



**Pilbara
Minerals**



Net Zero Emission Mining WA Conference 2021

Pilbara Minerals at the “Coal Face” of
Transformative Technology for Lithium

Dale Henderson Chief Operating Officer

Wednesday 13 October 2021

ASX: PLS / BBG: PLS AU

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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). Such estimates of reserves are largely dependent on the interpretation of data and may prove to be incorrect over time. No assurance can be given that the reserves and contingent resources presented in the document will be recovered at the levels presented. Recipients should note that while Pilbara Minerals’ 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 Minerals 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 Minerals 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 Minerals 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.

Information regarding expansions in production capacity (Pilgan Plant and the Ngungaju Plant)

Information in this presentation regarding expansions in nameplate capacity of the Pilgan Plant and the Ngungaju Plant are underpinned by the Company’s existing Ore Reserves that have been prepared by a Competent Person in accordance with the JORC Code (2012 Edition) and were released by the Company to ASX on 17 September 2018 (Pilgangoora Reserve and Resource Upgrade) and as updated in the Company’s 30 June 2020 Annual Report. The relevant proportions of proven Ore Reserves and probable Ore Reserves are 17% proven Ore Reserves and 83% probable Ore Reserves. The Company confirms it is not aware of any new information or data that materially affects the information included in that release or report and that all material assumptions and technical parameters underpinning the Ore Reserves estimates continue to apply and have not materially changed.

Information regarding the Ngungaju Plant and South Pit Area (formerly Altura Lithium Operations)

Information regarding the recently acquired Ngungaju Operation including the Ngungaju Plant (formerly the Altura lithium project) in this presentation including information relating to the Ngungaju Plant’s individual (ie. not combined with the Pilgan Plant) production, recoveries and reserves estimates, life of mine plans has been sourced using publicly available information and has not been independently verified by the Company. At the time of the acquisition of the project (20 January 2021), the Company had undertaken limited due diligence in relation to the project and therefore may not have been aware of all the material information, assumptions, facts and circumstances. Since the acquisition, the Company has continued to evaluate the project, however, at the date of this presentation this evaluation remains ongoing and is incomplete. Accordingly, the Company does not, subject to the Corporations Act, make any representation or warranty, express or implied, as to the accuracy or completeness of this information relating to the Altura project or the Ngungaju Plant in this presentation.

While the Company has continued to conduct due diligence on the project, Pilbara Minerals has not yet completed its independent verification in relation to the accuracy or completeness of the information provided, and there is no assurance that all material issues and risks in relation to the project and the Ngungaju Plant have been identified. Receipt of new, additional or updated information, assumptions or modifying factors may change production targets, recoveries, ore reserves estimates, life of mine plans and other forward-looking statements concerning the project and the Ngungaju Plant in this presentation. To the extent that this information is incomplete, incorrect, inaccurate or misleading, there is a risk that the production, profitability and future results of the operations of Pilbara Minerals may differ (including in a materially adverse way) from Pilbara Minerals’ expectations as reflected in this presentation, or that additional liabilities may emerge.

In this respect, the JORC ore reserves estimates previously stated in the ASX announcement by Altura Mining Limited dated 9 October 2019 are currently under review by the Company and the Company will use its own economic assumptions and modifying factors. These and other factors may result in changes (including the possibility of reductions) in the and Ore Reserves estimates previously stated by Altura Mining Limited.

No new information – Pilgan Plant and Operation (formerly Pilgangoora Plant and Operation)

In respect of the Pilgan Operation, information concerning the current ore reserve estimates, production targets and forecast information derived from the production targets (including information relating to the proposed expansions of the Pilgan Plant and Operations), is extracted from the ASX announcement dated 3 August 2018 entitled “Outstanding DFS Results Support Pilgangoora Expansion”; the ASX announcement dated 17 September 2018 entitled “Pilgangoora Reserve and Resource Upgrade”; the ASX announcement dated 26 March 2019 “Stage 3 Scoping Study Outcomes”; the ASX announcement dated 27 August 2019 entitled “Update on Partnering Process and Revised Stage 2”, and as updated in the 30 June 2020 Annual Report.

Information concerning the current mineral resource estimate relating to the entire Pilgangoora Project comprising the Pilgan Operation and the Ngungaju Operation (formerly Altura Lithium Operation) is extracted from the ASX Announcement dated 6 September 2021.

Pilbara Minerals confirms that it is not aware of any new information or data that materially affects the information included in these announcements and that all material assumptions and technical parameters underpinning the resource and reserve estimates, production targets and forecast financial information derived from the production targets in the announcements continue to apply and have not materially changed. Pilbara Minerals confirms that the form and context in which the Competent Persons’ findings are presented have not been materially modified from the original market announcements.

The scoping and other technical studies referred to in this report in respect of an incremental expansion of the Pilgan Plant and Operations (including revised Stage 2 expansion and/or the Stage 3 expansion) have been undertaken to determine the potential viability of those expansions and to reach a decision to proceed with more definitive studies. Each scoping study has been prepared to an accuracy level of $\pm 30\%$. Each scoping and technical study is based on low-level technical and economic assessments and is insufficient to provide assurance of an economic development case at this stage or provide certainty that the conclusions of the studies will be realised. The results of the studies should not be considered a profit forecast or production forecast.

Past performance

Statements about past performance are not necessarily indicative of future performance.

References to Australian dollars

All references to dollars (\$) and cents in this report are to Australian currency, unless otherwise stated.

Acceptance

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

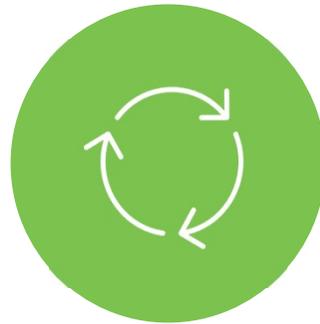
Authorisation of release

Release of this market announcement is authorised by Ken Brinsden, Pilbara Minerals Limited’s Managing Director.

It's been a big year for Pilbara Minerals



World's largest independent hard rock lithium operation



One operation with two processing plants



ASX200
~\$6B market cap



Growth and diversification opportunities through technology



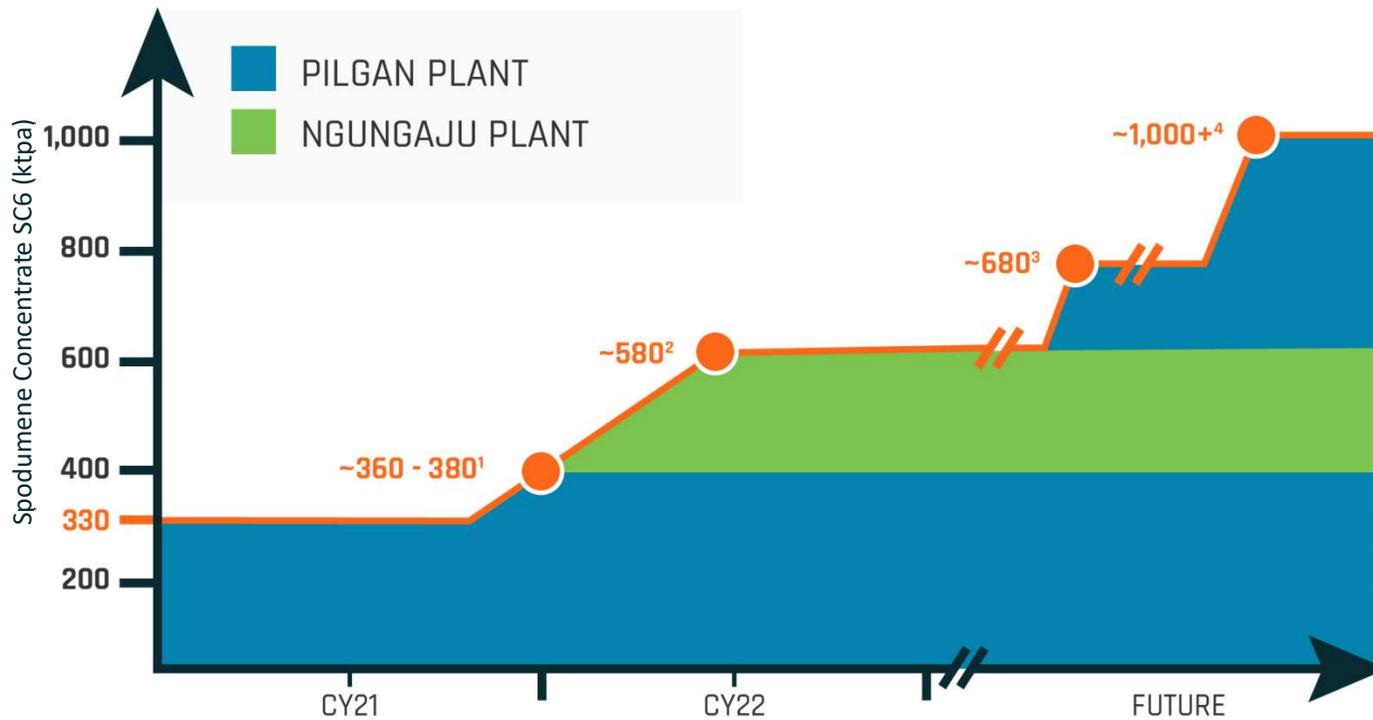
One operation, two processing plants

Targeting expanded production capacity to 560-580,000tpa spodumene concentrate by mid-CY2022, maximising participation in rapid demand growth

- **Products:**
 - ~5.5% - 6% Li₂O spodumene concentrate
 - +5% primary tantalite concentrate
- **Pilgan Processing Plant**
 - in production and operating at nameplate capacity ~330,000tpa
 - improvement projects underway to increase capacity by a further 30-50,000 tpa (10-15% increase)
 - potential phased expansion, increasing nameplate capacity incrementally to ~800-850,000 tpa, subject to prevailing market conditions
- **Ngungaju Processing Plant (pronounced - Nuh-ga-ju)**
 - Altura Lithium Operation acquired during FY2021, whilst on care and maintenance
 - FID made for staged restart by end of CY2021, targeting 180-200,000 tpa in production capacity by mid-CY2022
 - engineering underway to improve performance and integrate operation
- **Future expansion opportunities aimed at achieving a combined nameplate processing capacity from both plants supporting +1 Mtpa spodumene concentrate and the production of value-added products**

Upstream expansion strategy

Flexible growth pathway to capture growing demand in the market and increase revenue



Pilgangoora asset supports:

- phased expansion up to and beyond ~1Mtpa in in production capacity
- potential for other value-added lithia based product streams

Expansion timing to be guided by:

- market conditions (including overall demand and price outcomes)
- strategic customer requirements

¹ Production capacity uplift subject to successful construction and commissioning completion of the Pilgan Plant improvement project.

² Production capacity uplift subject to successful restart of the Ngungaju processing plant.

³ Production capacity uplift subject to completion of studies and FID for the first expansion of the Pilgan processing plant (previously termed Stage 2 – Phase 1).

⁴ Production capacity uplift subject to completion of studies and FID for the first expansion of the Pilgan processing plant (previously termed Stage 2 – Phase 2 and 3).

Note A: The abovementioned expansions in production capacity of the Pilgan Plant and Ngungaju Plant are underpinned by the Company's existing Ore Reserves for the Pilgan Operation that have been prepared by a Competent Person in accordance with the JORC Code (2012 Edition) and were released by the Company to ASX on 17 September 2018 (Pilgangoora Reserve and Resource Upgrade) and as updated in the Company's 30 June 2020 Annual Report. The relevant proportions of proven Ore Reserves and probable Ore Reserves that underpin the production targets are 17% proven Ore Reserves and 83% probable Ore Reserves. The Company confirms it is not aware of any new information or data that materially affects the information included in that release or report and that all material assumptions and technical parameters underpinning the Ore Reserves estimates continue to apply and have not materially changed.

Note B: The JORC Resource and Reserves estimates previously stated in the ASX announcement by Altura Mining Limited dated 9 October 2019 in respect of the Ngungaju Operation are currently under review by the Company and the Company will use its own economic assumptions and modifying factors. These and other factors may result in changes (including the possibility of reductions) in the Mineral Resources and Ore Reserves estimates previously stated by Altura Mining Limited. The Company expects to release an update to the market in the September Quarter 2021.

A diversified product suite

Positioning to capture value throughout the entire lithium raw material and chemical supply chain

Upstream



**Spodumene
Concentrate 6% Li₂O**

Pilgangoora
Operation

Offtake

Spot sales

Midstream



**Lithium Salts
>35% Li₂O**

Scoping Study
with Calix

Sales

Downstream

Downstream



**Lithium Fine
Chemicals**

e.g. Potential JV
with POSCO

Further partnering
downstream in fine
chemicals

Midstream – JV with Calix (ASX:CXL) Exploring Value-Added Green Products (Lithium Salts)

Hardrock lithium industry is evolving:

- Need to transition to low-carbon processing methods
- Deployment of superior technologies for:
 - increased spodumene recovery and lithia extraction
 - reducing processing costs to maximise margin
 - attainment of higher levels of consistent product quality
- Improved methods to handle waste products (e.g. aluminosilicates)



Above: Traditional spodumene gas fired rotary calciner

Research and development exploring:

- Alternate processing pathways to deliver lower carbon and higher concentration lithia products
- Focus on unit processes that enable renewable energy



Left: Calix BATMn electric vertical reactor kiln enabling renewable energy powered calcination

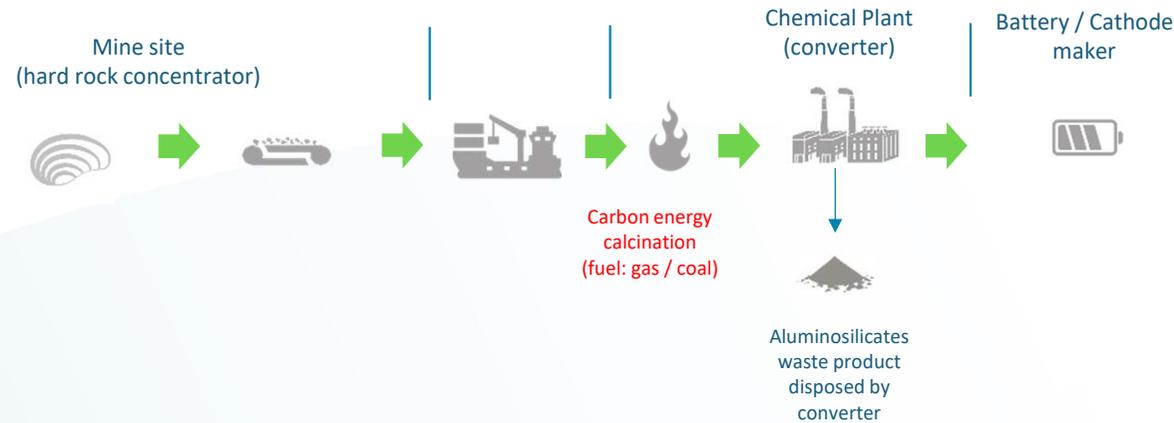
Midstream – JV with Calix (ASX:CXL) Exploring Value-Added Green Products (Lithium Salts)

Conventional spodumene supply chain:

- Carbon intensive
- Aluminosilicates shipped to customer (>90% of export mass)
- Spodumene concentrate SC6.0
 - 6.0% Li_2O (2.80% lithium metal by mass)



Left: Spodumene coarse concentrate

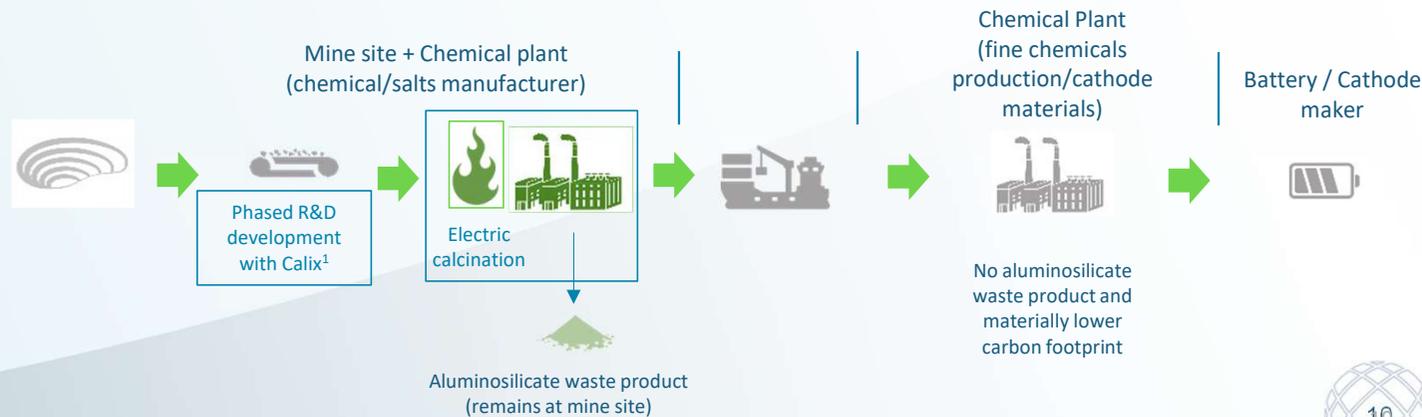


Alternate spodumene supply chain:

- Reduced carbon intensity
- Aluminosilicate waste remains at mine site
- Lithium salts shipped
 - >35% Li_2O (>15% lithium metal by mass)



Left: Lithium salts



¹Lithium chemical development proposed Joint Venture with Calix Limited is detailed in the ASX announcement "Pilbara Minerals targets "Midstream Lithium Chemicals Opportunity with Calix" released on 11 May 2021

Thank you.

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