, but this trend dissipated in the second half, as lower grade ores began to attract even steeper impurity discounts. The run rate of Chinese domestic iron ore averaged 200 Mtpa in the six months ending December 2017, six per cent lower YoY, partly due to environmental controls on concentrating activities in the north. In addition to market based drivers, safety and environmental inspections are likely to influence Chinese domestic iron ore production from time to time.

> **“At the peak of their quest for productivity, steel mills were loath to deviate from mainstream ores.”**

This was evidenced by the widening price differential between the 62 per cent index and lower grades of iron ore, as well as the fast growing stock held by traders in the 56-60 per cent grade bucket. The importance of aggregate inventory levels for assessing future price direction has been reduced somewhat by changes in the operating environment. The relative abundance of fines by category has become at least as important as developments in the total for assessing price and differential trends.

Based on our integrated view of the steel and iron ore markets, while it will be challenging to maintain the same average prices as those achieved in the half year just concluded, we are optimistic that the 62 per cent index price can be relatively resilient to slowing end-use demand and growing seaborne supply in the coming half year. Spreads between the 62 per cent index and lower grade ores are likely to remain wide, with penalties for impurities at least as important as Fe units as a driver of that trend.

In the medium to long term, the ongoing Supply Side Reform, the migration of steel capacity to the coastal regions and more stringent environmental policies are all expected to underpin the demand for high quality seaborne iron ore.

We remain of the view that the long run price will likely be set by a higher-cost, lower value-in-use asset in either Australia or Brazil.

Metallurgical coal

Metallurgical coal prices have again been heavily influenced by supply disruptions. In calendar year 2016, Supply Side Reform in China and wet weather in China and Queensland drove prices. In calendar year 2017, Cyclone Debbie's impact on key logistics corridors in Queensland was the major force in the first half, while strong steel margins in China and still constrained supply kept prices well above long run marginal cost in the second half. In contrast to calendar year 2016 though, swing supply from North America appeared, in concert with a ramp-up from Mozambique. China's work day policy has also been superseded by a more nuanced approach based on safety and environmental parameters. On the demand side, the size of the contestable met coal market increased by 2.9 per cent YoY in calendar year 2017, reaching 967 Mt.

Prices[3] over the last six months have ranged from a low of US$152/t FOB Australia on the PLV index in July 2017 to a high of US$263/t in December 2017. MV64 has ranged from US$138/t to US$185/t; PCI has ranged from US$102/t to US$147/t; and SSCC has ranged from US$93/t to US$130/t. Around three-fifths of our tonnes reference the PLV index.

> **"We have been pleased to see strong growth in the met coal derivatives market, with traded turnover relative to the physical market rising at a faster pace than iron ore futures did at a similar stage of development."**

Notably, the rally in the PLV segment that began in the December quarter of calendar year 2017 was in part due to strong demand from Europe and India offsetting winter production curtailments in China. That speaks to the breadth and synchronous nature of the improvement in operating conditions experienced by the global steel industry in calendar year 2017.

Similar to the circumstances in the iron ore market, the price spread between different grades of coking coal have widened considerably from historical norms. A proportion of these spreads can be sustained, in our view.

Six months ago we argued that "… with the potential for voluntary supply restraint by major Chinese met coal producers, ongoing supply issues in the PMV segment, Chinese port inventories remaining low, rising land borne logistics costs in China, and the potential for an accelerated rate of capacity closures in calendar year 2018, it is possible that met coal prices can sustain above long run marginal cost for some time." We see no reason to deviate from that basic framework on the evidence presently in front of us, notwithstanding the fact that PLV prices have retreated somewhat in early calendar year 2018.

[3] The abbreviations used in the metallurgical coal section are as follows - PLV: Premium Low-Volatile, PMV: Premium Mid-Volatile, MV64: Mid-Volatile 64, PCI: Pulverised Coal Injection, SSCC: Semi-soft Coking Coal, as published by Platts.

Copper

Copper prices improved markedly in the first half of the 2018 financial year. The market rally in fact dates back to late in calendar year 2016, and the momentum has essentially carried on to the present. Prices have responded to positive developments on both the demand and supply sides of the market.

Chinese end-use demand has been growing at a healthy rate, with housing starts, machinery and consumer durables all performing on or above our expectations over the calendar year. Power infrastructure was mixed, with grid spending down but the growth in the construction of transmission lines and transformer production was firm. In the consumer durables segment, sweltering summer temperatures saw a very large uplift in air conditioner production. Demand from the manufacturing sector outside of China was also healthy, as confirmed by year end purchasing managers' index readings of 60.6, 55.1, 54.7 and 54.0 in Eurozone, the US, India and Japan respectively. An almost euphoric mood with respect to the impact of electric vehicles on the non-ferrous metals complex, copper included, was the finishing touch.

On the supply side, calendar year 2017 was a year of disruptions. A number of major mines were constrained at various points, with the drivers of disappointing production outcomes including industrial relations, licensing and ownership issues and losses of power supply.

Global stock levels have trended lower since March, while investor open-interest has marched higher from the middle of the calendar year, abstracting from short-term swings in sentiment. Six months ago we noted that without the elastic scrap supply we had observed, prices would certainly have been higher in early calendar year 2017. The subsequent price performance in the second half of calendar year 2017 justifies that assessment. China's low grade scrap import curbs, which are phased in from the beginning of calendar year 2018, is ultimately positive for primary supply. That judgement has been an additional element in the pro-copper financial investment thesis over the last 6 months.

Treatment costs and refining charges (TCRCs) for copper concentrates trended sideways over the second half of calendar year 2017. The Metal Bulletin TC index has ranged

between a high of almost US$90/dmt and a low around US$80/dmt following the benchmark settlement of US$82.5/dmt that was reached in the shadows of Christmas. Shanghai Grade A cathode premia have moved higher over the course of calendar year 2017, following lows of around US$40/t which coincided with peak stocks in March, up to levels close to the mid-US$70/t by the end of the calendar year.

Turning to the outlook, the global copper market is expected to remain balanced for the next few years. Solid demand growth is expected to be matched with a combination of committed green and brownfield supply, restarts and rising scrap availability. Even so, the market looks to be finely, rather than comfortably balanced over this period, and it will accordingly be vulnerable to supply shocks throughout this phase, particularly in the concentrate segment.

A structural deficit is expected to open in the early 2020s, at which point we see some sustained upside for prices.

> **"Grade decline, increased input costs, water constraints and a scarcity of high-quality future development opportunities are likely to result in the higher prices needed to attract sufficient investment to balance the copper market."**

Developments in China will continue to be vital for the copper market. Major themes include the evolution of the regulatory environment for scrap imports; the scale of investments in scrap processing capability; lifecycles of copper intensive capital stock; technical standards for aluminium usage in power cables; the evolution of its policies towards the production and take-up of electric vehicles; and what we see as its structurally lower demand for cathode imports going forward.

Crude oil

Six months ago, we noted that improving sentiment had helped prices converge on what we felt the near term fundamentals supported – that is, Brent back above US$50/bbl on average. Our forward view at the time was that prices should have been able to sustain this level, on average, through the second half of the 2017 calendar year. This ultimately proved to be conservative.

Crude oil prices ended the 2017 calendar year within touching distance of three year highs. Prompt Brent futures prices ranged from a low of US$46.53/bbl in July 2017 to a high of US$66.54/bbl in December 2017, before touching US$70/bbl early in the new calendar year. The front-month Brent minus WTI spread ranged from a low of a little above US$2 to a high of around US$7 in the half year, averaging close to US$5.

Production discipline by 'Vienna Group'[4] members and demand growth that ran above expectations both contributed to a substantial reduction in the inventory overhang in the second half of the 2017 calendar year. The fundamentally tighter market, rising geopolitical tensions, unplanned supply outages, the plateauing of the US rig count and the extension of Vienna Group production cuts all aided market sentiment.

Global demand growth was strong and broad based in calendar year 2017. Chinese growth remained robust. OECD demand edged higher as growth in the US and Europe more than offset a decline from Japan. India closed the year with some momentum, after a slow start principally due to policy disruptions. Transport demand continues to be a significant driver of growth.

Vehicle miles travelled in the US were 1.3 per cent higher year-to-date YoY as of November 2017. That represents a slowdown from last year, principally due to hurricane disruptions. Highway freight traffic in China expanded by 10.6 per cent year-to-date YoY as of November 2017, up from 9.9 per cent at the end of financial year 2017. The International Energy Agency (IEA) estimates that Chinese demand for motor gasoline expanded by 3.5 per cent YoY in calendar year 2017.

Elsewhere in transport, domestic air traffic growth[5] has been strong in the world's three most populous economies. In the latest data, China expanded by around 10 per cent YoY; India expanded by around 20 per cent; and the US increased by around 5 per cent.

The International Energy Agency (IEA) estimates that global demand growth will decelerate from +1.6 Mbpd in calendar year 2017 to +1.3 Mbpd in calendar year 2018. That slightly lower outcome would still be stronger than historical trend growth of closer to +1.0 Mbpd.

A roughly balanced market is anticipated in calendar year 2018, with the risks around that view tilted towards surplus.

> **"With the extension of the Vienna Group deal to the end of the calendar year, compliance rates are a key dynamic source of uncertainty, along with supply elasticity in US onshore."**

If compliance rates slip towards long run average levels of between 60 and 70 per cent, rather than maintaining current rates of greater than 90 per cent, a moderate surplus would emerge, all else being equal. It is important to note that seasonal conditions promote an inventory build-up in the first half of the calendar year and a draw down in the second half. In other words, the physical tightening of the market is back-loaded from a calendar year perspective. It is unclear at this stage how market sentiment will interpret seasonal inventory accumulation in the coming months.

We see OPEC strategy being ultimately informed by social stability considerations that we proxy through two related lenses: domestic fiscal sustainability (the health of the budget) and external financial vulnerability (the state of foreign exchange reserves). The behaviour of smaller member states, declining production in Venezuela, uncertain production from Libya, and progress towards Saudi Arabia's Vision 2030 reform program, including the proposed Aramco IPO, are additional moving parts.

In the US, the rig count has plateaued recently, despite the higher price environment. We attribute this apparent lack of rig elasticity to temporary capacity constraints that have emerged in the onshore market (see input cost commentary). Nevertheless, we still expect US liquids production to grow by more than 1.0 MMbbl/d over calendar year 2018. If

production exceeds 1.0 MMbbl/d by a reasonable margin and our other demand and supply assumptions prove correct, then a small surplus could emerge by calendar year end.

In the long-term, we continue to see compelling market fundamentals, underpinned by rising transport and industrial demand in the developing world in addition to a steepening cost curve underpinned by natural field decline.

We expect oil demand to grow by approximately 1 per cent per year over the next decade despite significant efficiency gains in the light-duty vehicle fleet. Our long run views on electric vehicles (EVs), which are at the green end of the spectrum, are available here. EVs are expected to become a material source of demand displacement only after 2025.

> **"We estimate that the first 100 million EVs on the road is likely to displace roughly 1.3 Mbpd of oil demand per year."**

As the EV fleet increases in size and battery electric vehicles (BEVs) outcompete plug-in hybrids (PHEVs), future increments of 100 million EVs are ultimately likely to displace 1.8Mbpd each. [6]

On the supply side of the market, with natural supply decline of between 3 per cent and 4 per cent per year added to the demand growth referenced above, by 2030 we see the need for new production equivalent to at least one-third of total global production today. We anticipate US tight oil production starting to plateau in the mid-2020s, at which point in time, its role in setting global oil prices would begin to diminish. That observation and the relative lack of exploration success and investment in the conventional sphere in recent years, points to the need for known but more costly supply to be induced to fill the long run gap to demand. That chain of logic infers that current price ranges will not be able to sustain much past 2020, when our counter-cyclical investments in offshore capacity, such as Mad Dog 2, are preparing to come to market.

By the mid-2020s the marginal barrel is expected to come from a higher-cost non-OPEC production, such as deepwater assets.

The US natural gas price ranged from a low of around US$2.60/MMBtu to a high of around US$3.20/MMBtu over the half. There were short lived spikes well above this range in January, as the US experienced severe winter weather. This volatility operated around a relatively stable trend price in the US$2.80 to US$3.00/MMBtu area.

US gas storage levels have been tracking below the 5 year average since late September 2017. The turn in storage levels happened quite rapidly, with stocks having been 15 per cent above the 5 year average as recently as April 2017. A strong power burn over the summer, growth in US LNG exports and pipeline exports to Mexico, and delays to North East pipeline projects all helped to hasten the elimination of the storage surplus.

"Turning to our outlook, beyond the immediate positive of the cold US winter, the commissioning of additional North-East infrastructure, higher associated gas production and Haynesville drilling are expected to result in unprecedented supply growth in calendar year 2018, pointing to the return of a surplus market."

The stability of the forward curve throughout the winter cold snap highlights the clear visibility of this risk. Robust demand growth driven by a broadly based end-use picture is expected to limit the rise in storage levels to less than 1.0 bcf/d.

Longer term, strong demand growth and natural field decline is expected to incentivise investment in new supply. Consistent with industry findings across major Lower 48 gas plays, we see some improvements in recovery rates as technology enables completion designs to be optimised to the specific geology of each play. We believe that the resource learning curve has been most pronounced in the core fringes. Combined with natural gas associated from growing oil production, these advances add to the availability of lower-cost supply in the short term and shave some of the gradient from an already flat cost curve. So while we see moderate upside for prices in the 2020s, the degree of sustainable price uplift is constrained by the basic abundance of the resource.

The **Japan-Korea Marker (JKM) price for LNG** strengthened markedly towards the end of calendar year 2017 on firm winter demand from end users in North Asia. Slippage in the start date of new projects, along with planned and unplanned outages on the supply side also contributed to the tighter market. Growth in Chinese demand was a key driver, at over 40 per cent year over year and surpassing South Korea as the world's #2 importer behind Japan. This represented a major discontinuity for the market. Rising oil prices provided additional support for LNG.

Prices are expected to ease in the near term as existing supply comes back online, demand enters the shoulder season, and new projects ramp-up.

Uncertainties on the demand side include the timing and scale of nuclear restarts in Japan; energy mix policies in South Korea; and China's approach to the 2018/19 winter heating season.

Despite the strong LNG demand growth that we project for the medium term, current and committed LNG capacity is likely to supply the market fully until the middle of next decade. Calendar year 2018 is expected to be a microcosm of that broader view. Beyond the mid-2020s new supply will be required in a global gas market potentially harmonised around the Henry Hub benchmark.

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[4] This term refers to all OPEC and non-OPEC nations that are participating in the current pact.
[5] All air traffic figures measured as revenue passenger kilometres.
[6] The increase from 1.3Mbpd to 1.8Mbpd is due to the changing composition of the EV fleet between battery powered vehicles (BEVs) and plug-in hybrids (PHEVs). In 2030, we project that the relative share will be close to 60 per cent BEVs and 40 per cent PHEVs. By mid-century, BEVs will dominate.

Eastern Australian gas and the Australian power market

The **East Australian natural gas** market continues to evolve. The ramp up of Queensland LNG projects has altered the shape of the market. Longer term, we expect the domestic market will become closely linked to the international LNG market. This assessment derives from the conclusion that southern demand centres will become increasingly reliant on the supply of gas from Queensland LNG resource holders to balance the market, due to declines from existing fields.

The domestic market remained tight in the first half of the 2018 financial year. Projects drawing on third party domestic gas to meet LNG export commitments, declines in conventional supply, and strong heating demand over the southern winter have all contributed to a tighter supply demand balance. On average, this has led to domestic users facing natural gas prices that have been higher than historical norms.

To date, the Australian Federal Government has not chosen to impose LNG export controls under the recently introduced Australian Domestic Gas Security Mechanism. However, a series of announcements by LNG producers to provide additional gas to the domestic market, particularly addressing the projected supply shortfall in calendar year 2018, should provide some near term relief.

We continue to believe that lifting restrictions on onshore gas development – both conventional and unconventional – has the capacity to provide significant additional supply to the market.

In the **National Electricity Market**, the newly-formed Energy Security Board is progressing development of the National Energy Guarantee (the Guarantee). We are supportive of these efforts. The Guarantee aims to improve system reliability and affordability, while also reducing emissions. If implemented effectively, the Guarantee is likely to be a durable mechanism, which should provide the policy confidence necessary to unlock long term investment.

We welcome the leadership of the Federal Government in announcing the Guarantee, while recognising that in its current form there is significant detail yet to be finalised. We look forward to participating in a constructive process with all levels of government, our industry peers and other community stakeholders, as the details are developed.

In considering the Guarantee and related policy, technology neutrality is one of our core energy policy principles. The more technology choices the market has available, the better positioned it will be to achieve policy objectives at lowest possible cost. Governments should thus avoid ‘picking winners’ or preventing the use of particular technologies. All energy sources should be available to the market including batteries, coal, gas, hydro, solar and wind.

Efficient coal generation, along with carbon capture and storage, has promise as a source of low emissions dispatchable power that can help contribute to energy and climate policy objectives. Nonetheless, the decision to invest in new plant, whether it is coal, gas or

renewables, should ultimately be left to the market under a policy framework that addresses reliability, emissions reductions and affordability. We believe an electricity system with a range of power generating sources is likely to be the most efficient outcome.

Energy coal

Energy coal prices have benefited from robust demand from China, steady demand from other North Asian markets and supply disruptions in key export jurisdictions. Thermal power generation in China increased 2.9 per cent YoY in the first half of the 2018 financial year, with strong industrial and residential demand for power. Supply constraints in the domestic gas and LNG markets also prevented ambitious gas generation markets from being met over the winter, which also favoured an increase in coal burn. Chinese imports have expanded by 11 per cent YoY in calendar year 2017. Industrial relations, weather, infrastructure and logistical issues have simultaneously held back seaborne supply from Australia, Indonesia and South Africa.

In June 2017, China banned coal imports at Tier II ports or berths.[7] The customs clearance process was also tightened, leading to vessel delays. Regulations of heavy trucking have also being tightened and are being stringently enforced. This led to an additional squeeze on already stretched rail capacity and a further lift in non-mining costs.

Against this backdrop, the gcNewc 6000 kcal/kg FOB Newcastle index at one stage approached the ~US$110/t highs seen at the peak of Chinese Supply Side Reform disruptions a year ago, while averaging US$97/t over the first half of the 2018 financial year. The 5500kcal index averaged US$75/t over the same period.

> **“The pace and method of implementation of China’s policy decisions remain the key source of uncertainty for the seaborne energy coal market.”**

The Chinese government is targeting 134 Mt of coal capacity cuts in the 2018 calendar year as part of the ongoing coal supply side reforms. Safety and environmental inspections are now the main tool used to curb or close production.

The Chinese government continues to urge domestic coal miners to execute more long term contracts with end-users to stabilise prices within the preferred range (US$62-70 5500kcal CFR or RMB 500-570/t locally). The equivalent seaborne price (API8) has traded comfortably above this range. Mergers between large state-owned power generators and coal miners have also been executed.

On the supply side of the market, industrial issues in Australia’s Hunter Valley have dissipated, which points to a resumption of regular supply conditions sometime around the June quarter of calendar year 2018. Heavy monsoon rainfall is likely to restrain Indonesian production in the near term. On the non-China demand side, a rise in customs duty on pet coke imports in India, following a dramatic spike in pollution levels on the Ganges plain,

especially around Delhi, which mostly impacts cement manufacturing, is expected to add roughly 20 to 25 Mt to coal demand.

[7] At the time of the announcement, the ban was open-ended in terms of duration, sparking considerable uncertainty.

Potash

Muriate-of-potash (MOP) prices have been on an improving trend since mid-calendar year 2016. Suppliers have successfully implemented higher prices in Brazil, Southeast Asia, China and India. Brazilian prices reached US$280-285/t CFR in December 2017, up around $US70/t from July. Southeast Asia saw slightly smaller gains. Annual contracts for China and India were agreed at US$230/t CFR and US$240/t respectively, up $US11/t and $13/t from the prior agreements. As of early February 2018, the free-on-board standard grade Vancouver benchmark was up by around 26 per cent YoY.

Prices have firmed on the back of strong demand, despite several substantial capacity additions. Several major markets have already reported, or are expected to report, record import volumes in calendar year 2017. Brazilian import volumes increased 11 per cent YoY. Chinese imports from Jan-Nov increased 20 per cent YoY. India's Jan-Oct shipments increased 26 per cent. The 3.8 Mt inflow that growth rate represents is the highest since subsidies were overhauled in calendar year 2010. Collectively, the global MOP trade has enjoyed a record year. That is despite the fact that in September Nutrien announced extended maintenance turnarounds at two of its mines in order to manage inventories, with the result that several suppliers having reported that they are sold out of potash until well into the first half of calendar year 2018.

Two greenfield mines opened in calendar year 2017 (Canada and Turkmenistan), while Nutrien (created by the merger of PotashCorp and Agrium) completed a major expansion at its Rocanville mine, the last of a decade-long expansion program. All this new capacity is still in the ramp-up phase. Beyond this, further additions to capacity are scheduled out to 2021, notably 2 mines in Russia owned by EuroChem. So even if demand growth is sustained the existing problem of over-capacity is likely to get worse before it gets better.

Turning to the long term, demand for potash sits at the intersection of a number of global megatrends, benefiting from rising population, changing diets and the need for sustainable intensification of agriculture. While potash demand can be volatile year to year, we anticipate trend demand growth of 1.5-2.0 Mt per year (between 2 and 3 per cent per annum) through the 2020s. The pace of demand growth is important, because the need for new supply to be induced will only arise once both the latent capacity held by incumbents and capacity additions that are under construction have been absorbed by the market.

There is some scope for greenfield additions in the former Soviet Union, and for brownfield expansions in existing basins, but this is limited given the scale of such investment over the

last decade. We believe the next large tranche of capacity to enter the market will be greenfield solution mines in Saskatchewan.

Freight

The dry bulk freight market remains over supplied. However, ongoing scrapping of Capesize ships, a slowdown in new deliveries, a dearth of new orders, and expected further growth in the volume of bulk trade presage a time when freight rates will begin to edge higher. Regulatory changes relating to ballast water management and the sulfur content of fuels is likely to challenge ship owners to raise their productivity further to stay competitive. Balancing that, an overhang of shipbuilding capacity, steady increases in average vessel size and observed productivity gains in ship production are expected to keep the cost of new vessels suppressed for a considerable period of time, notwithstanding the recent narrowing of the second hand to new build spread.

The Capesize market was buoyant in the final months of the calendar year 2017. Capesize rates traded a wide range in this period, with strong activity in both the Pacific and Atlantic basins. Also, large vessel queues emerged at eastern Australian coal ports, while higher Brent prices flowed through to rising bunker costs.

The route from Western Australia to Qingdao peaked above US$10/t late in calendar year 2017, before descending back to around US$6/t early in the new year. Panamax and Supramax rates showed similar trajectories, with steady gains through most of the second half of the calendar year before losing steam recently. We note that iron ore export volumes were much stronger in the December quarter of 2017 than in the September quarter. That reflected both normal seasonality and unplanned disruptions in the September quarter. The record run-rate achieved by our WAIO operations in the December quarter, representing an 11 per cent uplift on the prior quarter, is a case in point.

We continue to lead the freight industry towards higher safety, productivity and environmental standards. This will occur partly through our own commercial activities, such as opportunities in autonomous vessel development and our partnerships with respect to alternative fuels. We continue to engage proactively with sovereign entities and other regulators to leverage technological developments and promote improvements in safety and sustainability standards. We engage bilaterally and through our participation in Rightship. For more on our vision for the future state of freight, which we see as safer, leaner and greener, click here.

Inputs and inflation trends

Industry wide operating cost inflation in US dollar terms has increased somewhat on the back of ‘uncontrollables’ such as higher raw and basic materials prices and exchange rate movements. Isolated pockets of inflation in controllable operating costs have also emerged

in both our petroleum and minerals businesses. Beyond these pockets, our high level assessment remains that general inflationary trends are benign.

The Australian dollar and the Chilean peso both appreciated in the second half of the calendar year, reflecting a global trend towards a softer US dollar and the positive commodity price backdrop. These gains were made despite a substantial narrowing of their respective interest rate differentials to the US. The Australian dollar rose back above 80¢ against the US dollar in the September quarter of 2017, and was at that level again early in the 2018 calendar year. It has appreciated by around 3¼ per cent over the last 6 months. The Chilean peso approached 600 to the US dollar late in the December quarter of 2017 and has appreciated by around 3½ over the last 6 months.

In Australia, both underlying consumer price inflation and local currency private sector wages have increased by less than 2 per cent YoY for 7 consecutive quarters, reflecting weak economy-wide price pressures. The Reserve Bank of Australia expects both inflation and wage growth to be below long run averages for some time to come. [8]

> **"Labour markets remain far from tight in aggregate in our major minerals producing regions, with local currency wage growth subdued in Chile and at or around historical lows in Western Australia and Queensland."**

Official measures of labour hire services costs in Australia continue to decline YoY, while a national measure of newly negotiated enterprise agreements has seen the degree of wage growth decline versus expiring agreements. Notwithstanding those general trends, we have observed higher inflation in certain segments of our minerals business. Our category analysis indicates that in many instances price increases have been driven by transitory and/or idiosyncratic factors.

In Chile and Peru, a large number of collective bargaining agreements across the industry need to be re-negotiated in the coming 12 months.[9] The International Monetary Fund projects that Chilean inflation will remain subdued out to the early 2020s, with the average rate projected to be almost 1 per cent below the pre-GFC average of a little under 4 per cent.

Underlying cost drivers such as diesel, power and steel products have increased in price, while ammonia prices have been volatile against a backdrop of erratic supply. The natural rubber market has been over supplied, leading prices substantially lower in the 2017 calendar year. The Chilean sulphuric acid market tightened from the middle of the 2017 calendar year amid increased mining and fertiliser demand, followed by unexpected smelter outages late in the year. The heavy machinery sector has exited recession due to a wave of replacement demand in China and elsewhere. Globally, earth moving equipment orders are well above the level of a year ago.

Pockets of cost inflation remain evident in some segments of the onshore petroleum business in the US. In particular, sand, completion crews, pressure pumping equipment and trucks for produced water haulage in the Permian have been in short supply. Even so, all-in costs are still modest by historical standards; and a supply response has already been observed in the Permian sand market.

“Deepwater capital costs remain close to all-time lows in real terms. Our own contracting activity in this segment implies that offshore costs may not yet have bottomed.”

A rigorous approach to bottom-up cost driver modelling and advanced analytics, leveraging synergies across our commercial businesses, are expected to drive increasing cost competitiveness as industry wide cost curves steepen in the medium term.

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[8] Statement on Monetary Policy, November 2017, available from http://rba.gov.au/publications/smp/2017/nov/economic-outlook.html

[9] From our own perspective, the existing agreement with Union No.1 at Escondida expires later this year. We also have negotiations at Spence and Cerro Colorado.

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This presentation contains forward-looking statements, including statements regarding: trends in commodity prices and currency exchange rates; demand for commodities; plans, strategies and objectives of management; closure or divestment of certain operations or facilities (including associated costs); anticipated production or construction commencement dates; capital costs and scheduling; operating costs and shortages of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; tax and regulatory developments. Forward-looking statements can be identified by the use of terminology such as 'intend', 'aim', 'project', 'anticipate', 'estimate', 'plan', 'believe', 'expect', 'may', 'should', 'will', 'continue', 'annualised' or similar words. These statements discuss future expectations concerning the results of operations or financial condition, or provide other forward-looking statements. These forward-looking statements are not guarantees or predictions of future performance, and involve known and unknown risks, uncertainties and other factors, many of which are beyond our control, and which may cause actual results to differ materially from those expressed in the statements contained in this presentation. Readers are cautioned not to put undue reliance on forward-looking statements. For example, future revenues from our operations, projects or mines described in this presentation will be based, in part, upon the market price of the minerals, metals or petroleum produced, which may vary significantly from current levels. These variations, if materially adverse, may affect the timing or the feasibility of the development of a particular project, the expansion of certain facilities or mines, or the continuation of existing operations. Other factors that may affect the actual construction or production commencement dates, costs or production output and anticipated lives of operations, mines or facilities include our ability to profitably produce and transport the minerals, petroleum and/or metals extracted to applicable markets; the impact of foreign currency exchange rates on the market prices of the minerals, petroleum or metals we produce; activities of government authorities in some of the countries where we are exploring or developing these projects, facilities or mines, including increases in taxes, changes in environmental and other regulations and political uncertainty; labour unrest; and other factors identified in the risk factors discussed in BHP's filings with the US Securities and Exchange Commission (the "SEC") (including in Annual Reports on Form 20-F) which are available on the SEC's website at www.sec.gov. Except as required by applicable regulations or by law, the Group does not undertake any obligation to publicly update or review any forward-looking statements, whether as a result of new information or future events. Past performance cannot be relied on as a guide to future performance.

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