



# FY18 Results

Information Pack

August 2018



# Agenda



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# FY18 Key Headlines

- EBITDA: A\$507M – increase of 9%
- NPAT: A\$272M – increase of 35%
- 40 cents final dividend – total of 65 cents for the year
- Wodgina: Spodumene plant construction commenced
- Mt Marion: Commenced upgrade to 450K All-in production at 6%
- Secured Marillana Iron Ore JV

# Company Overview



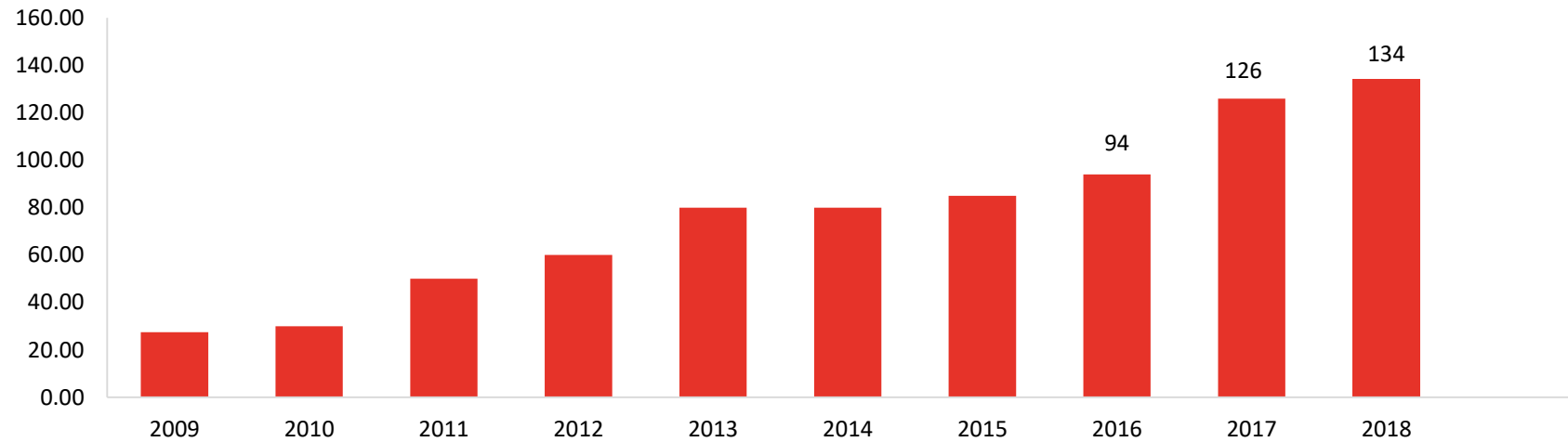
# The MRL Business

<p><b>Innovative mining services provider</b></p>	<p>Mineral Resources Limited (<b>MRL</b>) is a leading full service provider of highly innovative and sustainable mining services</p>
<p><b>Unique value proposition</b></p>	<p>MRL provides innovative and low cost Pit to end Customer solutions across the mining infrastructure supply chain including mining, crushing, processing, materials handling and full support logistics adding strategic value for clients</p>
<p><b>Focus on increasing annuity earnings</b></p>	<p>Mining Services earnings are supported by long term contracts. Operations across 30 sites including mineral crushing, screening &amp; processing; contract mining &amp; haulage; rail locomotives &amp; wagons; camp accommodation; road transport and port handling</p>
<p><b>Track record of generating high returns on capital</b></p>	<p>MRL is uniquely positioned to generate high returns on capital invested in both Build Own Operate (<b>BOO</b>) contracts and Commodity Projects. Current producing Commodity Projects include Iron Valley &amp; Yilgarn iron ore and Mt Marion &amp; Wodgina lithium</p>
<p><b>Experienced management team &amp; board</b></p>	<p>Stable senior leadership team with a proven track record of safely delivering world class mineral processing and infrastructure solutions and creating shareholder value. Board and management own approximately 14% of the Company</p>
<p><b>Selection of customers</b></p>	
<p><b>MRL operating brands</b></p>	

# Track Record of Growth

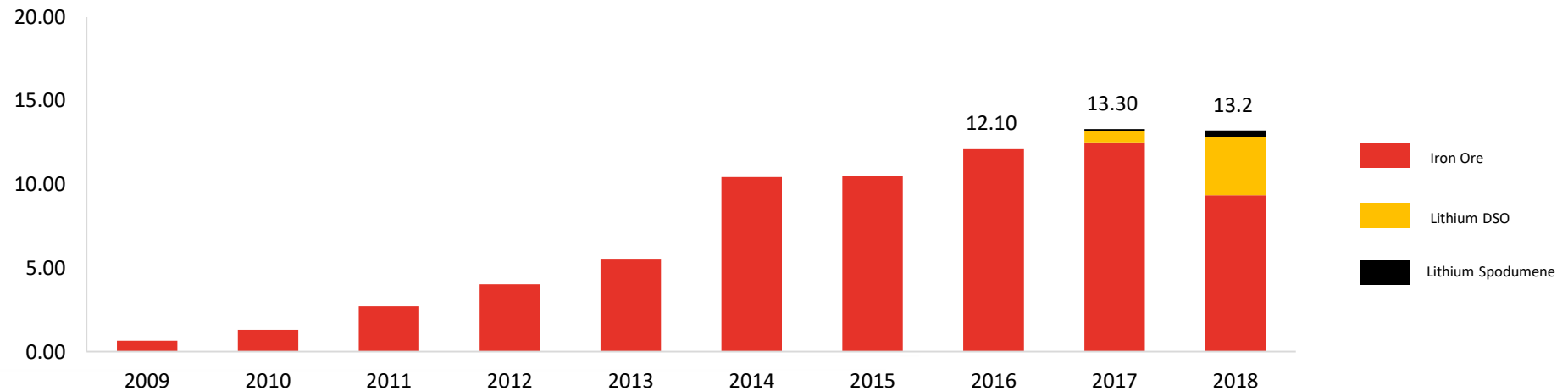
## Equivalent installed Crushing Capacity

(million tonnes per annum)



## Commodity exports

(million tonnes per annum)



# Core Business Pillars: Mining Services

## Mining Services

Delivers annuity style earnings through:

- Crushing
- Processing
- Mining
- Bulk haulage
- Accommodation and catering

## Supply Chain Infrastructure

- Strategic port allocations at Kwinana, Esperance and Utah Point
- Extensive road train network in Northwest WA
- Rail system in the Southern WA
- Developing light rail transport system

## Innovation

- Delivering range of innovative projects, focused on offering cost reductions and adding value to the mining industry
- Provides competitive advantage for mining services business
- Facilitates lowest quartile production costs



# Core Business Pillars: MRL profit share business model

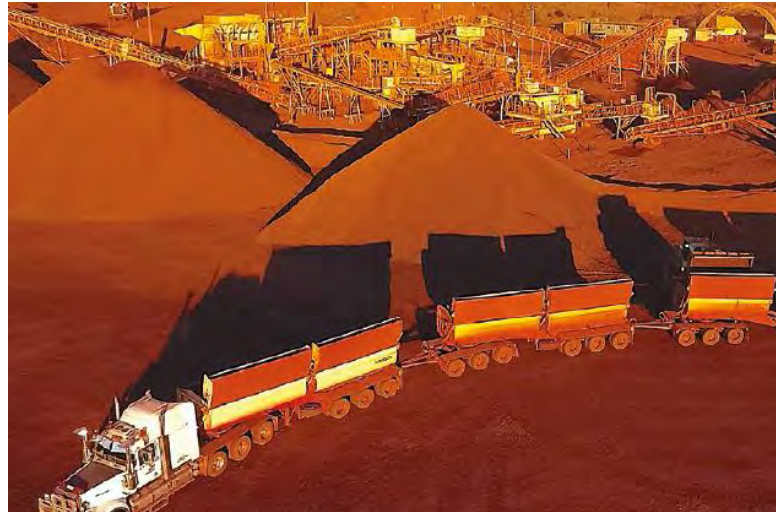
## Commodity Projects

- MRL acquires joint ownership of undeveloped ore bodies in partnership with an explorer
- MRL awarded Life-of-Mine, Build Own Operate mining services contract for full pit-to-end customer services



## Iron Ore

- Producer of iron ore in the Yilgarn in the south of the state and Iron Valley in the North West
- MRL awarded Life-of-Mine mining services contracts



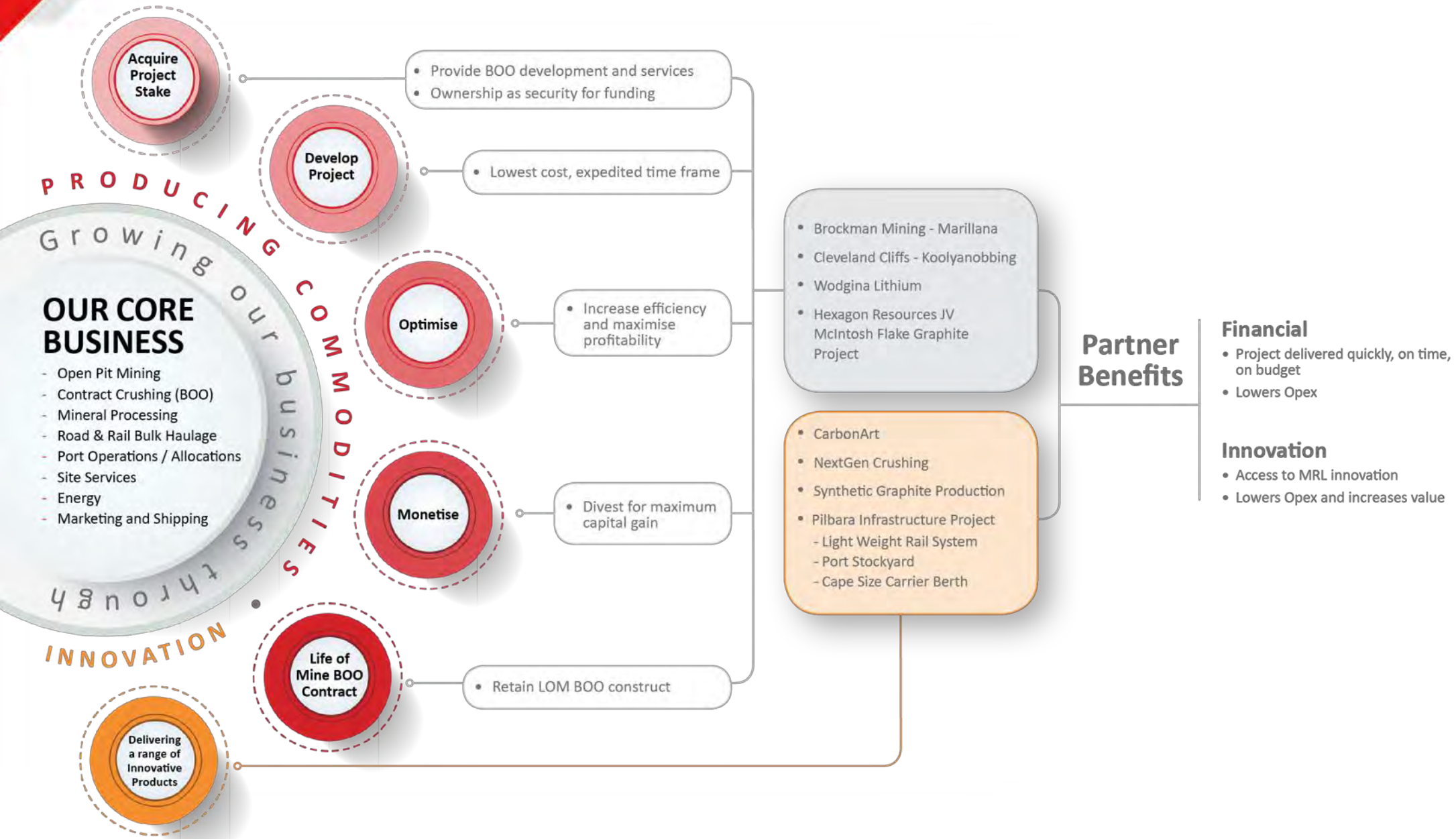
## Lithium

- One of the world's largest owners of hardrock lithium units:
  - 100% of Wodgina
  - 43.1% of Mt Marion
- MRL awarded Life-of-Mine mining services contracts





# Core Business Pillars: MRL profit share business model



## FY18 Highlights



# FY18 Financial Highlights

Metric	FY18 Result	Comparison to pcp <sup>1</sup>
EBITDA (normalised)	\$506.7m	9% ↑
EBITDA (reported)	\$575.2m	21% ↑
Revenue	\$1.7bn	16% ↑
Net profit after tax	\$271.8m	35% ↑
Cash at bank	\$240.4m	
FY18 total fully franked dividends	65 cps	20% ↑



Notes:

1. Comparison to prior corresponding period (pcp)

# FY18 Mining Services Highlights

## Mining Services

- MRL awarded Life-of-Mine mining services contract at Wodgina for pit to end customer services; operations commence Oct 2018
- Mt Marion plant continually producing budgeted tonnes; due to increase production to 450Ktpa all-in 6% commissioning Nov 2018 through May 2019

## Supply Chain Infrastructure

- Secured Esperance port allocation & infrastructure assets for rail unloading and product storage
- MRL trains to recommence haulage from Yilgarn to Esperance Sep 2018
- Pilbara Infrastructure Project progressing towards development of demonstration system(s), third party verification and approvals

## Innovation

- Synthetic graphite pilot plant on track to commence commissioning in Nov/Dec 2018
- CarbonArt factory successfully developed range of composite structural components; initial focus on 150T dump truck trays – second generation “commercialisation” prototype tray to complete in Aug 2018
- First NextGen crushing plant installed and operating in the Pilbara



# FY18 Commodity Highlights

## Commodity Projects

- Empire Oil & Gas – Perth Basin tenements extended for three years to allow for proper evaluation, exploration and drilling to occur
- Hexagon Resources – Executed Farm-in and Joint Venture agreement to earn 51% interest in the McIntosh Graphite project
- Manganese – reviewing some MRL tenements with a view to possible production



## Iron Ore

- 9.3Mt exported from Iron Valley and Carina
- Acquired Koolyanobbing Iron Ore project in the Yilgarn
  - Targeting 6.0 – 6.25Mt export rate
  - First shipment expected Q1 FY19
- Brockman Mining – Executed Farm-in and Joint Venture Agreement to acquire 50% interest in the Marillana iron ore project



## Lithium

- Mt Marion:
  - Full year production of 435Kt (wet) of combined 6% and 4% spodumene concentrate
  - plant achieved steady state production in excess of an annualised 400Kt
- Wodgina:
  - 3.48Mt of direct shipping ore (**DSO**) lithium
  - Construction of 833Kt (wet) 6% spodumene concentrate - on schedule



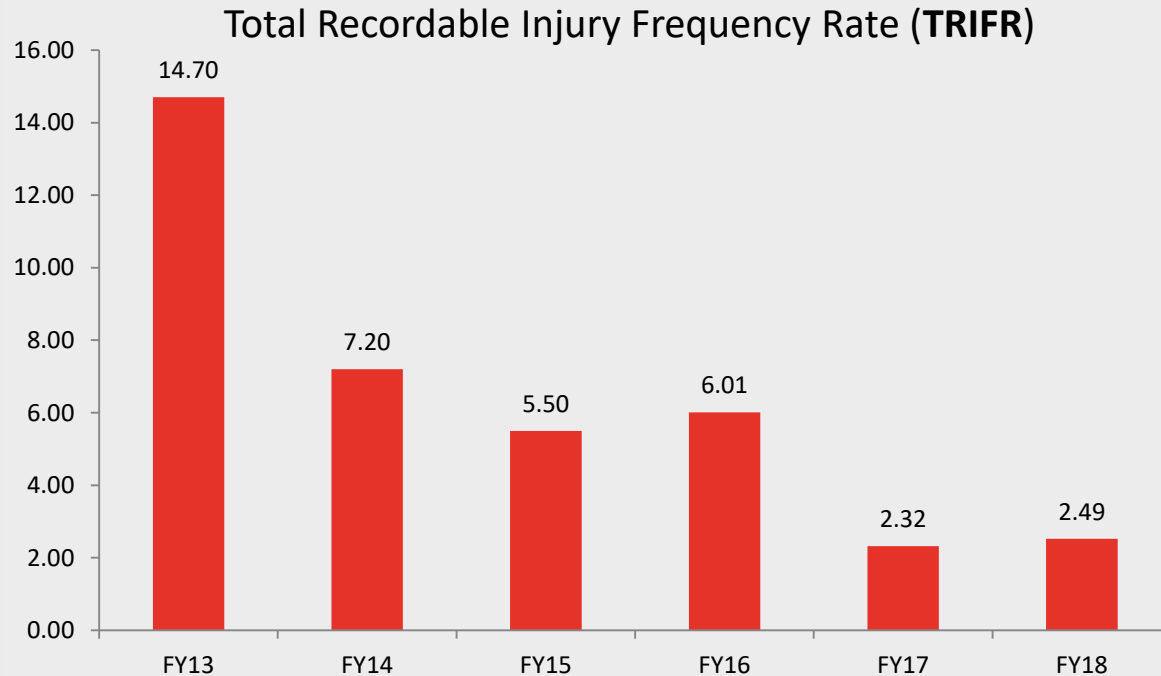


# Safety and Environment

Industry leading safety performance  
Best practice environmental performance

# Safety

- High Potential Event reporting a major focus across the business
- Management commitment to improving quality of leadership engagements as opposed to quantity
- MRL's 'Safety through Communications' program successfully increased overall awareness in incident and injury notification, investigation and prevention



**TRIFR 2.49<sup>1</sup>**

**Top 5 ASX 100 companies<sup>5</sup>**

**LTIFR 0.17<sup>2</sup>**

**Top 10% ASX 100 companies<sup>3</sup>**

**Increased by 50%<sup>4</sup>**

**Supervisor Leadership Program completion**

Notes:

1. Total Recordable Injury Frequency Rate calculations measure the total number of injuries (excluding first aid) per million hours worked.  
2. Lost Time Injury Frequency Rate calculations measure the number of lost time injuries per million hours worked.

3. Safety Performance comparison taken from the Citi Safety Spotlight: ASX100 Companies & More (31st October 2017) Injury and Fatality Data.  
4. 50% increase is based on number of successful candidates completing course between end financial year 2017 and end of financial year 2018.

5. As published on the Safety Institute of Australia website 20 February 2018

# Environment

## Solar Power

- 2,700 solar panels installed across our Perth-based facilities
- Delivering lower green house gas emissions by approx. 981,000kg CO<sub>2</sub> per year
- Electricity savings of approx. \$327k per year
- Actively pursuing off-grid solar power and energy storage batteries power solutions for remote operations

## Mount Marion power station upgrade

- Installed additional:
  - 108 tonnes of LNG storage
  - 3288 Kwh/DC Battery Energy Storage System
  - 2mw gas power generation
- LNG fuel burn expected to reduce by 547 tonnes per year
- Approx. reduction of 1,504 tonnes CO<sub>2</sub> emissions per year

## Wodgina power station upgrade

- Installation of new, 81km 10 inch natural gas lateral pipeline
- Natural gas fuelled power station configuration rather than traditional diesel typically installed on remote mine sites
- Reduced emissions once fully commissioned





# Financial Performance

# Profit and Loss

## Highlights

- Revenue up 17% on pcp
- EBITDA (reported) up 21% on pcp
- EBITDA (normalised) \$506.7m in line with financial guidance
- Significant growth driven by:
  - Sale of 3.5Mt of Lithium DSO (up 2.8Mt on pcp)
  - Sale of 382Kt of Spodumene Concentrate (up 266kt on pcp)
  - Mining Services Business continues to perform strongly
- Depreciation of \$112.9m down 30% on pcp reflects impact of previous impairments to net assets in the Yilgarn region during the period
- Impairment charge of \$65.4m comprised of Yilgarn Impairment (\$53.4m), EGO Shares impairment (\$3.2m), PIHA goodwill impairment (\$8.8m)
- Effective tax rate of 30% for the full year

EBITDA NORMALISED (A\$ million)	FY17	FY18	VAR
<b>Revenue</b>	<b>1,470.0</b>	<b>1,706.7</b>	<b>↑ 16%</b>
Operating Costs	(996.5)	(1,131.5)	↑ 14%
<b>EBITDA (reported)</b>	<b>473.5</b>	<b>575.2</b>	<b>↑ 21%</b>
<i>EBITDA Margin (%)</i>	32.5%	33.7%	
Pilbara Minerals Shares impairment charges <sup>1</sup>	(9.9)		
Pilbara Minerals Shares & Hazer Group investment (early adoption of AASB 9) <sup>2</sup>	-	(59.3)	
Empire O&G acquisition <sup>3</sup>	-	(9.2)	
<b>EBITDA (normalised)</b>	<b>463.6</b>	<b>506.7</b>	<b>↑ 9%</b>

NPAT REPORTED (A\$ million)	FY17	FY18	VAR
<b>Revenue</b>	<b>1,470.0</b>	<b>1,706.7</b>	<b>↑ 16%</b>
Operating Costs	(996.5)	(1,131.5)	↑ 14%
<b>EBITDA (reported)</b>	<b>473.5</b>	<b>575.2</b>	<b>↑ 21%</b>
<i>EBITDA Margin (%)</i>	32.5%	33.7%	
<b>EBIT</b>	<b>296.5</b>	<b>396.9</b>	<b>↑ 34%</b>
<i>EBIT Margin (%)</i>	20.2%	23.3%	
Net finance costs	(8.1)	(6.7)	↑ -17%
<b>Profit before tax</b>	<b>288.5</b>	<b>390.2</b>	<b>↑ 35%</b>
Tax	(87.5)	(118.4)	↑ 35%
<b>Net profit after tax</b>	<b>201.0</b>	<b>271.8</b>	<b>↑ 35%</b>
<i>NPAT Margin (%)</i>	13.7%	15.9%	

Notes:

1. FY17 Normalised EBITDA excludes Pilbara Mineral Shares impairment charge \$9.9m
2. FY18 Normalised EBITDA excludes \$59.3m Pilbara Minerals Shares and Hazer Group investment (early adoption of AASB 9)
3. \$9.2m Empire O&G acquisition

# Cash Flow

## Highlights

- Net cash from operations increased to \$538.7m in the period
- \$31.9m working capital inflow as a result of Trade creditor build from construction activities at Mount Marion and Wodgina
- Growth capex of \$290.6m reflecting spend on Mount Marion all-in 6% upgrade infrastructure and construction costs in relation to the Wodgina Spodumene plant
- Net cash outflows in borrowings of \$114.3m include net repayments of \$50m on the Groups Syndicated Loan Facility and repayments on finance leases

Cashflow (A\$ million)	FY17	FY18
<b>EBITDA (reported)</b>	<b>473.5</b>	<b>575.2</b>
Non Cash Items	(9.9)	(68.5)
<b>EBITDA (normalised)</b>	<b>463.6</b>	<b>506.7</b>
PLS shares issued	(40.1)	-
Movement in working capital	(42.0)	32.0
<b>Net cash flow from operating activities before financing activities and tax</b>	<b>381.5</b>	<b>538.7</b>
Capital expenditure (maintenance and growth)	(228.1)	(357.0)
<b>Net free cash flow (before financing and tax)</b>	<b>153.4</b>	<b>181.6</b>
Tax paid & Net interest paid	(86.0)	(127.2)
Share buyback	(5.5)	0.0
Dividends paid	(72.9)	(102.0)
Amounts advanced	(28.6)	6.8
Net change in borrowings	6.7	(114.3)
Sale of property, plant and equipment, and other	17.1	17.5
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(15.8)</b>	<b>(137.7)</b>

# Balance Sheet

## Highlights

- Cash balance of \$240.4m
- Substantial undrawn syndicated debt facilities available for funding future strategic growth opportunities
- Current long term loan facility updated as at 30 June 2018
- Post 30 June 2018 agreed with syndicate partners to a A\$450m bridging loan to existing facilities to support Wodgina construction with a termination date 31 December 2019
- Plant and equipment on balance sheet ***excludes*** significant amount of immediately accessible new and second hand equipment, spare parts and consumables capable of being used to materially reduce cost of developing new, and maintaining existing, BOO projects

Balance Sheet (A\$ million)	30-Jun-17	30-Jun-18
<b>Current Assets</b>		
Cash and equivalents	378.2	240.4
Trade and other receivables	93.3	101.8
Inventories	116.4	132.2
Current tax assets		33.6
Other current assets	6.1	14.5
<b>Total current assets</b>	<b>594.0</b>	<b>522.6</b>
<b>Non-current assets</b>		
Financial assets	54.9	118.1
Property, plant and equipment	723.7	972.5
Intangibles and mine development	394.8	433.8
Deferred tax assets	51.7	38.1
Other non-current assets	15.4	0.3
<b>Non-current assets</b>	<b>1,240.5</b>	<b>1,562.8</b>
<b>Total assets</b>	<b>1,834.5</b>	<b>2,085.3</b>
<b>Current Liabilities</b>		
Trade and other payables	164.3	261.6
Borrowings	208.4	63.9
Current Tax Liabilities	6.2	
Other current liabilities	51.7	49.3
<b>Total current liabilities</b>	<b>430.6</b>	<b>374.7</b>
<b>Non-current liabilities</b>		
Borrowings	66.2	175.4
Provisions	62.8	64.9
Deferred tax liabilities	142.8	165.7
<b>Total non-current liabilities</b>	<b>271.8</b>	<b>406.1</b>
<b>Total liabilities</b>	<b>702.4</b>	<b>780.8</b>
<b>Net assets</b>	<b>1,132.1</b>	<b>1,304.6</b>
<b>Equity</b>		
Issued capital	502.4	511.2
Retained profits	610.1	774.1
Other	19.5	19.3
<b>Total equity</b>	<b>1,132.1</b>	<b>1,304.6</b>



# Operational Update

# Mining Services

## Mining services achievements

- First NextGen crushing plant in operation & performing to expectations; 2 more plants manufactured and in Western Australia ready for deployment
- MRL's BOO all-in 6% upgrade project at Mt Marion underway and due for completion Nov 2018
- MRL's BOO Spodumene Concentrate crushing and processing plant at Wodgina progressing on time
- Secured port allocation at Esperance Port
- On schedule to recommence Yilgarn operations at Koolyanobbing during Q1 FY19
- Additional 520 accommodation rooms under management
- 64 MW of additional gas fueled power under construction



# Commodity Projects – Iron Ore

- 9.3Mt Iron Ore exported from Iron Valley and Carina
- EBITDA of \$27.0m (\$2.9/WMT) in challenging market conditions
- Koolyanobbing assets incorporated into Yilgarn operations; 6.0-6.25<sup>2</sup> Mtpa operation expected to commence Q1 FY19

Iron Ore Operations		H1 FY17	H2 FY17	FY2017	H1 FY18	H2 FY18	FY2018
Platts 62% Fe (adj. for moisture)	A\$/WMT	81.0	92.2	87.0	84.2	85.1	84.6
Tonnes exported	million WMT	6.7	5.6	12.3	4.8	4.5	9.3
Revenue	A\$/WMT	79.3	70.0	75.1	72.6	60.6	66.8
Realised price (% of Platts 62% Fe)	%	98%	76%	86%	83%	72%	77%
CFR Cash Costs <sup>1</sup>	A\$/WMT	55.9	58.5	57.1	63.8	64.0	63.9
Cash Margin	A\$/WMT	23.4	11.5	18.0	8.8	-3.4	2.9

Notes :

1. Costs include mining infrastructure service agreements with MRL and Royalties
  2. Tonnage reflects estimated maximum haulage capacity of MRL owned rail rolling stock between Yilgarn and Esperance
- All dollar values reflect weighted averages across iron ore production

# Commodity Project – Lithium at Mt Marion

- 382ktpa Spodumene Concentrate exported
- Achieved steady-state annualised production of 400Ktpa (combined 6% & 4%)
- EBITDA of \$115.7m (MRL's 43.1% share equal to \$50.34m)
- Project upgrade to transition to all-in 6% Spodumene Concentrate on track for Q2 FY19

Mt Marion Project		1H FY18	2H FY18	FY18
6% Tonnes exported	000 WMT	109	101	209
4% Tonnes exported	000 WMT	93	80	173
<b>Total Tonnes exported (100%)</b>	<b>000 WMT</b>	<b>202</b>	<b>181</b>	<b>382</b>
Revenue	\$A/WMT	808.9	956.3	878.6
CFR Cash Costs <sup>1</sup>	\$A/WMT	559.8	593.6 <sup>2</sup>	575.8
EBITDA Margin	\$A/WMT	249.1	362.6	302.8
MRL Share (43.1%)	\$A/WMT	107.4	156.3	130.5

Notes:

1. Costs include mining infrastructure service agreements with MRL and Royalties
2. Additional cost per tonne due to pit development activities



# Commodity Project – Lithium at Wodgina

- 3.4Mtpa Lithium DSO exported during FY18
- EBITDA of \$174.3m
- Construction of 833Ktpa 6% Spodumene Concentrate project underway:
  - First 278Ktpa Spodumene Concentrate module to commence commissioning Q2 FY19
  - Second and third 278Ktpa modules to commence commissioning Q3 FY19 and Q4 FY19 respectively
- New exploration drilling program commenced Q4 FY18
- Additional JORC Reserve statement will be released once complete

Wodgina Project		1H FY18	2H FY18	FY18
DSO Tonnes exported	000 WMT	1,772	1,710	3,481
Revenue	\$A/WMT	148.67	145.28	147.01
CFR Cash Costs <sup>1</sup>	\$A/WMT	113.18	80.12	96.94
EBITDA Margin	\$A/WMT	35.49	65.16	50.06

Notes:

1. Costs include mining infrastructure service agreements with MRL and Royalties

# Strategic Growth Initiatives

1. Pilbara Infrastructure Project
2. Mount Marion Lithium Project Upgrade
3. Wodgina Lithium Project
4. Commodity Projects

# Pilbara Infrastructure Project Overview

## Light Weight Rail System

- Innovative, low capital and operating cost, light weight rail system connecting inland Pilbara mines to Port Hedland

## Port Stockyard

- Fully automated transport receiveal and product stockyard facility within inner harbour

## Cape Size Carrier Berth

- Multi-user, cape size berth within inner harbour

## Capital Investment

- Total estimated cost of 3 stages: A\$1.4b - A\$1.6b<sup>1</sup>

## Why

- To provide an economic transport system mine-site to port for MRL owned iron ore and third party users

## Life

- 30 - 50 year horizon for MRL infrastructure business



Notes:

1. Refer to Company's announcement to the ASX on 24 July 2018

# Light Weight Rail System

## Overview

- Lightweight, low cost 330km elevated rail system connects in-land Pilbara to automated stockyard constructed within inner harbor of Port Hedland
- Received “Major Project” status with Department of Jobs, Tourism, Science and Innovation
- Environmental Approval secured for system corridor

## Design

- Structure and rollingstock design completed; undergoing modelling and third party technical and cost verification
- Dual track main line allowing 50+ Mtpa capacity
- Aim to construct and operate 5km demonstration track Nov 2018 – Mar 2019

## Why

- Lower capital cost than traditional heavy haul rail
- Minimal ground disturbance – lower environmental footprint
- Hybrid power, lower fuel burn – material reduction to CO2 emissions
- Material operational cost savings versus current road haulage

## Timeframe

- Aim to commence construction of demonstration system Q2 FY19
- Aim to commence construction of Pilbara main line Q3 FY19<sup>1</sup>



Notes:

1. Subject to State Agreement and statutory & MRL board approvals

# Mount Marion Lithium Project Upgrade – Processing

## Process Infrastructure:

- Three part upgrade:
  1. Dry stacking, water management, water supply and power
  2. Installation of flotation equipment and upgrade Reverse Osmosis plant
  3. Installation of ore-sorter to remove non-pegmatite material

## Timeframe

- Part 1: Completed
- Part 2: Under construction; due for completion Dec 2019
- Part 3: Ore sorter ordered; to be installed Dec 2018/Jan 2019
- Targeting Q2 FY19 to commence commissioning of all-in 6% plant
- Ramp up to nameplate 450Ktpa of coarse and fines 6% product through Q3 FY19

## Forecast Production

- **FY19:** Approx. 438Kt (wet) Spodumene Concentrate (approx. 368Kt at 6% & 70Kt at 4%), due to timing of commissioning<sup>1</sup>
- **FY20+:** 506Ktpa (wet) Spodumene Concentrate at 6%<sup>2</sup>

## Why

- Capital expenditure of A\$73m
- Once upgrade achieves nameplate capacity, conversion to all-in 6% (and the associated incremental increase in product sale value) estimated to increase RIM's annualised revenue by A\$257m to A\$592M<sup>3</sup>
- Investment payback period <2 years



### Notes:

1. Total volume for FY19 below nameplate due to commissioning of all-in 6% upgrade occurring part way year
2. Reflects nameplate capacity on a full year, annualised basis
3. Based on difference between (1) realised sales price for 4% and 6% products as at 30 June 18; (2) production achieved in FY18 and expected nameplate production of 450Ktpa (DMT) all-in 6%

# Wodgina Lithium

As the largest known hard rock lithium deposit in the world, Wodgina is a high quality Tier One asset

## Key metrics<sup>2</sup> (100%)

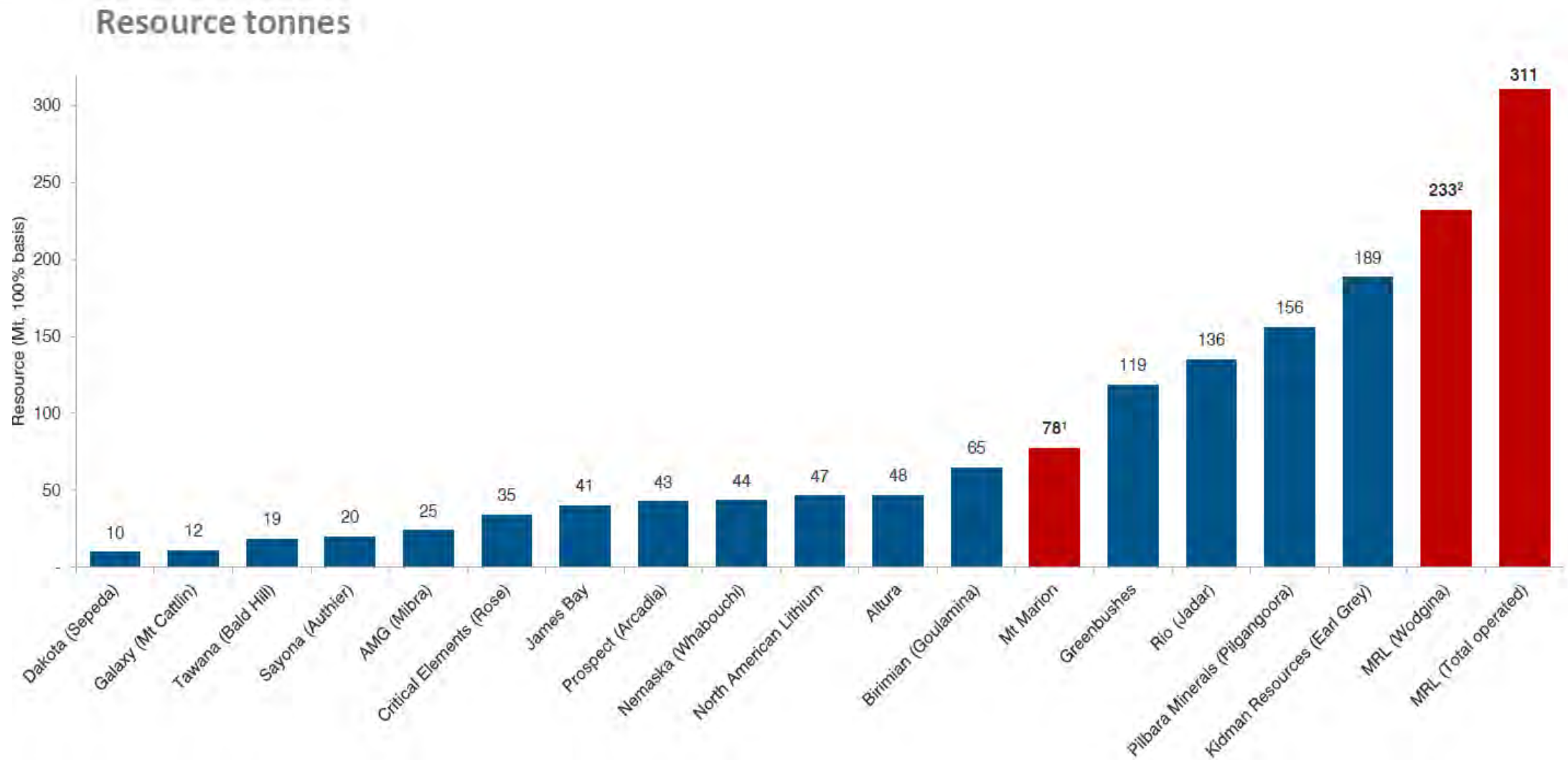
<b>Resource</b>	234Mt @ 1.21% Li <sub>2</sub> O	<b>Reserve</b>	142Mt @ 1.19% Li <sub>2</sub> O
<b>Current mine life</b>	28 years	<b>Production life</b>	>30 years
<b>Plant feed rate</b>	5.65Mtpa	<b>LOM strip ratio<sup>4</sup></b>	2.9x
<b>Spodumene opex</b>	US\$338/t CFR real <sup>5</sup>	<b>Lithium recovery</b>	65%



### Notes

1. Spodumene concentrate plant has been designed to produce from 5% to 6% spodumene concentrate
2. Assumes 6.0% spodumene concentrate production
3. Life of mine production includes fines product in storage
4. LOM strip ratio calculation is based on mining inventory
5. Excluding royalties. Includes mining services contract with MRL

# Peer Comparison Of Hard Rock Lithium Deposits



Notes:

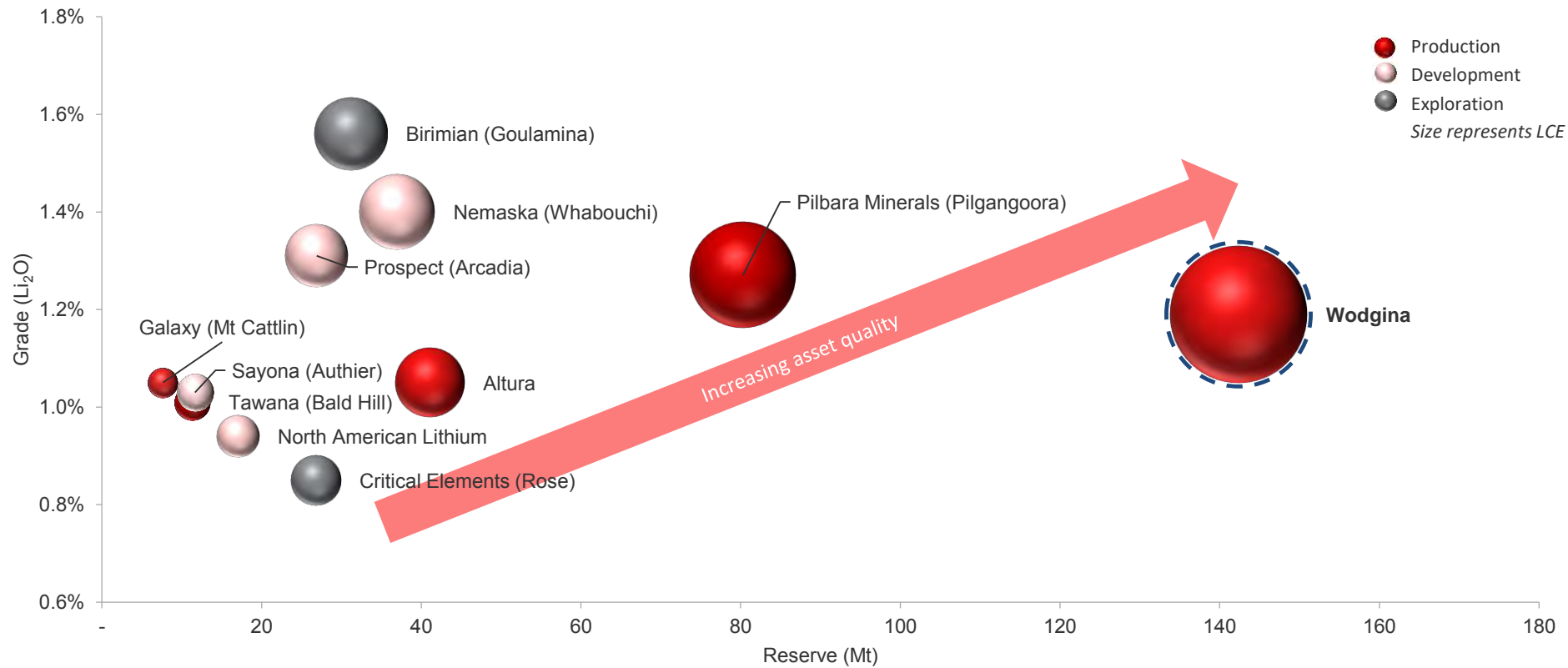
1. MRL operates 100% of the Mt Marion project in which it owns a 43.1% interest.
2. Inclusive of tailings Resource
3. Market Cap as listed on ASX as at 06 August 2018

Note: Chart represents tonnes of ore from disclosed Resource estimates as published by respective project owners. These estimates may have been prepared under different estimation and reporting regimes (e.g. differing cut-off grades) and may not be directly comparable. MRL has not verified and accepts no responsibility for the accuracy of resource estimates other than its own.

# Wodgina Lithium JORC Reserve

On a disclosed Reserve basis, Wodgina is the largest known hard rock lithium deposit globally

## Peer comparison of hard rock lithium deposits



Source: Reserve and Resource releases as at 7 August 2018.

Note: This chart represents the tonnes of ore from disclosed Resource estimates as published by respective project owners. These estimates may have been prepared under different estimation and reporting regimes (e.g. differing cut-off grades) and may not be directly comparable. MinRes has not verified, and accepts no responsibility for, the accuracy of Reserve and Resource estimates other than its own.



# Wodgina Lithium Project - Development Overview

## Wodgina will be Australia's first fully integrated downstream lithium development



### Direct Shipping Ore ("DSO") – operational

- Opportunistic early DSO operations have generated early cash flow and have accelerated a low cost pre-strip mining operation
- Ongoing DSO production will have negative impact on life of mine value realisation compared to Spodumene Concentrate and Lithium Hydroxide operations



### Spodumene Concentrate

- Wodgina Lithium Pty Ltd developing key non-process infrastructure and utilities assets at Wodgina (refer next slide)
- MRL awarded life of mine, build own operate, mining services agreement to provide mining, crushing and spodumene concentrate processing plant and utilise Pilbara road haulage supply chain and port allocation to deliver Spodumene Concentrate to end users



### Hydroxide plant – pre-feasibility

- MRL Board provided in-principle approval to construct two 28.4 Ktpa downstream Lithium Hydroxide modules (location to be determined) to convert at least 51% of the Spodumene Concentrate produced at Wodgina
- If MRL elects to proceed with divesting up to 49% of stake in Wodgina, JV partners will have the choice to co-invest in Lithium Hydroxide plant with MRL to increase plant capacity to convert their share of Spodumene Concentrate



# Wodgina Lithium Project – Development Overview

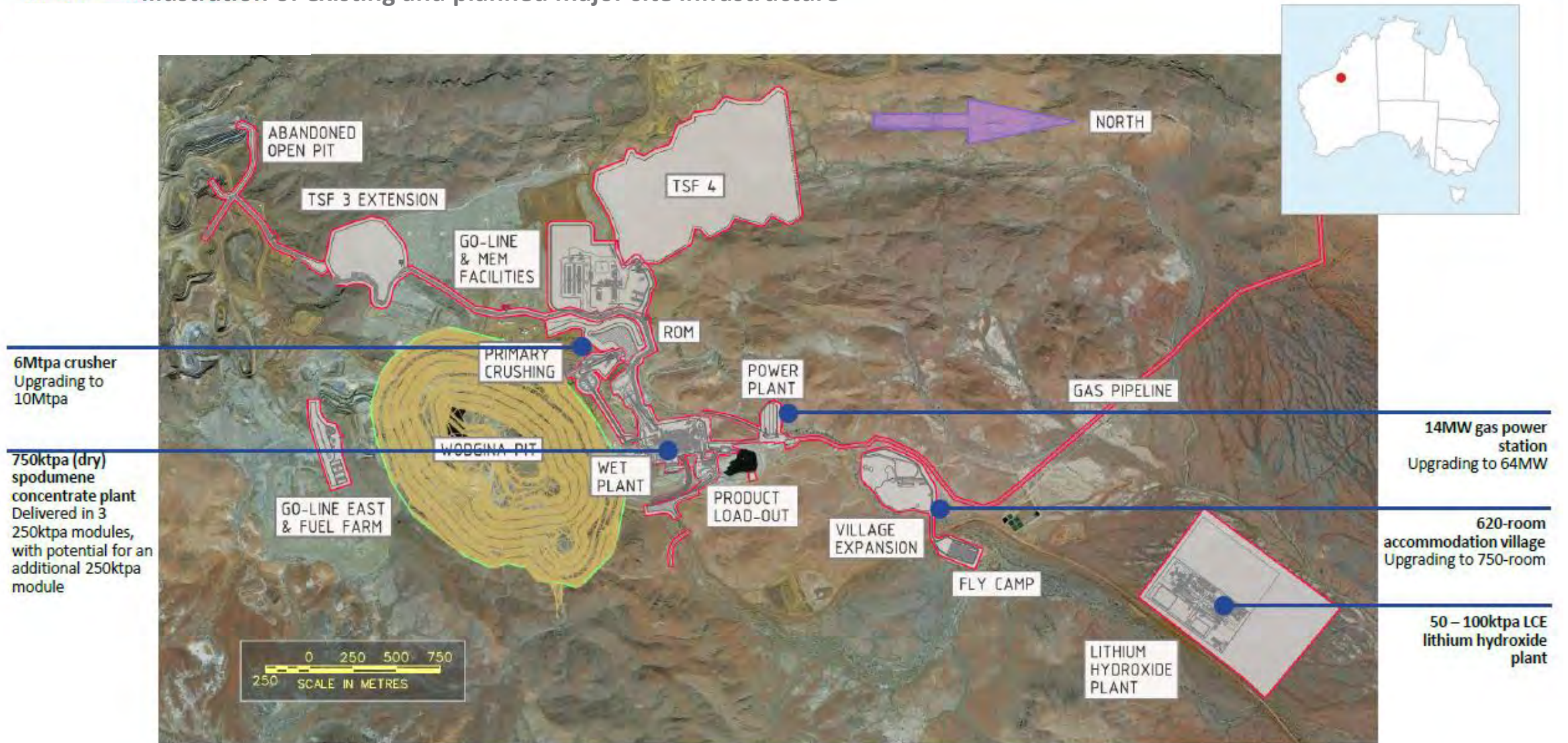
Wodgina Lithium Ownership of infrastructure and utility assets		MRL Mining Services Build Own Operate (BOO)	
<b>Gas Pipeline</b>	<ul style="list-style-type: none"> <li>83km pipeline</li> </ul>	<b>Drill &amp; Blast</b>	<ul style="list-style-type: none"> <li>Mining operations designed to supply circa 5.65Mtpa of ore feed to the Spodumene Concentrate plant</li> </ul>
<b>Combined power station</b>	<ul style="list-style-type: none"> <li>32 x 2MW gas gensets totalling 64MW (operating at an average of 50MW)</li> <li>Addition of 10 inch gas pipeline</li> </ul>		<ul style="list-style-type: none"> <li>Plant will be delivered in three identical trains:                             <ul style="list-style-type: none"> <li>Trains have been designed to produce from 5% to 6% Spodumene Concentrate to optimise recovery of lithium</li> <li>Each train has a capacity of:                                     <ul style="list-style-type: none"> <li>278ktpa at 6% Spodumene Concentrate, for total capacity of 833ktpa (wet); or</li> <li>333Ktpa per train at 5.5% Spodumene Concentrate, for a total 1,000ktpa (wet)</li> </ul> </li> <li>Plant designed with the flexibility to accommodate a fourth train to utilise excess crusher capacity<sup>1</sup></li> </ul> </li> </ul>
<b>Accommodation village</b>	<ul style="list-style-type: none"> <li>250-room temporary construction camp</li> <li>Upgrade to permanent 750-room accommodation facility</li> </ul>	<b>Mining</b>	
<b>Water supply</b>	<ul style="list-style-type: none"> <li>Three mature and reliable bore fields providing high quality water with minimal contaminant removal required</li> <li>WLPL installing new water infrastructure</li> </ul>	<b>Crushing</b>	
<b>Airstrip</b>	<ul style="list-style-type: none"> <li>All weather airstrip capable of landing A320 jet aircrafts</li> <li>Potential to reduce costs by sharing infrastructure with other miners in the region</li> </ul>	<b>Processing</b>	<ul style="list-style-type: none"> <li>Commissioning of trains on schedule and to progressively commence production in Q2 FY19, Q3 FY19 and Q4 FY19 respectively</li> </ul>
<b>Tailings storage</b>	<ul style="list-style-type: none"> <li>Extension of TSF3 (already approved) completed shortly</li> <li>Future establishment of TSF4 will create sufficient storage for LOM</li> </ul>		
Total Wodgina Lithium Capital Expenditure estimated to be approx. A\$229.9m <sup>1</sup>		Total MRL Capital Expenditure estimated to be approx. A\$380.1m <sup>1,2</sup>	

Notes:

1. Refer to Company's ASX announcement to the ASX on 24 July 2018 for total A\$610m CapEx; each capital estimate includes contingency estimated by MRL to be commensurate with the risk associated with each discrete project element.
2. BOO crushing and beneficiation plant has inbuilt excess capacity above original design.

# Wodgina Lithium Project - Site Infrastructure Map

Illustration of existing and planned major site infrastructure



# Wodgina Lithium Project – Lithium Hydroxide Plant

## Overview

- MRL board has provided in-principle approval to construct a modular Lithium Hydroxide plant to process Wodgina Spodumene concentrate subject to:
  - Submission and approval of definitive feasibility study
  - Final management recommendation as to preferred location for plant construction
  - Optimisation of existing capital cost estimate of US\$300M<sup>1</sup> per module
  - Confirmation of reagent costs
- Plant will be delivered in discrete modules each capable of producing 28.4ktpa Lithium Hydroxide
- Minimum of 51% of total Wodgina Spodumene Concentrate<sup>2</sup> will be converted to approx. 56.8Ktpa of Lithium Hydroxide
- Additional conversion dependent upon outcome of minority sale process and whether incoming JV partner(s) wish to co-invest in downstream plant to convert their respective share(s) of Wodgina Spodumene Concentrate into Lithium Hydroxide
- Converting 100% of Wodgina Spodumene Concentrate is anticipated to produce approx. 113.6Ktpa of Lithium Hydroxide using four downstream modules
- Long term forecast sales price of US\$16,000 per tonne of Lithium Hydroxide<sup>3</sup>
- Targeted all-in average production cost (based on Wodgina Spodumene Concentrate feedstock at cost of production) of US\$4,952<sup>4</sup> per tonne CFR

### Notes:

1. Refer to Company's announcement to the ASX on 28 May 2018
2. Representing MRL's retained share assuming 49% interest divested in minority sale process currently underway"] will be converted to approx. 56.8Ktpa of Lithium Hydroxide using two downstream modules
3. Assumed sales price is based upon the long run (post 2032) base case price forecast for lithium hydroxide contained in industry analysis conducted for MRL by Benchmark Mineral Intelligence in July 2018 (see extract from report in Annexure); Pricing in the lithium market is relatively opaque and the market is currently in a relatively immature state. Investors should therefore note that there is a high degree of risk and uncertainty regarding future realised prices for lithium hydroxide and other lithium products
4. Based upon +/-25% Capex and Opex estimates created internally by MRL engineering and processing team in consultation with Hatch Engineering drawing upon consultation with industry suppliers and historic utility input costs from Wodgina. This cost represents an average over the expected 30-50 year life of the Wodgina operation. Actual costs in any period may vary materially from this amount.

# Wodgina Lithium Project – Minority Sale Process

On-strategy partial divestment of interest in Commodity Project – expect commercial arrangements to be complete Q2 FY19

## Spodumene Joint Venture (#1)

Direct ownership of orebody and infrastructure/utility assets



Provides JV partners with a percentage ownership interest in:

- Tenements (reserves, resources and exploration)
- Power / water
- Technical databases
- Camp
- Pipeline
- Airstrip
- Rights and approvals
- Spodumene concentrate product

## Life-of Mine Crushing + Processing

Crushing and processing of ore conducted by MRL under LOM toll treating arrangement



- MRL is building the Wodgina crushing plant and spodumene concentrate plant
- MRL enters into a LOM Mining Services Agreement with the JV partners under which MRL will operate the Wodgina mine and produce spodumene concentrate for each JV partner
- Materially de-risks the spodumene concentrate operation

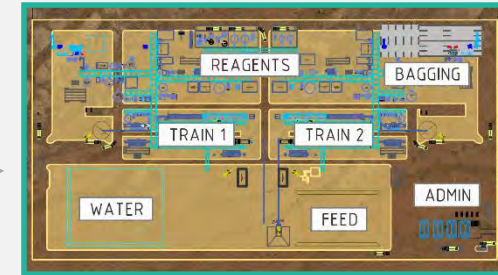
Spodumene concentrate for JV partners who only invest in the Spodumene JV will be delivered to the partner's desired destination port by MRL



Spodumene concentrate produced by Spodumene JV

## Downstream JV (#2)

Additional opportunity to partner with MRL to develop and own the downstream hydroxide processing plant



- MRL will build an hydroxide plant to process 51%. Future partners can participate in their option in the hydroxide plant to treat their ore
- JV partners who elect to participate in the Downstream JV will jointly fund and own a corresponding percentage interest in the downstream processing plant and other supporting infrastructure
- Downstream partners feed their share of spodumene concentrate into the downstream processing plant and receive their share of lithium hydroxide delivered to their desired destination port by MRL

# Acquisitions/Partnerships

Koolyanobbing Acquisition	Brockman Mining	Empire Oil & Gas	Hexagon Resources
<ul style="list-style-type: none"> <li>• June 2018 announced the intention to acquire Koolyanobbing iron ore operation, located in Yilgarn region of Western Australia</li> <li>• Transaction is progressing. Expect completion of acquisition during Q1 FY19</li> <li>• Expected product make-up: 43% lump and 57% fines</li> <li>• Railed 600km by MRL owned locomotives and rail wagons to Esperance Port</li> <li>• MRL rolling stock allows 6.0 – 6.25 Mtpa operation</li> <li>• Export via capsized carriers to China</li> <li>• Aim to commence operations during Q1 FY19</li> </ul>	<ul style="list-style-type: none"> <li>• July 2018 announced execution of a Farm-in and Joint Venture Agreement</li> <li>• MRL granted right to acquire 50% interest in the Marillana iron ore project, located in Pilbara of Western Australia</li> <li>• MRL will fund exploration and development activity and provision of design and mine plan development services</li> <li>• MRL to provide crushing, processing and train loadout services under life of mine BOO contract</li> <li>• MRL to provide life of mine, mine to ship logistics via Pilbara Infrastructure Project</li> </ul>	<ul style="list-style-type: none"> <li>• Current wells moved to care &amp; maintenance</li> <li>• Continue to progress the renewal of the EP389 Red Gully exploration permit</li> <li>• Secured 3 year retention and extension of high value exploration acreage</li> <li>• Actively pursuing collaboration with Perth Basin neighbours</li> <li>• Targeting 3 holes drilled over the next two years</li> </ul>	<ul style="list-style-type: none"> <li>• May 2018 entered into a Farm-in and Joint Venture Agreement in relation to HXG's McIntosh flake graphite project</li> <li>• MRL will earn a 51% interest in return for funding exploration and development</li> <li>• MRL currently conducting circa A\$4m drilling programme expected to provide the fundamentals to proceed with development of the mine</li> <li>• 3-year timeline for commercial production</li> <li>• Exploration programme underway</li> </ul>



# Innovation

# Innovation

NextGen Crushing Plant	Renewable Energy	Synthetic Graphite Production	CarbonArt – carbon fibre technology
<ul style="list-style-type: none"> <li>• First modular crushing plant installed and operating at Pilgangoora lithium project. Two more ready for deployment</li> <li>• Rapid deployment: 10 weeks from start to fully commissioned and operational</li> <li>• Autonomous: capable of operation from Perth-based remote operations centre</li> <li>• Direct tip feed from 240T dump trucks</li> </ul>	<ul style="list-style-type: none"> <li>• Installation of gas power and battery energy storage system in remote areas</li> <li>• Actively pursuing off-grid solar power generation and battery storage power solutions for remote operations</li> </ul>	<ul style="list-style-type: none"> <li>• Secured exclusive worldwide IP license to commercialise Hazer process to produce synthetic graphite</li> <li>• Finalising development of continuous feed process that creates high-quality, battery-grade graphite using natural gas and iron ore</li> <li>• Design &amp; construction of pilot plant underway and aim to commission in Q2 FY19</li> <li>• Aim to commence construction of 1Mtpa plant during Q3 FY19</li> </ul>	<ul style="list-style-type: none"> <li>• Development of automated carbon fibre manufacturing equipment</li> <li>• Produces structural components for mining industry</li> <li>• Initial focus on dump truck trays targeting efficient payload technology</li> <li>• Prototype 150T dump truck tray completed</li> <li>• First commercial tray to complete in Q1 FY19</li> <li>• Testing programme commenced with real-world on-site tests scheduled late Q1 FY19</li> <li>• 10%+ payload increase is expected on a 150 tonne dump truck</li> <li>• Factory automation study underway</li> </ul>





## FY19 Guidance Notes

# FY19 Guidance Notes

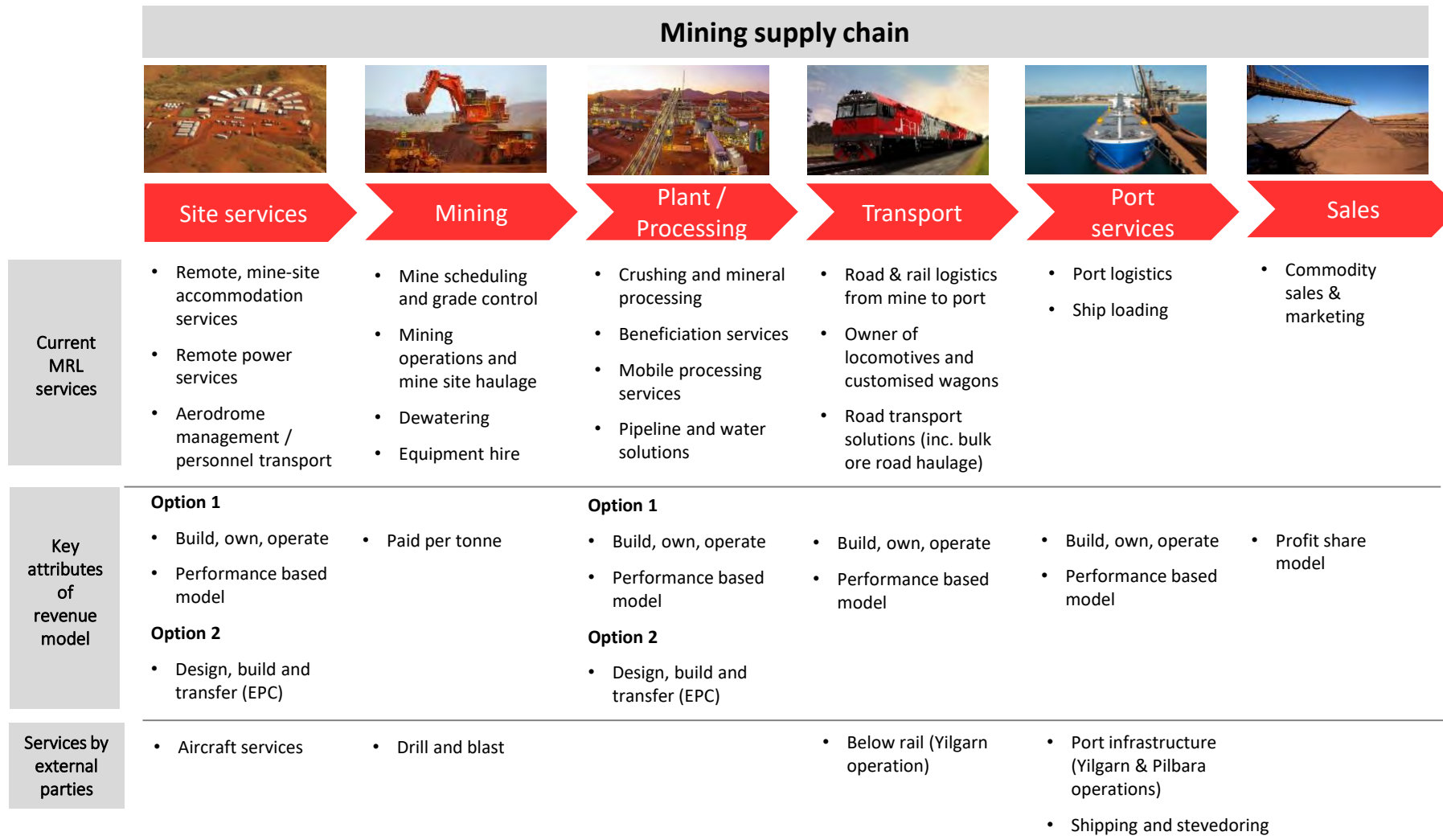
- The Company has determined that it will provide full year EBITDA guidance for FY19 at this year’s Annual General Meeting
- The Company notes FY19 EBITDA revenue is likely to be weighted towards the second half of the financial year given the Mount Marion all-in 6% Spodumene Concentrate upgrade project and the Wodgina Spodumene Concentrate project are both currently scheduled to commence commissioning during Q2 FY19
- The Company provides the following:
  - Crushing and Processing
    - Crushing and processing tonnes are forecast to be slightly less than FY18 with the loss of Mining Area C and reduced tonnes at Roy Hill
    - Wodgina BOO crushing and processing will be ramping up during FY19
    - We anticipate securing two new crushing projects for our NextGen plants during FY19, each of which should produce an associated increase in tonnes
  - Commodity Sales
    - Estimates of tonnes of commodity products currently anticipated to be exported during FY19:

FY19 Forecast	Metric	Iron Ore (Total)	Wodgina DSO	Wodgina Spodumene	Mount Marion Spodumene (Total)
Exports	'000 wmt	10,280	660	244	409

# Appendix Additional Information








# Detailed Overview of Mining Services Offering



# Unique Value Proposition

*“Partner with selected clients to deliver innovative high quality and cost efficient mineral processing and mining infrastructure Pit to Port solutions”*

Global leader in design and technology development		<ul style="list-style-type: none"><li>• Proven track record of innovative designs for crushing, screening, mineral processing and mining infrastructure solutions</li><li>• Significant annual investment in technology research and development</li></ul>
Speed to market		<ul style="list-style-type: none"><li>• Significant database of proven designs and engineering utilising in-house capability developed over the last 25 years</li><li>• Substantial inventory of new and used mineral processing equipment, accumulated over the last 20 years to expedite project execution</li></ul>
Reduced capital intensity		<ul style="list-style-type: none"><li>• MRL’s core business of ‘Build-Own-Operate’ solutions reduce the need for the clients to use their own capital</li><li>• Proven construction methodologies and in-house engineering and labour allow for plant construction at a significantly reduced capital intensity</li></ul>
Lower cost of production		<ul style="list-style-type: none"><li>• Innovative, high quality designs lead to significant operating efficiencies with specific focus on crushing, screening and processing activities. This provides clients the opportunity to achieve lower costs of production</li></ul>
Largest inventory of parts and consumables		<ul style="list-style-type: none"><li>• Largest inventory of mineral processing equipment in the Southern Hemisphere providing a significant cost and speed to market advantage (including quick response repair capability)</li></ul>
Culture of innovation		<ul style="list-style-type: none"><li>• Experienced, high quality people with a focus on innovation and challenging market norms to provide substantial value add to client operations</li></ul>

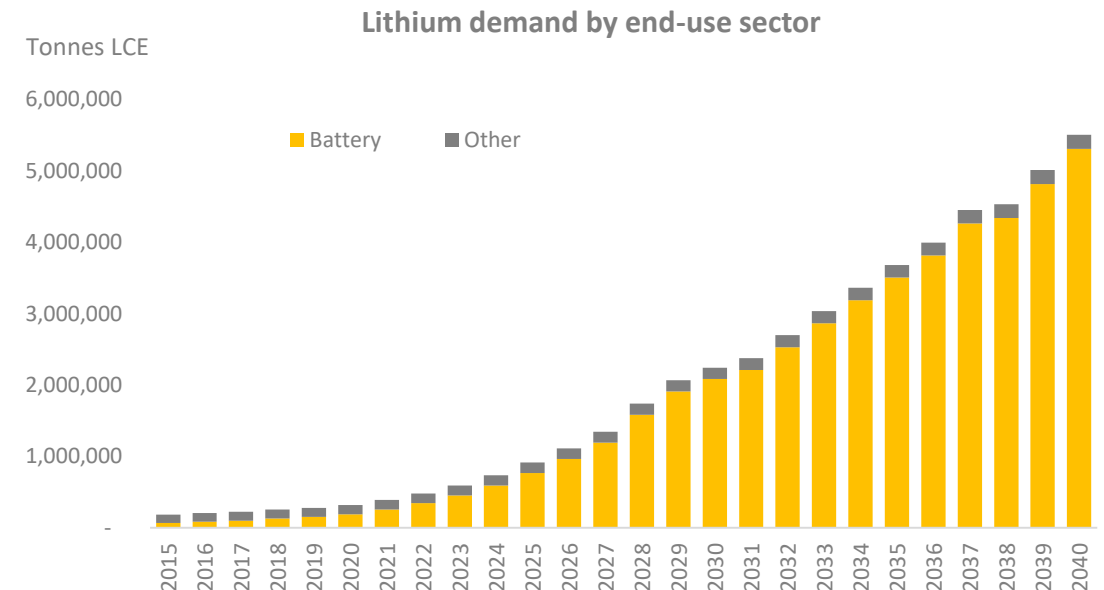
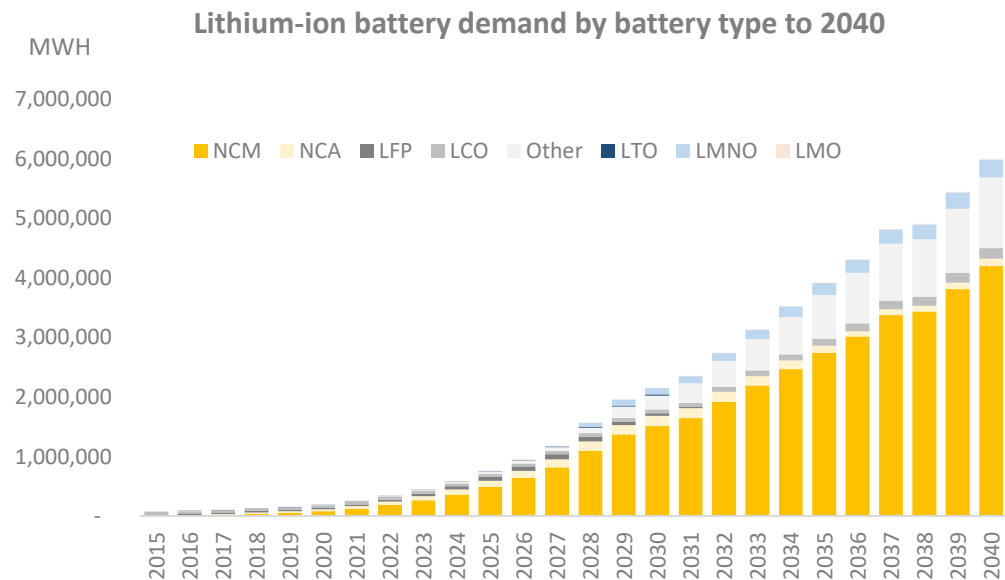


# **Annexure Benchmark Mineral Intelligence Report**



# Executive Summary

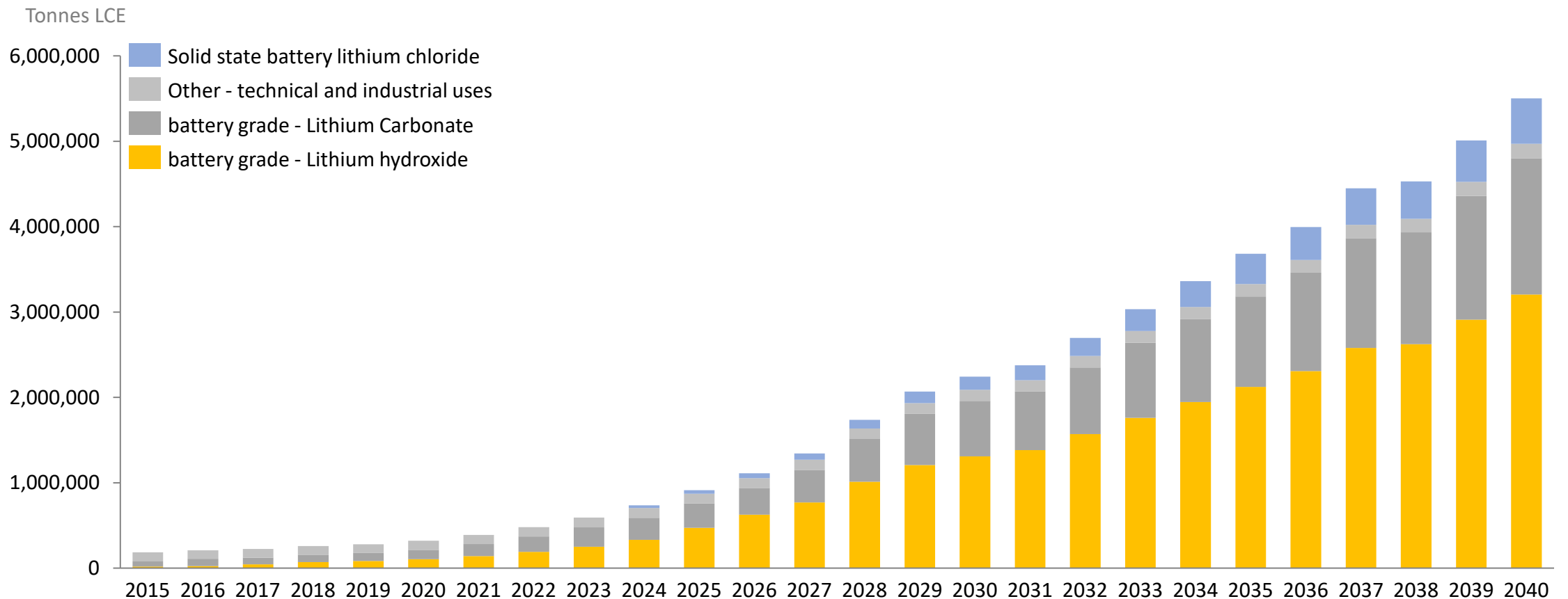
- The lithium market is set to grow sharply in the coming years as the mineral is critical for use in battery technologies employed in electric vehicles, grid storage and portable electronic equipment, as shown in the chart on the left below. As such there is a requirement for new supply to come online over the coming decade and beyond to meet this increased demand. We expect that by the end of the forecast period the market will be heavily undersupplied and there will continue to be a requirement for new greenfield capacity to be brought online until 2040, and that prices will reflect this over the life of the forecast
- Lithium is sourced from either brine operations or those that can be described as hard rock, with the balance of supply moving towards more hard rock supply over time. Brine resources generally occupy the lowest cost portion of the industry cost curve, with most new capacity coming on as hard rock resources in mid-cost operations



Battery Definitions: **NCM** – Nickel Cobalt Manganese, **NCA** – Nickel, Cobalt Aluminium Oxide, **LFP** – Lithium Iron Phosphate, **LTO** – Lithium Titanate, **LMNO** – Lithium Manganese Nickel Oxide, **LMO** – Lithium Manganese Oxide

# Executive Summary

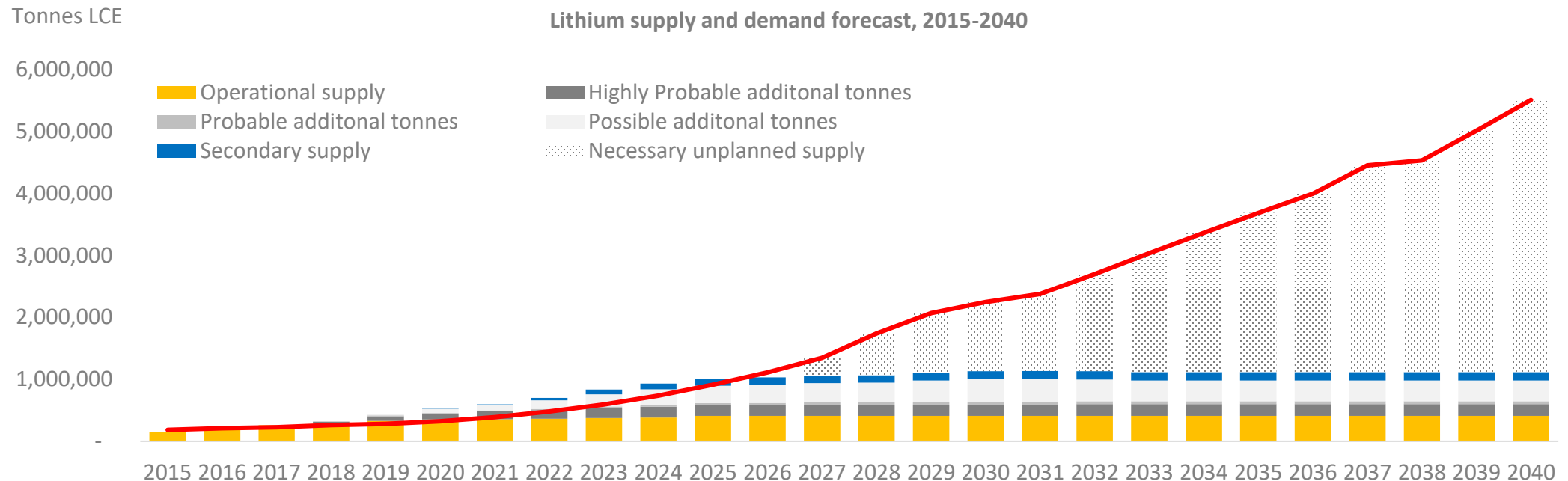
In the chart below we outline our forecasts for lithium demand by lithium chemical product across all sectors, we expect that lithium hydroxide will become the predominant product driven by the exponential rise in battery demand over the forecast period. Further, we expect that lithium chloride for solid state batteries will begin to gain ground in the mid-2020's, however given its energy intensity of manufacture and resulting costs of production it will not become a dominant technology over the life of the forecast





# Executive Summary

- Our **supply forecast for lithium** is divided into three main phases, which reflect the development of the market over time.
- **Phase 1, 2015-2018:** In this phase the supply-demand balance is very tight, with demand growing faster than new capacity expansions. New supply is largely from development of brownfield sites at operating producers
- **Phase 2, 2019-2025:** Phase two sees new supply start to come online from greenfield projects, as well as expansions at existing producers. The market moves into a period of relative oversupply by the end of the period
- **Phase 3, 2026-2040:** Towards the latter part of the forecast period there is a marked requirement for further as yet announced lithium capacity to come on-stream to meet rising demand. We expect that prices will remain in a range needed to stimulate this new investment, given that geological constraints are not an issue

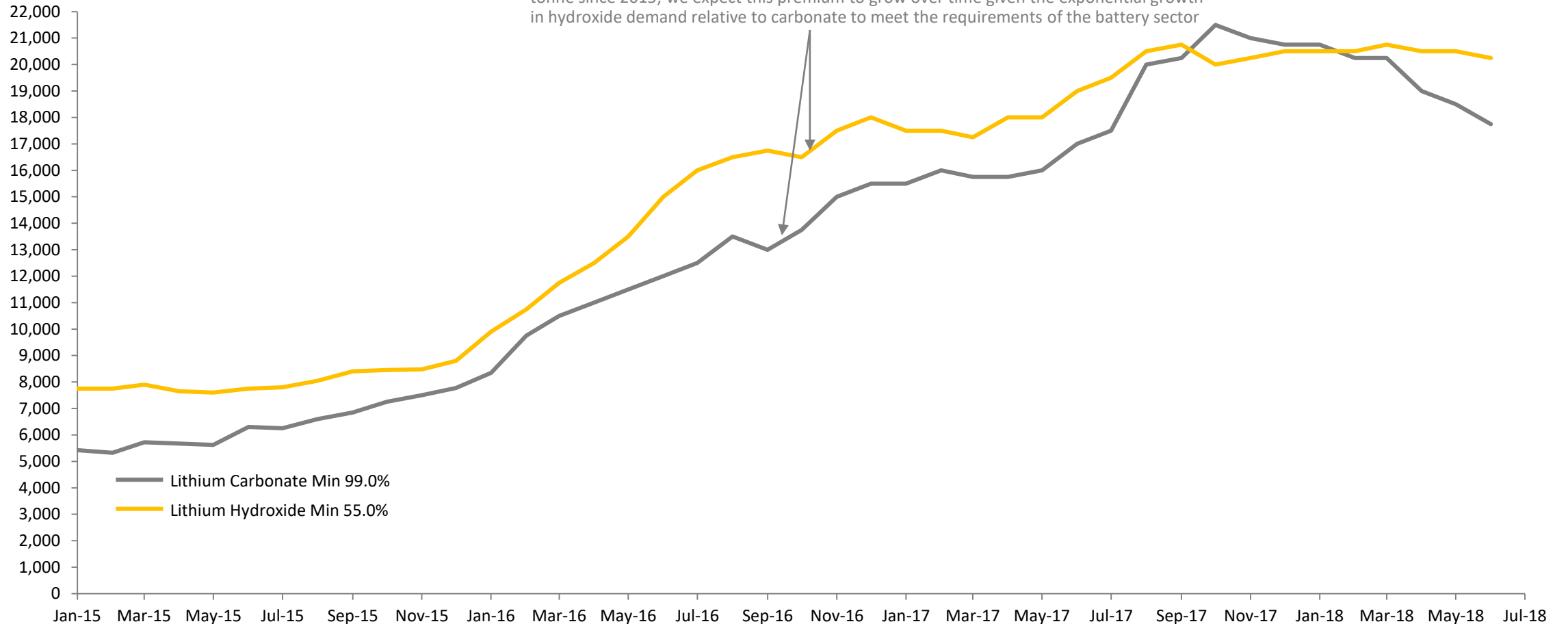


# Executive summary

## Lithium carbonate and hydroxide historical pricing, 2015-2018

The historical premium for lithium hydroxide over carbonate is an average of USD1,500 per tonne since 2015; we expect this premium to grow over time given the exponential growth in hydroxide demand relative to carbonate to meet the requirements of the battery sector

USD per tonne CIF Asia

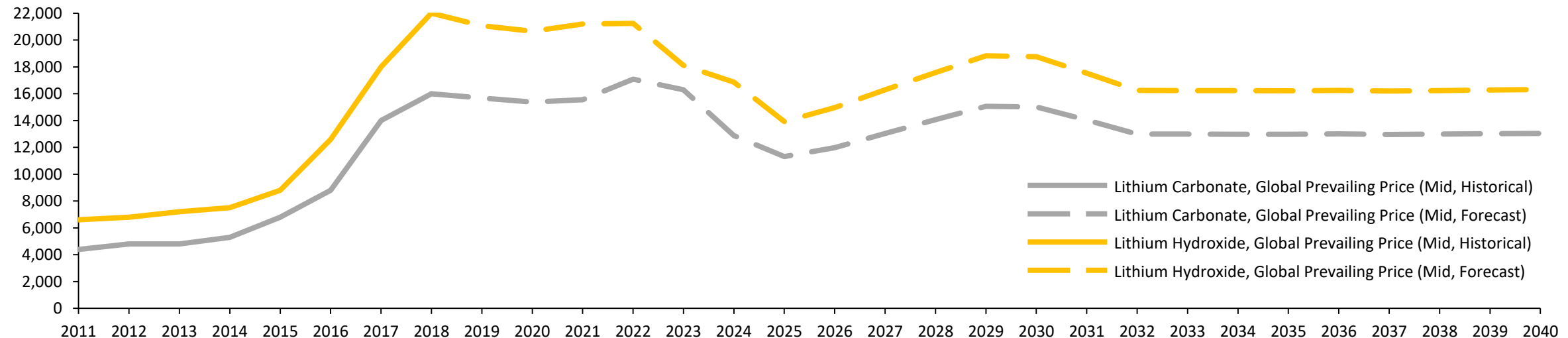


# Executive Summary

- **Lithium prices** have risen sharply in the period since 2015 on the back of rising demand for battery raw materials and a number of years of tight supply. There has also been some upward momentum in pricing from speculative buying on the back of a perceived ongoing supply shortage.
- The historical premium for lithium hydroxide over carbonate is an average of USD1,500 per tonne since 2015; we expect this premium to grow over time given Benchmark's forecast exponential growth in hydroxide demand relative to carbonate to meet the requirements of the battery sector
- We expect that rapid price growth will lose momentum post 2018 as new capacity becomes available and market tightness eases. Nevertheless, we expect that prices in the period 2019-2022 will be maintained at high levels. By 2022 we expect the market will be in a pronounced over supply, we forecast that a price correction will begin at this point
- We anticipate that the market will begin to tighten again in the period to 2030, and that prices will rise in this period. We do expect that a pipeline of new currently unannounced projects will begin to come through over the coming decade to meet this demand, and that ultimately prices will settle into a long term real terms average of USD13,000 per tonne for lithium carbonate (and circa USD16,300 per tonne for lithium hydroxide), a price sufficient to stimulate needed investment in greenfield capacity over the life of the forecast

**Lithium hydroxide and lithium carbonate, Global prevailing price forecast, 2011- 2040 (Real terms, USD 2018)**

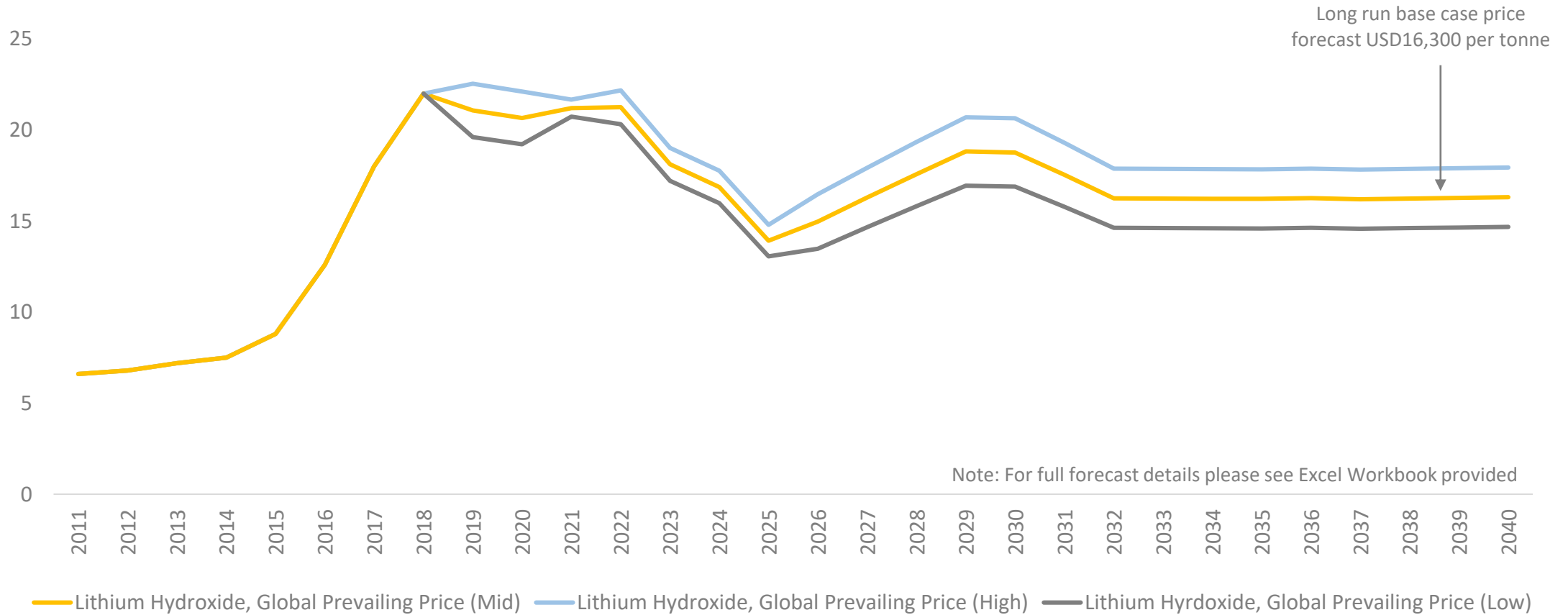
USD per tonne product (Real 2018)



# 4. Lithium price forecasts to 2040

Lithium Hydroxide, Global prevailing price forecast, 2011- 2040 (Real terms, USD 2018)

'000 USD per tonne (Real terms, 2018)





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