

20 June 2019

South32 Limited  
(Incorporated in Australia under the *Corporations Act 2001* (Cth))  
(ACN 093 732 597)  
ASX / LSE / JSE Share Code: S32 ADR: SOUHY  
ISIN: AU000000S320  
south32.net

## ILLAWARRA METALLURGICAL COAL SITE TOUR

South32 Limited (ASX, LSE, JSE, ADR: SOUHY) will today host an equity analyst and investor site tour of the Appin Colliery at our Illawarra Metallurgical Coal operations.

### About South32

South32 is a globally diversified mining and metals company. We produce bauxite, alumina, aluminium, energy and metallurgical coal, manganese, nickel, silver, lead and zinc at our operations in Australia, Southern Africa and South America. We are also the owner of a high grade zinc, lead and silver development option in North America and have several partnerships with junior explorers with a focus on base metals. Our purpose is to make a difference by developing natural resources, improving people's lives now and for generations to come, and to be trusted by our owners and partners to realise the potential of their resources.

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20 June 2019



# Illawarra Metallurgical Coal

Appin Colliery site tour

20 June 2019



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This presentation contains forward-looking statements, including statements about trends in commodity prices and currency exchange rates; demand for commodities; production forecasts; plans, strategies and objectives of management; capital costs and scheduling; operating costs; anticipated productive lives of projects, mines and facilities; and provisions and contingent liabilities. These forward-looking statements reflect expectations at the date of this presentation, however they are not guarantees or predictions of future performance or statements of fact. They 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. South32 makes no representation, assurance or guarantee as to the accuracy or likelihood or fulfilment of any forward-looking statement or any outcomes expressed or implied in any forward-looking statement. Except as required by applicable laws or regulations, the South32 Group does not undertake 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. The denotation (e) refers to an estimate or forecast year.

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## **MINERAL RESOURCES AND ORE RESERVES**

The information in this presentation that relates to the Coal Reserve and Coal Resource estimates was declared as part of the market announcement "Illawarra Metallurgical Coal - Coal Reserves Update" issued on 17 June 2019 ([www.south32.net](http://www.south32.net)) and prepared by Competent Persons in accordance with the requirements of the JORC Code. South32 confirms that it is not aware of any new information or data that materially affects the information included in the original announcement. All material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. South32 confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

# Reserves and Resources

COAL RESOURCES <sup>(8)</sup>																				As at 30 June 2018			
As at 31 May 2019			Measured Coal Resources				Indicated Coal Resources				Inferred Coal Resources				Total Coal Resources				South32 Interest %	Total Coal Resources			
Deposit <sup>(1)(2)</sup>	Mining Method	Coal Type	Mt	% Ash	% VM	% S	Mt	% Ash	% VM	% S	Mt	% Ash	% VM	% S	Mt	% Ash	% VM	% S		Mt	% Ash	% VM	% S
Bulli <sup>(3)</sup>	UG	Met/Th	141	11.2	23.9	0.37	313	12.4	23.7	0.36	342	13.6	23.0	0.36	796	12.7	23.4	0.36	100	828	12.7	23.5	0.36
Wongawilli	UG	Met/Th	49	28.7	23.6	0.59	240	29.5	22.2	0.57	151	29.6	22.5	0.57	439	29.5	22.5	0.57	100	446	29.5	22.4	0.57

COAL RESERVES <sup>(8)</sup>																				As at 30 June 2018				
As at 31 May 2019			Proved Coal Reserves	Probable Coal Reserves	Total Coal Reserves	Proved Marketable Coal Reserves				Probable Marketable Coal Reserves				Total Marketable Coal Reserves				Reserve Life	South32 Interest	Total Marketable Coal Reserves				Reserve Life
Deposit <sup>(1)(5)(6)(7)</sup>	Mining Method	Coal Type	Mt	Mt	Mt	Mt	% Ash	% VM	% S	Mt	% Ash	% VM	% S	Mt	% Ash	% VM	% S	Years	%	Mt	% Ash	% VM	% S	Years
Bulli <sup>(4)</sup>	UG	Met/Th	22	93	114	18	8.9	24.1	0.37	78	8.9	24.7	0.36	96	8.9	24.6	0.36	19	100	117	8.9	24.8	0.36	20
Wongawilli	UG	Met/Th	6.1	10	16	-	-	-	-	-	-	-	-	-	-	-	-	3.7	100	-	-	-	-	4.1
	UG	Met	-	-	-	3.1	10.7	24.2	0.60	5.9	10.7	24.1	0.60	9.1	10.7	24.1	0.60			10	10.7	23.9	0.59	
	UG	Th	-	-	-	1.6	27.0	-	-	2.1	27.0	-	-	3.6	27.0	-	-			5.1	27.0	-	-	

(1) Cut-off grade

Coal Resources No seam thickness cut-off grade applied because minimum thickness is economic.  
 Coal Reserves No seam thickness cut-off grade applied because minimum thickness within the mine layout is economic.

(2) Resource tonnes are in situ moisture basis. Ash is reported as raw, VM and S are reported as potential product on air-dried basis.

(3) Reduction in Bulli Coal Resources following partial lease relinquishment.

(4) Reduction in Bulli Coal Reserves following partial lease relinquishment and mine layout revision.

(5) Total Coal Reserves are at the moisture content when mined (6% Bulli and 7% Wongawilli). Total Marketable Coal Reserves are the tonnes of coal available at moisture content (9% Bulli, 15.5% Wongawilli Metallurgical, 7% Wongawilli Thermal).

(6) Coal delivered to wash plant.

(7) Process recoveries for the operations

Bulli 84%  
 Wongawilli 77%

(8) All tonnes and grade information have been rounded to reflect uncertainty of the estimate, hence small differences may be present in the totals.

# Welcome to Illawarra Metallurgical Coal



**Large underground operation producing a premium metallurgical coal**

**1st quartile of hard coking coal margin curve**

**19 year Reserve life at Appin  
Dendrobium life extension project in feasibility**

**Achieving more productive longwall performance and maintaining a focus on costs**

**On track to return to a three longwall configuration during the June 2020 quarter**

**Metallurgical coal markets remain tight with an attractive long term outlook**

# Metallurgical coal markets

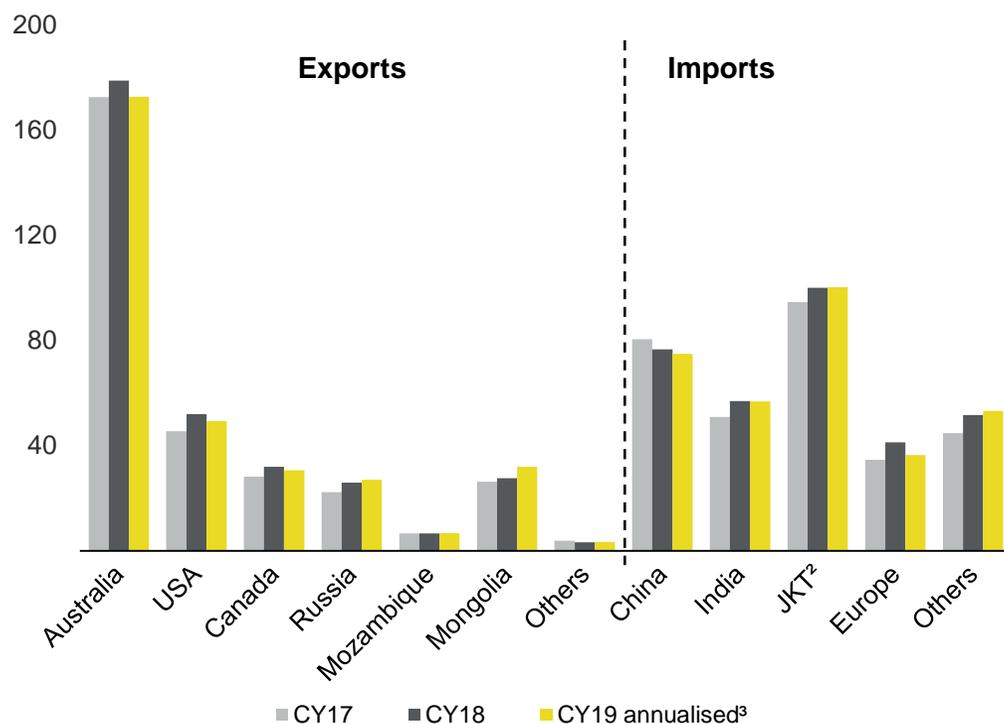
Markets remain tight and sensitive to supply disruptions

Demand supported by growth in global steel output (+39Mt or 2.2% year to date)

Spreads have widened as demand has increased for higher quality coals

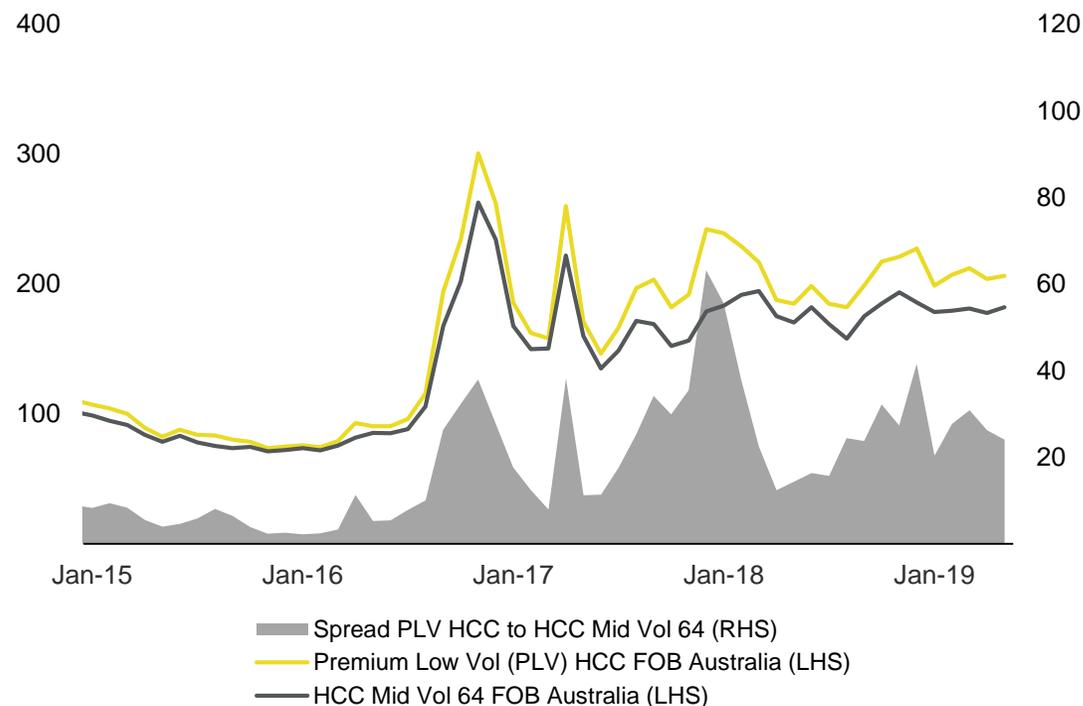
Long run growth driven by India and other emerging Asian economies

## Metallurgical coal trade flows<sup>1</sup> (Mt)



Source: GTIS, IHS India Coal Report and South32 analysis

## Metallurgical coal prices (US\$/t)



Source: Platts SBB database, South32 analysis

Notes:

1. Metallurgical coal trade flow includes hard coking coal (HCC), weak coking coal and PCI. Includes Mongolian coal exports to China.
2. JKT means Japan, South Korea and Taiwan.
3. CY19 annualised uses year to date April month end data.

# Metallurgical coal markets

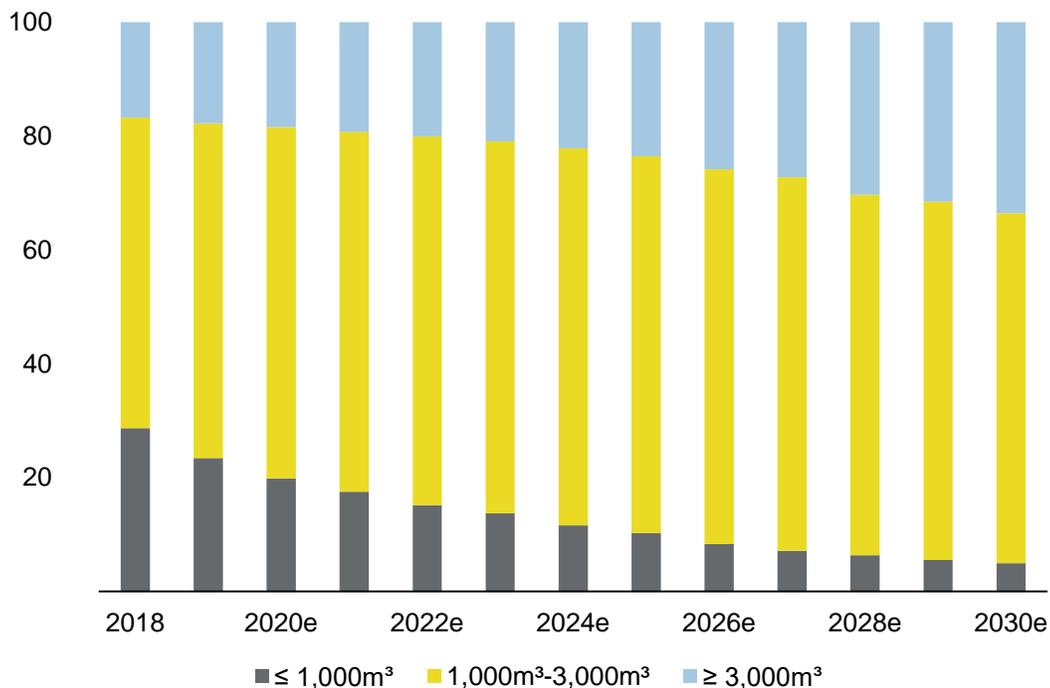


Smaller inland Chinese furnaces are being replaced by larger coastal furnaces

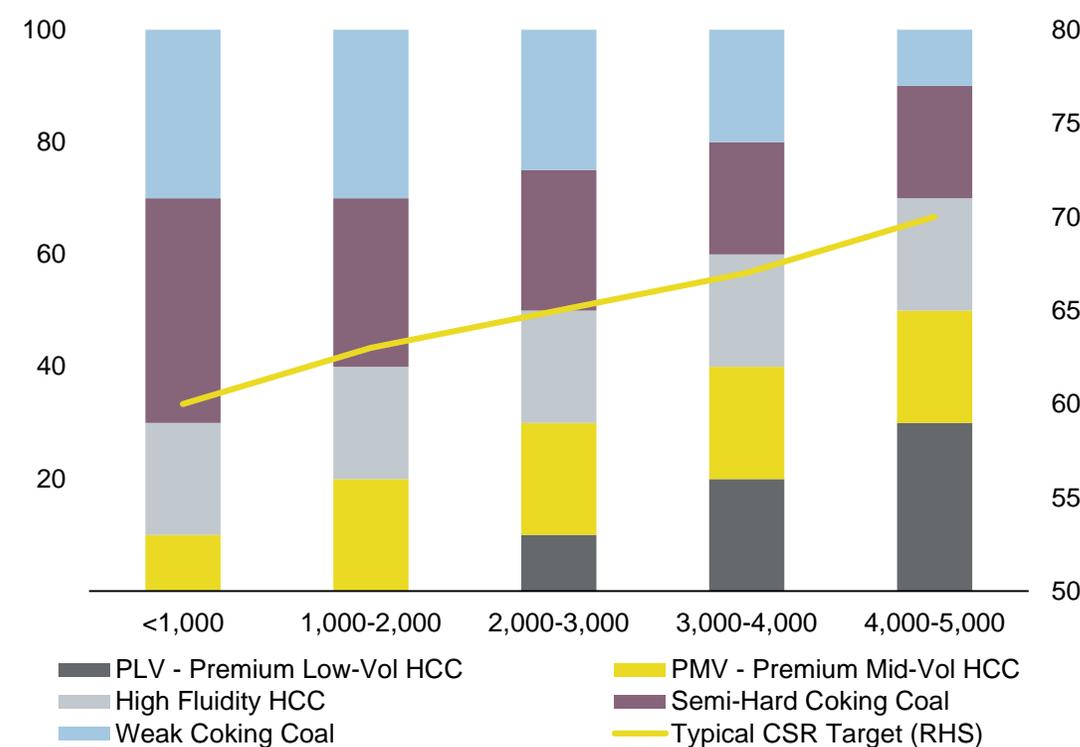
Larger furnaces require a greater share of premium hard coking coal in their mix

Illawarra Metallurgical Coal's premium hard coking coal is ideally positioned to benefit

Chinese blast furnace configuration in coastal provinces<sup>1</sup> (%)



Coke demand quality by blast furnace size<sup>2</sup> (Furnace blend %, LHS; Coke strength reaction, RHS)



Source: South32 analysis based on China study done with assistance of external consultant

Source: South32 analysis

Notes:  
 1. Total new capacity being installed is less than the total capacity being phased out (including capacity swaps), however new blast furnaces are larger in dimension.  
 2. Blast furnace size in m³. Represents typical coke strength after reaction (CSR) requirement and coal blending behaviour subject to CSR targets and blending practice at individual plants.

# Metallurgical coal markets



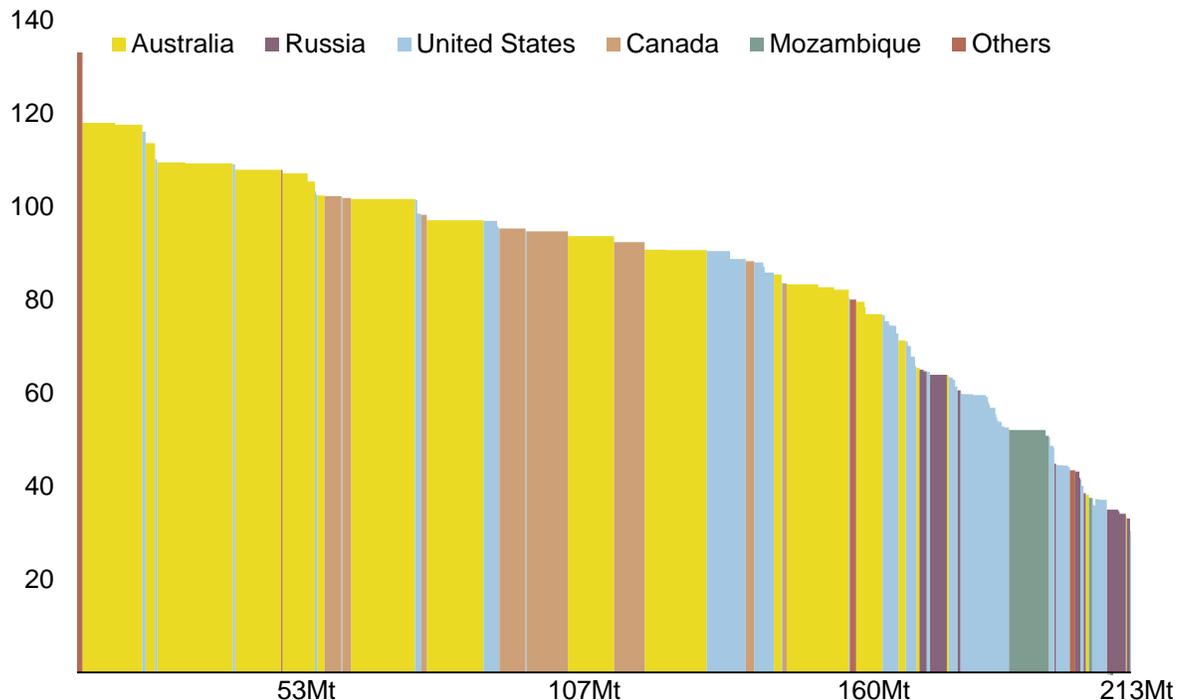
Margin curve will continue to steepen due to higher logistics costs and maturing assets

Marginal producers are currently operating at full capacity to meet demand

Identified new supply to increasingly come from projects with lower coal quality

Consensus long term price expectation has increased to US\$140/t

**Seaborne hard coking coal margin curve (CY19)<sup>1</sup>**  
(US\$/t, FOB)

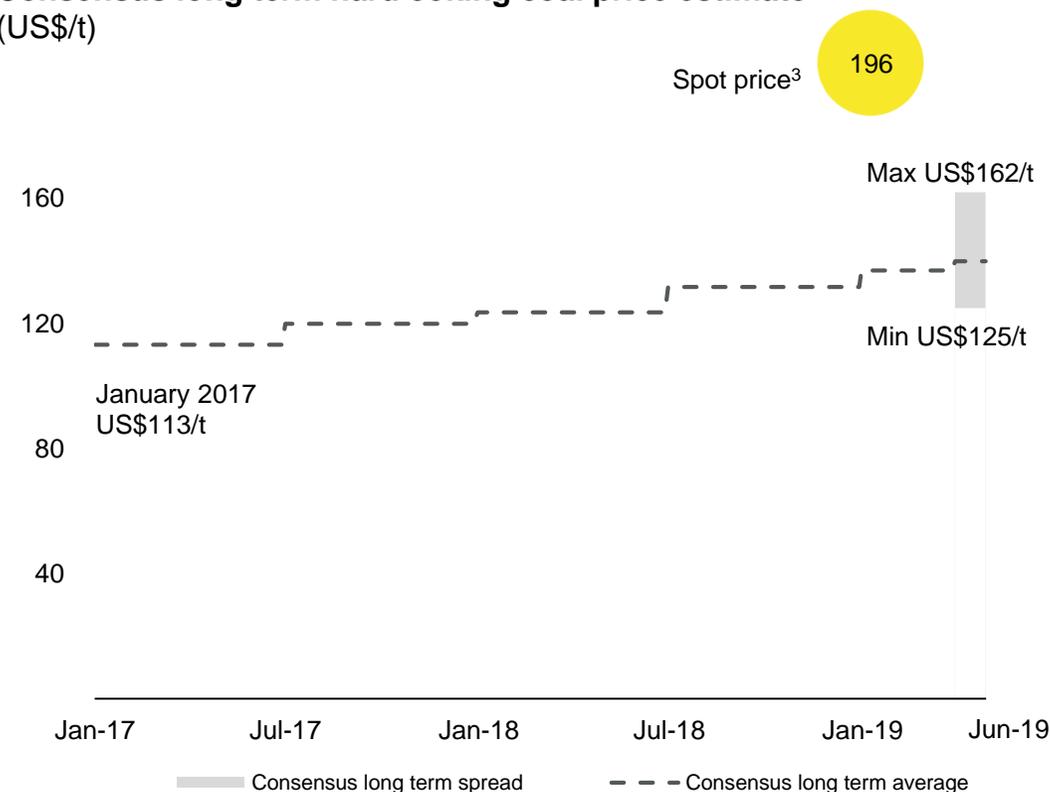


Source: Wood Mackenzie coal supply data tool Q1CY19 cost data set

Notes:

1. Seaborne margin curve based on price assessment for the HCC output from the mine in relation to Wood Mackenzie's benchmark HCC price and the FOB cash cost (does not include sustaining capex). Wood Mackenzie uses the price of premium HCC exported from Australia as the benchmark price.
2. Consensus long term price represents price expectations greater than 5 years into the future from the estimate date.
3. Spot price reflects price on 13 June 2019. Source: Platts Low-Vol Hard Coking Coal Index FOB Australia.

**Consensus long term hard coking coal price estimate<sup>2</sup>**  
(US\$/t)



Source: Long term consensus estimates based on a selection of brokers which includes: Barclays, BMO, Bank of America Merrill Lynch, CIBC, Citi, Credit Suisse, Deutsche Bank, HSBC, Investec, Jefferies, JP Morgan, Macquarie, Morgan Stanley, National Bank, Raymond James, Scotia Bank, TD Securities and UBS

# Overview of the operation

## Key facts & figures

- 100% owned by South32
- Three longwall operation mining two coal seams (Bulli and Wongawilli) in the southern coalfields of NSW
- Expected to produce 7Mt in FY20 and 8Mt in FY21<sup>1</sup>
- Produces premium quality, hard coking coal for domestic and export markets, known as the 'Illawarra Blend'

## Logistics

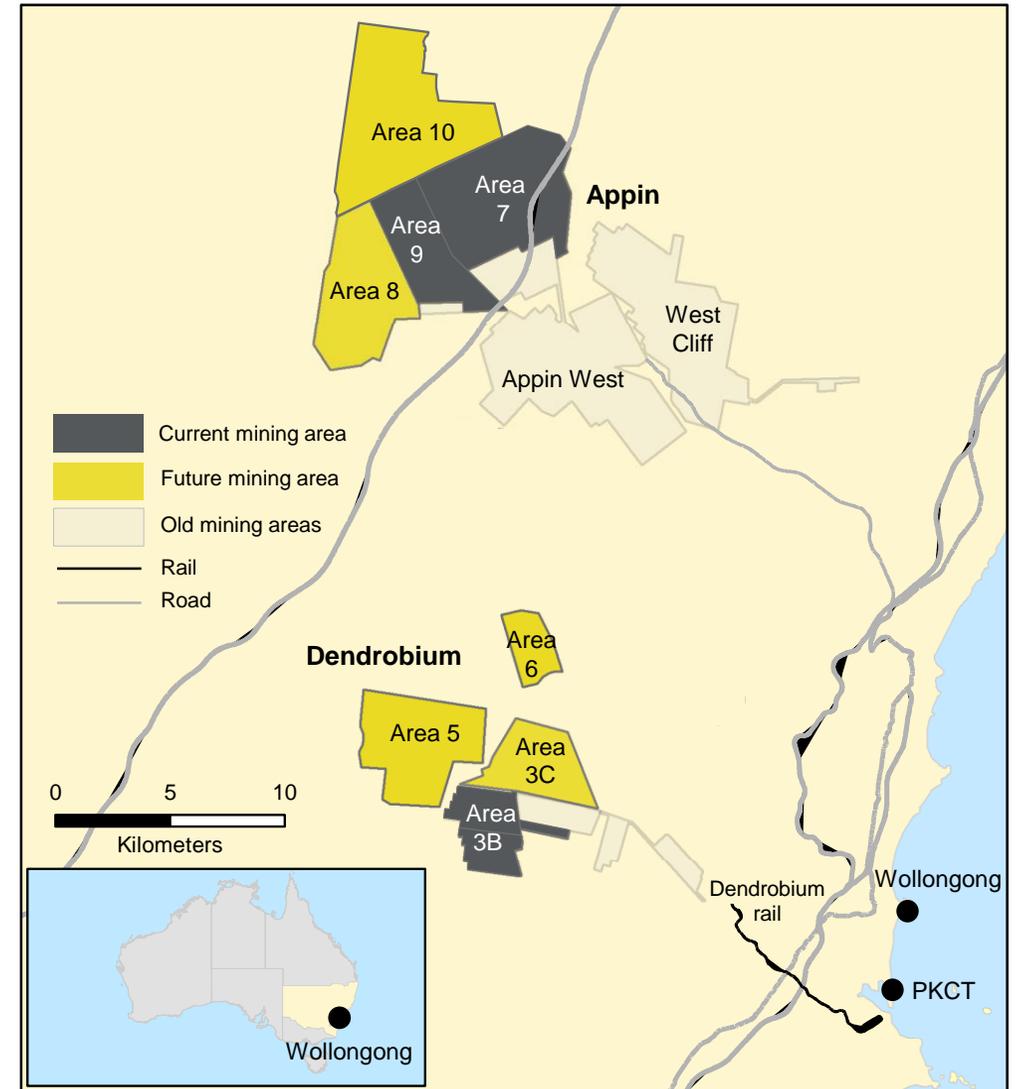
- Road haulage ~40km from Appin Colliery to Port Kembla Coal Terminal (PKCT)
- Rail 8km from Dendrobium to coal preparation plant (CPP) at BlueScope steel
- Currently, no congestion at PKCT compared to 30 to 40 days average at Queensland terminals

## Infrastructure & contracts

- 16.7% ownership interest in PKCT
- Long term coal supply agreement for domestic sales with BlueScope Steel (expires 2032)

**Total Coal Reserves  
of 130Mt  
(Bulli 114Mt, Wongawilli 16Mt)**

**Total Coal Resources  
of 1,235Mt  
(Bulli 796Mt, Wongawilli 439Mt)**



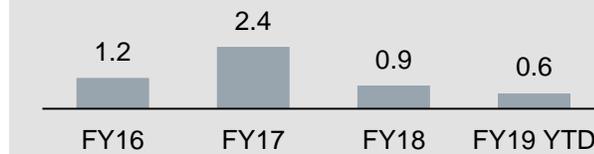
### Notes:

1. FY20 and FY21 production guidance predicated on the return of a second longwall at Appin during the June 2020 quarter.

**TRIF<sup>1,2</sup>**



**Employee Occupational Illness<sup>1,2</sup>**



**Downward trend in recordable injuries and illness since FY17**

**We are focused on further improvement by creating an inclusive workplace, where work is well-designed and we continuously improve our systems and processes**

**Increasing the visibility of leaders, including time in field**

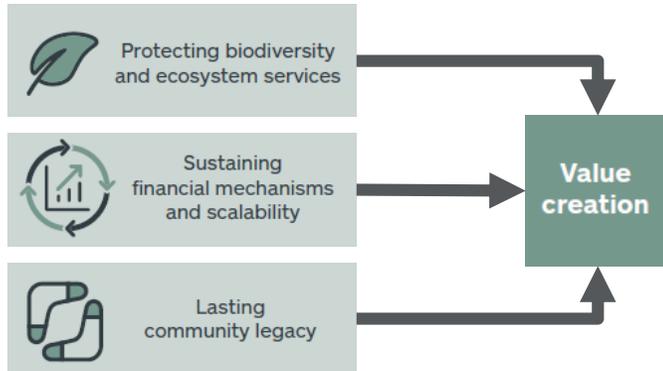
**Specific programs directly addressing the most common causes of injury**



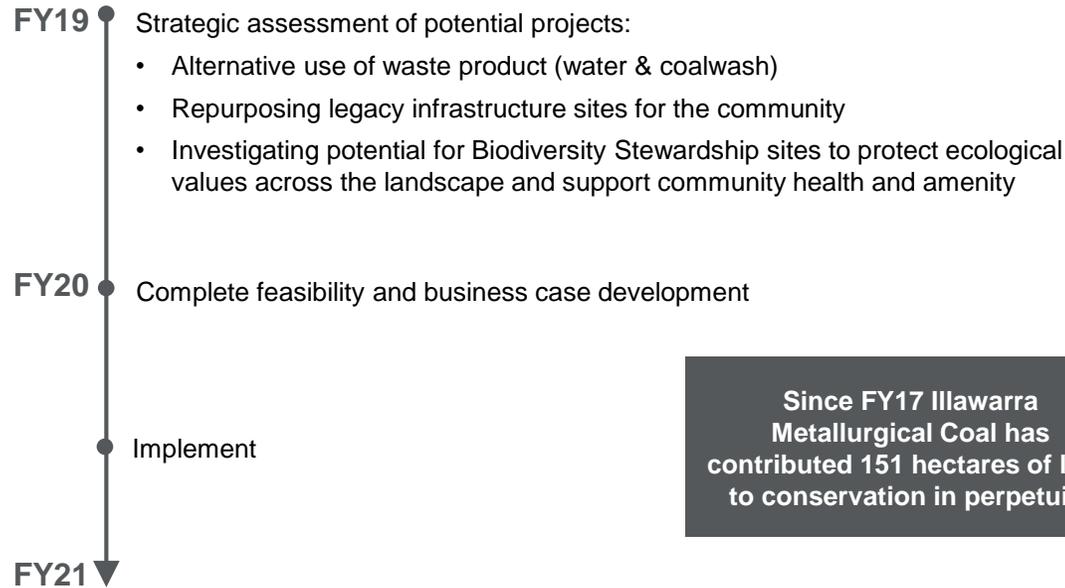
**Notes:**

1. Total Recordable Injury Frequency (TRIF) per million hours worked and Employee Occupational Illness (EOI) per million hours worked are all calculated in accordance with the United States Government Occupational Safety and Health Assessment (OSHA) guidelines for the recording and reporting of occupational injuries and illnesses.
2. FY19 YTD as at end of May 2019.

## Intelligent Land Management (ILM)

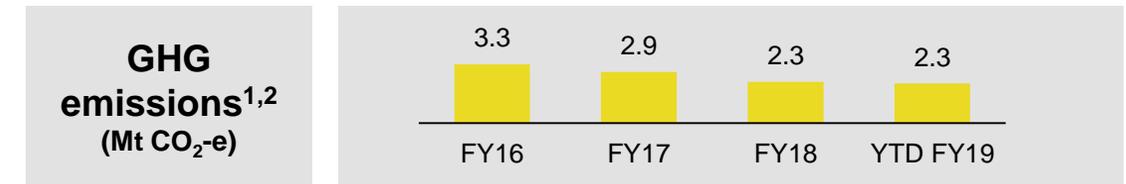


ILM is a sustainability framework for land management designed to transform land holdings which are currently unused or subject to rehabilitation into areas that increase climate resilience and generate shared financial, social and environmental value

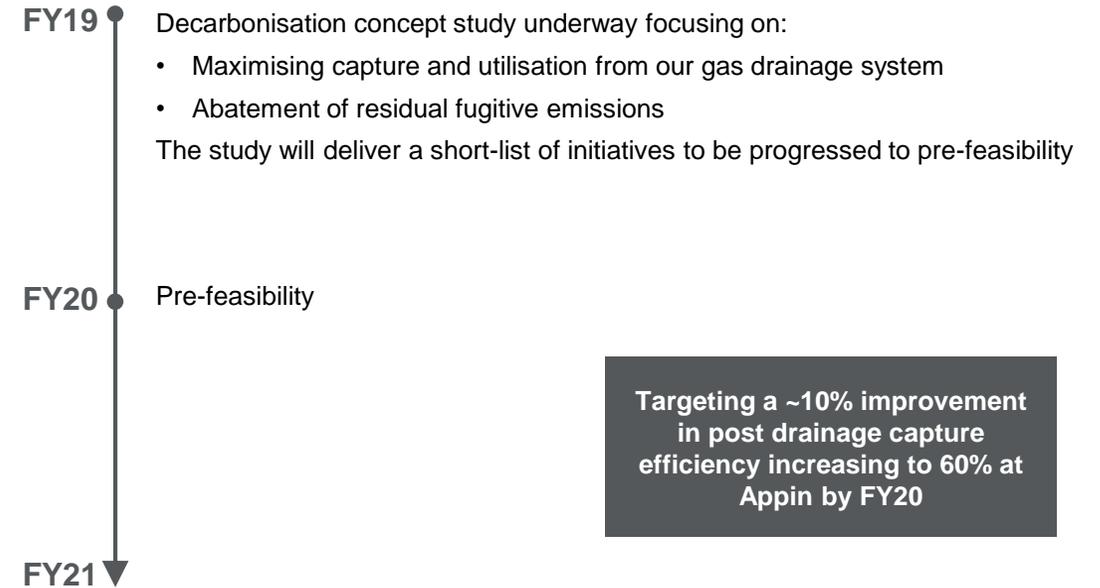


Since FY17 Illawarra Metallurgical Coal has contributed 151 hectares of land to conservation in perpetuity

## Decarbonisation



Flaring activities have reduced our Scope 1 emissions and generated ~246k Australian Carbon Credit Units since FY16



Notes:

- Greenhouse gas (GHG) total includes Scope 1 and Scope 2 emissions. Measured according to the World Resources Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol (WRI/WBCSD).
- FY19 YTD as at end of May 2019.

# Cost base of the operation

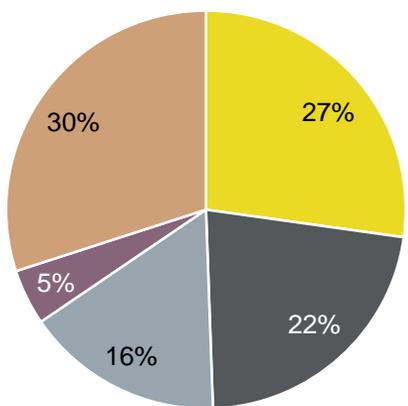
A largely fixed cost operation, expected to benefit from an increase in production

1<sup>st</sup> quartile of hard coking coal margin curve

~US\$160M paid to local businesses in FY18 (~40% of operating expenditure<sup>1</sup>)

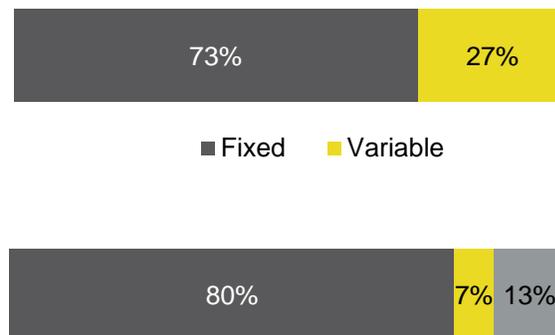
Royalties and taxes of US\$115M<sup>2</sup> paid in FY18

FY19e Operating unit cost breakdown



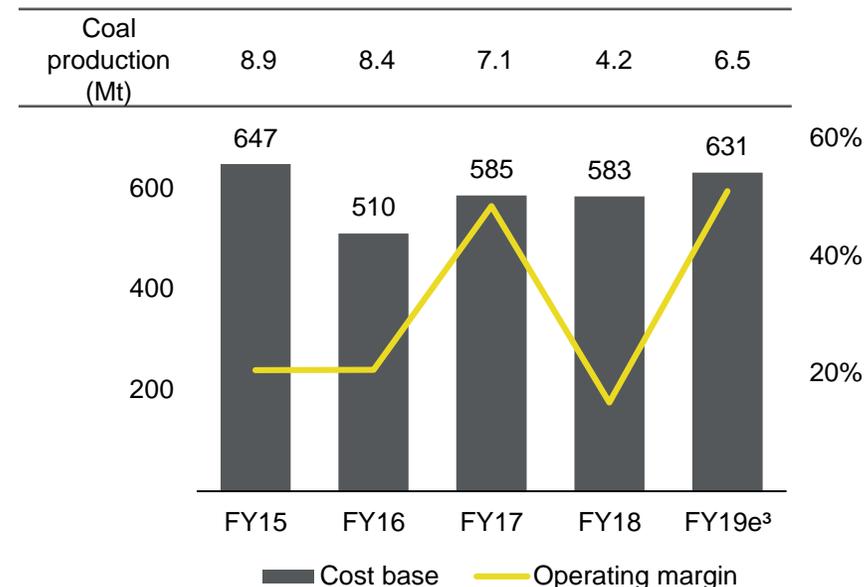
- Contractor related costs
- Raw materials/consumables
- Other
- Labour
- Energy

FY19e Cost base



- AUD denominated
- USD denominated
- Royalties & price linked costs

Cost base and Operating margin (US\$M, LHS; %, RHS)

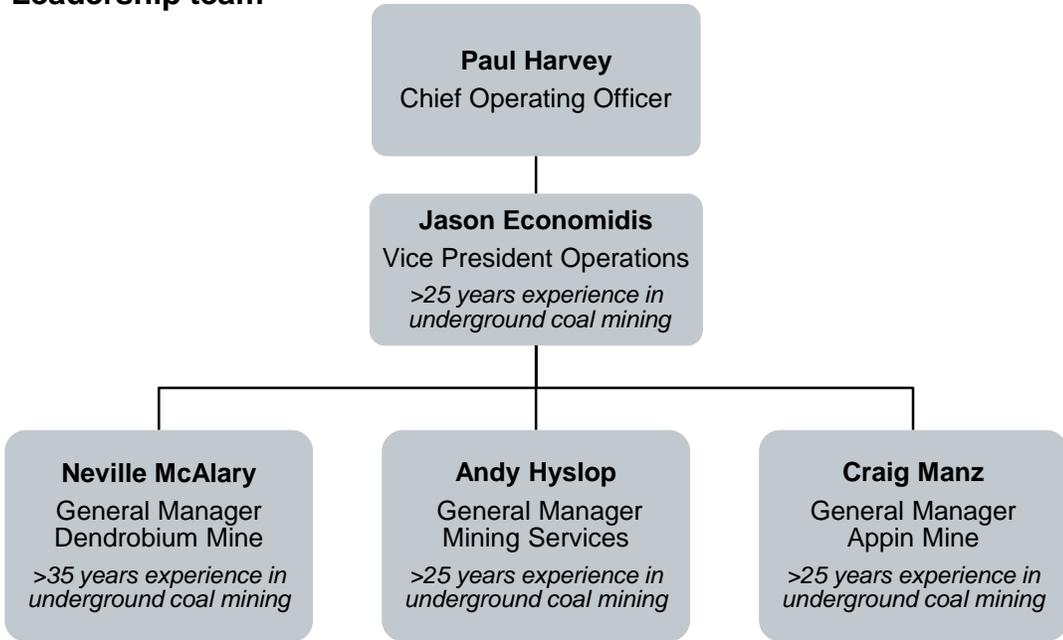


Notes:

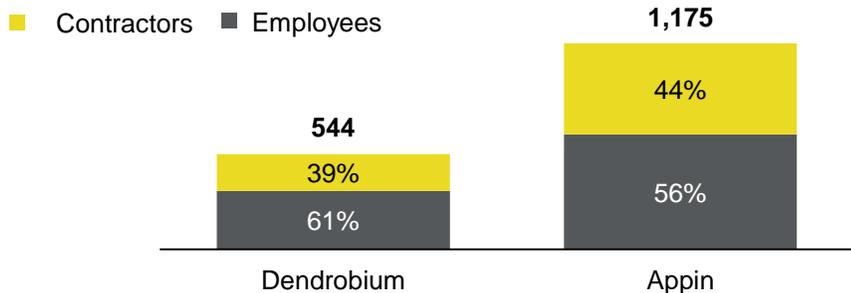
1. Operating expenditure exclusive of wages, royalties and taxes.
2. Includes US\$51M in taxes deducted by the company from employee's remuneration and remitted to revenue authorities on the employee's behalf.
3. FY19e cost base guidance. H1 FY19 operating margin provided for FY19e operating margin.

**Illawarra leadership team is locally based with substantial underground coal mining experience**

**Leadership team**

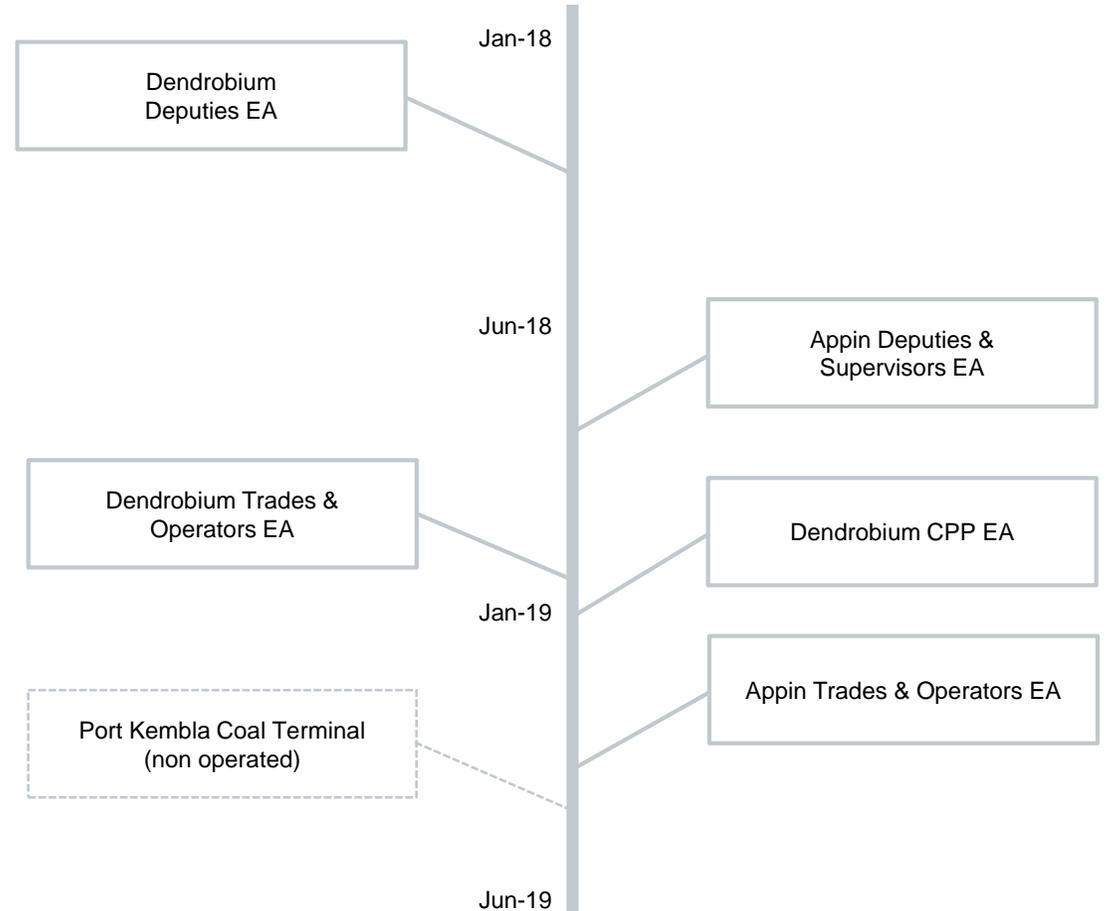


**Employee and contractor headcount (as at 31 May 2019)**



**We successfully renegotiated all major outstanding labour agreements in FY18 and FY19**

**Timeline of Enterprise Agreement (EA) renegotiations**



**We produce a premium hard coking coal for export and domestic markets**

## Where we sell our products

- Export sales to a well diversified customer book including North Asia, India, Europe and the emerging market of South East Asia
- Domestic sales to local steel mills

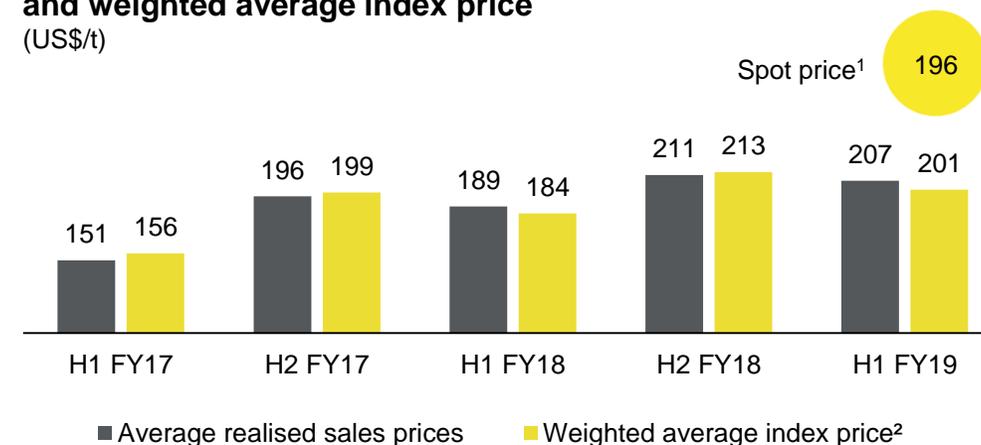
## Product quality

- Premium hard coking coal with superior coking and caking properties
- Priced at a premium to average of Low-Vol Hard Coking Coal Index FOB Australia
- ~80% coking coal and ~20% energy coal in FY19

## FY19e Illawarra Metallurgical Coal hard coking coal sales (%)



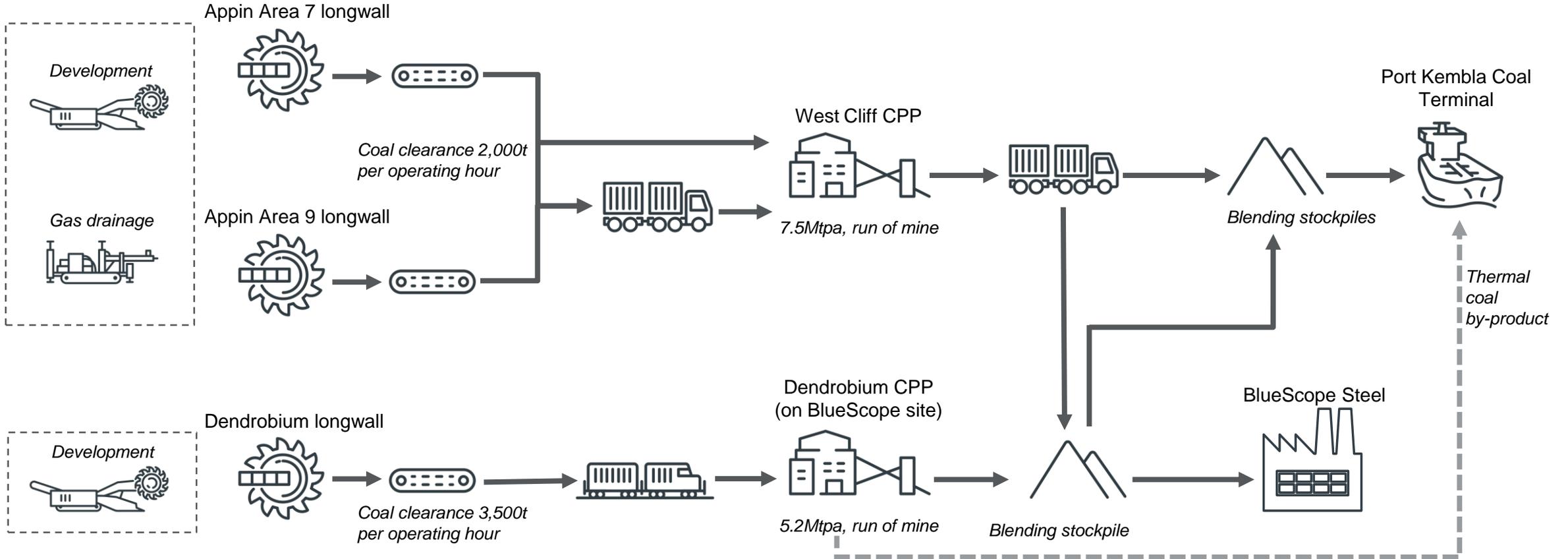
## Average realised metallurgical coal sales price and weighted average index price (US\$/t)



### Notes:

1. Spot price reflects price on 13 June 2019. Source: Platts Low-Vol Hard Coking Coal Index FOB Australia.
2. Weighted average index price reflects South32 quarterly sales volume weighted average of Platts Low-Vol Hard Coking Coal Index FOB Australia on the basis of a one month lag (month minus one or "M-1") for each six month period.

Our return to a three longwall configuration is supported by existing infrastructure



# Appin restart plan (presented December 2017)

Our restart plan is enabled by a reduction in complexity and an improvement in underlying operational performance

## Phase I (3 months)

Review systems, processes and organisational structure

Work with the regulator to address concerns

- Dedicated team of internal and external experts assigned to restart plan
- Complete root cause analysis, including an assessment of any shortcomings in the Appin Area 9 project design (approved June 2012)
- Ensure fit for purpose organisational structure and leadership capability
- Implement minimum restart requirements identified in our review
- Complete longwall 901

## Phase II (12 months)

Safe commencement of staged ramp-up

Focus on gas drainage and ventilation

Transform culture and performance

- Move Area 9 longwall to 902 panel
- Complete design of staged ramp-up and recommence activity at longwall 707
- Achieve steady state production at longwall 707
- Demonstrate reliability and capability of ventilation, gas drainage and strata management systems
- Ramp-up continuous miner fleet to achieve required development rates
- Refurbishment of South West One coal clearance
- Ongoing engineering studies

## Phase III

Ability to safely return operation to historical levels of production

- Capture and embed learnings from Phase I and Phase II
- On completion of Phase II, recommence twin longwall configuration
- Maintain safe and sustainable operating performance
- Maintain reliable and predictable gas drainage and ventilation systems

# Coal clearance and underground footprint

## We have reconfigured Appin's underground operations to reduce its footprint and complexity

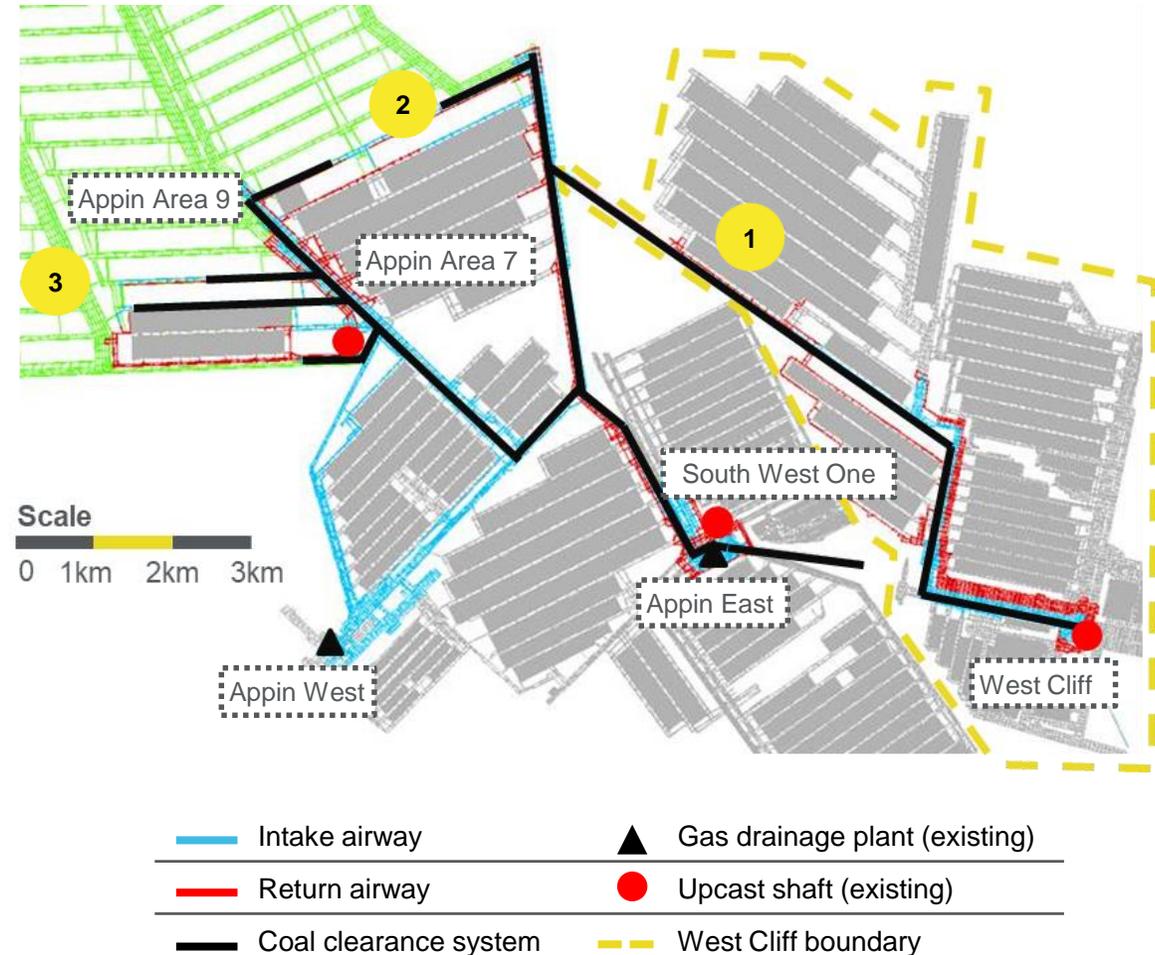
We have simplified the substantial underground footprint that includes two active mines and old workings:

- 1 Sealed off old working to reduce gas management
- 2 Shortened Menangle mains development, unlocking sterilised coal
- 3 Optimised some blocks in Area 9 to minimise the impact of geological features

Completed a major refurbishment of the South West One coal clearance system:

- Enables an interconnected system to facilitate reliable production and accelerated development
- Provides better access for inspections and maintenance, improving reliability and reducing down time
- A new bunkering system has been employed, minimising disruption and increasing availability of our coal clearance infrastructure

## Plan view of Appin Colliery and old West Cliff workings



South West One in FY15

South West One today

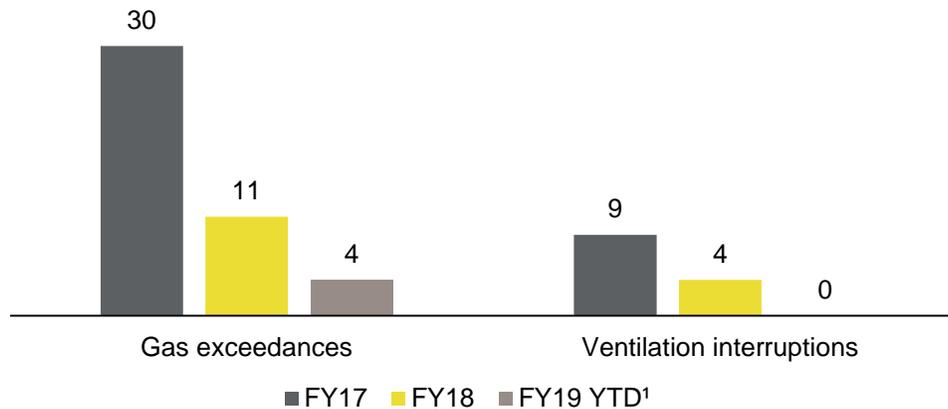


We have improved our planning and are achieving more reliable performance from our gas drainage and ventilation systems, allowing for more productive longwall performance

## Increased reliability of our gas drainage and ventilation

- Completed gas plant improvement projects
- Increased gas capture through additional drainage ahead of longwall
- Additional booster fans to be installed ahead of second longwall, increasing our ventilation capacity
- Recorded exceedances in FY19 unrelated to production

## Gas exceedances and ventilation interruptions (Number of events)



Notes:  
1. FY19 YTD as at end of May 2019.

## Improved management of strata conditions

- Better planning, enabled by additional information being gained from a new approach to drilling in advance of the longwall

## Example longwall reporting



**Longwall conditions**

- Generally good retreat conditions expected in this zone
- This zone has historically had favourable development and longwall conditions in the panels to the south
- Local deterioration around small faults

**Longwall conditions thrust fault and high stress zone**

- Poor main gate conditions expected – high cable support density and floor brushing required
- Longwall may require outburst and coal burst controls – remote mining needed

# Safe and sustainable operating performance

## We have achieved a sustained period of improved longwall performance

### People

Successfully renegotiated all major Enterprise Agreements

### Planning

Embedded short interval control improvements and overhauled our Mine Operating System

### Processes

Achieved a maintenance driven improvement in availability

### Accountability

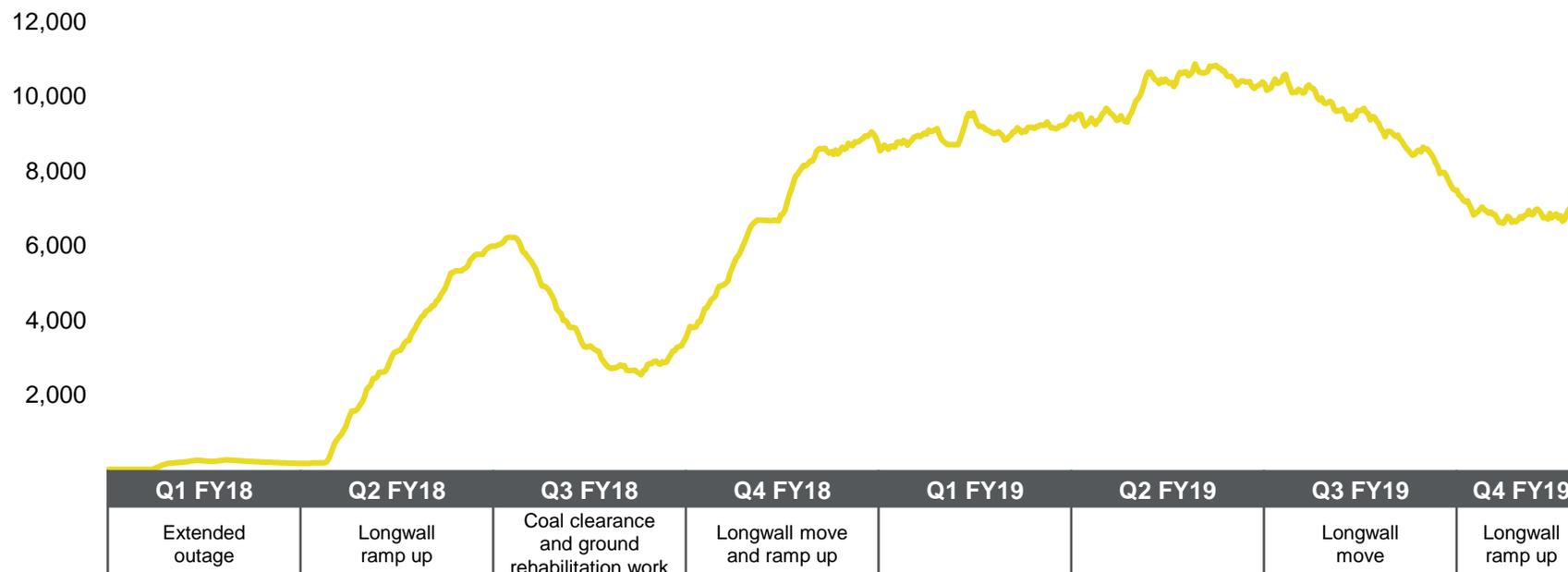
Organisational redesign (right size, right people in roles)

### Productivity

Increased use of longwall automation

### Average longwall performance<sup>1</sup>

Tonnes per day



Notes:

1. Appin longwall performance for Areas 7 and 9 on a 90 day rolling average to 1 June 2019.

# Appin restart plan (today)

## Phase I (3 months)

Review systems, processes and organisational structure

Work with the regulator to address concerns

- ✓ Dedicated team of internal and external experts assigned to restart plan
- ✓ Complete root cause analysis, including an assessment of any shortcomings in the Appin Area 9 project design (approved June 2012)
- ✓ Ensure fit for purpose organisational structure and leadership capability
- ✓ Implement minimum restart requirements identified in our review
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- ✓ Demonstrated reliability and capability of ventilation, gas drainage and strata management systems
- **Ramp-up continuous miner fleet to achieve required development rates**
- ✓ Refurbished South West One coal clearance
- ✓ Ongoing engineering studies

## Phase III

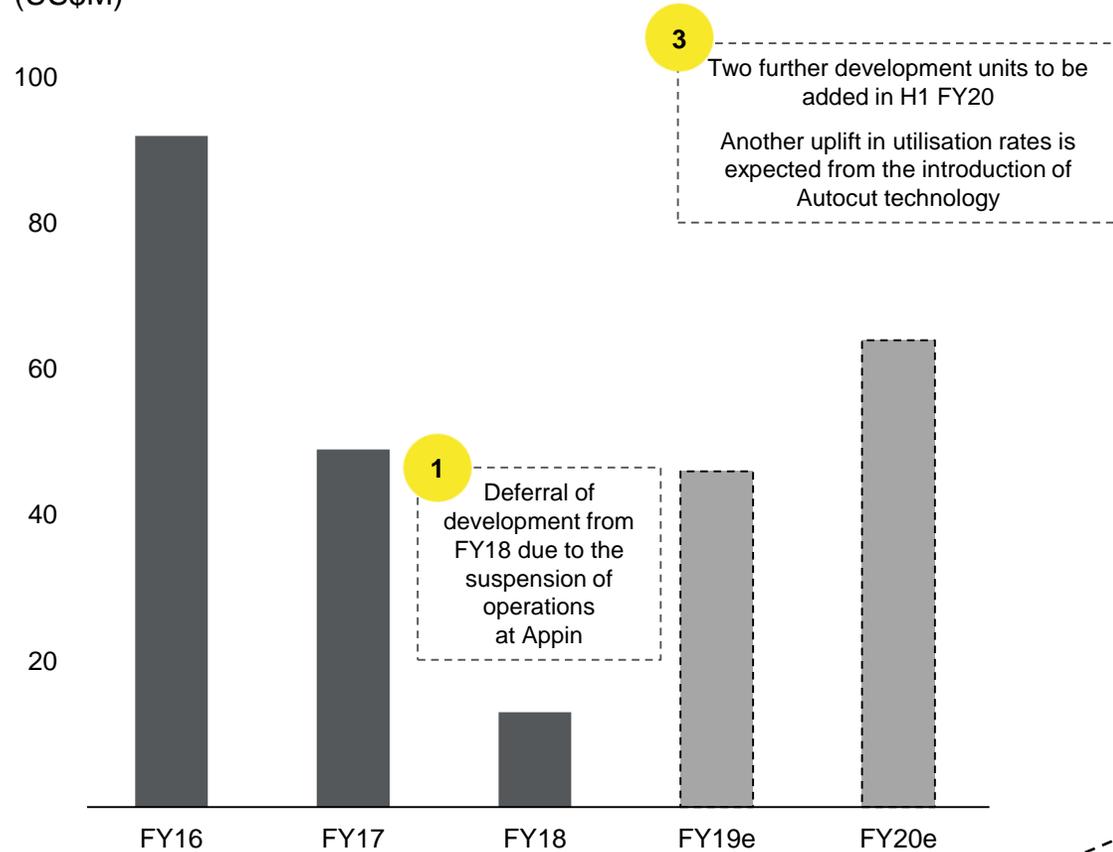
Ability to safely return operation to historical levels of production

- ✓ Capture and embed learnings from Phase I and Phase II
- **On completion of Phase II, recommence twin longwall configuration**
- ✓ Maintain safe and sustainable operating performance
- ✓ Maintain reliable and predictable gas drainage and ventilation systems

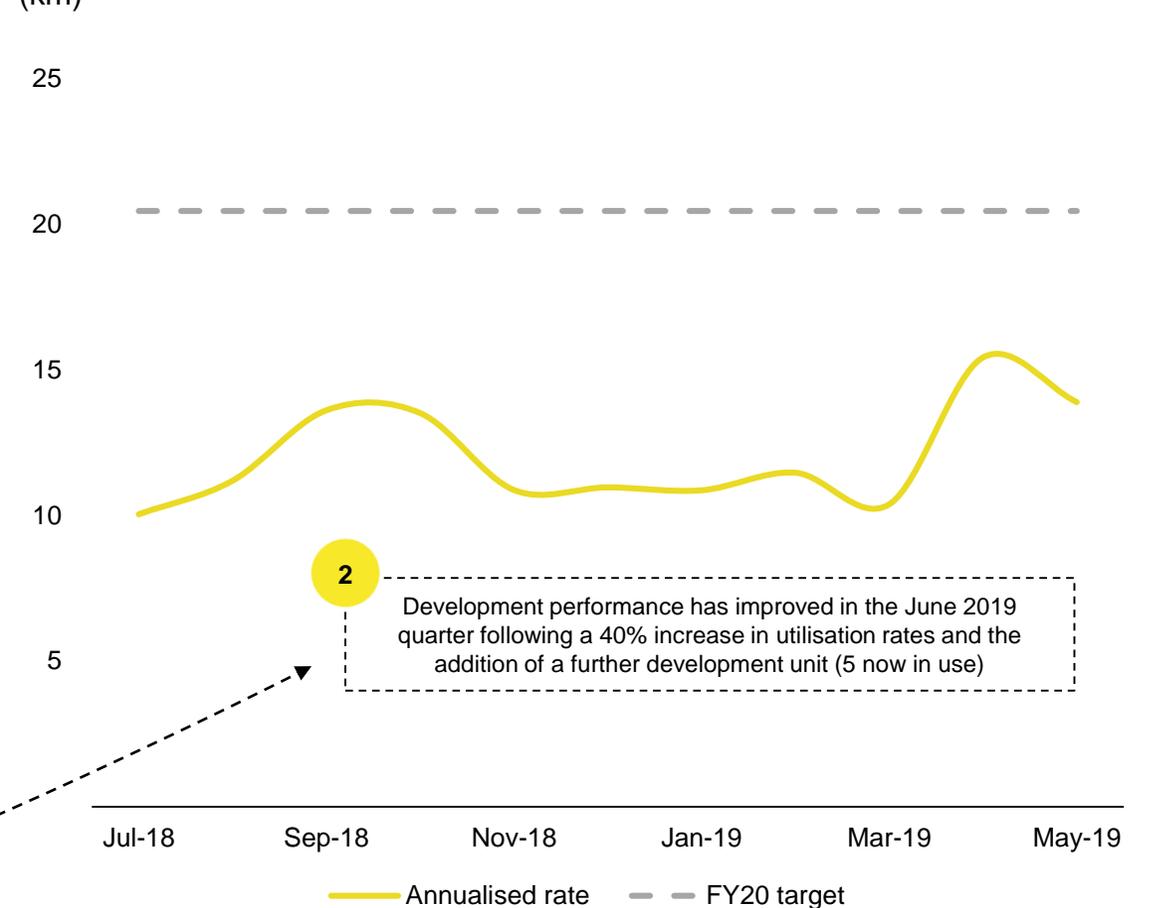
# Appin development rates

A further uplift in development is being targeted to underpin a sustainable return to two longwalls at Appin during the June 2020 quarter

Appin development capital expenditure (US\$M)



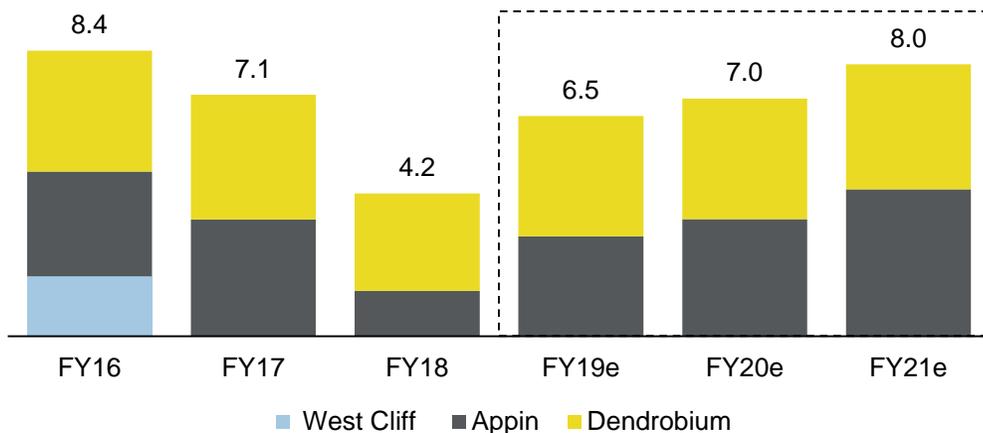
Annualised Appin monthly development performance (km)



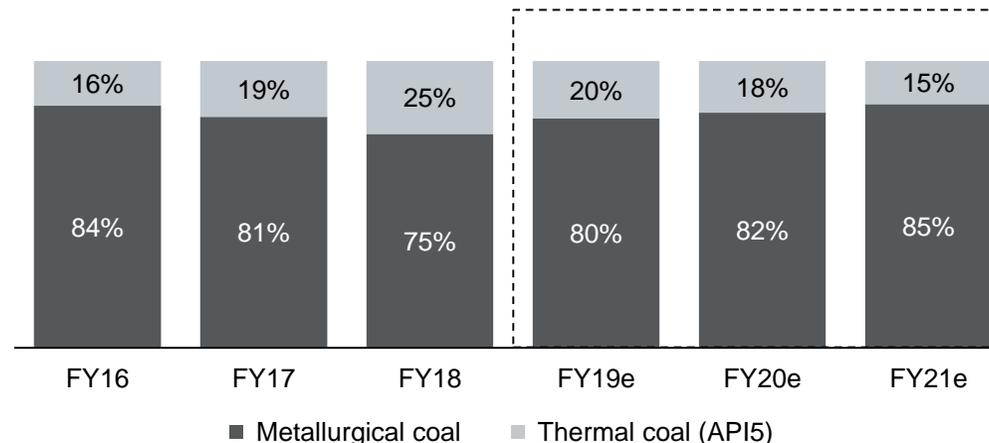
# Production outlook

Production is expected to increase across FY20 and FY21 following return of the second longwall at Appin during the June 2020 quarter

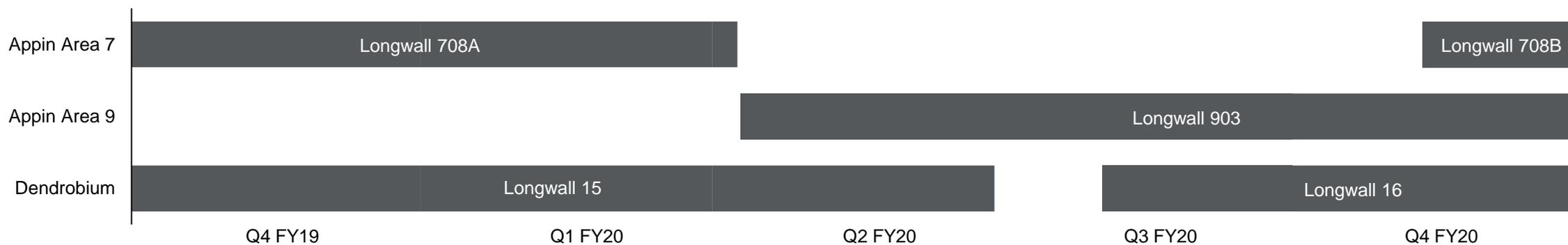
**Production (Mt)**



**Product split (%)**



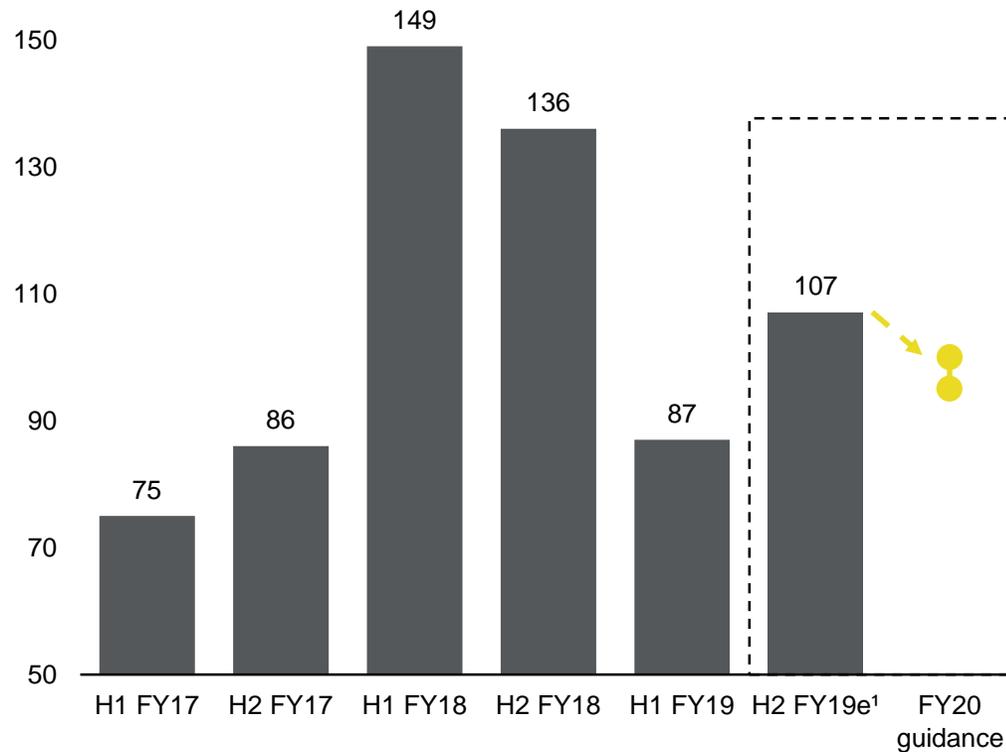
## Longwall panel schedules and moves



# Operating unit cost outlook

Operating unit costs are expected to benefit from a sustainable return to historical rates of production and continued focus on costs

**Operating unit costs**  
(US\$/t)



**FY19e**

- Substantial reduction from prior year with a full year of production at Appin, following extended outage
- Costs expected to be sequentially higher in H2 following longwall moves at Appin and Dendrobium in the March 2019 quarter

**FY20e**

- Expected range of US\$95/t to US\$100/t with guidance to be updated at our 2019 Financial Results

**Maximising margin**

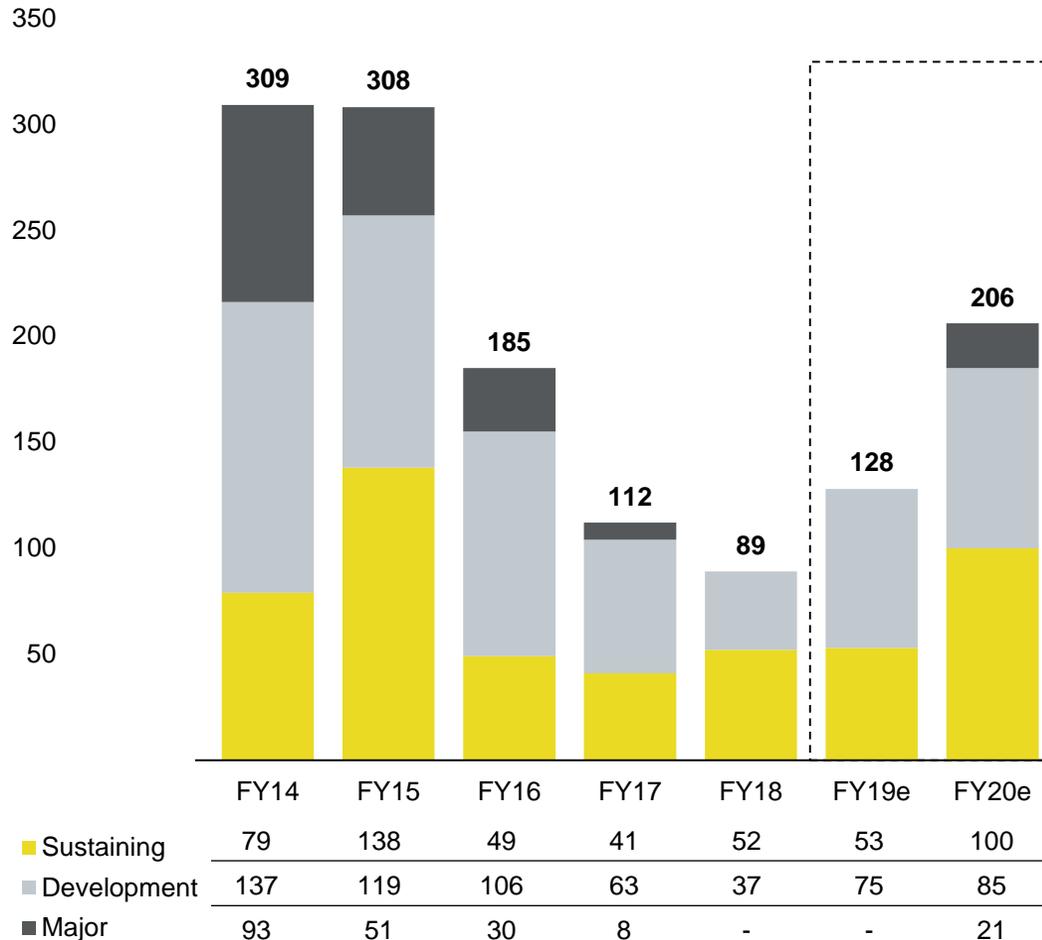
- Implementing contractor initiatives to incentivise performance and share risk
- Continued improvement in longwall performance and an increase in broader utilisation rates
- Diversion of coal wash to beneficial uses
- Optimisation of road haulage contracts

**Notes:**

1. FY19 Operating unit cost guidance includes the influence of royalties and exchange rates, assuming an average blended coal price of US\$173/t and an AUD:USD exchange rate of 0.72; which reflect forward markets as at January 2019 or our internal expectations.

# Capital expenditure outlook

## Capital expenditure (US\$M)



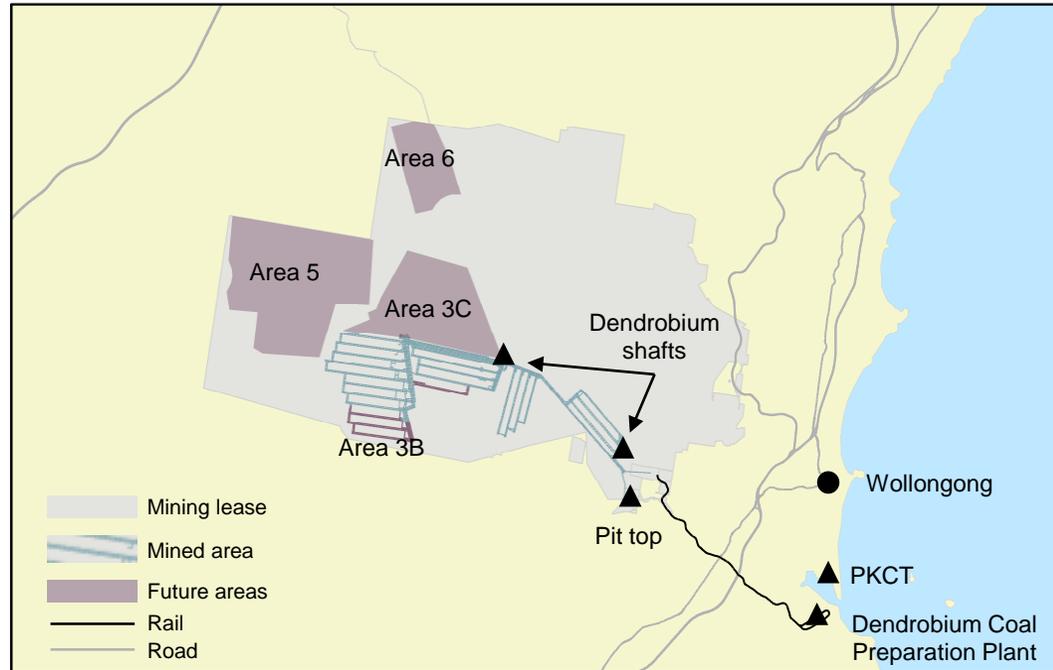
### US\$57M increase in Sustaining capital and development expenditure to facilitate a return to three longwalls

- Higher spend on development as we increase rates and complete work that was previously deferred during Appin's extended outage
- Sustaining capital includes expenditure being directed towards infrastructure improvements in support of three longwalls
- Increase in Illawarra's spend is expected to contribute to Group Sustaining capital expenditure<sup>1</sup> rising towards the upper end of our US\$550-650M range in FY20
- Major capital includes study work for Dendrobium Next Domain and future ventilation capacity

Notes:

1. Including equity accounted investments.

# Dendrobium life extension project



## Dendrobium Next Domain<sup>1</sup>

- Targeting Area 5 production from 2024 to extend mine life to ~FY36
- Utilises existing processing plant and rail infrastructure
- Current capital estimate of between US\$650M and US\$800M<sup>2</sup> with the majority to be spent over a 3 year period
- Environmental Impact Statement submitted to the NSW Department of Planning and Environment
- Final investment decision anticipated in H2 FY21

### Notes:

1. Refer to important notices on slide 2. Final Investment decision and timing remains subject to receiving the necessary regulatory approvals.
2. At spot FX rates. Capital estimate at end of pre-feasibility study phase of the project.

**Large underground operation producing a premium metallurgical coal**

**1st quartile of hard coking coal margin curve**

**19 year Reserve life at Appin  
Dendrobium life extension project in feasibility**

**Achieving more productive longwall performance and maintaining a focus on costs**

**On track to return to a three longwall configuration during the June 2020 quarter**

**Metallurgical coal markets remain tight with an attractive long term outlook**



Q&A



