

## Corporate Presentation General Meeting of Shareholders

University Club of Western Australia Wednesday 16 October 2019

**ASX: PLS** 



## Important Notices and Competent Persons Statement

#### Not an Offer of Securities

This document has been independently prepared by Pilbara Minerals Limited ("Pilbara") and is dated 16 October 2019. This document is provided for informational purposes and does not constitute or contain an offer, invitation, solicitation or recommendation with respect to the purchase or sale of any security in Pilbara. This document is not a prospectus, product disclosure statement or other offering document under Australian law or any other law, will not be lodged with the Australian Securities and Investments Commission, and may not be relied upon by any person in connection with an offer or sale of Pilbara securities.

#### **Summary Information**

This document contains a summary of information about Pilbara and its activities that is current as at the date of this document unless otherwise stated. The information in this document is general in nature and does not contain all the information which a prospective investor may require in evaluating a possible investment in Pilbara or that would be required in a prospectus or a product disclosure statement prepared in accordance with the Corporations Act 2001 (Cth) ("Corporations Act") or the securities laws of any other jurisdiction.

#### **No Liability**

The information contained in this document has been prepared in good faith by Pilbara, however no guarantee, representation or warranty expressed or implied is or will be made by any person (including Pilbara and its affiliates and their directors, officers, employees, associates, advisers and agents) as to the accuracy, reliability, correctness, completeness or adequacy of any statements, estimates, options, conclusions or other information contained in this document. No person other than Pilbara is responsible for the preparation of this document. To the maximum extent permitted by law, Pilbara and its affiliates and their directors, officers, employees, associates, advisers and agents each expressly disclaims any and all liability, including, without limitation, any liability arising out of fault or negligence, for any loss arising from the use of or reliance on information contained in this document including representations or warranties or in relation to the accuracy or completeness of the information, statements, opinions, forecasts, reports or other matters, express or implied, contained in, arising out of or derived from, or for omissions from, this document including, without limitation, any financial information, any estimates, forecasts, or projections and any other financial information derived therefrom. Statements in this document are made only as of the date of this document unless otherwise stated and the information in this document remains subject to change without notice. No responsibility or liability is assumed by Pilbara or any of its affiliates (or their directors, officers, employees, associates, advisers and agents) for updating any information in this document or to inform any recipient of any new or more accurate information or any errors or mis-descriptions of which Pilbara and any of its affiliates or advisers may become aware.

#### **Forward Looking Statements**

Statements contained in this document, including but not limited to those regarding the possible or assumed future costs, projected timeframes, performance, dividends, returns, revenue, exchange rates, potential growth of Pilbara, industry growth, commodity or price forecasts, or other projections and any estimated company earnings are or may be forward looking statements. Forward-looking statements can generally be identified by the use of words such as 'project', 'foresee', 'plan', 'expect', 'aim', 'intend', 'anticipate', 'believe', 'estimate', 'may', 'should', 'will' or similar expressions. Forward looking statements including all statements in this presentation regarding the outcomes of preliminary and definitive feasibility studies, projections, guidance on future earnings and estimates are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance. These statements relate to future events and expectations and as such involve known and unknown risks and significant uncertainties, many of which are outside the control of Pilbara. Actual results, performance, actions and developments of Pilbara may differ materially from those expressed or implied by the forward-looking statements in this document. Such forward-looking statements speak only as of the date of this document. There can be no assurance that actual outcomes will not differ materially from these statements. To the maximum extent permitted by law, Pilbara and any of its affiliates and their directors, officers, employees, agents, associates and advisers: disclaim any obligations or undertaking to release any updates or revisions to the information in this document to reflect any change in expectations or assumptions; do not make any representation or warranty, express or implied, as to the accuracy, reliability or completeness of the information in this document, or likelihood of fulfilment of any forward-looking statement or any event or results expressed or implied in any forward-looking sta

#### Not Financial Product Advice

This document does not constitute financial product advice or take into account your investment objectives, taxation situation, financial situation or needs. This document consists purely of factual information and does not involve or imply a recommendation of a statement of opinion in respect of whether to buy, sell or hold a financial product. An investment in Pilbara is considered to be speculative in nature and is subject to known and unknown risks, some of which are beyond the control of Pilbara. Before making any investment decision in connection with any acquisition of securities, investors should consult their own legal, tax and/or financial advisers in relation to the information in, and action taken on the basis of, this document.

## **Important Notices and Competent Persons Statement**

#### **U.S. Securities Laws**

Any securities issued by Pilbara have not been and will not be registered by Pilbara under the United States Securities Act of 1933 ("U.S. Securities Act"). Accordingly, such securities may not be offered or sold in the United States except in transactions that are exempt from, or not subject to, the registration requirements of the U.S. Securities Act.

#### Mineral Resources and Ore Reserves

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.

#### Acceptance

By attending a presentation or briefing, or accepting, accessing or reviewing this document you acknowledge, accept and agree to the matters set out above.

#### No New Information - Resource and Reserves

The Company confirms it is not aware of any new information or data that materially affects the information included in the 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 and in the 30 June 2019 Annual Report.

The Company confirms it is not aware of any new information or data that materially affects the information included in the 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 reserve announcement made on 17 September 2018 and in the 30 June 2019 Annual Report.

## Pilgangoora Lithium-Tantalum Project

One of the largest spodumene-tantalite resources in the world

- Production ramp up well advanced
- 11 shipments with 13 cargoes of spodumene concentrate during FY19
- Products shipped
  - ~6% spodumene concentrate
  - +5% tantalite concentrate
- Short-term production moderation strategy in response to current market dynamics
- New Stage 1 production offtake agreement with Great Wall Motors
- Binding term sheet agreed with POSCO for JV, final documents and board approvals December Quarter 2019
- New strategic investor CATL



## **Exceptional growth opportunity**

A clear expansion pathway to meet customer growth requirements over time

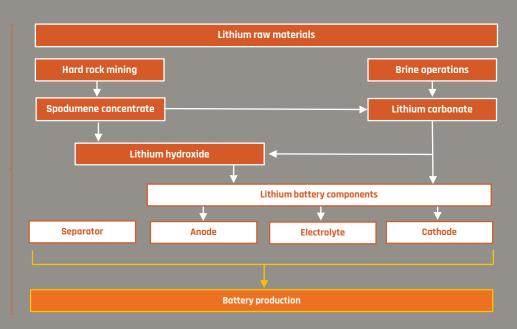
A cieur expunsion putriway to meet customer growth requirements over time									
		DOWNSTREAM							
	STAGE 1: 2MTPA	STAGE 2: 5MTPA	STAGE 3: 7.5MTPA*	POSCO JV					
	STAGE: Operations	STAGE: DFS and conditional FID complete on original Stage 2 project	STAGE: Proposed subject to market demand	<b>STAGE:</b> Binding Term Sheet					
	STATUS: Production (in ramp up) and shipments	STATUS: Revised Stage 2 expansion under consideration - Feasibility study expected to complete in December Quarter 2019 and FID shortly thereafter	STATUS: Scoping study complete On hold	STATUS: Formal agreements, FID and Board approvals expected in December Quarter 2019					
	PRODUCTION: 330,000tpa ~6% spodumene concentrate and 321,000lbspa +5% tantalite concentrate	FINAL PRODUCTION: Incremental build out to 800- 850,000tpa~6% spodumene concentrate and 800,000lbspa +5% tantalite concentrate	PRODUCTION: Up to 1.2Mtpa ~6% spodumene concentrate 1,100,000lbspa +5% tantalite concentrate	PRODUCTION: 40ktpa LCE facility 21% ownership increasing to 30% Commissioning expected from the March Quarter 2021					
	<b>OFFTAKE:</b> Stage 1 spodumene concentrate ~100% under agreement	<b>OFFTAKE:</b> Stage 1 and 2 spodumene concentrate ~100% under agreement	<b>OFFTAKE:</b> 100% uncontracted	<b>OFFTAKE:</b> POSCO developing the offtake pipeline following final product qualification					

<sup>\*</sup> Up to 7.5Mtpa, pending final engineering and customer demand

# Hard rock lithium supply: key to future battery production

Its ability to be directly converted into lithium hydroxide makes hard rock supply more cost competitive and the preferred feedstock for the emerging high nickel cathode chemistries which support energy dense batteries that enable extended driving range.

BATTERY SUPPLY CHAIN





## Lithium battery technology

Increased energy density and performance will make high nickel cathode batteries the technology of the future

Cathode material	Main advantage	Main disadvantage	Applications	Lithium content	Lithium material
Nickel manganese cobalt oxide (NMC)	Safety	High cycle life/lower capacity	HEV	7%	Lithium carbonate or Lithium hydroxide
Nickel cobalt aluminum (NCA)	High capacity	Safety concerns	EV – P-HEV	7%	Lithium hydroxide
Lithium iron phosphates (LFP)	High thermal stability/safety	High cycle life/lower capacity	HEVs – EVs	4%	Lithium carbonate

- Significant research and investment in improving stability of high nickel cathode batteries
- High quality batteries key to supporting growth in electric vehicle market



## Chinese lithium market

Changes to government subsidy in 2019

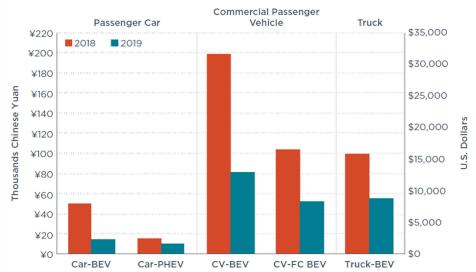
- Subsidy regime for new energy vehicles (NEV) adjusted
- NEVs with longer range to receive subsidies
- Subsidies removed from NEVs with shorter range
- Production focused on cheaper lithium-ion phosphate batteries
- Takes time for industry to re-adjust

#### Base subsidy determined by electric vehicle demand

	BEV electric range (R, km)					PHEV electric range (R,km)
	150≤R<200	200≤R<250	250≤R<300	300≤R<400	R≥400	R≥50
2019		0	1	8	25	10
2018	15	24	34	45	50	22

Note: Subsidy amount in CNY1,000

#### Comparison of NEV subsidies in 2018 and 2019



CV-BEV refers to regular battery electric commercial passenger vehicle and CV-FC BEV refers to a fast charging battery electric commercial passenger vehicle



## Car manufacturers to drive high quality battery demand



## LONG TERM CONTRACTS

10+ year battery supply agreement LG Chem and CATL (**VW**)

10-year lithium supply agreement with Ganfeng Lithium (**Volvo**)

\$4.7B battery supply contract with CATL (**BMW**)



## **MAJOR COMMITMENTS**

"Over the next 10 years **VW** will be launching 70+ new pure EVs...."

"The future of **Volvo** is electric and we are firmly committed to moving beyond the internal combustion engine"

"By 2023, BMW will offer 25 electrified models"



SK Innovation plans to ramp up annual output from 5GWh to **100 GWh** by 2025

The Korea Herald. 27 May 2019

Asia-based battery companies and global carmakers are planning to spend **\$300B** on EV technology over the decade *Reuters, 15 May 2019* 

POSCO to expand global market share of battery material supply by 20% or **\$15.22B** of sales by 2030 POSCO. 6 March 2019



Fully electric cars to make up 50% of **VW** global sales volume by 2025 (VW)

All new cars launched by **Volvo** from 2019 onwards will be partially or completely battery-powered

By 2025, electrified vehicles expected to account for between 15-25% of **BMW** sales

9 Pilbara Minera

## Proposed POSCO JV

Very important strategic relationship with POSCO for participation in the rapidly developing South Korean lithium ion battery market

- Up to 30% JV in chemical conversion facility in South Korea with the capacity of 40ktpa (LCE basis)
- Facility to apply Posco's PosLX technology for lithium chemicals purification
  - Outstanding technology creating very high purity products and enabling reagent recycling
  - Hydroxide / carbonate production underway at the Gwangyang demo plant
- Synergy maximisation through development within a larger battery raw materials industrial park
- Binding terms reached
- FID of both Boards expected in the December Quarter 2019

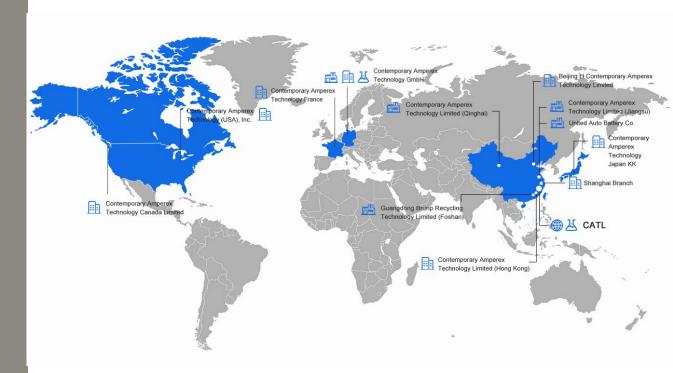




## Who is CATL?

## China's largest battery manufacturer for EVs

- Listed on the Shenzhen stock exchange with market cap ~US\$22bn¹ and available cash of US\$4.7bn²
- Three battery manufacturing facilities in China, two main R&D centres in China and Germany, 24,000 staff globally
- Annual battery cell production capacity reached 23.4GWh in 2018 accounting for 41% of China's total<sup>3</sup>
- Strategic agreements with Toyota, BMW, Volkswagen, and Honda, among others



## CATL strategic benefits

New strategic relationship with a strong, experienced, global partner



Combines **CATL's downstream battery and market expertise** with Pilbara Minerals' expertise in upstream lithium mining operations



Further diversifies Pilbara Minerals' **strategic shareholder** base, adding a battery manufacturer to the existing core strategic shareholders



CATL is a key player in the battery market with a **strong balance sheet (US\$4.7bn in cash¹)** 



Connects Pilbara Minerals to one of the **world's largest battery companies**, further integrating Pilbara Minerals' within the lithium ion supply chain



CATL is **supportive of Pilbara's development strategy** (subject to lithium market sentiment and other customer demand) and **the scale and quality of the Pilgangoora project** 

## Well positioned post placement

Focus on reaching Stage 1 nameplate capacity and developing the 40ktpa lithium hydroxide conversion facility with POSCO

- Strong balance sheet and enhanced financial flexibility
- Supports ramp-up to name-plate capacity to achieve target operating cash costs of USD\$320-350/dmt CFR China (target Q4 FY20)<sup>1</sup>
- Provides funding for an initial 21% share<sup>2</sup> in POSCO JV to develop a 40ktpa lithium hydroxide conversion facility in South Korea
- Supports completion of feasibility study and committed long lead items for revised incremental Stage 2, 5Mtpa expansion in preparation for FID in early 2020 (aligned with customer requirements)



 Refer to ASX announcement dated 25 July 2019; 2. Pilbara Minerals has the option to increase its POSCO JV position to 30% at its initial cost of entry for a 6 month period post commencement of JV production. Refer ASX announcement dated 27 August 2019. Transaction still subject to board approvals and other conditions as outlined in the ASX release.

#### **PRODUCE**

- Achieve annual nameplate production capacity
   330,000dmt of high-quality 6% spodumene concentrate and 300,000lbs of tantalite concentrate.
- Complete plant rectification and improvement works to support lower production costs.

Long term strategy to become a fully integrated lithium raw material and chemical supplier

#### **GROW**

- Increase mine life through exploration
- Complete studies and secure funding for incremental Stage 2 expansion.
- Commence incremental project expansion in line with customer demand.

#### **DIVERSIFY**

- Finalise JV with POSCO to develop and operate a 40,000tpa downstream chemical conversion facility in South Korea.
- Continue to expand and diversify our customer base



