

20 September 2016

ASX Announcements Platform  
Bridge Street  
Sydney NSW 2000

**Pilbara Minerals Corporate Presentation**

Attached is a copy of a corporate presentation of the Company in relation to the Company's ASX Announcements:

*"Pilgangoora Definitive Feasibility Study Confirms World Class Australian Lithium Project" and  
"Pre-Feasibility Study Outlines Compelling 4Mtpa Expansion Option".*

**Resumption of Trading**

Following the issue of this announcement, the Company requests that trading in the Company's securities be reinstated.



**Alex Eastwood**  
**Company Secretary and General Counsel**  
**Pilbara Minerals Limited**





**PILBARA MINERALS**  
LIMITED

ASX: PLS

## Pilgangoora Lithium-Tantalum Project

The world's leading lithium development project

*Definitive Feasibility Study Release – Base Case, 2Mtpa*

*Pre-Feasibility Study Release – 4Mtpa Expansion Option*

*20 September 2016*



# Disclaimer and Competent Person's Statement



## Forward Looking Statement Disclaimer

- ▶ This presentation may contain some references to forecasts, estimates, assumptions and other forward-looking statements. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions, it can give no assurance that they will be achieved. They may be affected by a variety of variables and changes in underlying assumptions that are subject to risk factors associated with the nature of the business, which could cause actual results to differ materially from those expressed herein. All references to dollars (\$) and cents in this announcement are to Australian currency, unless otherwise stated.
- ▶ Investors should make and rely upon their own enquiries before deciding to acquire or deal in the Company's securities.
- ▶ This presentation does not constitute an offer to sell, or a solicitation of an offer to buy, securities in the United States or any other jurisdiction. Any securities described in this presentation have not been, and will not be, registered under the US Securities Act of 1933 and may not be offered or sold in the United States except in transactions exempt from, or not subject to, registration under the US Securities Act and applicable US state securities laws.

## Competent Person Statements

- ▶ The Company confirms it is not aware of any new information or data that materially affects the information included in the 11th of July , 2016 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 11th of July 2016.
- ▶ The Company confirms it is not aware of any new information or data that materially affects the information included in the 22nd of August , 2016 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 22nd of August 2016.



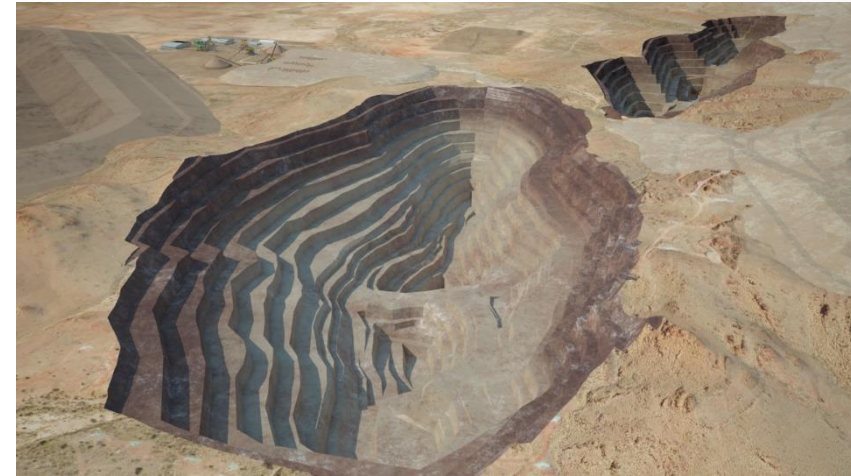
# Pilbara Minerals – Overview



- ▶ 100% ownership of the world-class Pilgangoora Lithium-Tantalum Project in WA's Pilbara region
- ▶ Significant lithium-tantalum reserve, with major exploration upside
- ▶ Second largest spodumene-tantalite resource in the world
- ▶ DFS confirms technical and financial viability of 2Mtpa Pilgangoora development
  - ▶ *Reduced cash operating costs<sup>1</sup> over first 15 years: US\$196/t CFR real (SC6.0 concentrate); LOM cash operating costs<sup>1</sup> of US\$207/t CFR real*
  - ▶ *36-yr mine life, NPV<sup>2</sup><sub>10%</sub> A\$709M after A\$214M capex; rapid payback (~2.7 yrs)*
- ▶ PFS demonstrates scale and compelling economics of 4Mtpa expansion case
- ▶ Cornerstone off-take partner, General Lithium Corporation, China
- ▶ Advancing rapidly to production to take advantage of robust market opportunity:
  - ▶ *Targeting construction from December 2016*
  - ▶ *Targeting commissioning from December 2017*

1. Cash operating costs include all mining, processing, transport, port, shipping/freight, site based general and administration costs, and corporate administration/overhead costs allocation, are net of Ta<sub>2</sub>O<sub>5</sub> by-product credits, but excludes state and private royalties and native title costs.

2. Net Present Values (NPV) are presented on a nominal basis.



**An emerging, low-cost producer of lithium and tantalum at Pilgangoora**

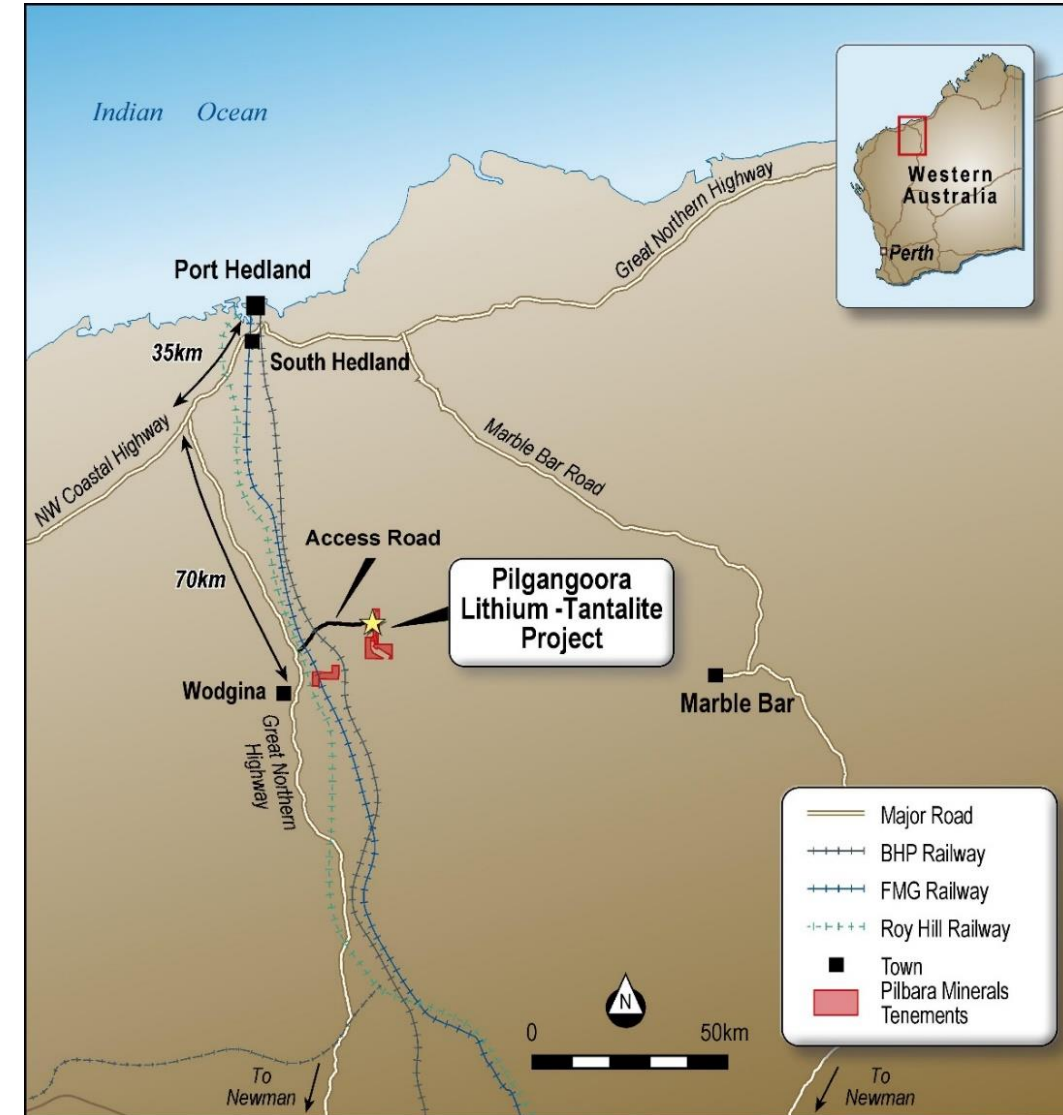


# Developing a World-Class, Long-Life Lithium Mining Centre



- ▶ Pilgangoora Project located 120km south of Port Hedland in WA's Pilbara region
- ▶ Reserve location offers strategic advantages for infrastructure access, mining approvals and lower cost of operations
- ▶ High quality DFS demonstrates economic potential of one of the world's leading lithium development projects:
  - ▶ *Strong technical fundamentals and very low forecast cash operating costs*
  - ▶ *High margin project set to deliver outstanding cash-flows and returns*
  - ▶ *Initial mine life of 36 years based on updated reserve, with significant further growth potential*
- ▶ 4Mtpa expansion option, PFS complete
  - ▶ *Outstanding economic returns*

**A robust, long-life project in a Tier-1 mining jurisdiction**







**Tony Kiernan**  
**Non-Executive**  
**Chairman**

Highly experienced public company director and former solicitor with over 30 years professional experience. Currently Chairman and a non-executive director of several ASX-listed resource companies

**Steve Scudamore**  
**Non-Executive**  
**Director**

Highly experienced public company director. His career includes more than three decades with senior roles in Australia, London and PNG

**Robert G Adamson**  
**Non-Executive**  
**Director**

Geologist with over 40 years experience, served in technical, managerial and board positions with several publicly-listed exploration and mining companies in Australia, South Africa, New Zealand, South Korea, Canada and the Philippines

**Neil Biddle**  
**Non-Executive Director**

Geologist and Corporate Member of the AusIMM with over 30 years professional and management experience in the global exploration and mining industry. Since 1987, Mr. Biddle has served as Managing Director and Exploration Manager of several ASX-listed companies

**Ken Brinsden**  
**MD and CEO**

Mining Engineer with over 20 years experience including mine management, production and green-fields project development. Previously MD at Atlas Iron Ltd contributing to its growth from junior explorer to significant Pilbara iron ore producer

**John Young**  
**Technical Director**

Geologist and Corporate Member of the AusIMM with over 25 years experience in the global exploration and mining industry. Ten years direct experience managing tantalite, tungsten and molybdenite projects

**Highly experienced Board and management team with strong experience in exploration, mining and corporate management**





Pilbara Minerals Share price – as at 14 September, 2016



Capital Structure		ASX: PLS	
Shares on issue	1150 million	Top 20 shareholders	Approximately 37%
Unlisted Options	114 million	Cash at 31/08/2016	\$96 million
Market capitalisation	\$633 million @ 55¢	Debt	Nil
Enterprise Value	\$537 million	3 month average daily volume	14.4 m



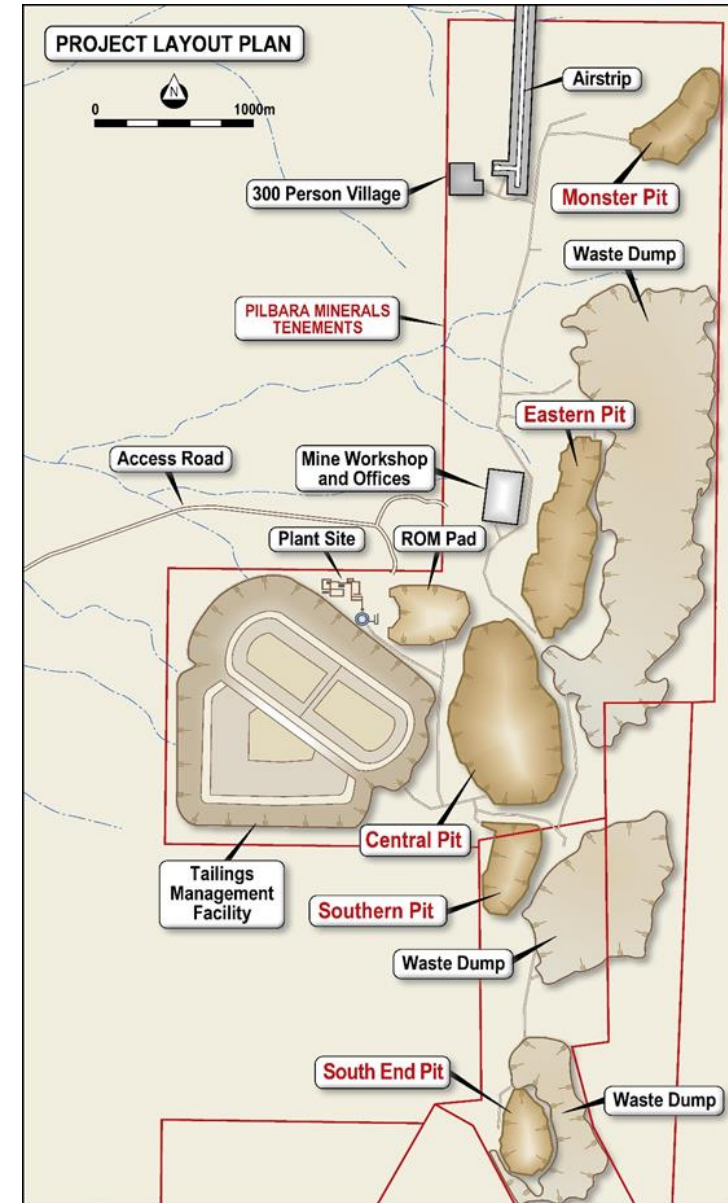


## DFS OUTCOMES, 2Mtpa Process Capacity Base Case

- ▶ Average annual production of approximately 314ktpa of 6% spodumene concentrates (44ktpa of Lithium Carbonate Equivalent or LCE) and 321,000lbs pa of tantalite
- ▶ LOM revenues of A\$9.2Bln (real) generating LOM after tax cash flows of A\$2.6Bln
- ▶ EBITDA over first 5 years of operations of approximately A\$136M per annum (real); LOM EBITDA average of A\$121M per annum
- ▶ DFS based on assumed life-of-mine average spodumene price of US\$537/t CFR derived from basket of independent forecasters/brokers/banks. Current spot price +US\$650/tonne CFR (SC6.0)
- ▶ Operating cash costs<sup>1</sup> per tonne of spodumene concentrate (SC6.0)
  - ▶ *First 15 years, US\$196/tonne CFR*
  - ▶ *Life-of-Mine, US\$207/t CFR; generating healthy margins at assumed prices*
- ▶ Project payback in ~2.7 years
- ▶ Project NPV<sup>2</sup><sub>10%</sub> of A\$709M and IRR of 38% (DFS Reserve basis)
- ▶ Project capital estimate of A\$214M (accuracy of ± 15%)

1. Cash operating costs include all mining, processing, transport, port, shipping/freight and site based general and administration costs, allocation of corporate administration/overhead costs, net of Ta2O5 by-product credits, but excludes state private royalties and native title costs.

2. Net Present Values (NPV) are presented on a nominal basis.

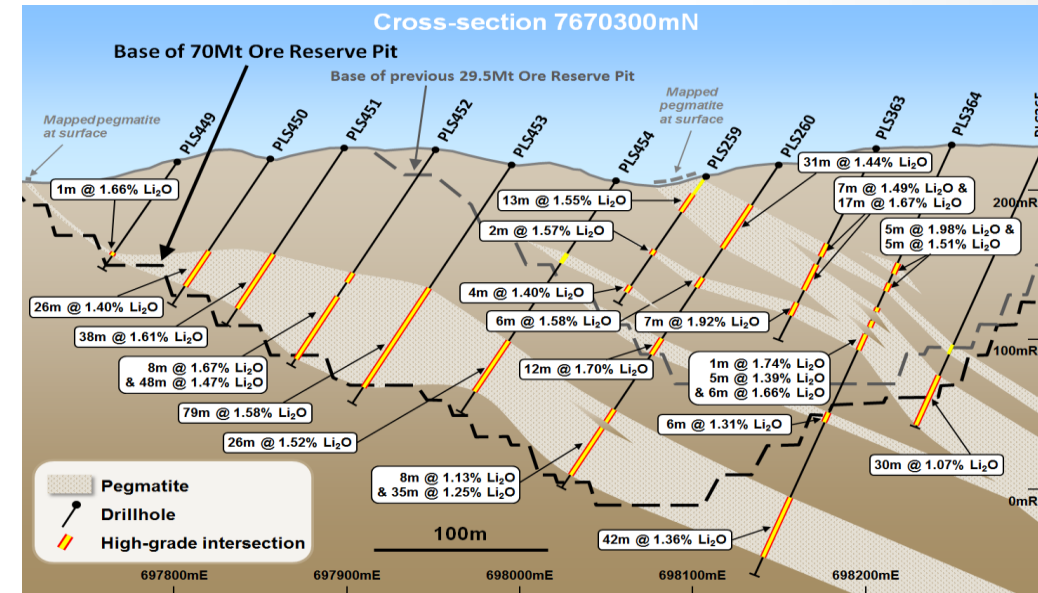
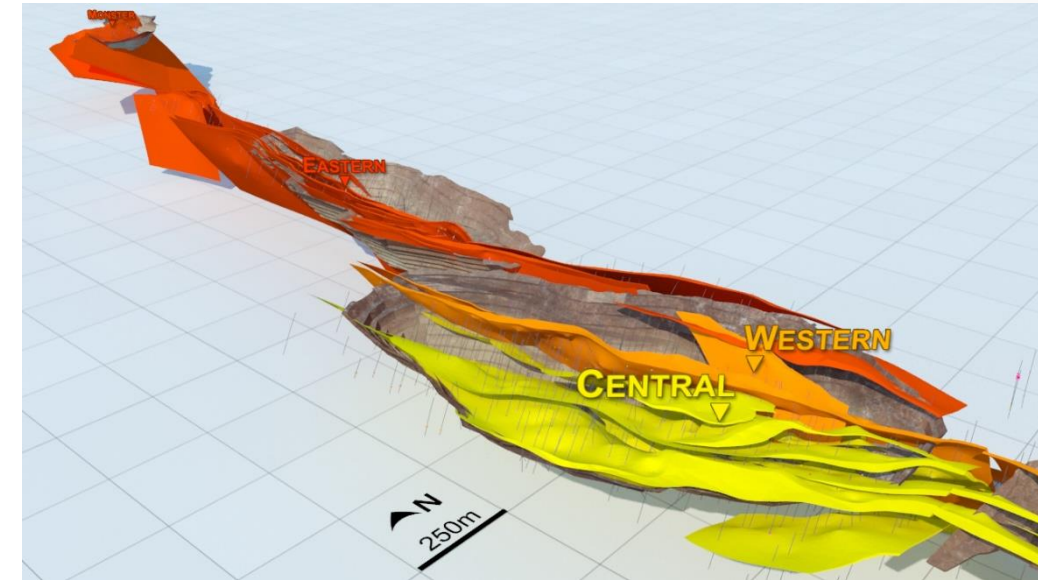




# Pilgangoora – Mining *A straightforward open pit mining proposition*



- ▶ Measured, Indicated and Inferred Resource of 128.6Mt @ 1.22%  $\text{Li}_2\text{O}$  and 138ppm  $\text{Ta}_2\text{O}_5$  containing 1,572,000 tonnes  $\text{Li}_2\text{O}$ , and including 39Mlbs  $\text{Ta}_2\text{O}_5$
- ▶ Updated Ore Reserve of 69.8Mt @ 1.26%  $\text{Li}_2\text{O}$  and 132ppm  $\text{Ta}_2\text{O}_5$
- ▶ Conventional open pit mining proposed, 100 tonne mining fleet
- ▶ 2Mt ore feed per annum, 36 yr mine life (base case)
- ▶ Reserve, LOM strip ratio of 4.1:1 (waste: ore tonnes)
- ▶ Attractive contractor mining rates available in the current market
- ▶ Mining targeted to commence, Q3 2017

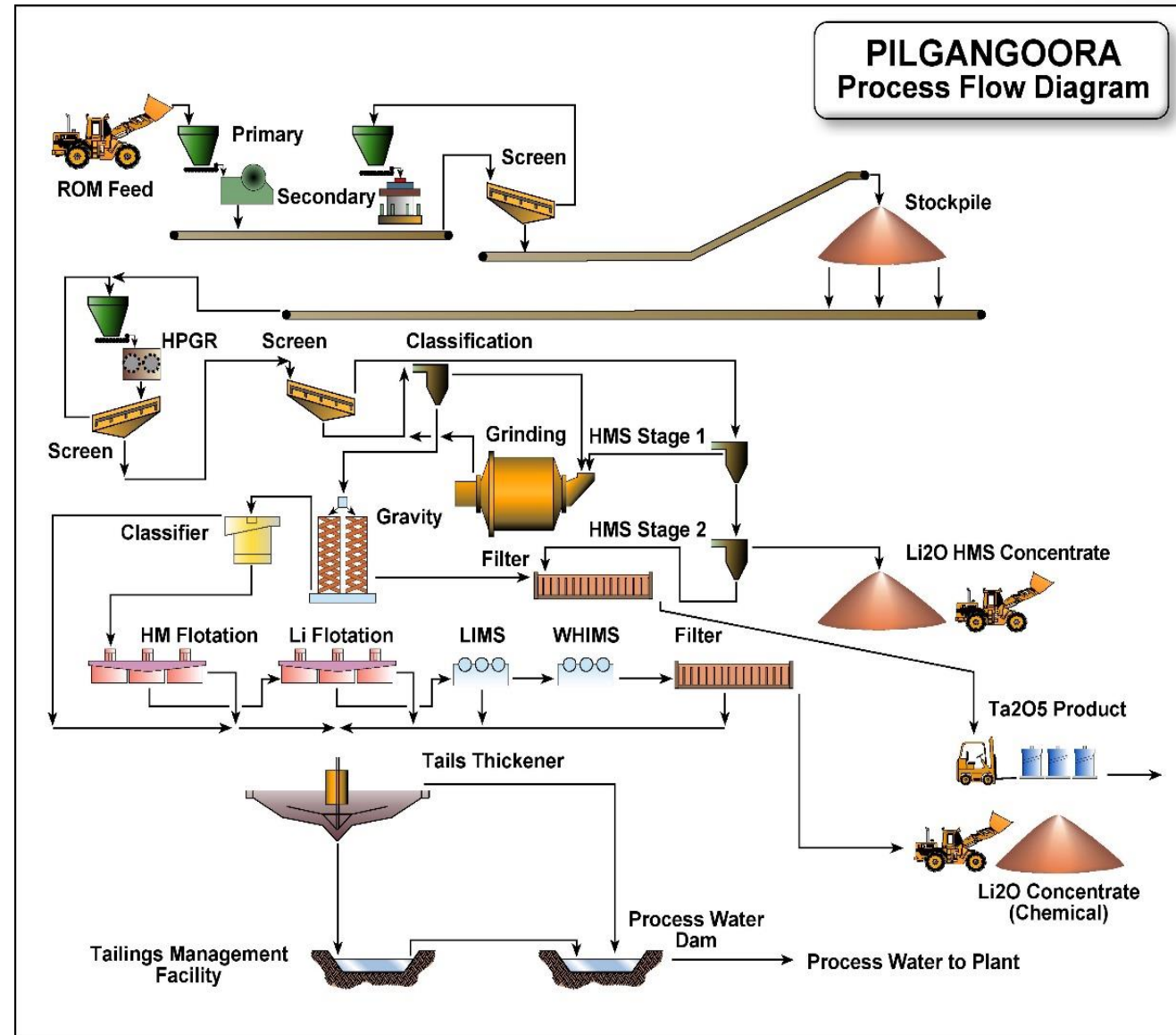




# Pilgangoora – Processing *Improved Lithia and Tantalite Recovery*

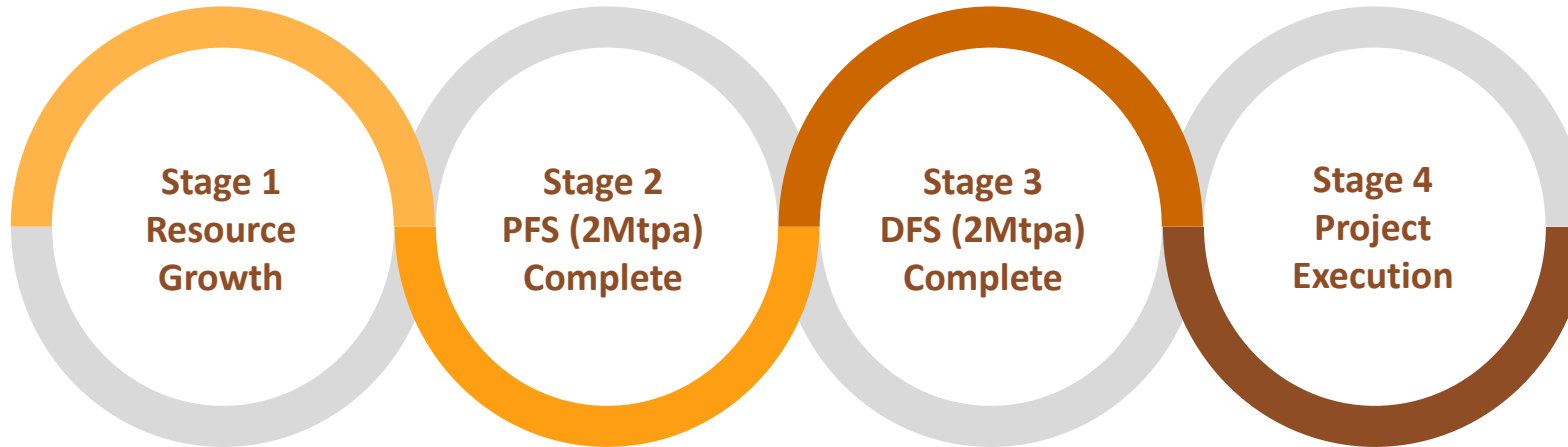


- ▶ 2-stage heavy media separation
- ▶ Gravity separation, tantalite recovery
  - ▶ *Improved Tantalite recovery, concentrate grade and pricing outcomes*
- ▶ Grinding leading to oxide flotation
- ▶ Low/High intensity magnetic separation
  - ▶ *High grade chemical spodumene concentrate (SC6.0 specification)*
  - ▶ *High grade tantalite concentrate (30% Ta<sub>2</sub>O<sub>5</sub>)*





# Pilgangoora 2Mtpa DFS Complete *Progressing to project execution*



## Resource Estimation

- ▶ JORC Inferred /Indicated completed
- ▶ 130Mt Resource
- ▶ Further resource growth expected
- ▶ Massive pegmatite system on Pilbara's tenure presents outstanding opportunities for further resource and reserve growth
- ▶ Key global strategic resource

## Project Definition

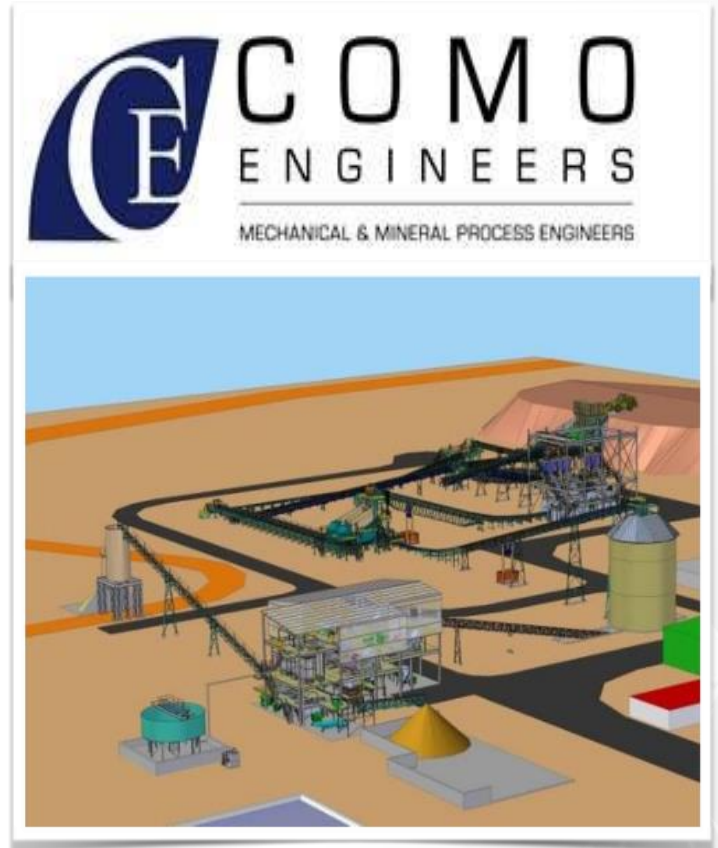
- ▶ Maiden reserve, 29.5Mt @ 1.31%  $\text{Li}_2\text{O}$ , 134ppm  $\text{Ta}_2\text{O}_5$  tantalite
- ▶ Outstanding project economics
- ▶ Low cost hard-rock Spodumene production
- ▶ Further reserve growth expected, growing mine-life

## Detailed Design and Project Planning

- ▶ Updated reserve of 69.8Mt @ 1.26%  $\text{Li}_2\text{O}$ , 132ppm  $\text{Ta}_2\text{O}_5$ ; long mine-life,
- ▶ Plant process and design optimisation
- ▶ Product specification and bulk samples to customers
- ▶ Tailings design
- ▶ Opex & Capex updates
- ▶ Updated financial models

## Finance / Permitting – December 2016

- ▶ Native Title Agreement
- ▶ Statutory mine approvals
- ▶ Major construction and operating contracts
- ▶ Financing
- ▶ Decision to mine
- ▶ Construction
- ▶ Commissioning
- ▶ Production ramp-up





# A Rapid Pathway to Financing, Development and Production



## PILGANGOORA PROJECT DELIVERY SCHEDULE



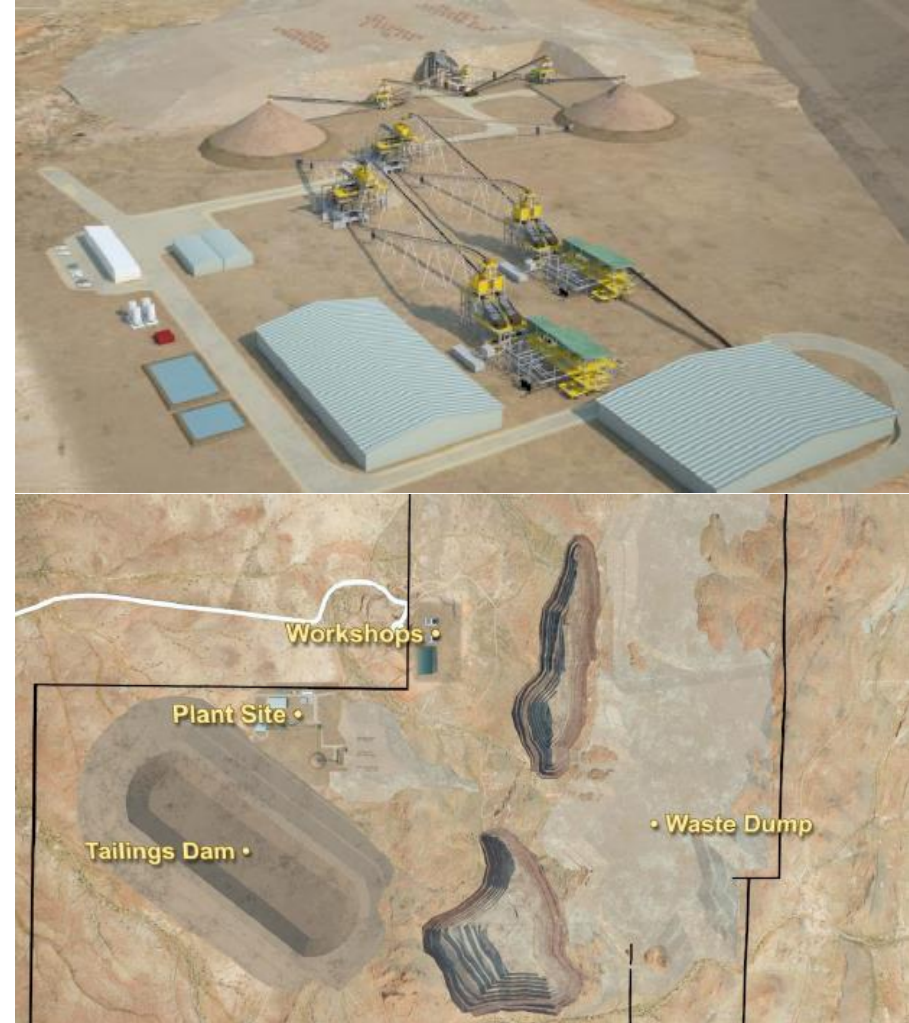


# 4Mtpa Expansion Option – PFS Complete *Outstanding economic returns*



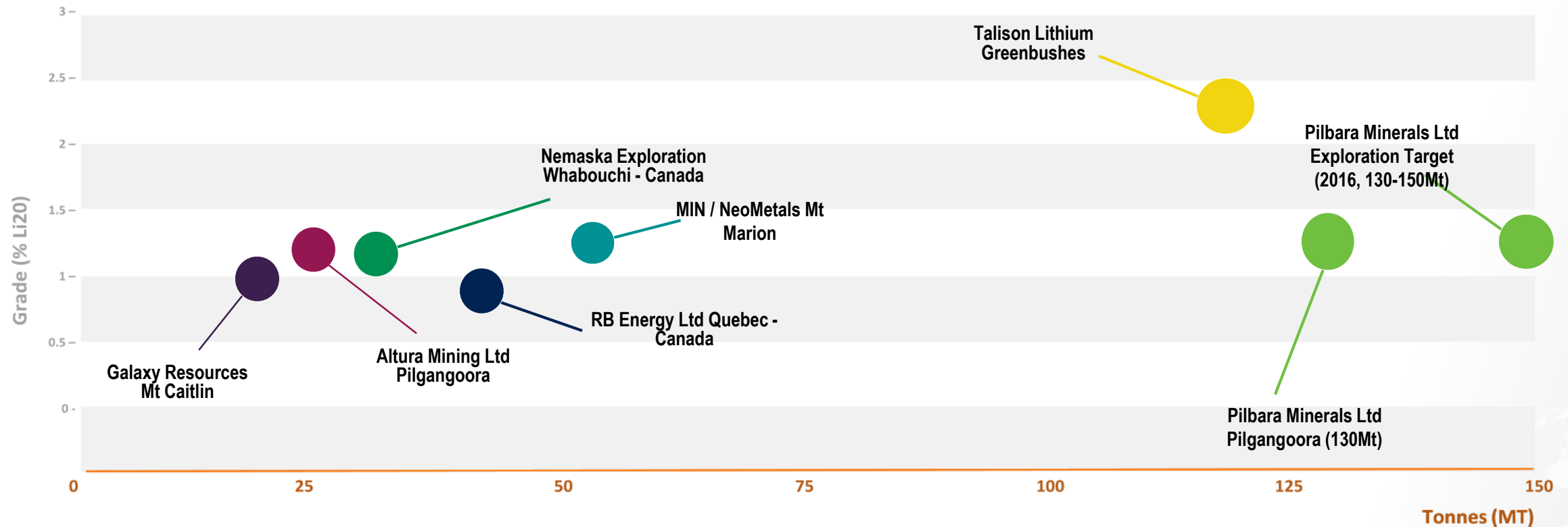
- ▶ Modest incremental capital to expand to 4Mtpa, A\$128M
- ▶ LOM Average annual production of approximately 564ktpa of 6% spodumene concentrates inclusive of technical grade product (75ktpa LCE); 579,000lbs of tantalite
- ▶ LOM cash operating costs<sup>1</sup> further reduced to US\$180/t CFR demonstrating economies of scale
- ▶ Projected annual average EBITDA increases to A\$245M from A\$121M
- ▶ Forecast Net Present Value (NPV<sup>2</sup><sub>10%</sub>, post-tax) of A\$1,165M; Project payback of 3.1 yrs (on cumulative capital)
- ▶ Expansion project subject to further feasibility, market analysis and Pilbara Board approval
- ▶ Highlights the scale and cost-competitiveness of Pilgangoora's future production

1. Cash operating costs include all mining, processing, transport, port, shipping/freight and site based general and administration costs, allocation of corporate administration/overhead costs, net of Ta2O5 by-product credits, but excludes state private royalties and native title costs.
2. Net Present Values (NPV) are presented on a nominal basis





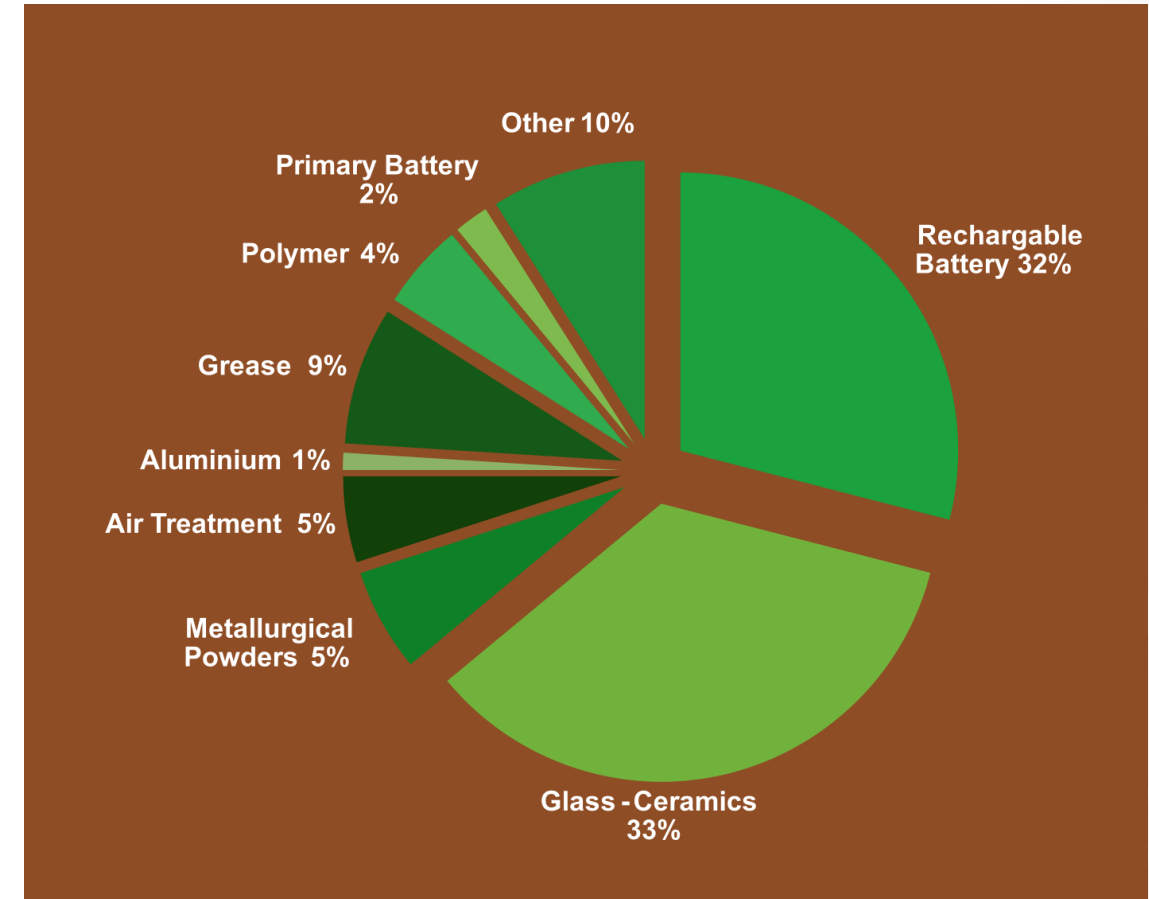
# Pilgangoora – A Globally Significant Lithium Resource







- ▶ Pilgangoora spodumene concentrates meet the metallurgical specifications of the entire range of lithium products
- ▶ Cornerstone off-take agreement with General Lithium
- ▶ Over 100% of projected lithium oxide production subject to non-binding MOU's with major off-take partners in China, Japan, the Americas and Europe
- ▶ All off-take partners have substantial expansion plans to meet anticipated demand for transport electrification
- ▶ Increased production of chemical lithium products restrained by lack of mine supply



SOURCE: ROSKILL 2015 Demand Data

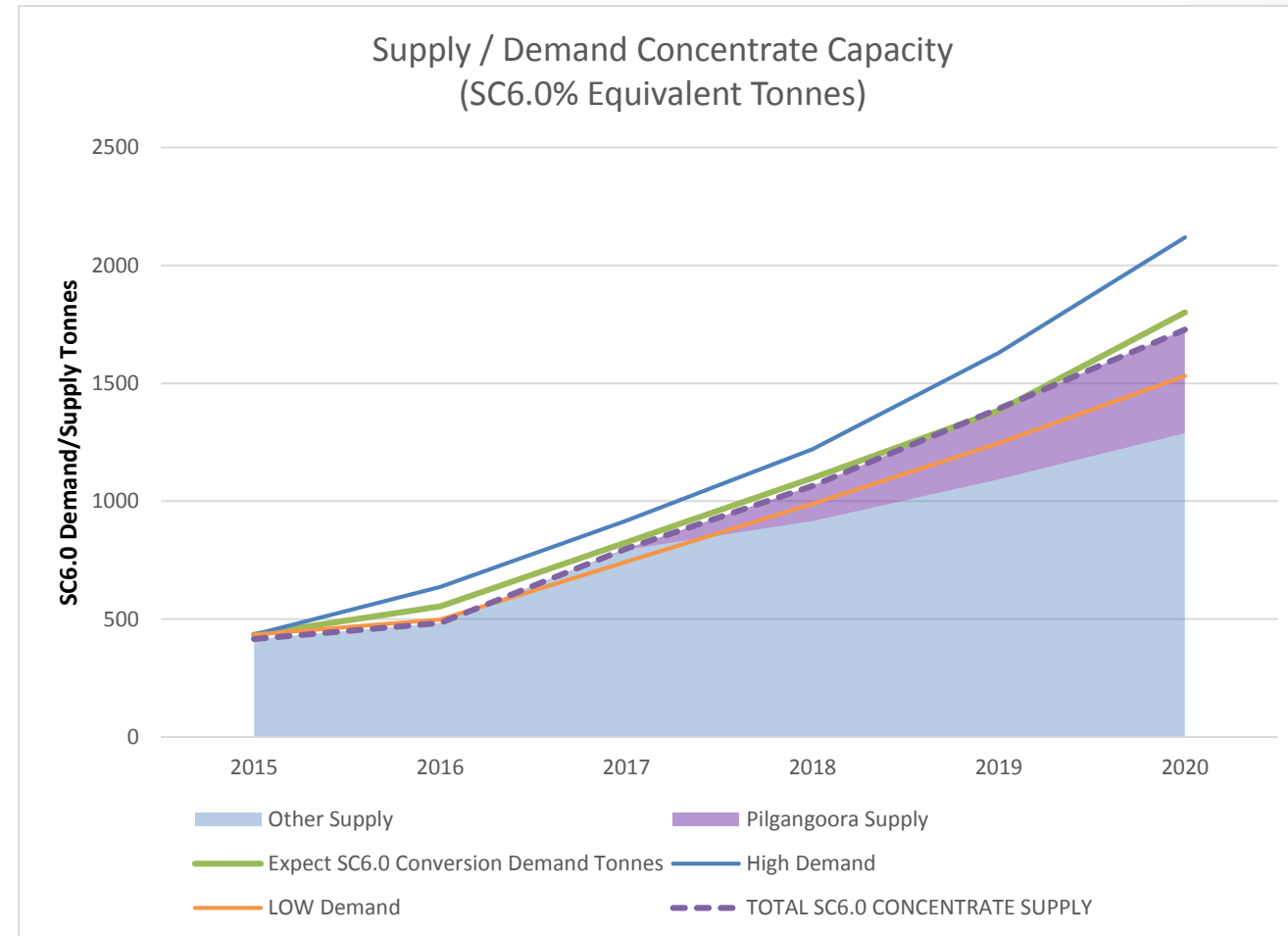
**Pilgangoora spodumene concentrate meets the specifications of the entire lithium market**



# China – A Lithium Consumption Powerhouse



- ▶ Broad Central Government policy position towards 'New Energy'
  - ▶ *Domestic carbonate pricing took-off coincidentally with acceleration in EV, Electric Bus sales*
- ▶ Significant expansion through entire lithium-ion supply chain, including major chemical conversion capacity expansion (spodumene to  $\text{Li}_2\text{CO}_3$  &  $\text{LiOH}$ ) over coming 5 years
- ▶ E-Bike phenomenon
  - ▶ *30 Million E Bikes produced annually in China, converting to Li ion batteries*
- ▶ Broad transport electrification
  - ▶ *Targeting 5M new energy vehicles by 2020*



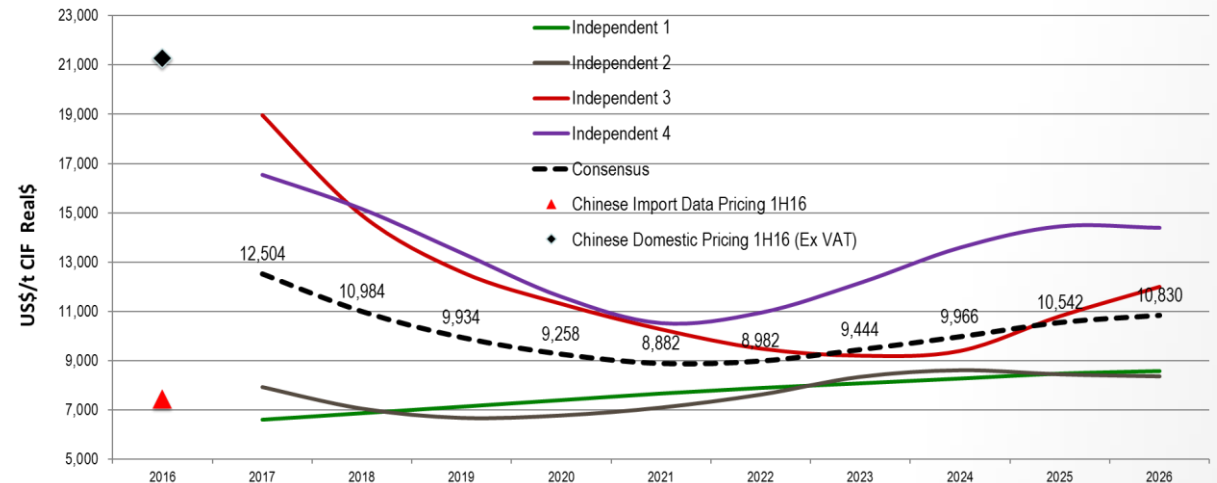
*SOURCE: Pilbara Minerals Internal Conversion Market Analysis Aug 2016 (based on Company's own market analysis – assumes conversion capacity is expected to grow over next 4 to 5 years to support substantial growth in emerging global lithium-ion supply chains)*



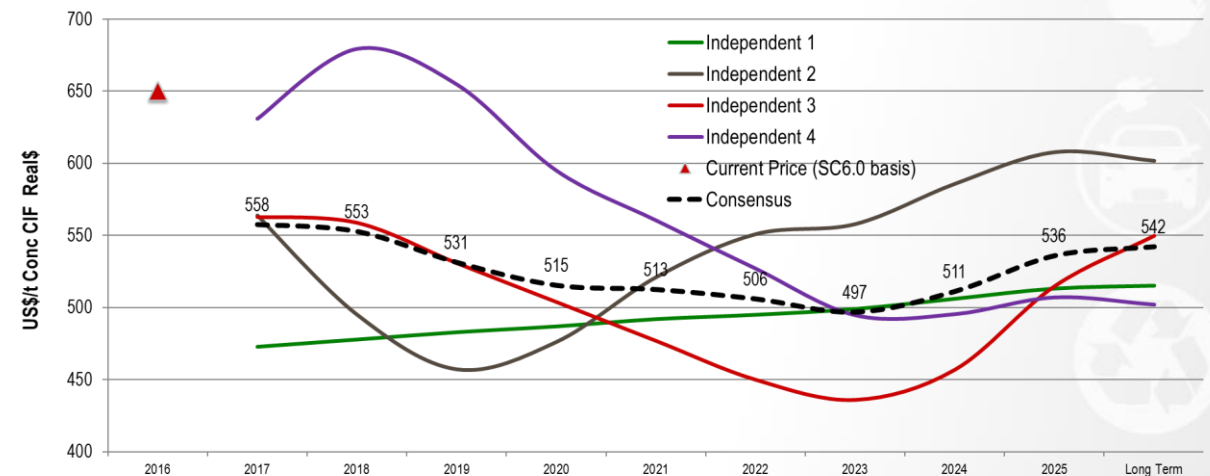


- ▶ Forecast price deck derived from basket of independent economic and bank/broker models
  - ▶ *China domestic pricing, import pricing and spodumene import pricing models*
- ▶ Expectation that domestic battery grade carbonate pricing and import pricing will converge over time
- ▶ General Lithium spodumene offtake price based on relatively to the combined Chinese domestic and import pricing outcomes
- ▶ Remaining concentrate priced against the consensus spodumene price forecast
- ▶ Current spodumene price US\$650/t CFR (SC6.0 basis)
- ▶ Robust margins from the Pilgangoora project

## Price forecast – Battery-grade Lithium Carbonate



## Price forecast – SC6.0 Chemical-grade Spodumene

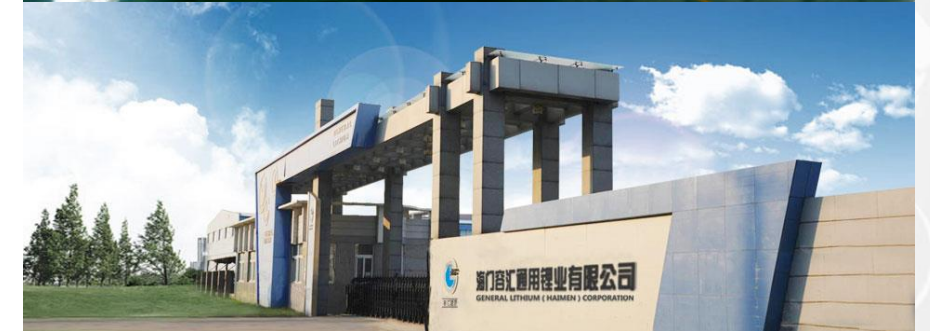




# General Lithium – a major producer of lithium chemicals in China



- ▶ Listed on NEEQ, Beijing, Code No: 837358
- ▶ Currently produces 8,000tpa of Lithium Carbonate (LC) & 2,000tpa of High Purity LC 4N (99.99%)
- ▶ Soon to commission 5,000tpa of Lithium Iron Phosphate (LFP), Li battery cathode powder material in Qinghai Province
- ▶ Expansions continuing to add another 16,000tpa of Lithium Hydroxide (LiOH) & LC conversion capacity in Jiangxi Province
- ▶ One of the top quality producers of Battery Grade LC in China, with established sales to a broad list of major Chinese Li battery cathode powder manufacturers
- ▶ General Lithium to provide the designs, technical expertise and operate proposed JV chemical plant, subject to scoping study and further feasibility work



**General Lithium Corporation**





# Lithium Raw Materials – Battery Supply Chain



*Future Value Added Products  
Pilbara and General Lithium*



Spodumene  
Mine



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Lithium  
Carbonate/Hydroxide  
Producer



Upgraders  
& Component  
Mixers



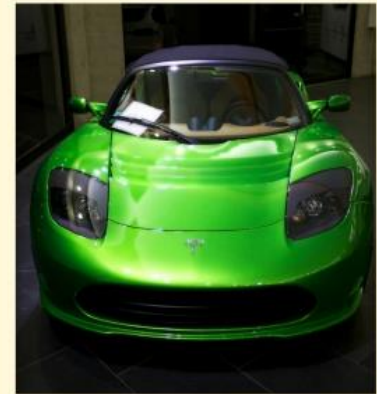
Cathode &  
Electrolyte  
Producers



Battery  
Producer



E Transport  
Grid Storage  
Grid Stabilisation



Downstream value-added products provide an opportunity to leverage the quality of the Pilgangoora resource



# Downstream Chemical Processing



- ▶ Strategy is to develop partnerships with key lithium chemicals industry participants
- ▶ Access to technology, operating expertise and intellectual property
- ▶ Shortcut to Pilbara's participation in downstream lithium chemicals market, supporting the Company's future growth
- ▶ Diversifies Pilgangoora product export destinations beyond China
- ▶ Potential to become a key quality carbonate and/or hydroxide supplier to markets both in China and ex-China
- ▶ Pilgangoora's significant resource scale, grade and pre-eminent location could support multiple chemical facilities
- ▶ Lithium Australia arrangement to facilitate continued SiLeach testwork on Pilgangoora samples, potential for future Port Hedland facility







Emerging low-cost Australian strategic metals producer

Largest lithium resource and high grade relative to ASX-listed peers

Outstanding project economics demonstrated by DFS

Rapid pathway to financing and production

Ideally placed to capitalize on robust market outlook and demand

**Downstream processing initiatives/partnerships to leverage quality of Pilgangoora resource**







## Developing a globally significant new Australian lithium business



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# Resources & Reserves



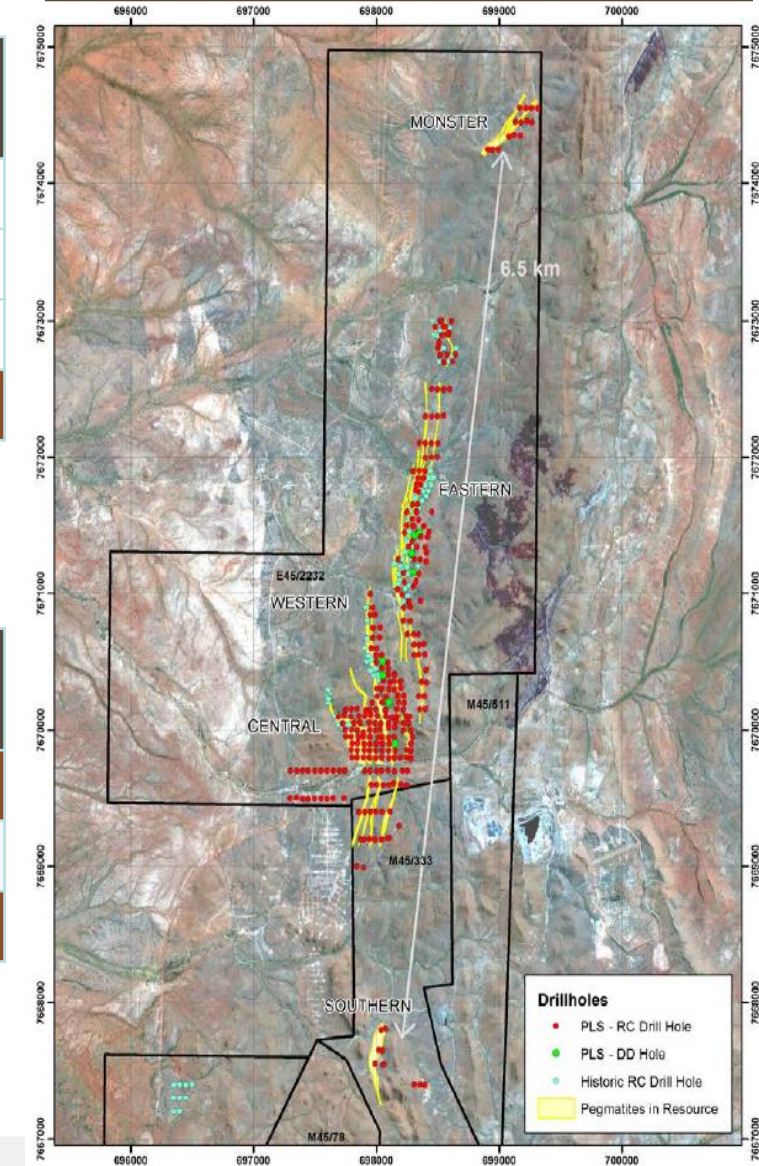
## Resources:

Category	Tonnage (Mt)	Li <sub>2</sub> O (%)	Ta <sub>2</sub> O <sub>5</sub> (ppm)	Fe <sub>2</sub> O <sub>3</sub> (%)	Li <sub>2</sub> O (T)	Ta <sub>2</sub> O <sub>5</sub> (Mlbs)
Measured	18.0	1.36	150	0.45	245,000	5.9
Indicated	65.6	1.24	131	0.61	812,000	19.0
Inferred	45.0	1.15	144	0.73	515,000	14.2
<b>Total</b>	<b>128.6</b>	<b>1.22</b>	<b>138</b>	<b>0.63</b>	<b>1,572,000</b>	<b>39.2</b>

## Reserves:

Category	Tonnage (Mt)	Li <sub>2</sub> O (%)	Ta <sub>2</sub> O <sub>5</sub> (ppm)	Fe <sub>2</sub> O <sub>3</sub> (%)	Li <sub>2</sub> O (T)	Ta <sub>2</sub> O <sub>5</sub> (Mlbs)
Proven	17.5	1.31	143	0.94	230,000	5.5
Probable	52.6	1.25	128	1.07	653,000	14.8
<b>Total</b>	<b>69.8</b>	<b>1.26</b>	<b>132</b>	<b>1.04</b>	<b>883,000</b>	<b>20.3</b>

3 mining leases (M45/78, M45/333, M45/511)  
& 2 exploration licenses (EL45/2232 & EL45/2241)





# Global Motor Vehicle Lithium Demand



- ▶ Tesla Model 3 to be released in 2017, retail price of US\$36,000, 400,000 orders already and growing
- ▶ Mercedes Benz releasing 12 new models of EVs in 2017
- ▶ BMW i3 Series due for release 2017 in direct competition with Tesla Series 3
- ▶ Audi, Volkswagen major EV model expansion in 2017-2018



- ▶ China, Japan and Korean Government policy strongly supports EVs with large rebates, zero sales tax and free licensing
- ▶ Toyota will cease using lead acid batteries from 2017 with 100% adoption of Li ion batteries in all models
- ▶ Japanese and Korean car makers anticipated to announce major adoption of EVs by 2020
- ▶ 1 million EVs in Korea by 2020







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## Pilgangoora Lithium-Tantalum Project

Developing a globally significant new Australian lithium project