

Pilgangoora: a world class lithium and tantalum production centre

Dale Henderson - Chief Operating Officer

Battery Metals Asia Conference, Shanghai, China
17-18 January 2019

ASX: PLS



**Pilbara
Minerals**

...Powering a Sustainable Energy Future



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Recipients of this presentation outside Australia should note that it is a requirement of the Australian Securities Exchange listing rules that the reporting of ore reserves and mineral resources in Australia comply with the Australasian Joint Ore Reserves Committee Code for Reporting of Mineral Resources and Ore Reserves ("JORC Code"), whereas mining companies in other countries may be required to report their ore reserves and/or mineral resources in accordance with other guidelines (for example, SEC Industry Guide 7 in the United States). Recipients should note that while Pilbara's mineral resource and ore reserve estimates comply with the JORC Code, they may not comply with the relevant guidelines in other countries, and do not comply with SEC Industry Guide 7. In particular, SEC Industry Guide 7 does not recognise classifications other than proven and probable reserves and, as a result, the SEC generally does not permit mining companies to disclose their mineral resources, including indicated and inferred resources, in SEC filings. Accordingly, if Pilbara were reporting in accordance with SEC Industry Guide 7, it would not be permitted to report any mineral resources, including indicated and inferred resources, and the amount of reserves reported by Pilbara may be lower than its estimates. You should not assume that quantities reported as "resources" will be converted to reserves under the JORC Code or any other reporting regime or that Pilbara will be able to legally and economically extract them. In addition, investors should note that under SEC Industry Guide 7, mine life may only be reported based on ore reserves. Mine life estimates in this presentation assume that a portion of non-reserve resources will be converted to ore reserves, which would not be permitted under SEC Industry Guide 7.

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Competent Persons Statements

The Company confirms it is not aware of any new information or data that materially affects the information included in the 17 September 2018 Pilgangoora Mineral Resource estimate and that all material assumptions and technical parameters underpinning the estimate continue to apply and have not materially changed when referring to its resource announcement made on 17 September 2018.

The Company confirms it is not aware of any new information or data that materially affects the information included in the 17 September 2018 Pilgangoora Ore Reserve estimate and that all material assumptions and technical parameters underpinning the estimate continue to apply and have not materially changed when referring to its resource announcement made on 17 September 2018.

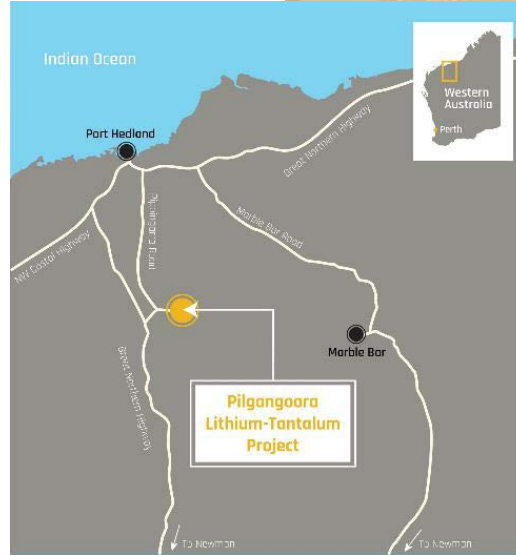
The Company confirms it is not aware of any new information or data that materially affects the information included in the 16 October 2018 Pilgangoora Exploration Target* and that all material assumptions and technical parameters underpinning the estimate continue to apply and have not materially changed when referring to its resource announcement made on 16 October 2018.

* **Note to Exploration Target:** The potential quantities and grades of the Exploration Target are conceptual in nature and there has been insufficient exploration to date to define a Mineral Resource. It is not certain that further exploration will result in the estimation of a Mineral Resource.

Pilgangoora Lithium-Tantalum Project

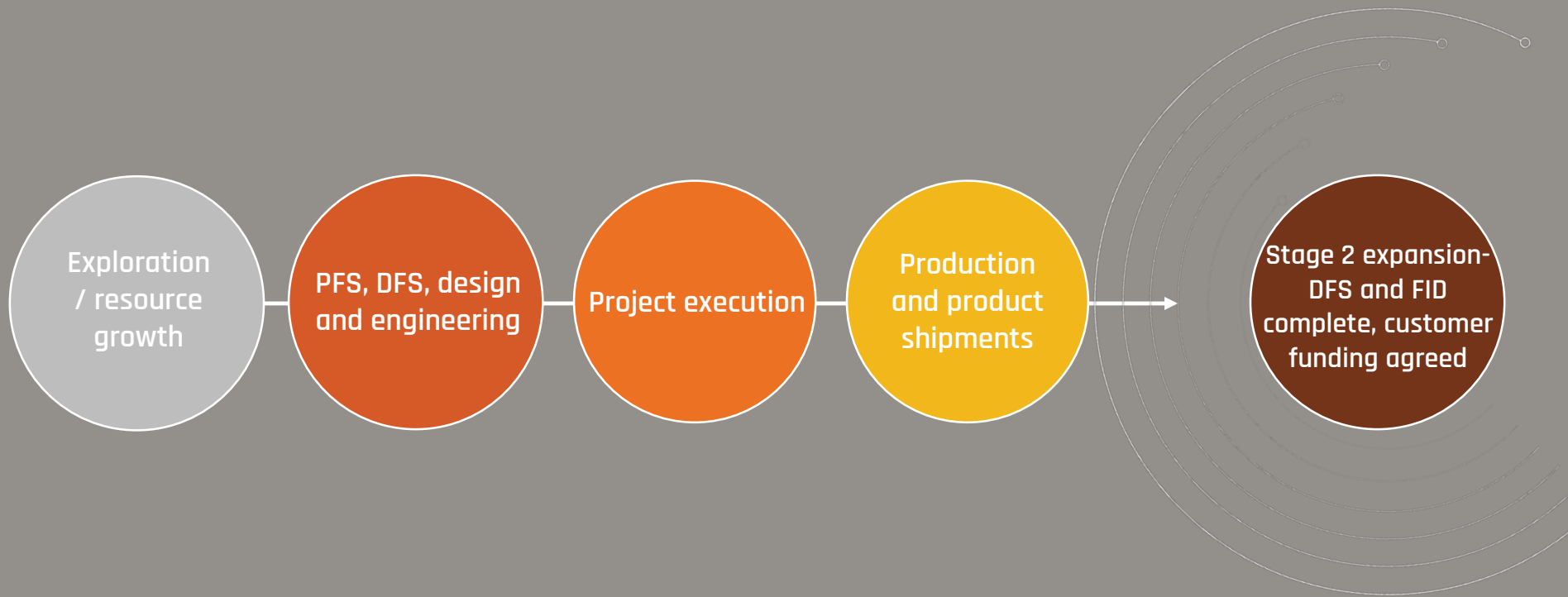
One of the largest spodumene-tantalite resources in the world

- 100% owned by Pilbara Minerals (ASX200, market cap \$1.2B)
- 23 year mine life
- Established transport and port infrastructure
- Stage 1, 2Mtpa processing plant
- LOM Stage 1 production of 330,000tpa spodumene concentrate and 321,000lbspa of tantalite
- Production ramp up well underway
- Regular customer product shipments
 - ~6% spodumene concentrate
 - +5% tantalite concentrate
- +25% tantalite concentrate production under development



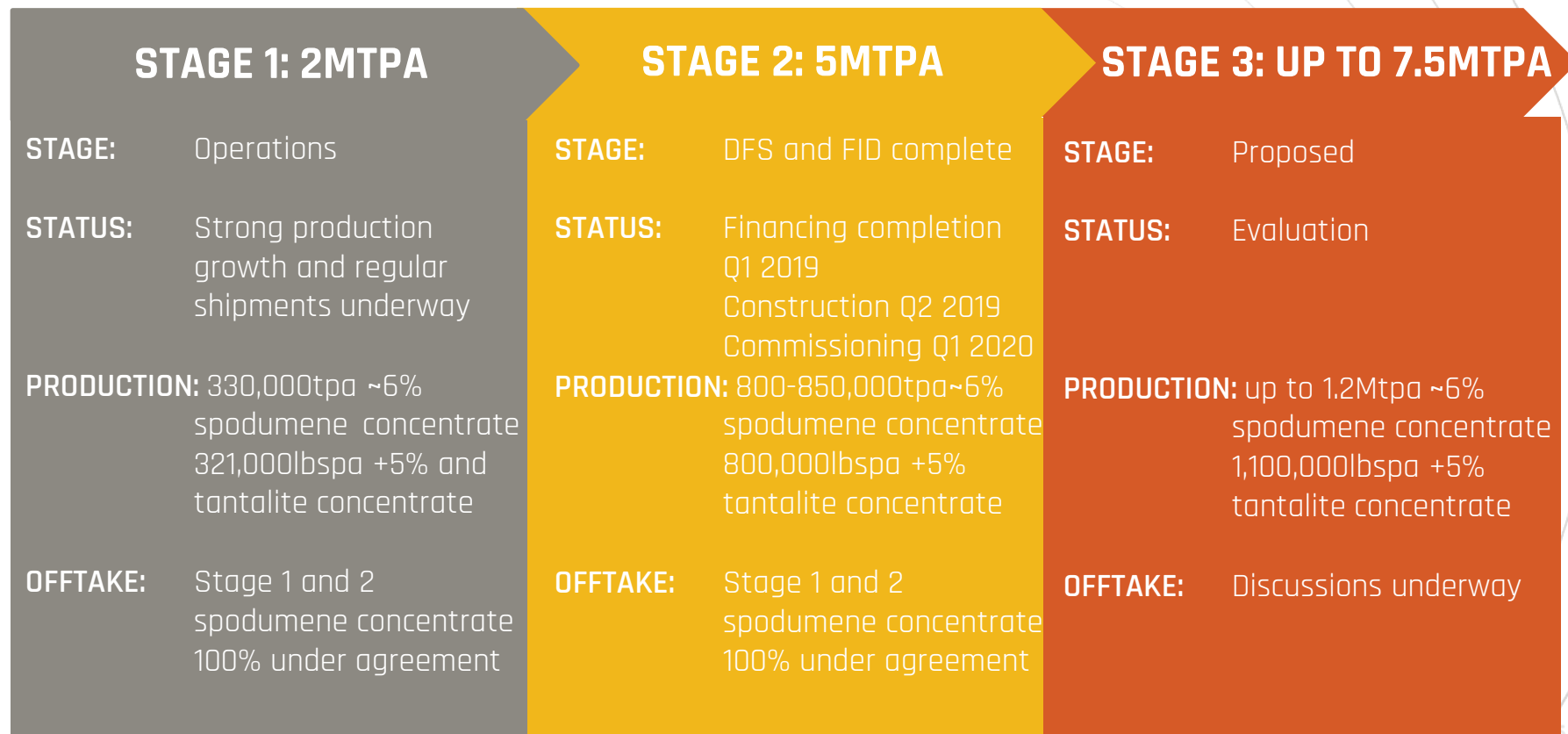
Pilbara Minerals: delivering on project execution

Pilgangoora Lithium-Tantalum Project: from first drill hole to product shipment in under four years



Exceptional growth opportunity

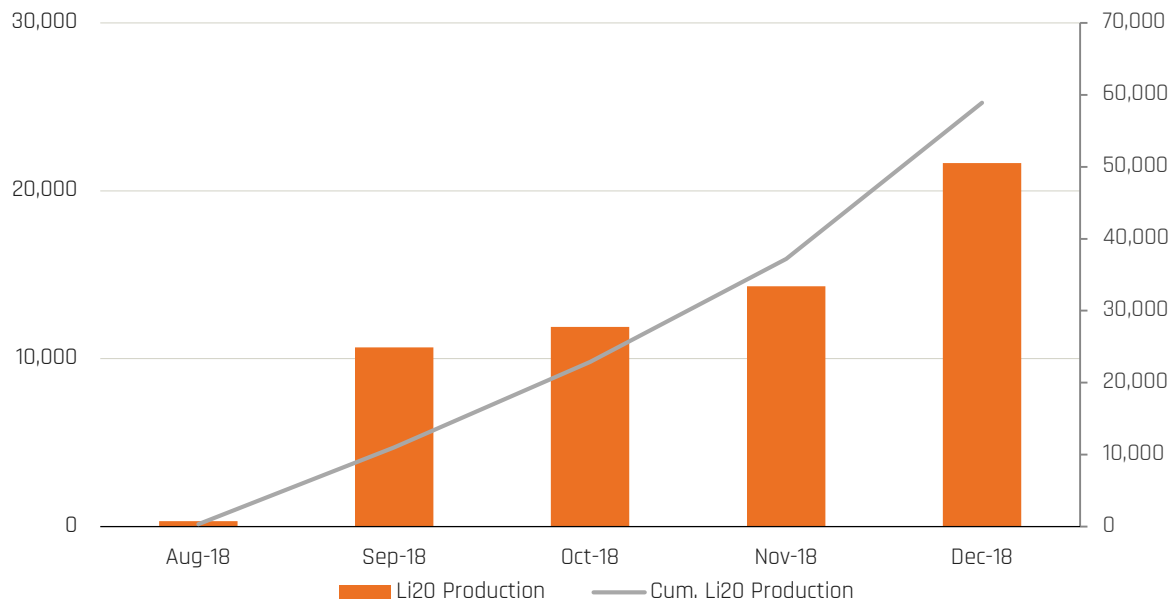
A clear expansion pathway to meet customer growth requirements



Production - strong ramp-up

Process plant throughput performance continues to exceed expectations during production ramp-up, achieving consistent run rate of 270tph

Spodumene concentrate production (dmt)



- A total of 58,900dmt (dry metric tonnes) spodumene concentrate produced year to date.

Product quality - consistently high

Processing plant delivers high quality product during commissioning and now production ramp-up

- **Consistent high quality** product grades achieved. Average grade (six lots across four shipments):
 - **6.11% Li_2O**
 - **1.27% Fe**
- Independent test certificates verifying **+6% Li_2O** concentrate

Certificate N°: 181008005C

SGS Reference: PPM1_M11

CERTIFICATE OF ANALYSIS

Name of Vessel: **Shipper:**

Port of Loading: **Port of Discharge:**

Description of Goods: **Destination of Goods:**

Grade: **Weight:**

Hold loaded: **Hold loaded:**

Loadings Completed: **Loadings Completed:**

MT No.: **MT No.:**

This is to certify that the analysis was performed by SGS AUSTRALIA PTY LTD on behalf of our Client, Pilbara Minerals, in accordance with the requirements of the International Standards for the Certification of Concentrates (ISO 17025) and the International Standards for the Certification of Concentrates (ISO 17025).

The analysis was performed on a sample of the concentrate, and the results are as follows:

Element	Grade (%)
Li_2O	6.11
Fe	1.27

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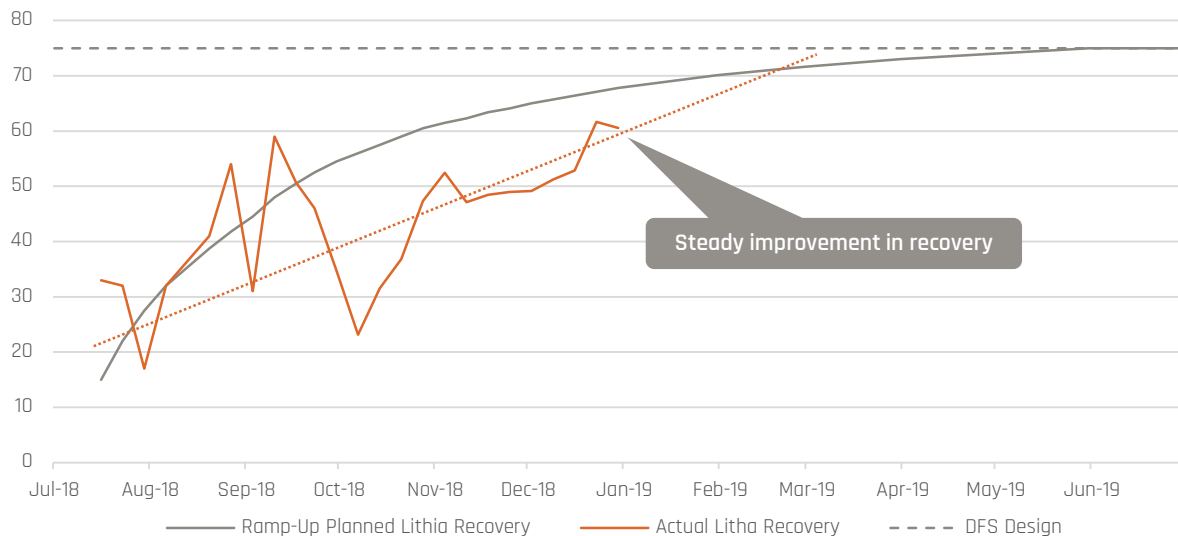
This document is subject to the following conditions: 1. The analysis was performed on a sample of the concentrate, and the results are as follows. 2. The analysis was performed in accordance with the requirements of the International Standards for the Certification of Concentrates (ISO 17025) and the International Standards for the Certification of Concentrates (ISO 17025). 3. The analysis was performed on a sample of the concentrate, and the results are as follows. 4. The analysis was performed in accordance with the requirements of the International Standards for the Certification of Concentrates (ISO 17025) and the International Standards for the Certification of Concentrates (ISO 17025).

Recovery - continued improvement

Lithia recovery continues to improve during processing plant ramp-up to name-plate capacity

- Continued improvement in lithia recovery
- Additional capital optimisations to improve water quality management

Lithia recovery, actual vs design (% lithia)



Post commissioning and the run-up in plant capacity, focus turns to lithia recovery improvements and plant run-time:

- maximise recovery
- minimise plant downtime

Overall production capacity is up to approximately 85% of the plant's Stage 1 design capacity

Stage 2, 5Mtpa expansion

DFS results and offtake partner confidence support major project expansion

- Additional 3Mtpa processing circuit to increase processing capacity to 5Mtpa
- Average annual production of approximately 800-850ktpa of 6% spodumene concentrate
- DFS capital estimate² A\$231M
- Post-tax NPV^{1,2}_{10%} of A\$2.160B
- Forecast life of mine revenue² of A\$12.2B
- First five years average annual EBITDA (real), post ramp-up² of +A\$400M
- 23 year mine life
- FID approved by Board and terms agreed with customers underpinning funding package
- Long lead items ordered and detailed engineering underway

¹Valuation date of 1 July 2018 at after tax nominal discount of 10%.

²ASX announcement "DFS results and customer confidence support major expansion" dated 3 August 2018



Aerial photograph w/- Stage 2 3D model overlay



Stage 2 - indicative delivery schedule

2018			2019				2020	
Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
DEFINITIVE FEASIBILITY STUDY								
FINAL INVESTMENT DECISION								
CUSTOMER FUNDING AGREED								
			FUNDING COMPLETION					
REGULATORY APPROVALS								
		DETAILED ENGINEERING						
		EQUIPMENT PROCUREMENT						
		CIVIL	TENDER		CIVIL MOBILISATION AND CONSTRUCTION			
			PLANT CONSTRUCTION TENDER			PLANT CONSTRUCTION		
							COMMISSIONING/RAMP UP	

Financing Stage 2, 5Mtpa

Customer financing underpins funding package for \$231M expansion

- US\$25 million pre-payment from Great Wall Motor Company
- A\$50 million equity placement to Ganfeng Lithium
- Proposed new US\$50 million (~A\$70.9 million) Nordic Bond to be issued in accordance with the terms and conditions of the Company's existing Nordic Bond
- Existing cash (largely related to the previous equity placement to POSCO of South Korea)
- Future cash-flow generated from Stage 1 operations



Pilbara Minerals - connected to the entire supply chain



Pilbara Minerals



Li Resource

Chemical Converters

Battery Grade
LiOH / LC

Pre-Cursor

Cathode
Material

Cathode
Material

Cells &
Battery Packs

EVs



Pilbara Minerals



GanfengLithium



posco



GanfengLithium



posco



长城汽车
Great Wall

posco



GanfengLithium



长城汽车
Great Wall



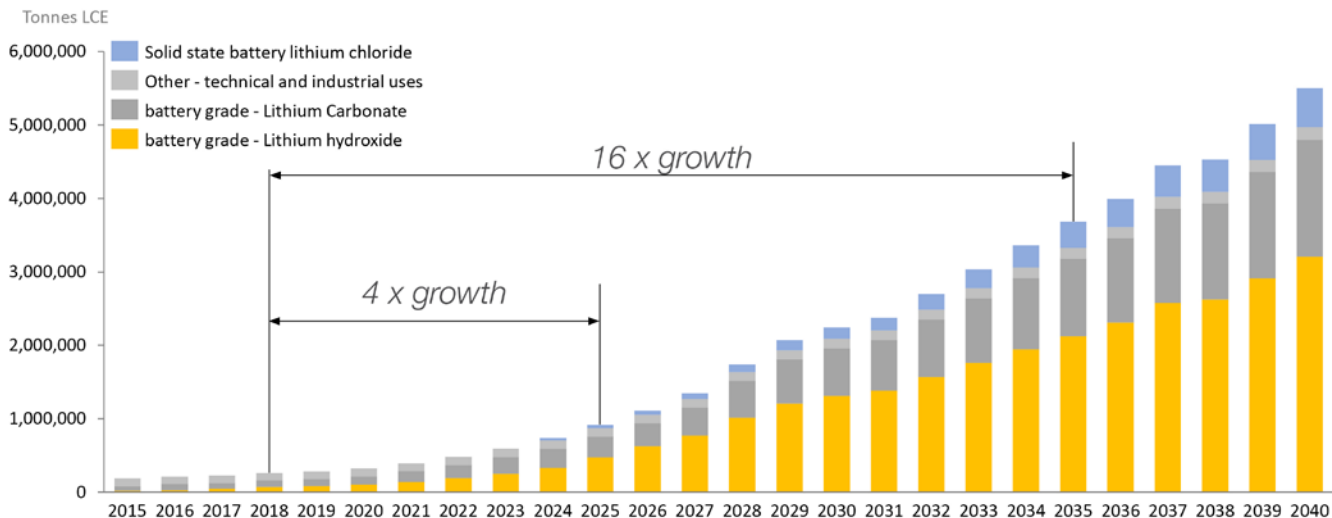
*Potential PLS JV partners

Pilbara Minerals

Future lithium raw material supply

Lithium hydroxide will become the sought after product for battery manufacturers presenting a significant opportunity for hard rock lithium projects

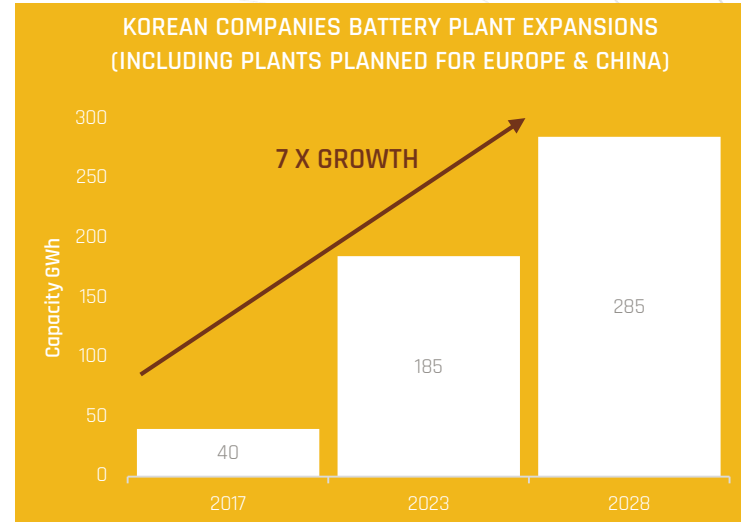
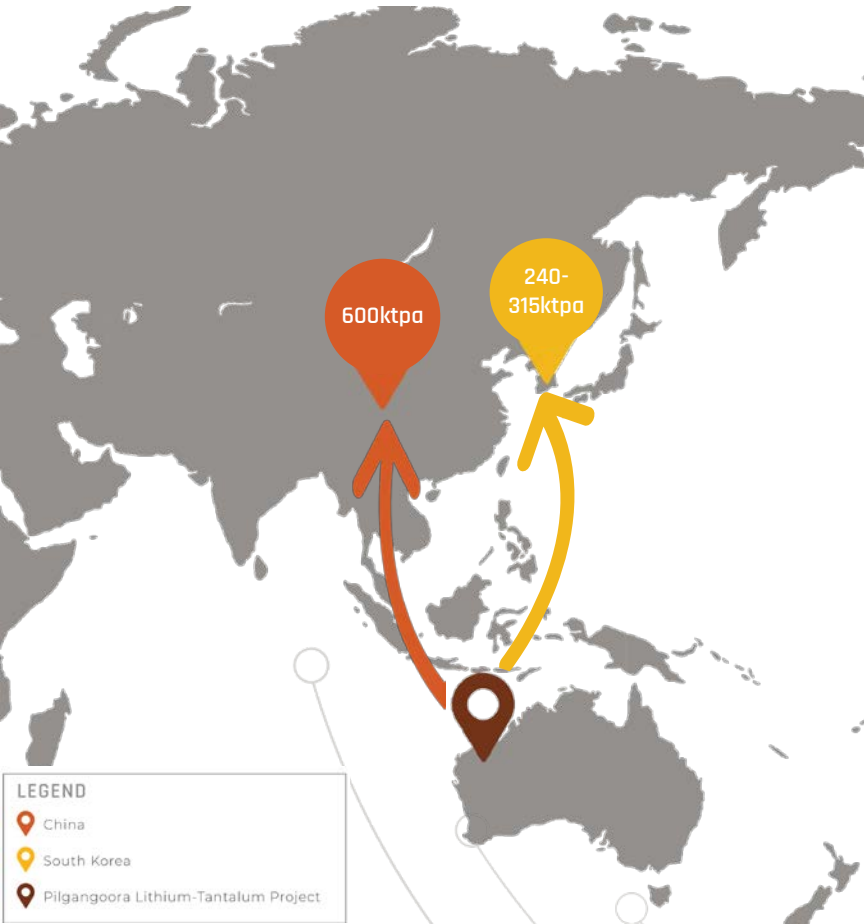
Forecast for lithium demand by lithium chemical production across all sectors



BENCHMARK MINERAL INTELLIGENCE – MINERAL RESOURCES LIMITED – JULY 2018

A stable supply of hard rock lithium for the manufacturer of high quality batteries to feed the growing EV and energy storage sectors.

Pilgangoora - a new hard rock lithium supply to feed the growing Korean market



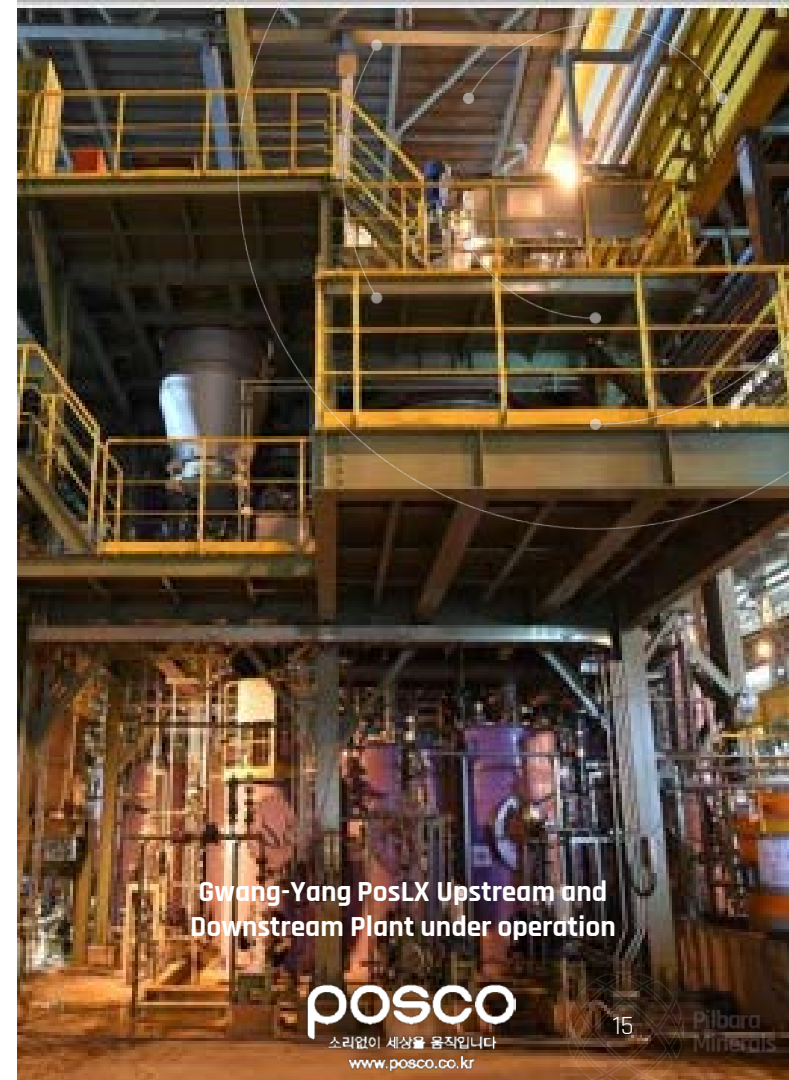
Source: Benchmark Minerals Intelligence (October 2018)

- Korea expected to be a significant player in the global battery supply chain – 25% of worldwide capacity by 2028
- Further diversifies Pilbara Minerals' customer base
- Positions company in downstream supply chain through hydroxide production

Proposed Pilbara Minerals - POSCO JV

Future participation in the rapidly developing Korean lithium ion battery market proposed through a jointly owned lithium chemicals plant

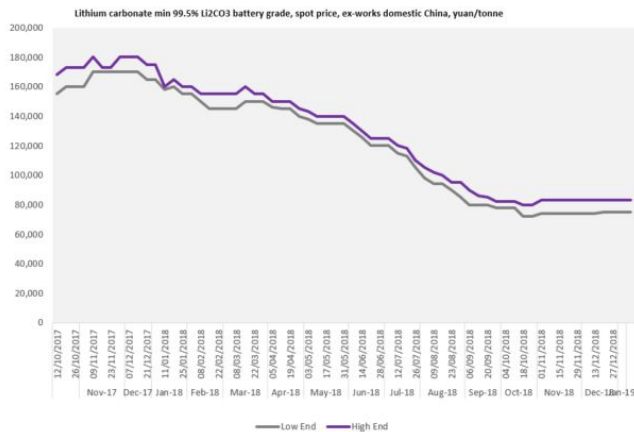
- Spodumene sales into the Korean market
- Proposed 30% JV in chemical conversion facility in South Korea with the capacity of up to 40ktpa LCE
- Facility to apply Posco's PosLX technology for lithium chemicals purification
 - Outstanding technology creating very high purity products and reagent recycling
 - Targeting production from 1st half of 2020
 - Hydroxide / carbonate production underway at the Gwang-Yang demo plant
- Synergy maximisation through development within a larger battery raw materials industrial park
- Due diligence process commenced



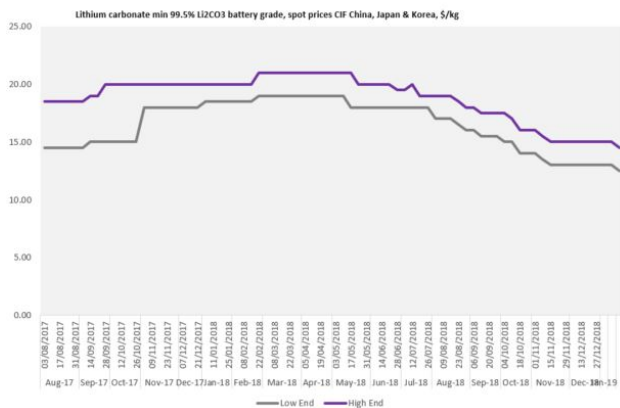
Gwang-Yang PosLX Upstream and Downstream Plant under operation

Global lithium chemicals pricing

Lithium carbonate ex-works domestic China

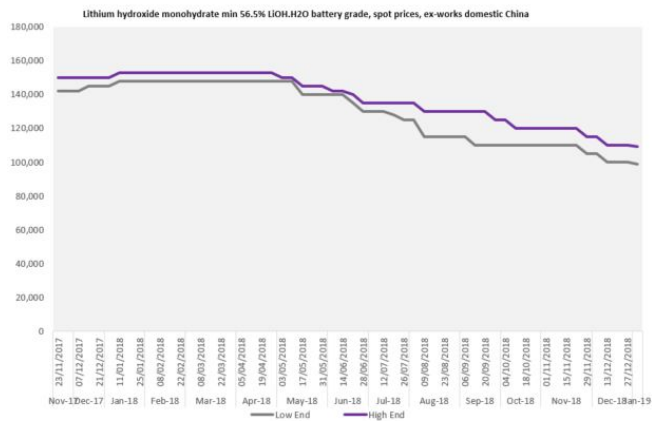


Lithium carbonate cif China, Japan and Korea

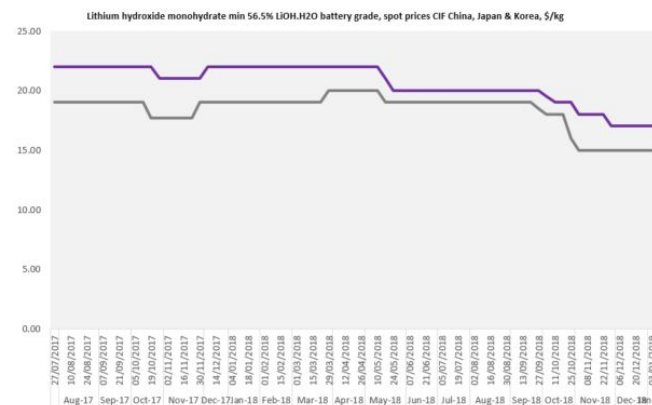


Lithium hydroxide ex-works China

Source: FastMarkets MB



Lithium hydroxide cif China, Japan and Korea



China domestic pricing in 2018 impacted by;

- Central Government EV/Battery subsidy restructure
- Additional low-grade domestic brine production.

China domestic pricing appears to have stabilised

Ex-China pricing has remained strong, particularly in the hydroxide segment

Pilgangoora Project - incredible project mineral endowment

Many areas at Pilgangoora remain under-explored and as such are important targets to support future resource growth.

Target Area	Million Tonnes	Grade Li ₂ O %	Grade Ta ₂ O ₅ ppm
Monster-Houston Creek	5-10	1.2 - 1.5	100 - 150
Eastern Prospects	10-15	1.2 - 1.5	200 - 250
Heartbreak Hill	10-15	1.0 - 1.2	200 - 250
Central West	5-10	1.2 - 1.5	100 - 150
Far East	5-10	1.2 - 1.5	100 - 150
Southern Prospects	5-10	1.0 - 1.2	50 - 100
Extensional margins of existing resource	10-20	1.0 - 1.5	50 - 150
Exploration Target*	50-90	1.0 - 1.5	50 - 250

The new Exploration Target*, which is in addition to the current JORC total Measured, Indicated and Inferred Resource of 226 million tonnes grading 1.27% Li₂O and 116ppm Ta₂O₅ and 0.60% Fe₂O₃, has been determined from interpretation of numerous datasets, detailed geological mapping and interpolations from existing pegmatite domains in the Pilgangoora 3D geological model. The majority of target areas are further qualified by the occurrence of outcropping spodumene bearing pegmatites. RC drilling to test the validity of selected target areas will be undertaken in the first half of 2019.

*** Note to Exploration Target:** The potential quantities and grades of the Exploration Target are conceptual in nature and there has been insufficient exploration to date to define a Mineral Resource. It is not certain that further exploration will result in the estimation of a Mineral Resource.

Pilgangoora is set for a bright future

Securing Pilbara Minerals' position as one of the largest, lowest cost lithium-tantalum producers in the world is the focus of 2019

OPTIMISATION



Continue Stage 1 optimisation works to achieve name-plate capacity, including design plant utilisation and lithia recovery rate.

EXPANSION



Financial close and commence construction of the Stage 2 expansion to 5Mtpa and progress potential Stage 3 development to increase processing capacity up to 7.5Mtpa.

DIVERSIFICATION



Secure Pilbara Minerals' position in the downstream lithium raw materials supply chain through partnerships and further vertical integration.

What sets us apart?

A low cost, long life and high quality operation makes Pilgangoora one of the best lithium raw material projects in the world

Low cost

- High grade lithium resources
- Valuable tantalum bi-product
- Significant project size and processing capacity

Long life

- Stage 2, 5Mtpa, 23 year mine life
- Mineral Resource 226Mt grading 1.27% Li_2O (spodumene) and 116ppm Ta_2O_5 and 0.60% Fe_2O_3
- Significant upside potential to increase Mineral Resources and Ore Reserves

High quality

- Leading offtake partners General Lithium, Ganfeng Lithium, POSCO, Great Wall Motors
- 6% spodumene product
- Downstream value adding supply chain strategy



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Additional Information

Corporate overview

Capital structure

ASX: PLS

Current share price ¹	A\$0.695
Shares on issue	1,745 million
Options on issue	60 million
Market capitalisation ¹	A\$1.21 billion
Cash at bank ²	A\$90.6M
Top 20 shareholders ³	36%
3 month average daily volume ⁴	~8.5M shares

¹ As at 16 January 2019

² As at 30 September 2018

³ As at 31 December 2018

⁴ Between 16/10/2018 and 16/01/2019

Share price - last 12 months



Supportive shareholder base,
experienced Board and
proven leadership team.

Experienced board of directors



Tony Kiernan
Non-Executive Chairman

Highly experienced company director and former solicitor with over 35 years' in the management and operation of listed public companies. Currently Chairman and a non-executive director of several ASX-listed resource companies.



Ken Brinsden
Managing Director & CEO

Mining engineer with over 25 years' experience including mine management, production, and brown-fields and green-fields project development. Previously MD of ASX listed Atlas Iron Ltd contributing to its growth from junior explorer to significant Pilbara iron ore producer.



Nick Cernotta
Non-Executive Director

Highly experienced mining executive with over 30 years' mining experience across a range of commodities. Recently the Director of Operations with Fortescue Metals Group (FMG) and previously the Chief Operating Officer for Macmahon Holdings Limited.



Sally-Anne Layman
Non-Executive Director

Mining engineer, corporate financier and advisor. Ms Layman has 23 years' experience in exploration, mining and finance and over 16 years of successfully identifying and closing over \$1.8 billion in financial deals and equity investments across six continents and more than 20 countries.



Steve Scudamore
Non-Executive Director

Highly experienced public company director. His career includes more than three decades with KMPG incl. senior roles in Australia, London and Papua New Guinea. Currently holding several other board roles incl. Chairman of MDA National Insurance.

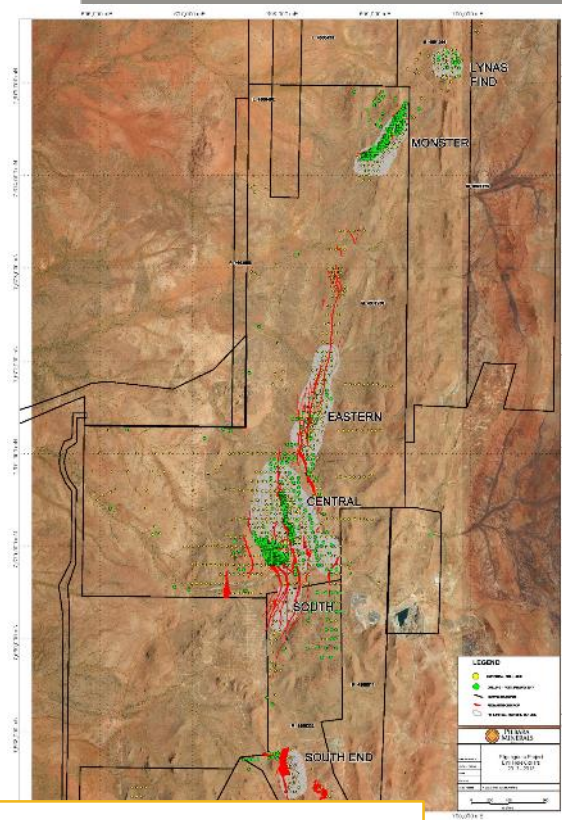
Resources and reserves

JORC Mineral Resource Estimate - September 2018 (using 0.2% Li₂O cut off grade)

Category	Tonnage (Mt)	Li ₂ O (%)	Ta ₂ O ₅ (ppm)	Li ₂ O (T)	Ta ₂ O ₅ (Mlbs)	Factored Fe ₂ O ₃ (%)
Measured	22.8	1.38	145	314,000	7.3	0.44
Indicated	112.8	1.29	119	1,456,000	29.5	0.57
Sub-total M&I	135.6	1.31	123	1,770,000	36.8	0.55
Inferred	90.4	1.21	105	1,094,000	20.8	0.67
TOTAL	226.0	1.27	116	2,864,000	57.7	0.60

JORC Ore Reserve Estimate - September 2018

Category	Tonnage (Mt)	Li ₂ O (%)	Ta ₂ O ₅ (ppm)	Fe ₂ O ₃ (%)	Li ₂ O (Mt)	Ta ₂ O ₅ (Mlbs)
Proved	22.1	1.30	135	1.11	0.29	6.6
Probable	86.1	1.24	116	1.19	1.07	21.9
TOTAL	108.2	1.25	120	1.17	1.36	28.5

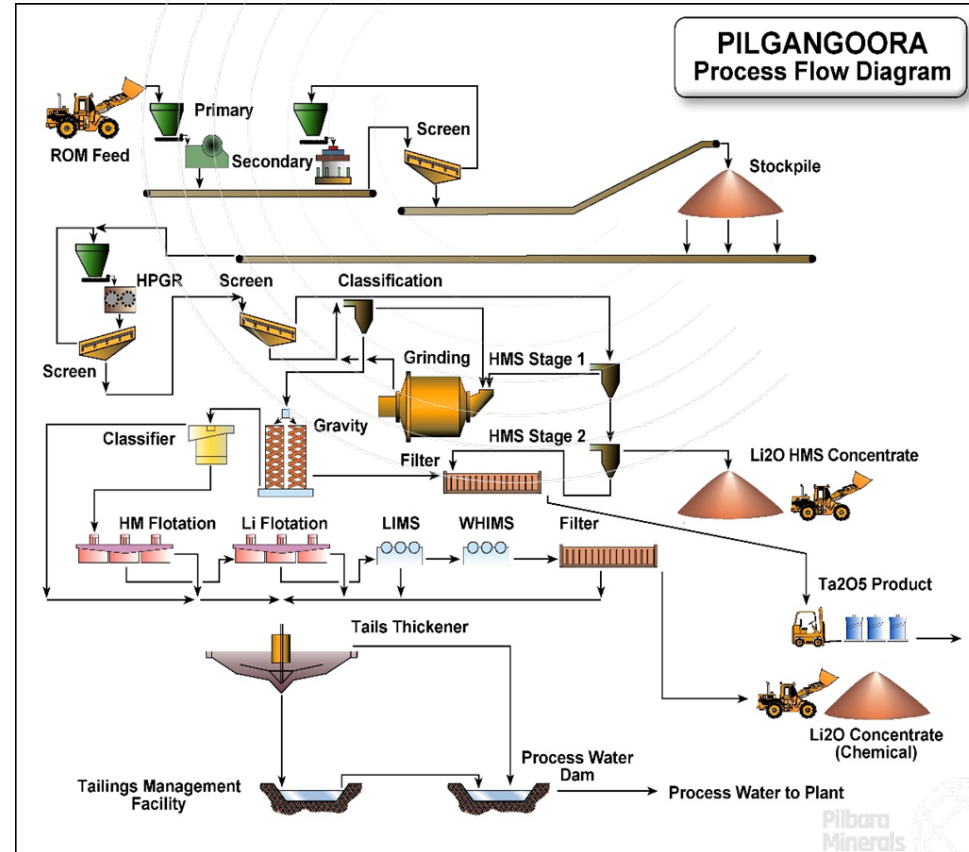


Resource drilling locations 2018

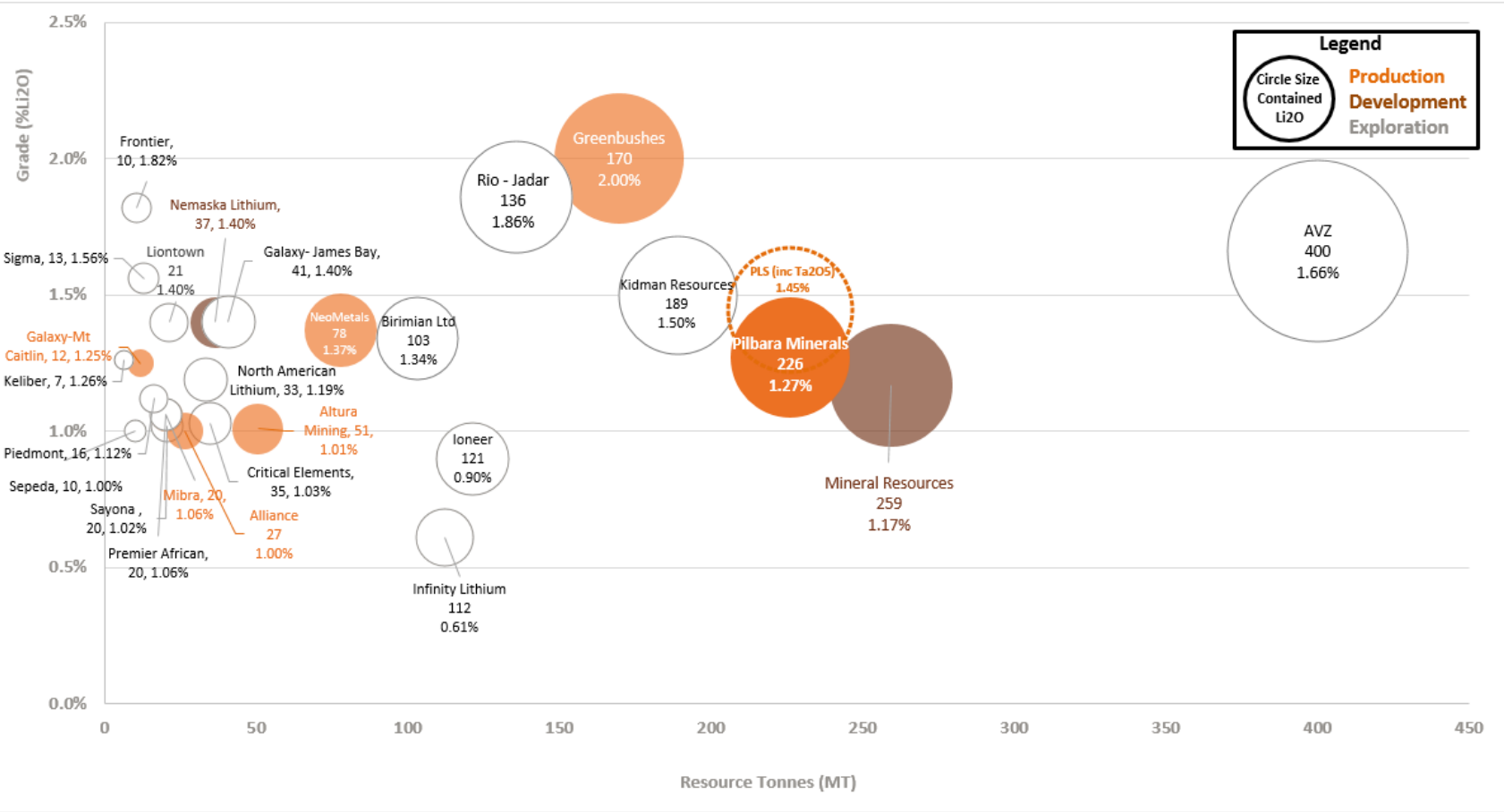
Pilgangoora processing

Spodumene and tantalite concentrate recovery

- **Spodumene concentrate** contains lithium in the form of lithia (Li_2O), recovered at the mine via the concentrator:
 - 2-stage heavy media separation for coarse spodumene concentrate
 - Oxide flotation for fine spodumene concentrate
 - High-grade 6% Li_2O (SC6.0 specification) produced
- **Tantalite concentrate** (Ta_2O_5) contains tantalum:
 - Recovered in the concentrators 'gravity' circuit
 - Tantalum used primarily in the electronics industry in the form of capacitors
 - Also used in the medical and aerospace industries



Pilgangoora - a globally significant hard rock lithium resource



Strong offtake partners committed to Stage 1 and 2 production



General Lithium Corporation

Major producer of lithium chemicals in China

- Highly experienced with more than 15 years of operational and technical know how
- Customers include top cathode producers in China
- Patented process from direct conversion of spodumene into LiOH
- Producing 25ktpa LCEs with plans to add 60ktpa



China's largest fully integrated lithium company

- Listed Shanghai Stock Exchange
- Market cap RMB39.2B ~US\$5.8B
- Commissioning another 40ktpa LCEs with plans for another 25ktpa to reach 100ktpa LCEs
- Customers include major cathode producers in China, Japan and South Korea



Pilbara Minerals

Biggest steel producer in South Korea

- Listed on KRX, market cap US\$29.5B
- Largest producer of automotive grade steel
- PosLX Technology to produce very high battery grade LiOH
- Produces high Ni NCM cathode and anode materials
- Strategic partnership with a major Chinese co. and Ni producer
- Established the first Korean LC and LiOH plant

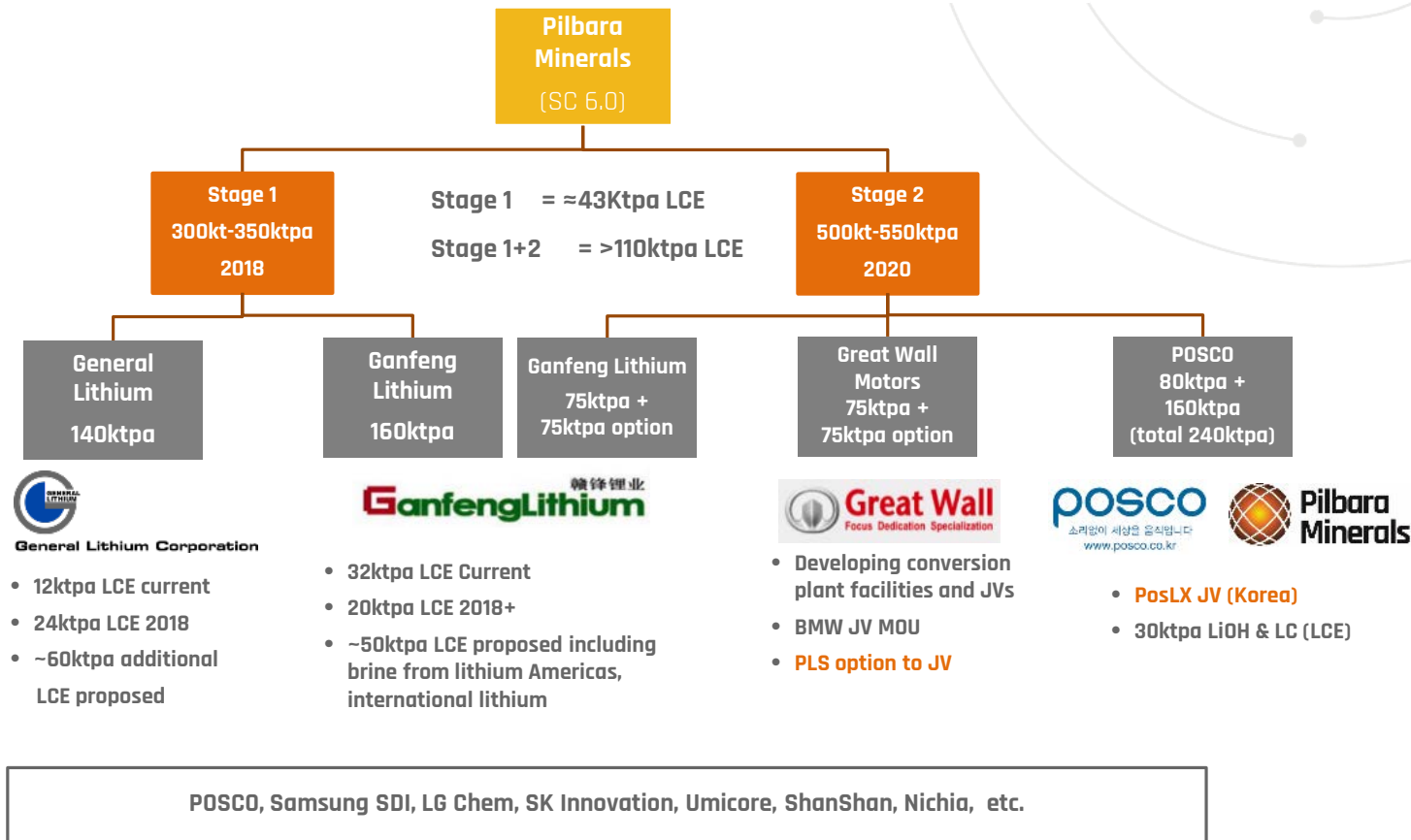
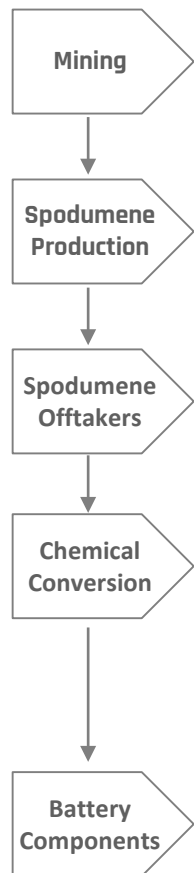


Great Wall
Focus Dedication Specialization

China's largest SUV and pickup manufacturer

- Listed Hong Kong and Shanghai Stock Exchange
- Market cap RMB120B ~US\$19B
- Producing ~1M vehicles per annum
- Aiming to produce 500,000 electric and hybrid cars a year by early 2020
- JV with BMW to supply mini-EV's
- Establishing a fully integrated mine to EV supply chain

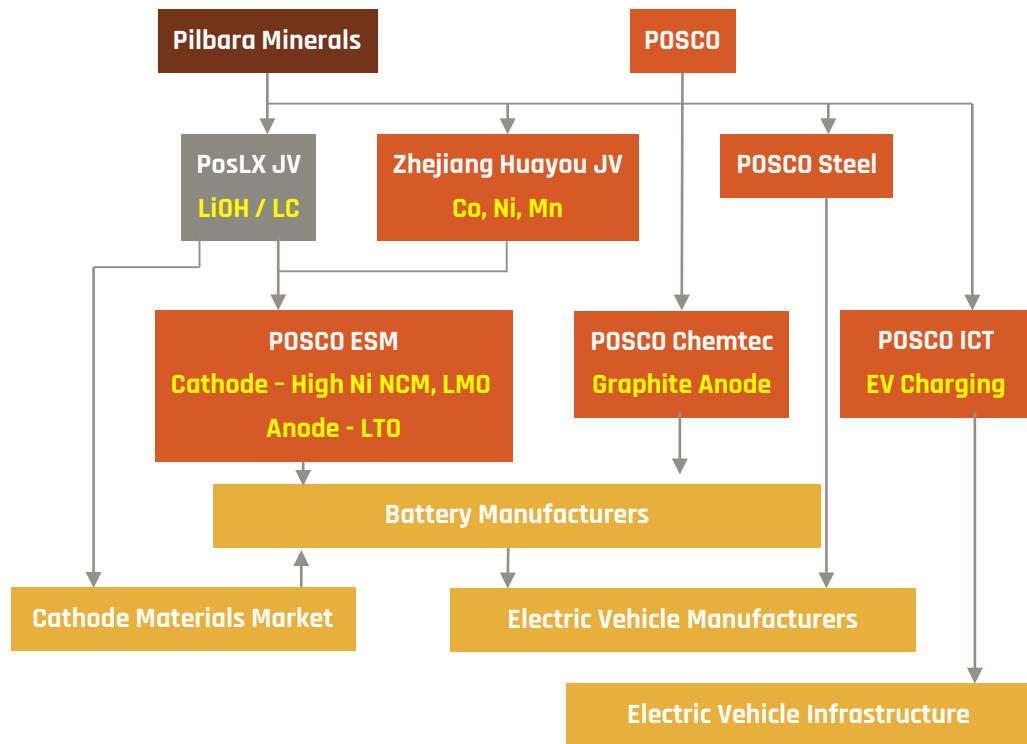
Offtake for 100% of stage 1 and 2 of Pilgangoora



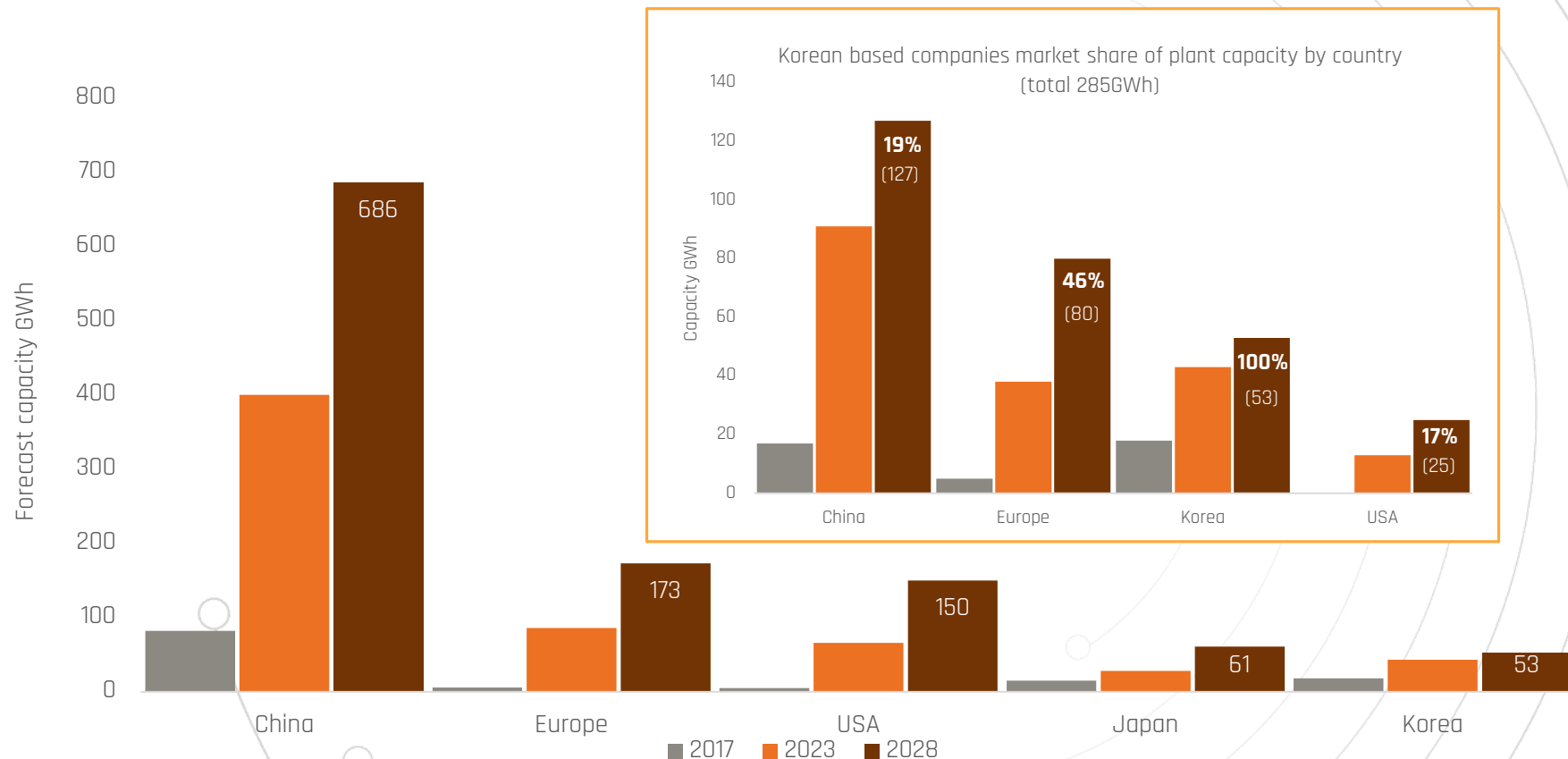
Proposed joint venture with POSCO

Positioning Pilbara Minerals at the forefront of the rapidly growing South Korea battery market

- Provides a strategic link to lithium battery and EV manufacturers
- Expands access to the battery industry and allows Pilbara Minerals to expand its knowledge of the lithium supply chain
- Broadens customer base, providing geographic diversification and greater access to global cathode makers
- Enables further value to be created downstream through chemical conversion to produce a lithium hydroxide



Global battery plant pipeline by plant location



Battery plant total and forecast capacity by country

Pilgangoora project overview



First spodumene concentrate shipment



Pilgangoora processing plant

