

PILBARA MINERALS
LIMITED



Pilgangoora – the world's leading
lithium development project

Benchmark Minerals World Tour – Sept 2017

Important Notices and Competent Person's Statement



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Important Notices and Competent Person's Statement



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Competent Person Statement

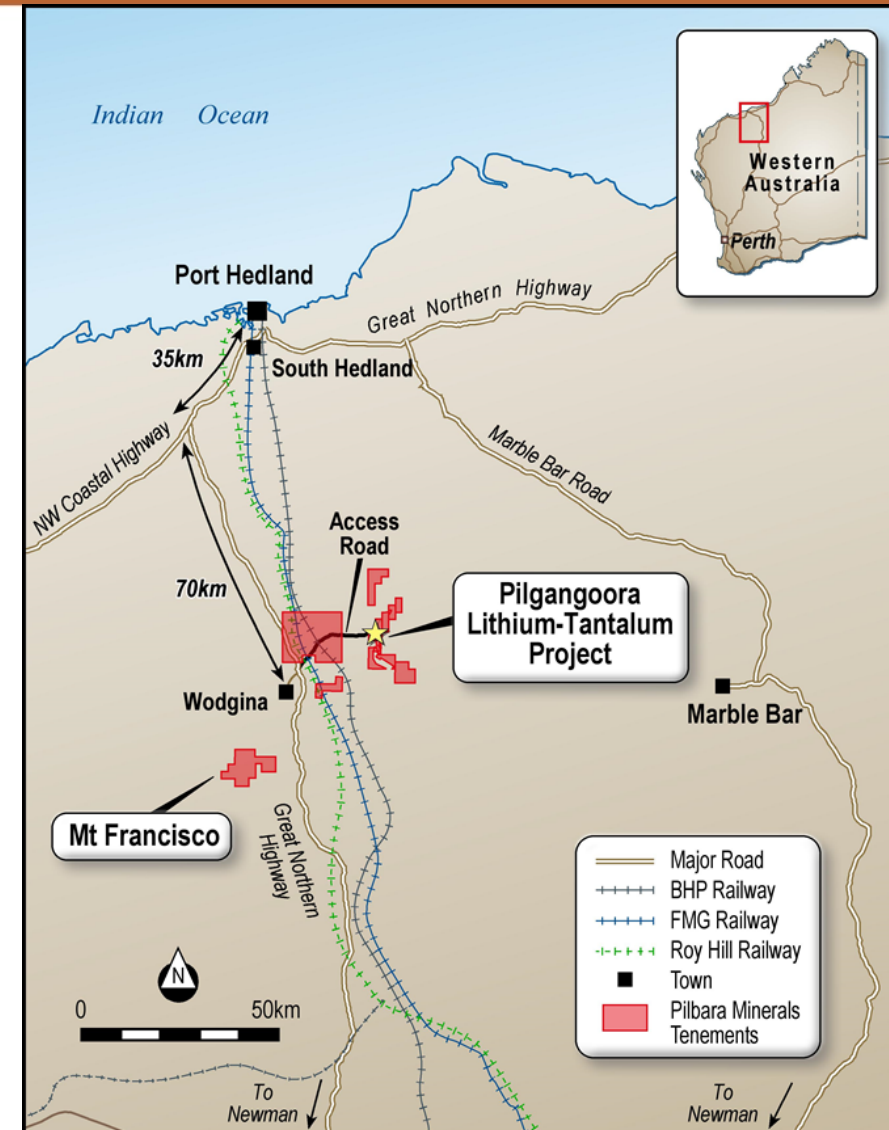
Information relating to the mineral resource estimate at the Pilgangoora Project is extracted from the ASX announcement dated 25 January 2017 entitled "*Pilgangoora Resource Update*", information relating to the current ore reserve estimate at the Pilgangoora Project is extracted from the ASX announcement dated 29 June 2017 entitled "*Pilbara More Than Doubles Pilgangoora Ore Reserves*", information relating to the maiden ore reserve estimate at the Pilgangoora Project is extracted from the ASX announcement dated 10 March 2016 entitled "*Pilgangoora Lithium-Tantalite Pre-Feasibility Study*" and information relating to the production target and forecast financial information derived from the production target is extracted from the ASX announcements dated 20 September 2016 entitled "*Pilgangoora DFS Confirms World Class/Lithium Project*" and "*PFS Outlines Compelling 4Mtpa Expansion Option*" (each of which is available at www.pilbaraminerals.com.au). Pilbara confirms that it is not aware of any new information or data that materially affects the information included in these ASX announcements and that all material assumptions and technical parameters underpinning the estimates, the production target and forecast financial information derived from the production target in the announcements continue to apply and have not materially changed.

Pilbara Minerals – Overview



- ▶ 100% ownership interest in the world-class Pilgangoora Lithium -Tantalum Project
- ▶ Pilgangoora is located in the Pilbara region of Western Australia, a proven mining jurisdiction 120km south of Port Hedland with established transport and port infrastructure
- ▶ One of the largest spodumene-tantalite resources in the world, significant further exploration potential
- ▶ Definitive Feasibility Study (“DFS”) demonstrated technical and financial viability of 2Mtpa Pilgangoora development
 - ▶ *Low cash operating costs¹ over first 15 years: USD 196/t CFR real (SC6.0 concentrate); LOM cash operating costs¹ of USD 207/t CFR real*
 - ▶ *>40-yr mine life, NPV_{10%}² AUD 709m; rapid payback (~2.7 years) at well less than today's price*
- ▶ Updated capex estimate of AUD 234 million for 2mtpa operation
- ▶ Pre-Feasibility Study (“PFS”) indicates compelling economics for expansion to 4Mtpa, 5Mtpa expansion case under assessment to accommodate expected substantial customer demand
- ▶ Cornerstone offtake partners, Ganfeng Lithium and General Lithium
- ▶ Advancing rapidly to production to take advantage of robust market opportunity:
 - ▶ *Major construction works now underway*
 - ▶ *Targeting shipping from 2nd qtr 2018*

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 Ta₂O₅ by-product credits, but exclude state and private royalties and native title costs
2. Net Present Values (NPV) are presented on a nominal after tax basis



An emerging, low-cost producer of lithium and tantalum in the Pilbara region of Western Australia, a Tier-1 mining jurisdiction



Lithium Market

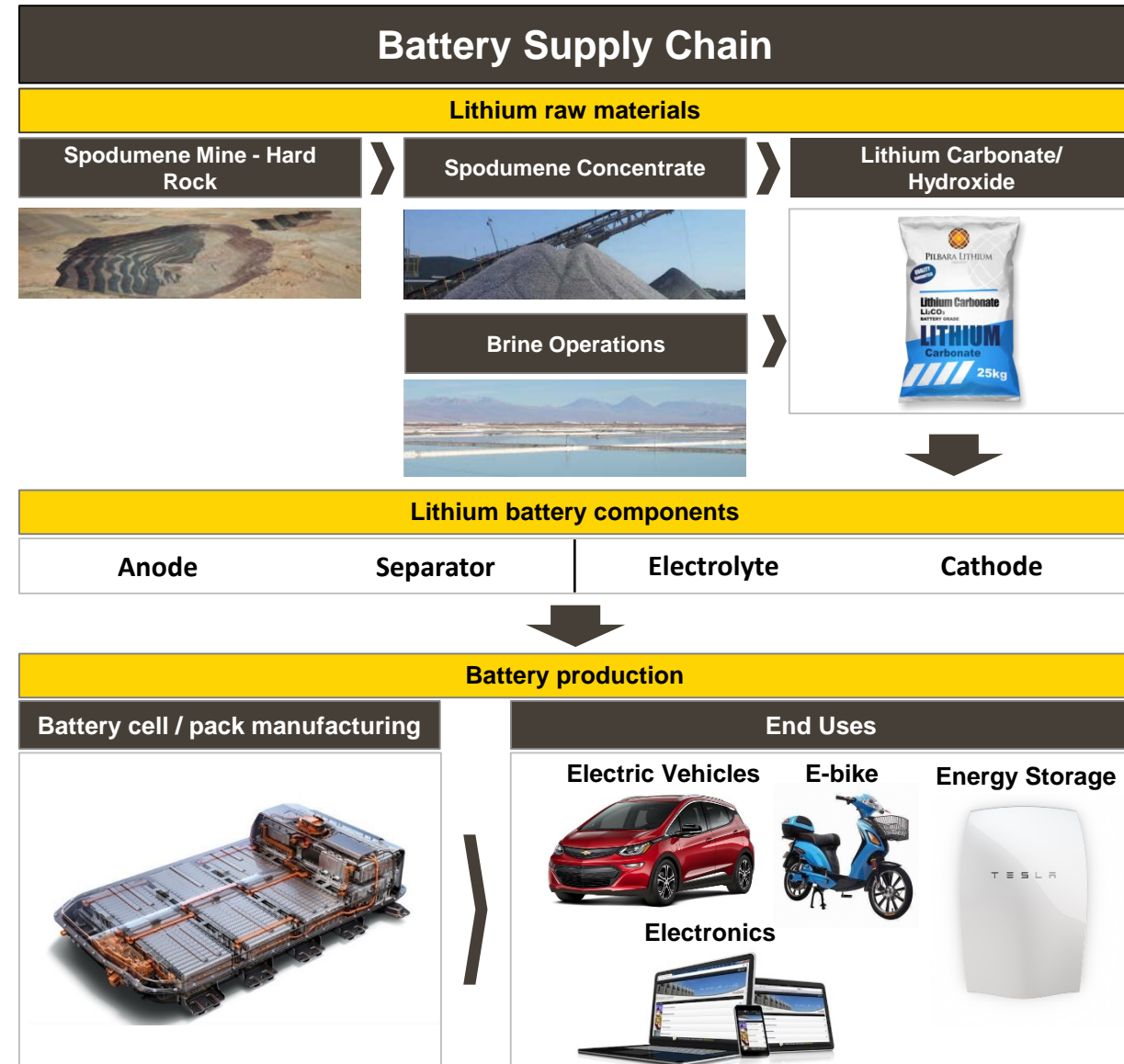
Pilgangoora Project

Lithium raw materials

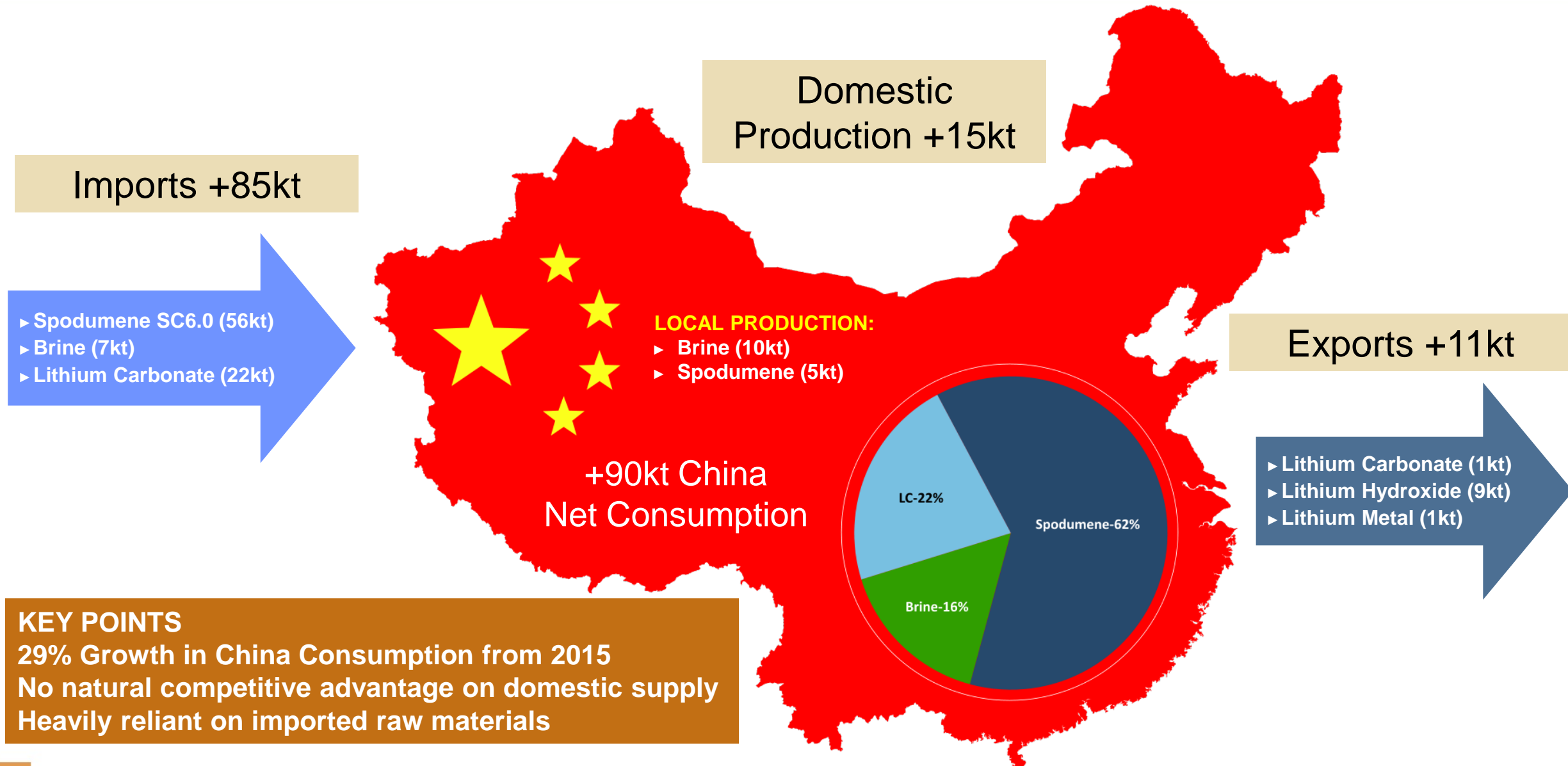
The key ingredient of the improved battery supply chain



- ▶ Lithium raw materials are the vital ingredient for lithium battery technology
- ▶ Lithium is sourced predominantly from:
 - ▶ *hard-rock mining of spodumene deposits;*
 - ▶ *extracting lithium from brine deposits*
- ▶ Australia is the world's largest producer of spodumene concentrate with three mines in production
- ▶ The Pilgangoora deposit is one of the world's largest lithium-tantalum resources
 - ▶ *Measured, Indicated and Inferred Resources of 156.3Mt @ 1.25% Li₂O (lithia) and 128ppm Ta₂O₅*
- ▶ Spodumene ore is processed into a spodumene concentrate (6% Li₂O) and then converted into a lithium carbonate or lithium hydroxide to be utilized in lithium battery components
- ▶ Approximately 7.5t of 6% Li₂O spodumene concentrate is required to produce 1t of lithium carbonate (at 90% recovery to lithium carbonate)

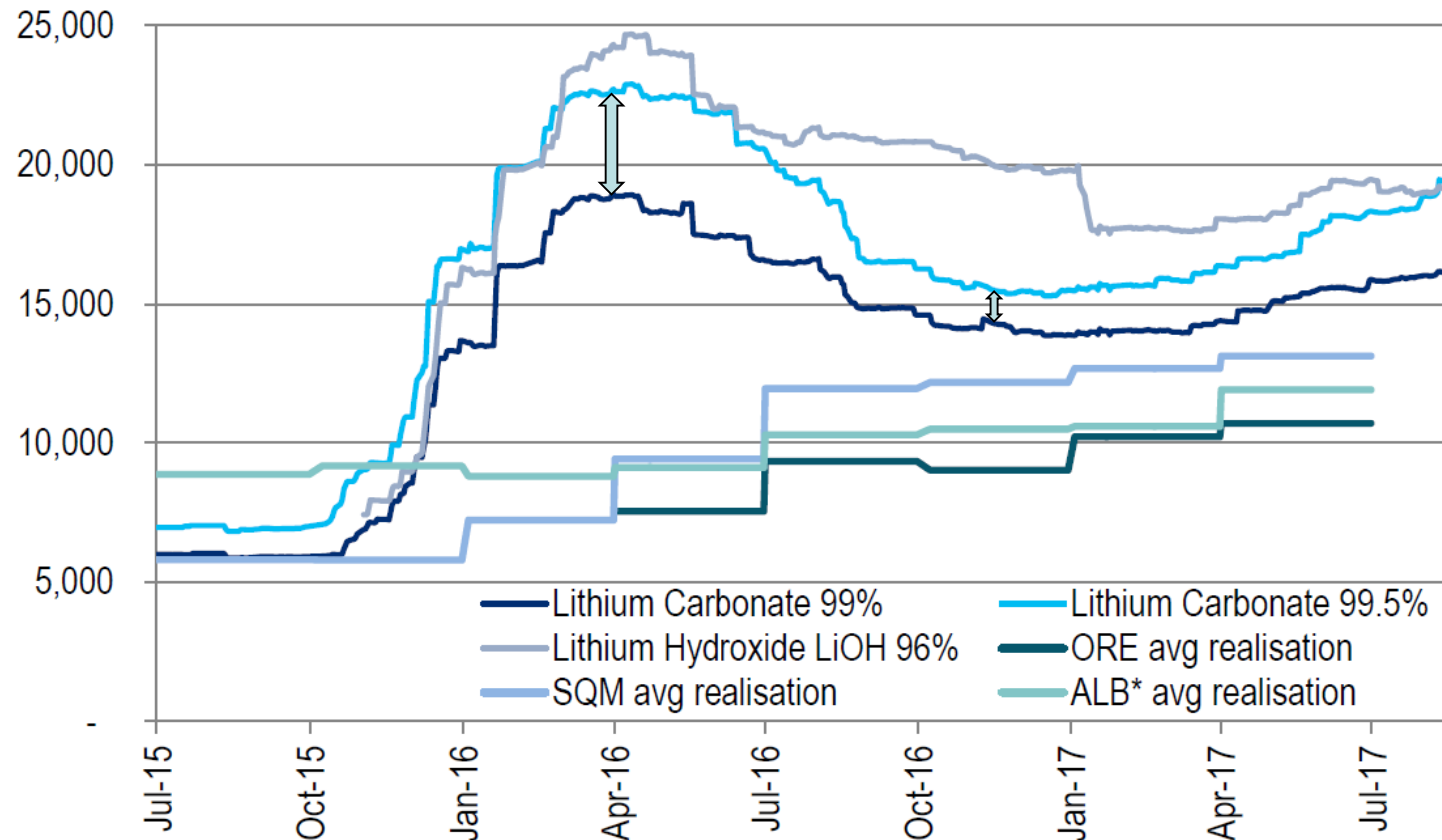


China market overview – 2016 snapshot (Lithium Carbonate Equivalent)





Lithium Carbonate Prices (US\$/t)



Lithium Carbonate ≈99% Technical Grade
Lithium Carbonate ≥99.5% - Battery Grade

↑↓ Variance – Battery Grade vs Technical Grade over recent history

Minimum - +USD\$1,200/tonne

Maximum - +USD\$3,500/tonne

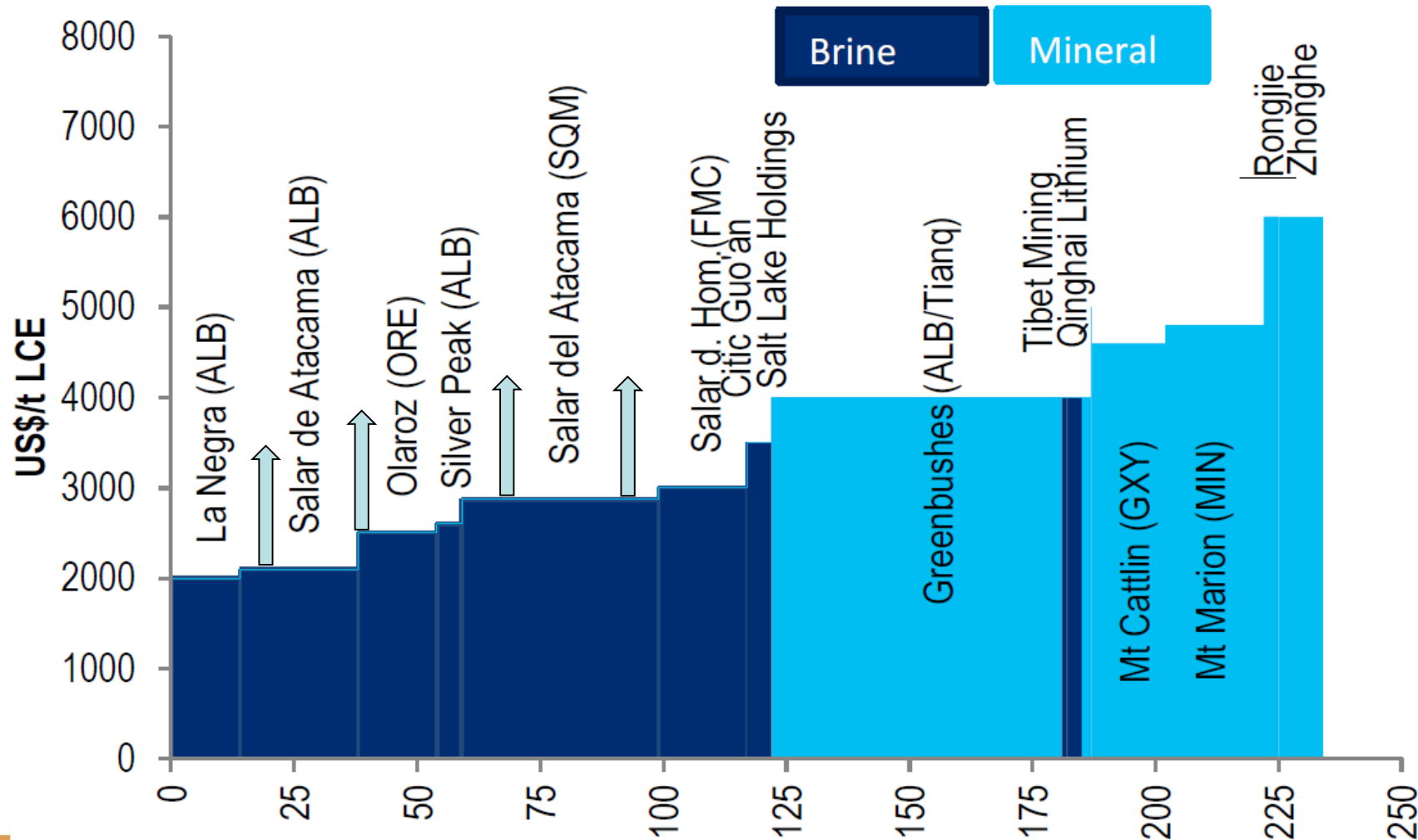
Several implications –

- Technical Grade vs Battery Grade price variance driven by segment demand, and
- The relative cost of achieving the higher Battery Grade specification from input raw materials
- Spodumene concentrates are typically 'cleaner' than brine sources of supply and therefore readily upgrade to Battery Grade product

Source: Company reports, AsianMetal, Citi Research



Cost Curve for Existing Operations



Global cost curves are not 'normalised' for Battery Grade specifications, i.e. $\geq 99.5\%$ purity lithium carbonate

The majority of brine production does not meet Battery Grade specifications and therefore has to have more money spent on it to achieve the higher, in-demand specification

Several implications –

- Conventional wisdom on the relative cost of brine versus hard rock production is being broken down, and
- The growth in Battery Grade demand favours further hard rock supply to market because of its quality advantages, and
- This could get worse for brines over time as further purity is sought to improve battery technology
- ALB has the added complication of additional royalties in Chile (circa USD\$1,000/t at greater than \$10,000/t carbonate pricing)



Lithium Market

Pilgangoora Project

Project highlights **Outstanding project economics driven by very low cost of operations**

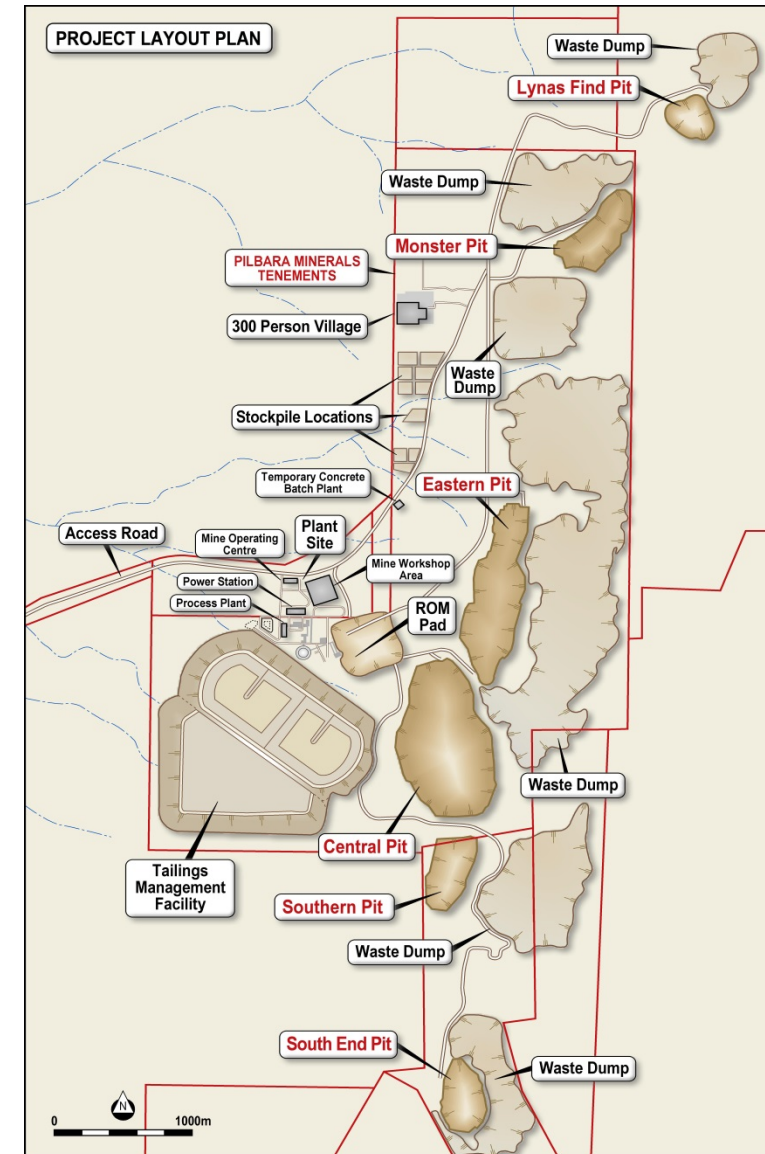


DFS OUTCOMES, 2Mtpa Process Capacity - Base Case

- ▶ Average annual production of approximately 314ktpa of 6% spodumene concentrate (44ktpa of Lithium Carbonate Equivalent or LCE) and 321,000lbs pa of tantalite in concentrate
- ▶ LOM revenues of AUD 9.2bn (real) generating LOM after tax cash flows of AUD 2.6bn
- ▶ EBITDA over first 5 years of operations of approximately AUD 136m per annum (real)
 - ▶ *LOM EBITDA average of AUD 121m per annum*
- ▶ DFS based on assumed LOM average spodumene price of USD 537/t CFR derived from basket of independent forecasters/brokers/banks
 - ▶ *Recent spodumene price settlements for 2017 of USD 905/t FOB Esperance (Galaxy Resources) & USD841 /t CFR China (Neometals) (SC6.0 basis)*
- ▶ Operating cash costs¹ per tonne of spodumene concentrate (SC6.0)
 - ▶ *First 15 years, USD 196/t CFR*
 - ▶ *Life-of-Mine, USD 207/t CFR; generating healthy margins at assumed prices*
- ▶ Project payback in ~2.7 years
- ▶ Project NPV²10% of AUD 709m and IRR of 38% (DFS Ore Reserve basis)
- ▶ Project capital estimate of AUD 224m (incl. AUD 10m pre-production costs) (±15% accuracy)
- ▶ Updated capex to AUD 234 million to reflect more detailed front end engineering on process plant

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 exclude state and private royalties and native title costs
2. Net Present Values ("NPV") are presented on a post tax nominal basis

Involved parties in the DFS: Como Engineers, Trepanier Pty Ltd, MiningPlus, ATC Williams, Significant Environmental Services, Groundwater Resource Management and MJA Consulting





- ▶ Testwork and now pilot scale programs deliver outstanding results and demonstrates the class of the Pilgangoora project as a large-scale, low cost supplier of quality lithium raw materials.
 - ▶ *Genuine 6% Lithia (SC6.0) spodumene concentrates for the battery market;*
 - ▶ *Technical Grade concentrates proven in pilot scale testwork;*
 - ▶ *7.22% Lithia and 0.12% Fe₂O₃ (SC7.0) spodumene concentrates for the glass and ceramic markets*
 - ▶ *Tantalite concentrates suitable for the entire global market.*



Flotation Pilot Plant - Milling, Conditioning, De-sliming and Reagents

Pilgangoora lithium products suit the entire lithium raw material market, including historical segments and new demand growth areas

Pilgangoora Project – current work streams



HPGR



FILTER PRESS



PILGANGOORA WATER



CAMP BUILDING INSTALLATION



ROM / PLANT / TMF AREA CIVIL WORKS

Construction progress – Process Plant



- ▶ Bulk civil earthworks complete in process plant area with the exception of the crusher pad
- ▶ Process plant pads ready for handover to RCR
- ▶ Access road upgrades underway



Construction progress – Tailings Mgt Facility



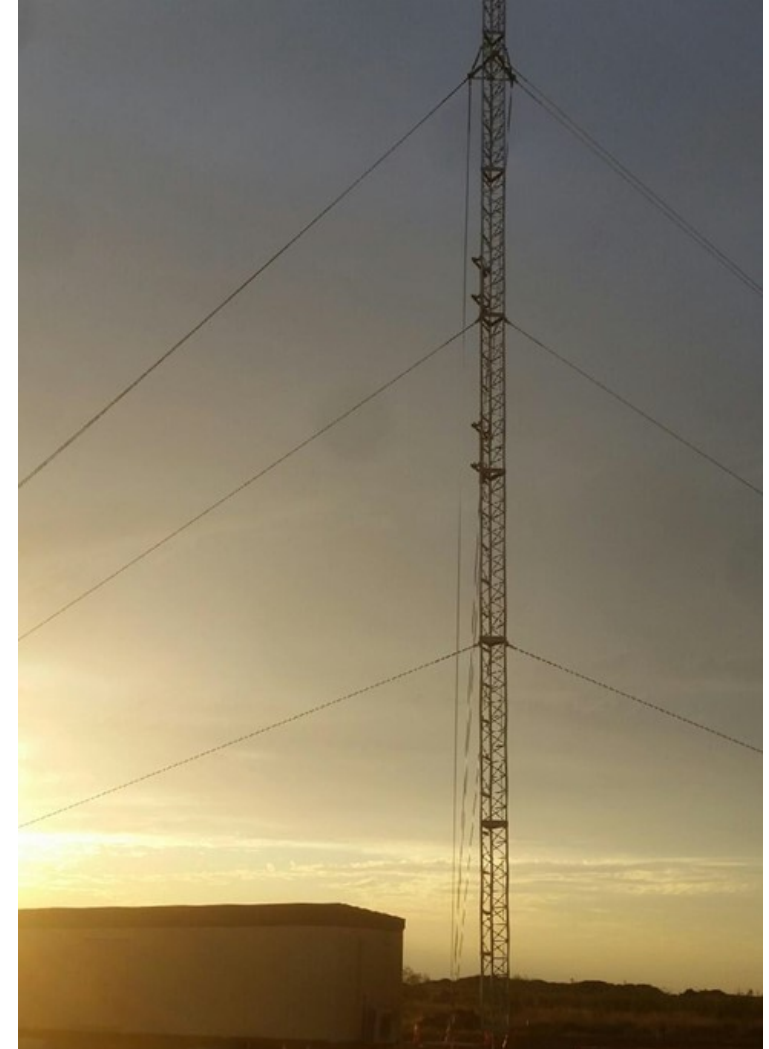
- ▶ TMF (cell 1) clearing complete
- ▶ Cell wall key trench in progress



Construction progress



- ▶ Communications tower and comms building in place
- ▶ Cellular phone network and high speed data comms
- ▶ Commissioning complete by the end of September



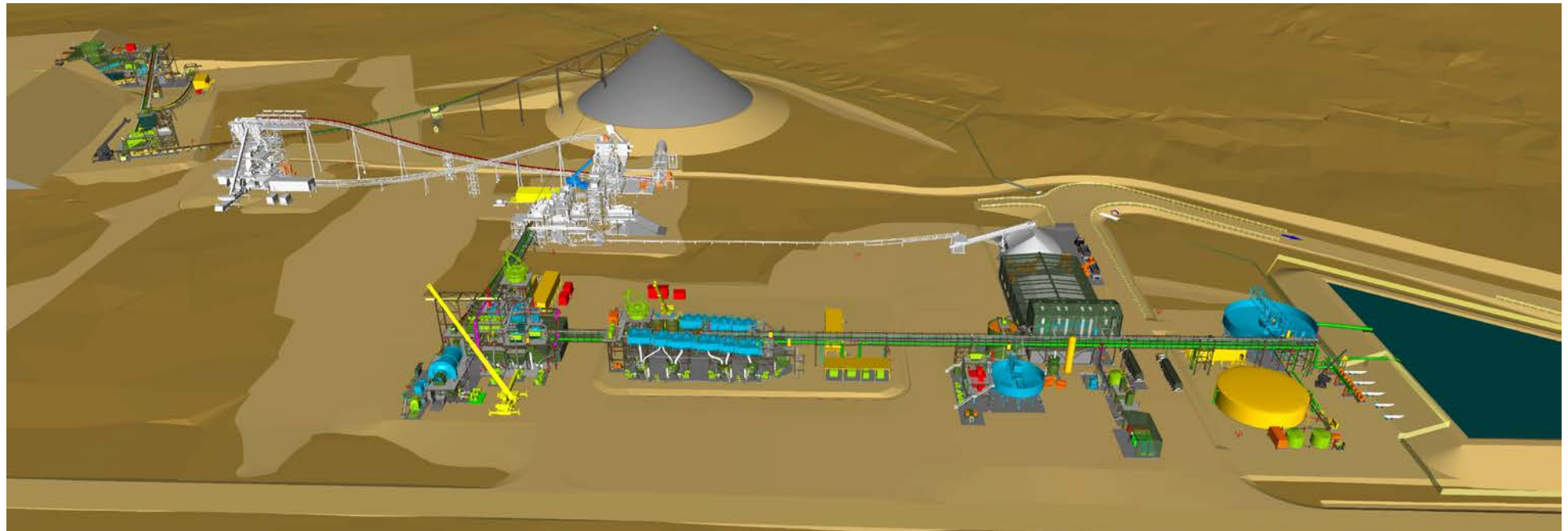
4Mtpa Expansion Option – Pre-Feasibility Study (“PFS”) Complete



Outstanding projected economic returns, project likely to grow to 5Mtpa

- ▶ Modest estimated incremental capital to expand to 4Mtpa, AUD 128m
- ▶ LOM average annual production of approximately 564ktpa of 6% spodumene concentrates inclusive of technical grade product (75ktpa LCE); 579,000lbs of tantalite in concentrate
- ▶ Estimated LOM cash operating costs¹ further reduced to USD 180/t CFR demonstrating economies of scale
- ▶ Projected annual average EBITDA increases to AUD 245m from AUD 121m
- ▶ Forecast Net Present Value (NPV²10%, post-tax) of AUD 1,165m; Project payback of 3.1 years (on cumulative capital)
- ▶ Highlights the scale and cost-competitiveness of Pilgangoora’s future production
- ▶ 5Mtpa engineering and metallurgical testwork underway targeting >800ktpa Spodumene concentrate (≈100ktpa LCE)
- ▶ Expansion project subject to further feasibility work, market analysis and Pilbara Board approval

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 exclude state and private royalties and native title costs.
2. NPV are presented on a nominal basis



Offtake secured **Strong industrial relationships with offtake partners**



- ▶ Stage 1 (2mpta) 10-year 160,000tpa 6% chemical-grade spodumene concentrate offtake signed with Ganfeng Lithium
 - ▶ *Includes a binding equity subscription agreement of USD 20m*
 - ▶ *Pricing based on a 6-month pricing mechanism that takes into account the Chinese import and domestic prices of lithium carbonate plus a floor price mechanism*
 - ▶ *Option for Ganfeng Lithium to extend another 5 + 5 years*
- ▶ Stage 2 (4mtpa expansion option) offtake of 75,000tpa to 150,000tpa, plus AUD 65m cash pre-payment or debt finance facility to fund ~50% of the 4Mtpa Stage 2 project, subject to further agreement

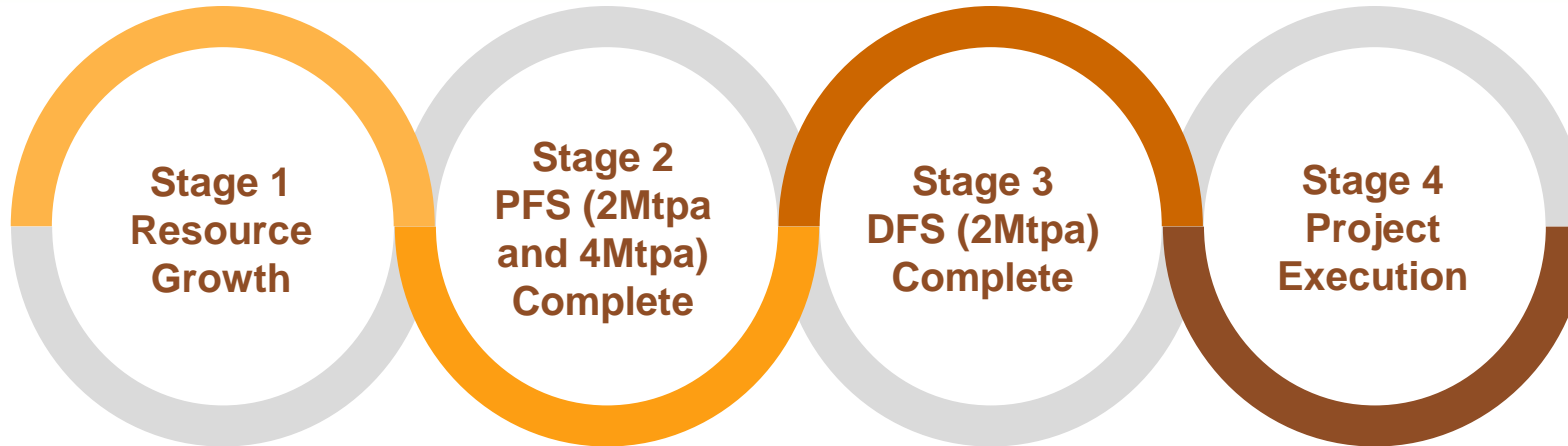


- ▶ Stage 1 (2mpta) 6-year 140,000tpa 6% chemical-grade spodumene concentrate offtake signed with General Lithium
 - ▶ *Includes a binding equity subscription agreement of AUD 17.75m @ 50 cents per share, subject to receipt of regulatory approvals in China*
 - ▶ *Pricing based on a 6-month pricing mechanism, set quarterly, that takes into account the Chinese import and domestic prices of lithium carbonate plus a floor price mechanism*
 - ▶ *Option for General Lithium to extend another 4 years*



General Lithium Corporation

Pilgangoora 2Mtpa – delivering on project execution



PRIMERO



Resource Estimation

- ▶ JORC Inferred /Indicated 130Mt Resource completed
- ▶ 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 Ore Reserve, 29.5Mt @ 1.31% Li₂O, 134ppm Ta₂O₅ tantalite
- ▶ Outstanding project economics
- ▶ Low cost hard-rock Spodumene production
- ▶ Further ore reserve growth expected, growing mine-life



Detailed Design and Project Planning

- ▶ Updated Ore Reserve of 80.3Mt @ 1.27% Li₂O, 123ppm Ta₂O₅; long mine-life,
- ▶ Plant process and design optimisation
- ▶ Product specification and bulk samples to customers
- ▶ Tailings design
- ▶ Opex & Capex updates
- ▶ Updated financial models



Project Execution – from December 2016

- ▶ Updated Resource of 156Mt 1.25% Li₂O
- ▶ Native Title Agreement
- ▶ Mining Leases granted
- ▶ Construction commenced
- ▶ Plant EPC Contract Tender/Award
- ▶ Native Vegetation Clearing Permit
- ▶ Mining Proposal Approval
- ▶ Secure offtake
- ▶ Financing / FID
- ▶ Construction commenced
- ▶ Other construction and operating contracts
- ▶ Commissioning on track from March 2018





Low-cost and
high quality
lithium
products

Significant
resource scale
and grade

Outstanding
project
economics and
ability to
substantially
grow
production

**Offtake and full
project funding
secured**

Rapid pathway
through
construction and
production from
Q2 2018

Ideally placed to
capitalize on
robust lithium
market outlook
and demand

Ideal project location, low-cost, large scale, >40-year mine life and premium product quality position Pilgangoora to be a key supply solution to the burgeoning lithium raw material market





PILBARA MINERALS
LIMITED

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Supplementary Information

Pilbara Minerals – overview



Capital Structure

Current Share Price (3 August, 2017)	A\$	\$0.43
Shares on Issue	#	1,549 million
Options on Issue ¹	#	101 million
Market Capitalisation	A\$	666 million
Cash at bank (@ 30 June 2017)	A\$	87 million
Top 20 Shareholders		35%
3 Month Ave. Daily Volume		9.2 million

1. Options have a volume weighted average exercise price of A\$0.465 and a volume weighted average time to expiry of 1.6 years

Key management

Brian Lynn	Chief Financial Officer
Alex Eastwood	Company Secretary and General Counsel
Dale Henderson	Project Director
John Holmes	Exploration Manager
Jason Cross	Manager – Projects
Greg Durack	Operations Manager
Anand Sheth	Sales and Marketing Executive

Board of directors



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



Ken Brinsden – Chief Executive Officer and Managing Director

- ▶ Mining Engineer with over 22 years' experience including mine management, production and green-fields project development
- ▶ Previously COO and then MD at ASX-listed Atlas Iron Limited contributing to its growth from junior explorer to significant Pilbara iron ore producer

Steve Scudamore – Non-Executive Director

John Young – Non-Executive Director

Nick Cernotta – Non-Executive Director

An emerging, low-cost producer of lithium and tantalum in the Pilbara region of Western Australia, a Tier-1 mining jurisdiction

Board of Directors



Tony Kiernan	Non-Executive Chairman	Highly experienced company director and former solicitor with over 30 years' professional experience. Currently Chairman and a non-executive director of several ASX-listed resource companies
Ken Brinsden	Managing Director	Mining Engineer with over 22 years' experience including mine management, production and green-fields project development. Previously MD at ASX listed Atlas Iron Ltd contributing to its growth from junior explorer to significant Pilbara iron ore producer
Steve Scudamore	Non-Executive Director	Highly experienced public company director. His career includes more than three decades with senior roles in Australia, London and Papua New Guinea
John Young	Non-Executive 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 tantalum, tungsten and molybdenite projects
Nick Cernotta	Non-Executive Director	Highly experienced mining executive with over 30 years' experience. Recently the Director of Operations with Fortescue Metals Group (FMG) and previously the Chief Operating Officer for Macmahon Holdings Limited

Management Team



Brian Lynn	Chief Financial Officer	Chartered Accountant with more than 25 years' experience in the Australian resources sector. Prior to joining Pilbara Minerals, Mr Lynn served as the Chief Financial Officer at Atlas Iron Limited and spent 12 years as the Chief Financial Officer and Company Secretary at ASX Listed Mincor Resources NL
Alex Eastwood	Company Secretary and General Counsel	Lawyer with over 22 years' experience as a commercial lawyer, company secretary and corporate finance executive. Previously held partnerships with two international law firms
Dale Henderson	Project Director	Civil Engineer experienced in major project delivery and operations management within the resources industry. This has included both brown-fields and green-fields environments for several commodity types. His experience includes working for several resource development operators including; Fortescue Metals Group, Chevron, Occidental Petroleum and Solid Energy. Mr Henderson's most recent experience with Fortescue Metals Group has included leading both operations optimization and the project delivery for the Stage 1 Magnetite development for the Iron Bridge Joint Venture.
Anand Sheth	Sales and Marketing Executive	A technical and marketing professional with more than 17 years' experience in the international marketing and global sales of lithium, tantalum minerals and lithium chemicals. Mr Sheth was Marketing Manager of Talison Minerals for 10 years and 4 years as Sales and Marketing Director at Galaxy Resources. Mr Sheth received his Bachelor of Technology in Ceramic Engineering from Institute of Technology, Banaras Hindu University in India in 1985
John Holmes	Exploration Manager	Accomplished geologist with over 25 years' experience in the mineral exploration industry and has a wealth of experience in precious metal, base metal, coal and industrial minerals projects throughout Australasia, Canada, and South America. He is a Member of the Australian Institute of Geoscientists and a Competent Person under the JORC code
Jason Cross	Manager Projects	Management professional with over 20 years' consolidated experience working across a variety of projects including mining, ports, infrastructure, mineral processing, business improvement and IT. Prior to joining Pilbara Minerals, held the role of Manager – Projects at Atlas Iron which involved the establishment and delivery of various mines and the development of the in-house project delivery capability. Jason holds a Master of Science in Project Management, and is PMP and Prince2 accredited
Greg Durack	Operations Manager	A metallurgist with over 30 years' experience in the resources sector both domestically and international primarily in operations management and project development roles within gold and base metals
Garry Plowright	Land Access & Approvals Manager	Mr Plowright's career includes over 20 years' experience in commercial and technical development within the mining and exploration industry, working for some of Australia's leading resource companies. He has been involved in gold, base metals, lithium and iron ore exploration and mining development projects, predominantly in Western Australia. He has considerable experience and knowledge associated with the supply and logistics of services to the mining industry, tenure management and issues relating to environmental impact assessment and regulation, land access, native title, and community consultation

Highly experienced management team with strong experience in exploration, mining and corporate management.
Key metallurgical staff with significant experience in Lithium HMS, flotation and tantalum gravity recovery (Wenbo Wang & Hugo Hordyk)



Lithium Ion Battery Technology

Lithium Market

Pilgangoora Project



*The way we Generate, Use, Distribute and **Store** energy is changing.*

***Lithium Ion** rapidly becoming the **dominant** rechargeable battery technology.*

***Electric Vehicle** uptake driving the growth in demand, followed by energy storage.*

The Lithium-ion Battery is the storage of choice



Super Energy Density



Lighter, more compact & portable



Longer life-cycle and more cost efficient



More environmentally friendly

Batteries are the fastest growing segment of Lithium Demand



Transportation

Cars, buses, bikes.

26.3%

CAGR*
(Roskill)



Consumer Electronics

+ power tools +e-mobility

7.5%

CAGR
(Roskill)



Renewable Grid Storage

16.5% - 35%

CAGR
(Roskill)

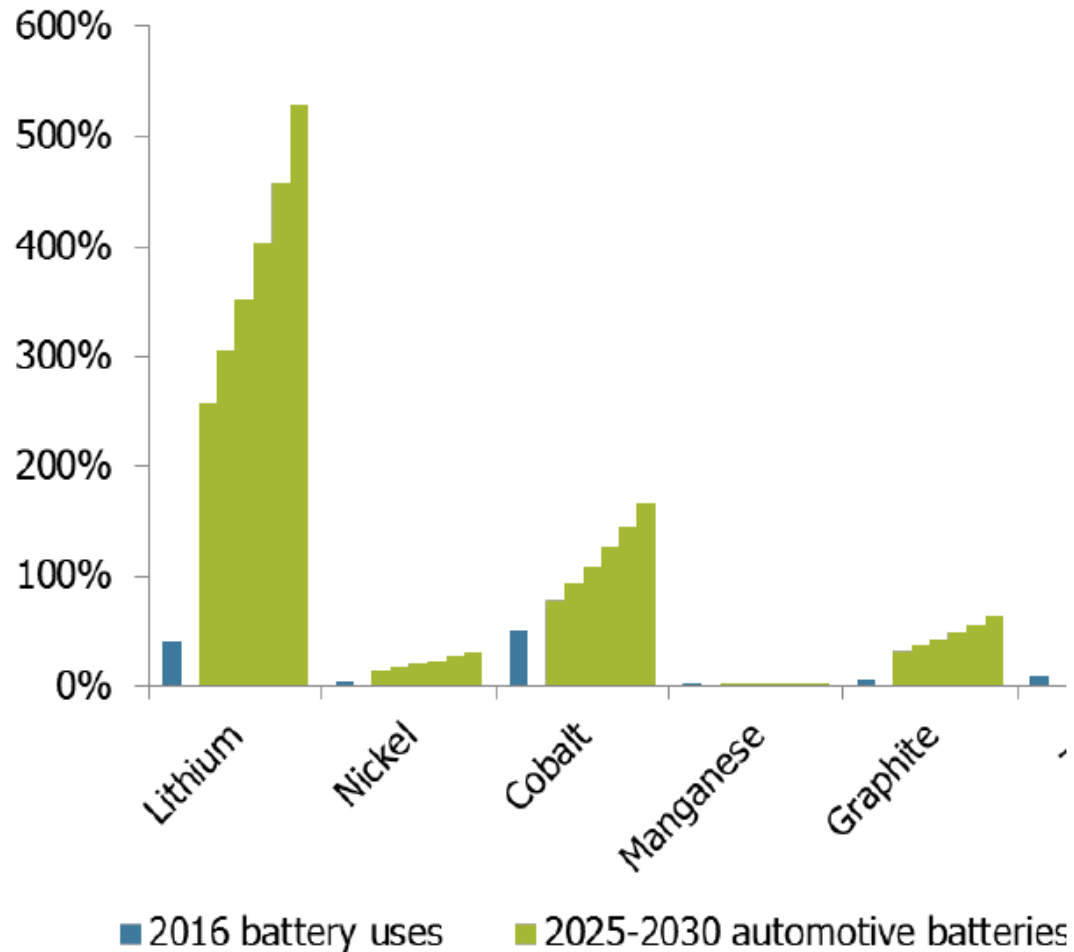
CAGR
(Industrial
Minerals)

* CAGR is 2016 to 2026

Leverage to Lithium Ion Battery Materials



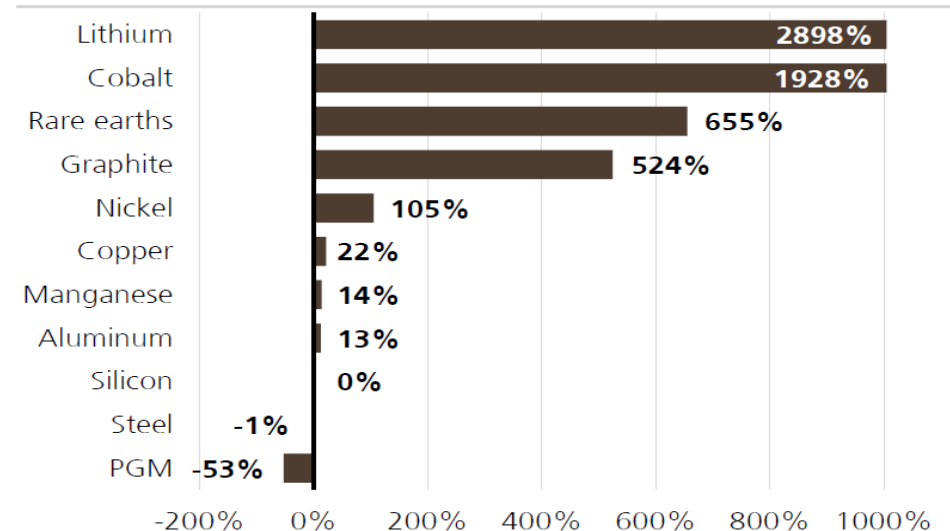
Impact of automotive batteries on total market size (% of 2016 total market size)



Source: Roskill

- ▶ The leverage to Lithium Ion battery materials sits with Lithium
- ▶ Massive market growth required in lithium raw materials to contribute to growth in battery industry;
 - ▶ 250% supply growth to 2025
 - ▶ >500% supply growth to 2030
- ▶ Its often said that there is plenty of lithium in the ground and while true, to meet burgeoning market demand it has to come out of the ground
 - ▶ *Requires time and investment, neither of which have been activated while significant capital flows downstream in lithium ion battery manufacturing capacity*

Incremental commodity demand in a 100% EVB world (% of today's global production)

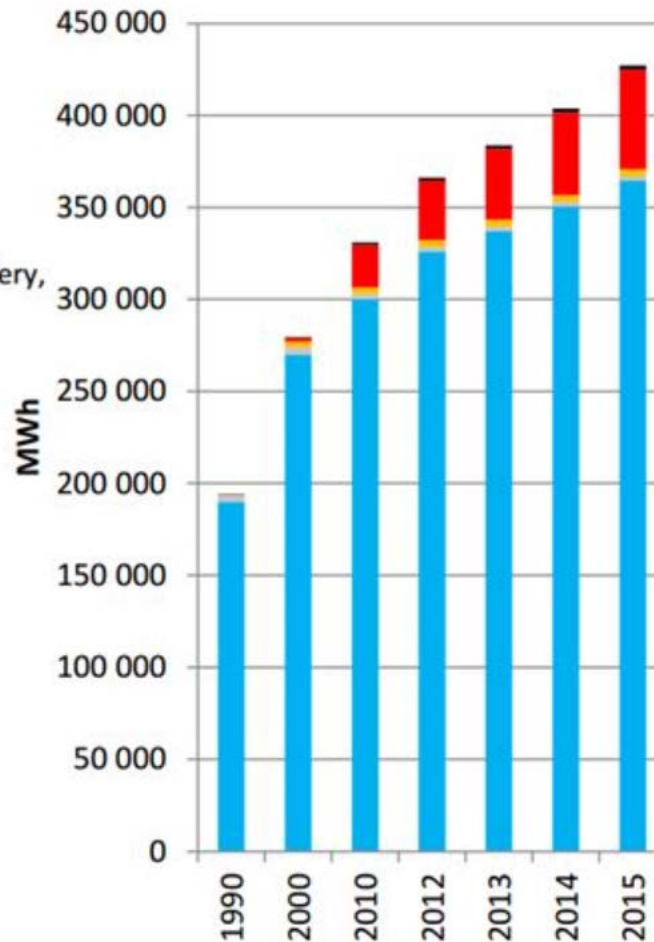
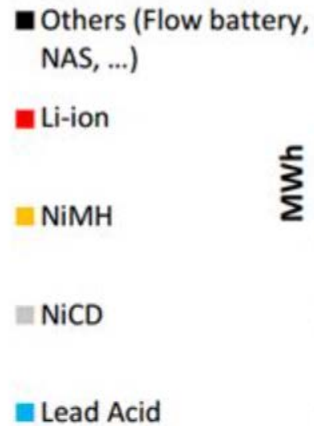


Source: UBS

Lithium ion batteries – Market Potential



VS



Battery market share (Avicenne Energy)

New markets being created and a further substantial driver of Lithium ion consumption.....



The lower the cost of the lithium ion battery, the greater the market application and China is now a key driver in lowering the cost of the batteries as they scale-up production

Resources & Reserves

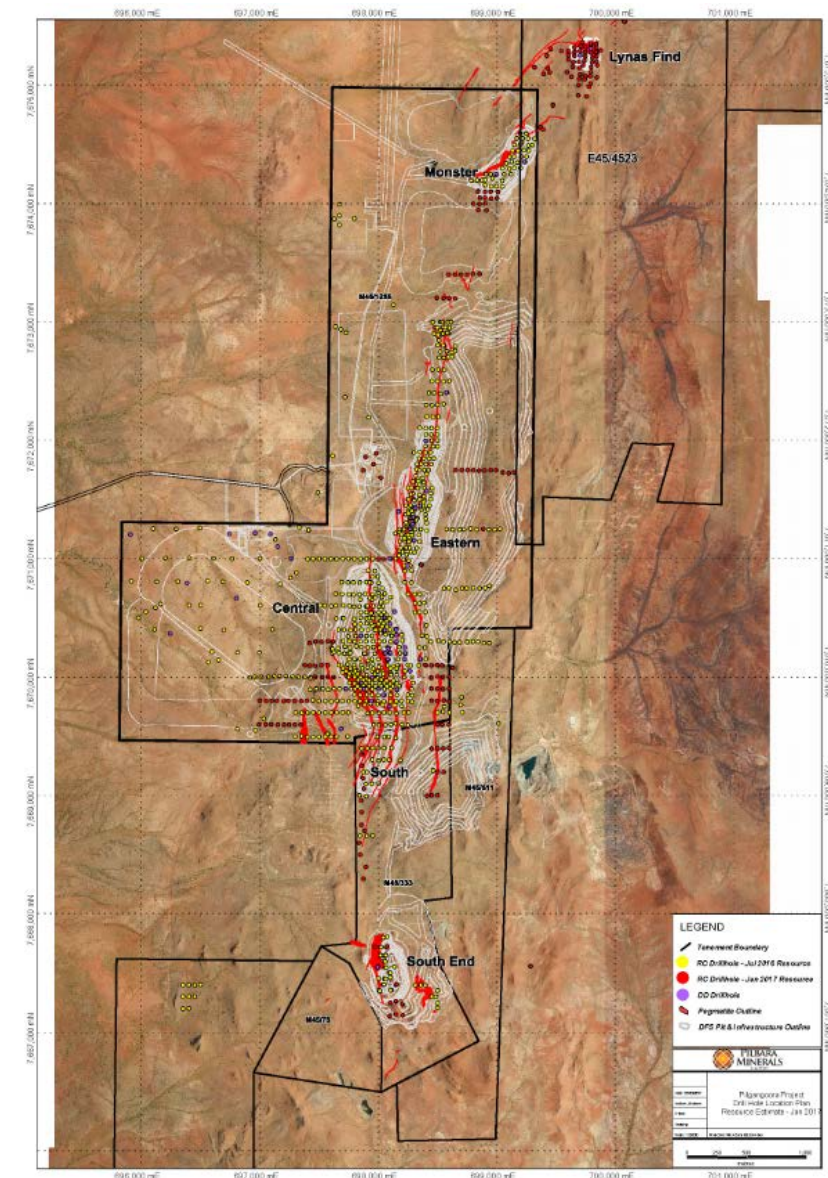


JORC Mineral Resources: 25th January 2017

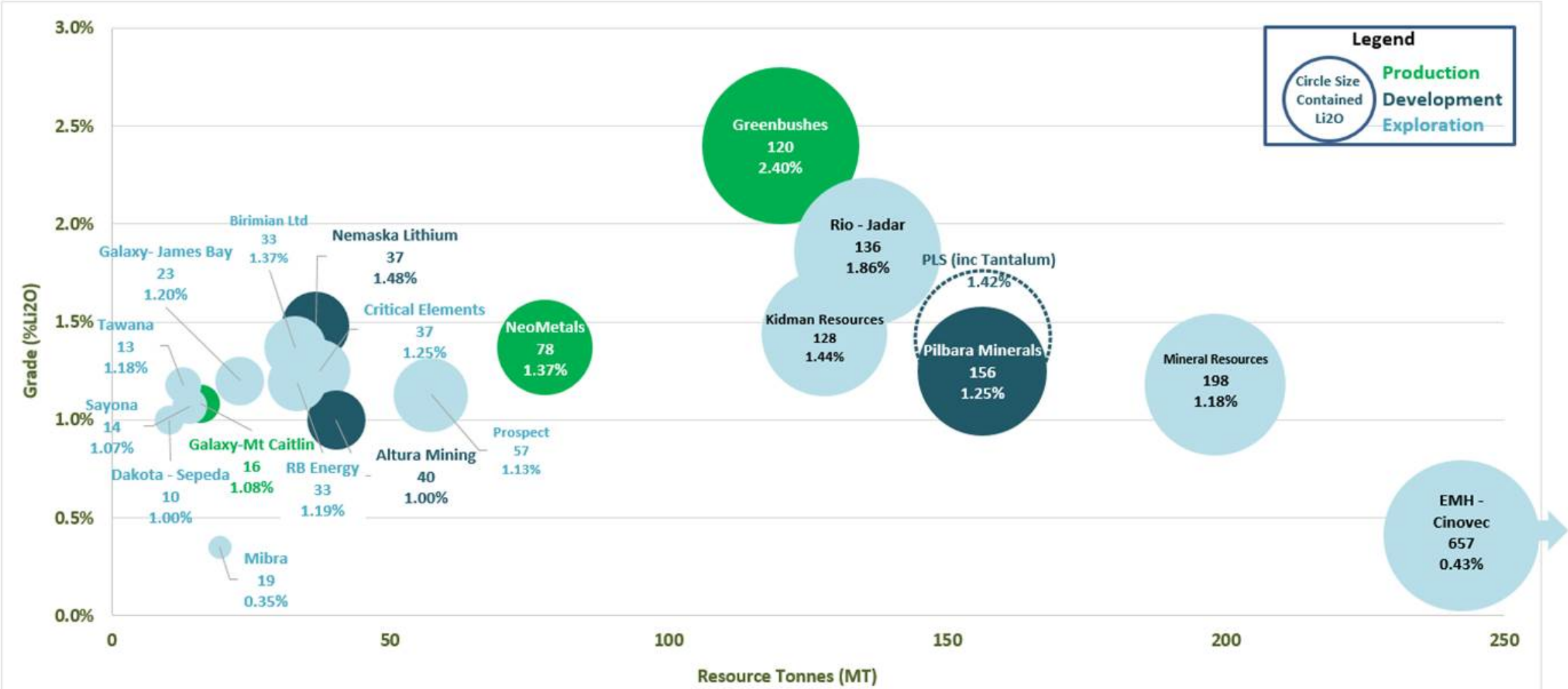
Category	Tonnage (Mt)	Li ₂ O (%)	Ta ₂ O ₅ (ppm)	Fe ₂ O ₃ (%)	Li ₂ O (T)	Ta ₂ O ₅ (Mlbs)
Measured	17.6	1.39	151	0.44	244,000	5.9
Indicated	77.7	1.31	125	0.58	1,017,000	21.5
Inferred	61.1	1.13	125	0.71	691,000	16.8
Total	156.3	1.25	128	0.61	1,952,000	44.2

JORC Ore Reserves: 22nd August 2016

Category	Tonnage (Mt)	Li ₂ O (%)	Ta ₂ O ₅ (ppm)	Fe ₂ O ₃ (%)	Li ₂ O (T)	Ta ₂ O ₅ (Mlbs)
Proved	17.3	1.30	141	1.03	230,000	5.4
Probable	62.9	1.25	119	1.10	790,000	16.5
Total	80.3	1.27	123	1.08	1,020,000	21.8



Pilgangoora – a globally significant hard rock lithium resource

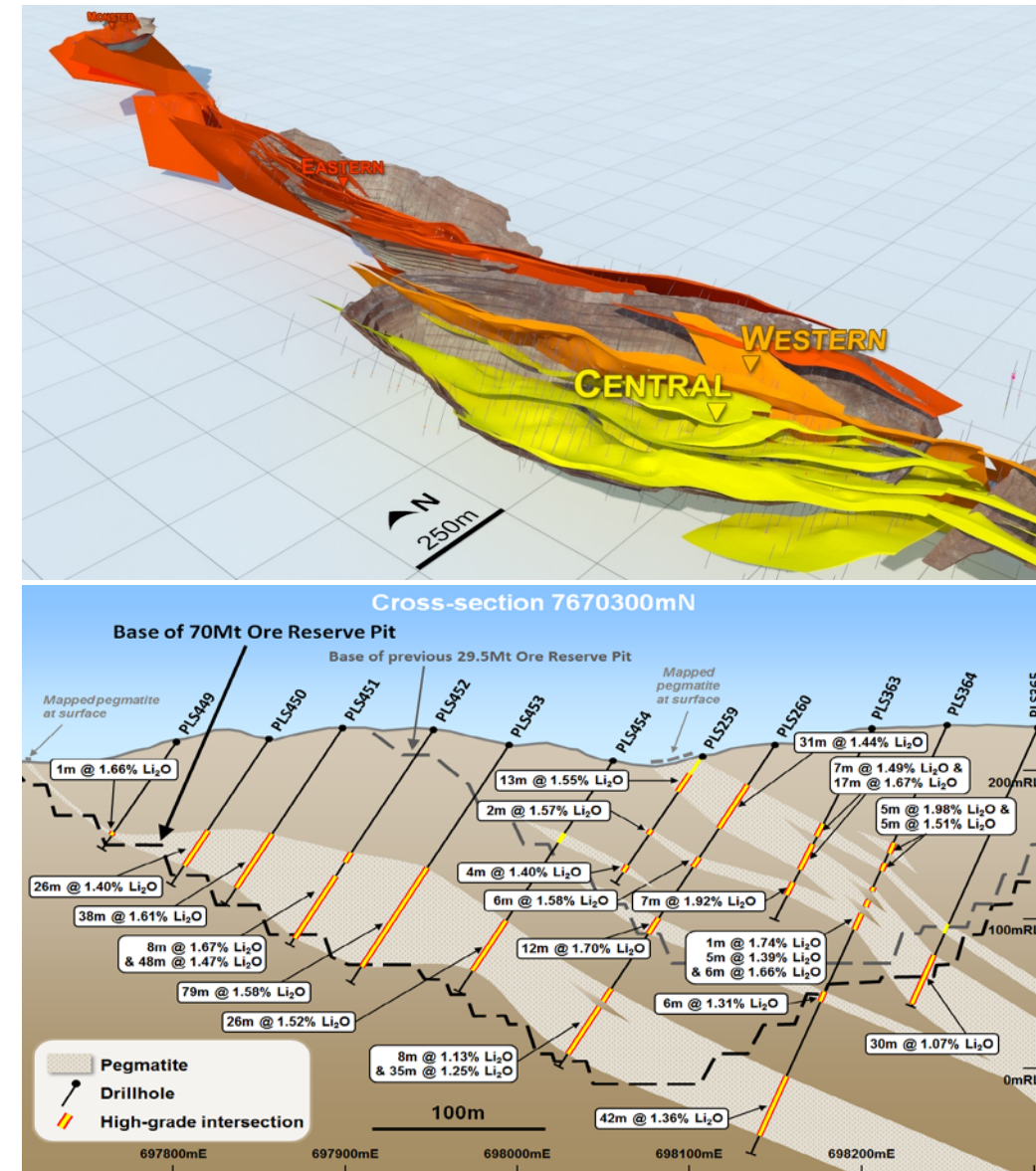


Note: Tantalum adjusted resource size includes consideration of the revenue of tantalum by-product. Source: Published resource estimates by project owners. Note that resources estimates for projects other than Pilgangoora may have been prepared under different estimation and reporting regimes and may not be directly comparable. Pilbara has not verified, and accepts no responsibility for, the accuracy of resources estimates other than its own. Readers should use appropriate caution in relying on this information.

Pilgangoora – mining A straightforward open pit mining development



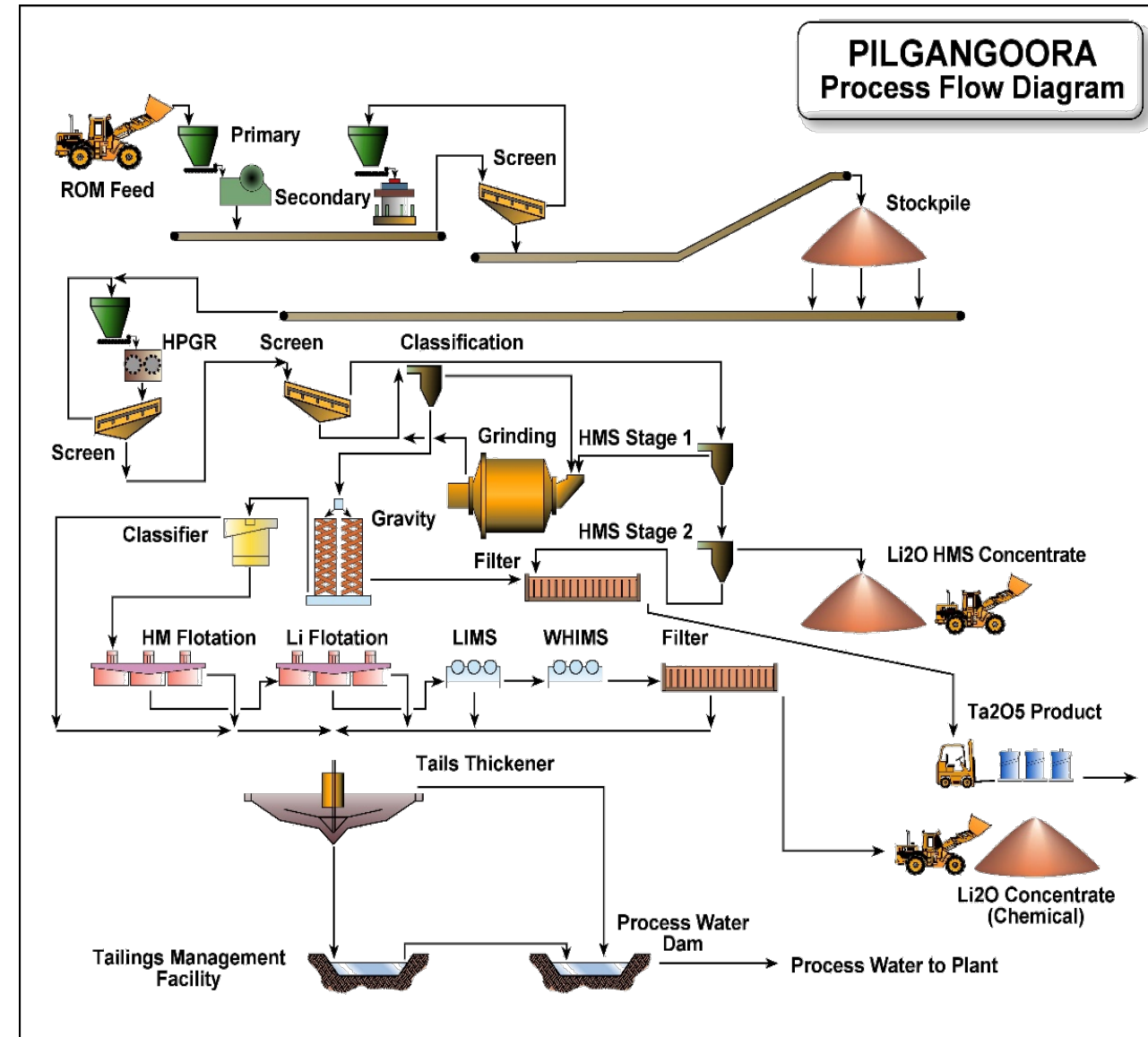
- ▶ Measured, Indicated and Inferred Resource of 156.3Mt @ 1.25% Li_2O and 128ppm Ta_2O_5 containing 1,952,000 tonnes Li_2O , and including 44Mlbs Ta_2O_5 (Mineral Resource Update ASX release dated 25 January 2017)
- ▶ Ore Reserve of 80.3Mt @ 1.27% Li_2O and 123ppm Ta_2O_5 (Ore Reserve ASX release dated 29 June 2017)
- ▶ Conventional drill and blast and open pit mining proposed, 100 tonne mining fleet
- ▶ 2Mtpa ore feed, 36 year mine life (base case)
- ▶ LOM strip ratio of 4.1:1 (waste: ore tonnes)
- ▶ Mining targeted to commence Q3 2017



Pilgangoora – processing



- ▶ Industry standard processing flowsheet
 - ▶ *Spodumene concentrate produced at three mines in Western Australia*
- ▶ 2-stage heavy media separation
- ▶ Gravity separation, tantalite recovery
- ▶ Grinding leading to oxide flotation
- ▶ Low/High intensity magnetic separation
 - ▶ *High grade chemical spodumene concentrate (SC6.0 specification)*
 - ▶ *High grade tantalite concentrate (up to 30% Ta_2O_5)*
- ▶ Processing targeted to commence Q1 2018



Pilgangoora – mine to ship **Contracted logistics chain proposed**



- ▶ Road transport from mine site to Wedgefield Storage Facility
 - ▶ *127km via Great Northern Highway utilising double road trains*
- ▶ Product storage at Wedgefield and loaded into shipping containers
- ▶ Transport from Wedgefield (~16km) to Port Hedland Berth 2
- ▶ Ship Loading with mobile harbour crane via Rotabox
- ▶ Shipment via handysize vessels (30kt)
 - ▶ *~11 shipments pa in full production*

Trucking



Storage



Loading – Rotabox



Port

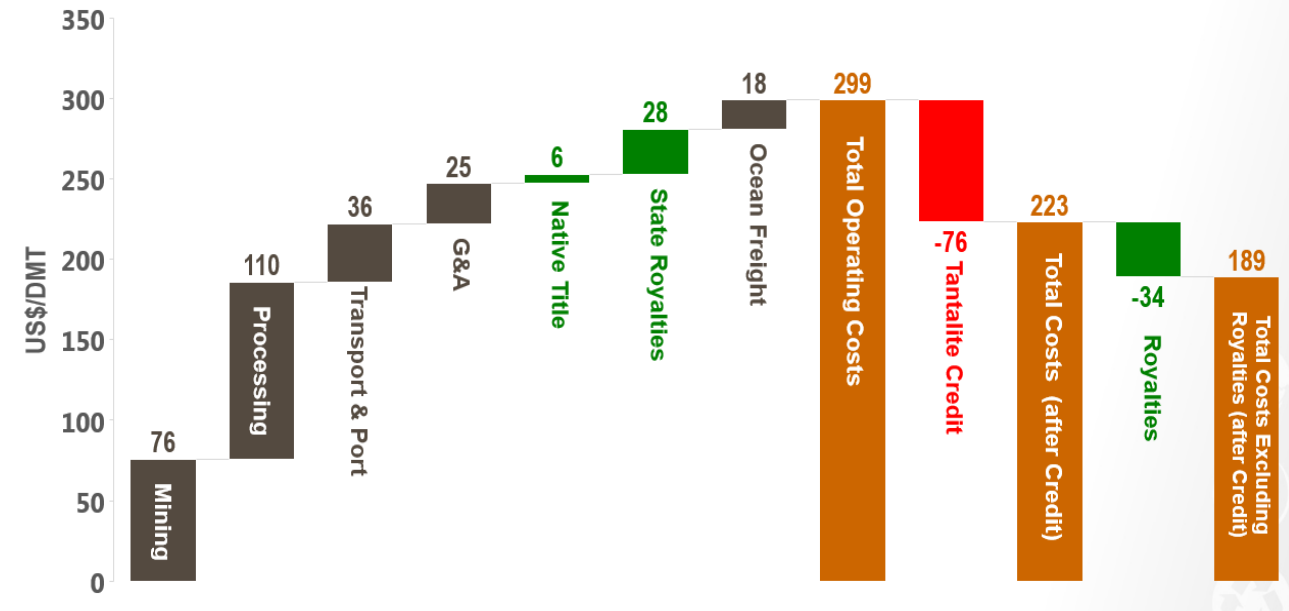


Operating costs set to become one of the lowest cost spodumene producers



- ▶ DFS indicates first 5 years' average cash operating cost¹ of USD 189/t concentrate CFR²
- ▶ Contributing factors to the low forecast cash operating cost:
 - ▶ *Significant scale of the project*
 - ▶ *Adjacent to existing infrastructure*
 - ▶ *Relatively low strip ratio*
 - ▶ *Tantalum by-product credit*
- ▶ Processing costs are the major cost element with reagents, operating consumables and power the larger contributors to operating costs
- ▶ Strong operating margins based on current pricing and assumed DFS spodumene concentrate price forecasts

Operating Costs – USD (Real) first 5 years ave²



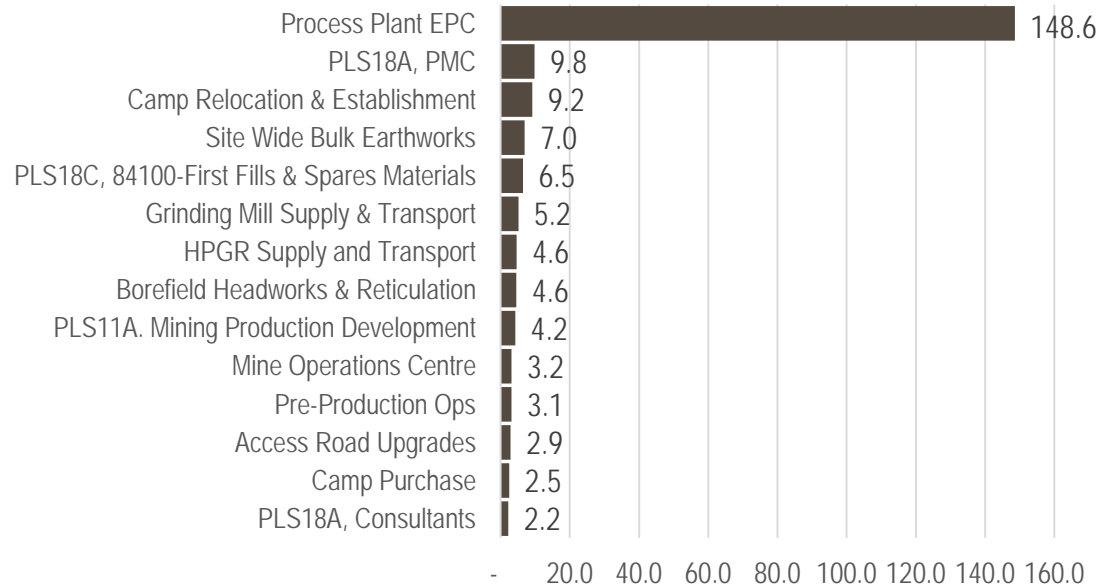
1. Cash operating costs include all mining, processing, transport, port, shipping/freight, site based general and administration costs, and corporate administration/overhead costs allocation, are net of Ta₂O₅ by-product credits, but exclude state and private royalties and native title costs
2. LOM average is US\$207/dmt (total costs excluding royalties)

Pilgangoora – capital costs



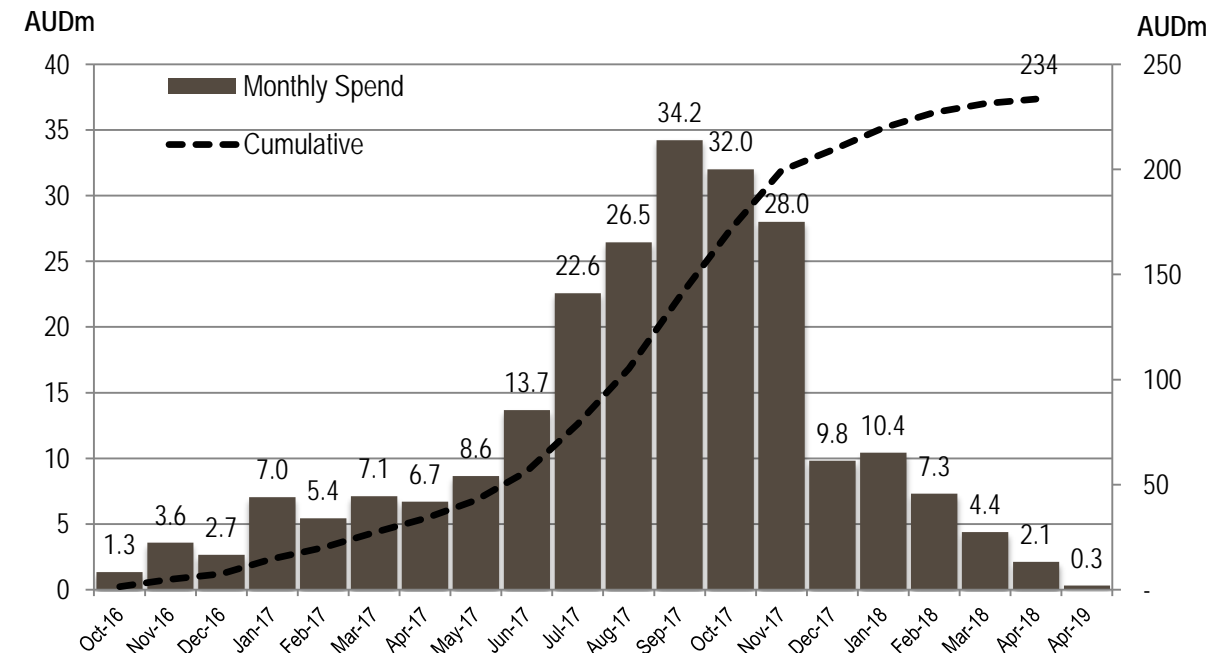
- ▶ Total estimated capital cost of AUD 234m
- ▶ Includes contingency of AUD 10m (AUD 6.5m excluding process plant)
 - ▶ *Represents ~12.5% of currently uncommitted capital costs (excluding process plant)*
- ▶ Only ~AUD 60m of remaining capex is not yet committed

Major Project Packages > AUD 2m (AUD 214M)¹

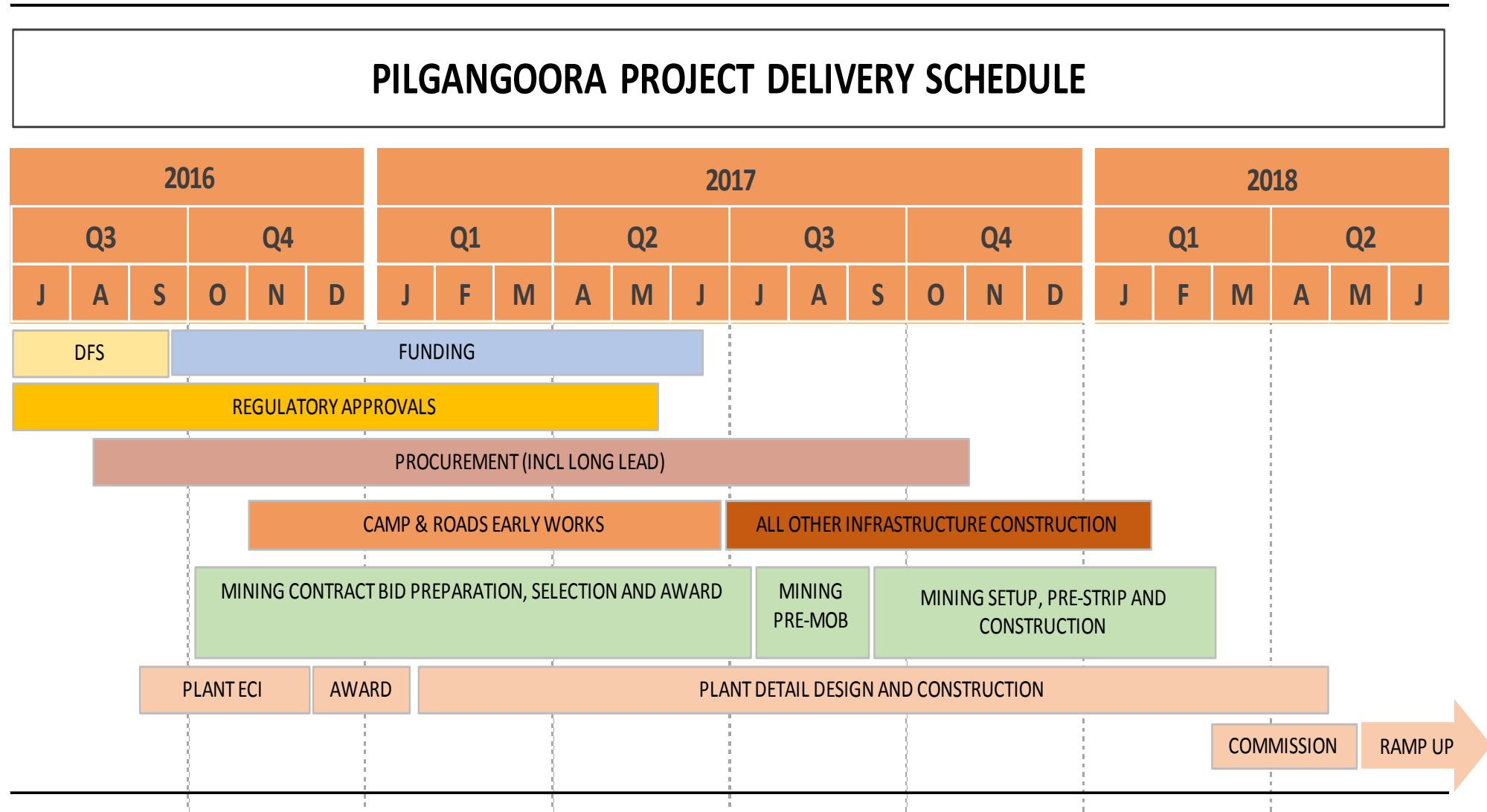


1. Other packages < AUD 2m = \$20m

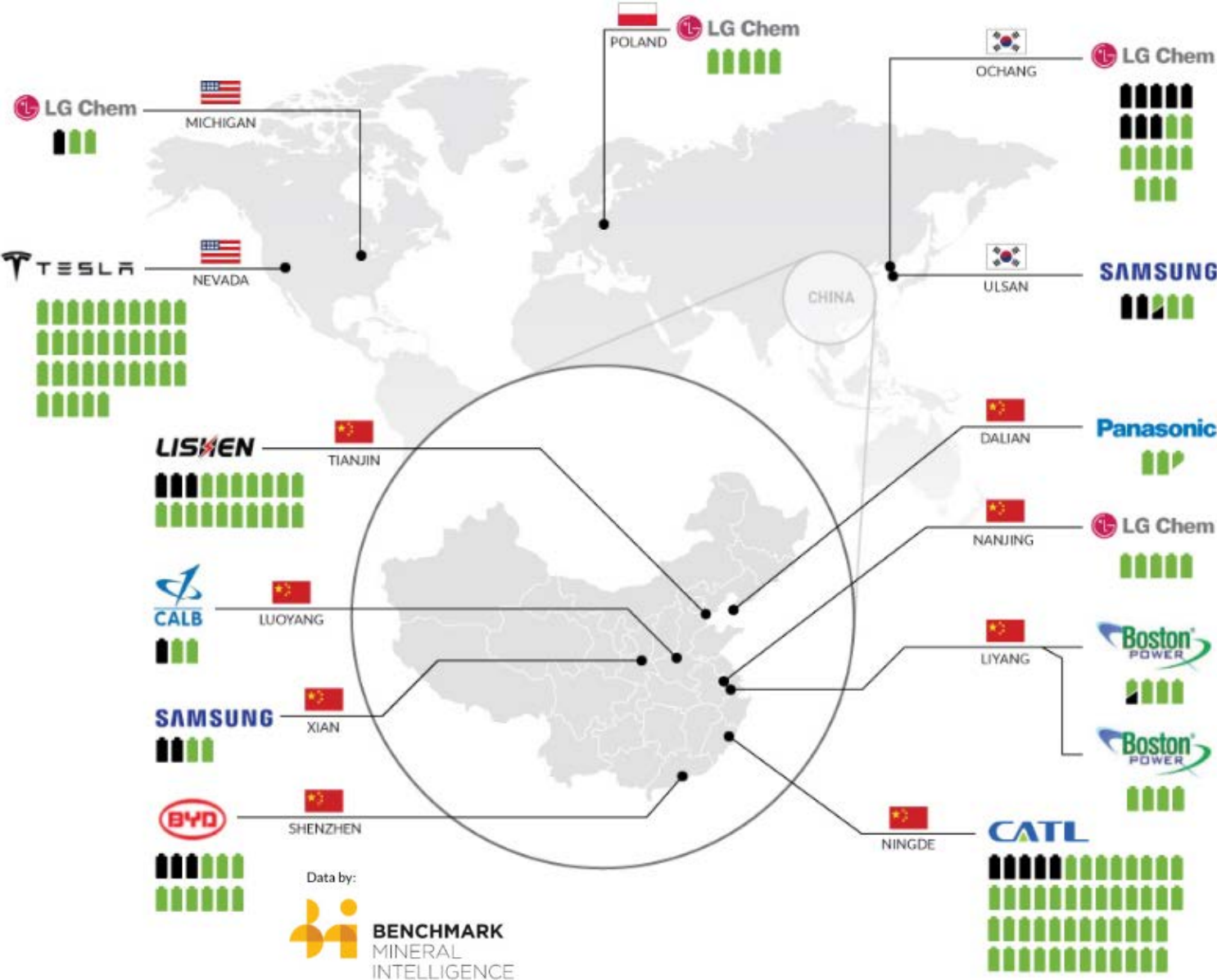
Project Expenditure Forecast by Month



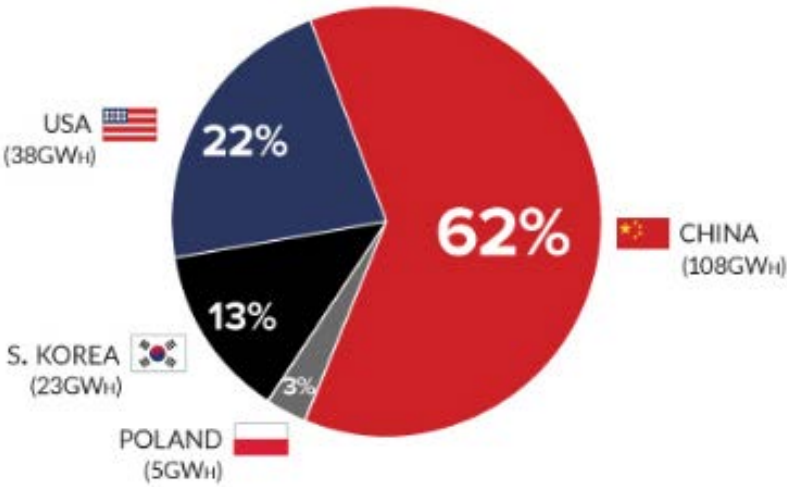
A rapid pathway to financing, development and production



Leading the Charge for Lithium-Ion Megafactories (EV only)



By 2020, mass production of lithium-ion batteries will still be concentrated in just **four countries**.



Estimated 521% increase between 2016 and 2020:

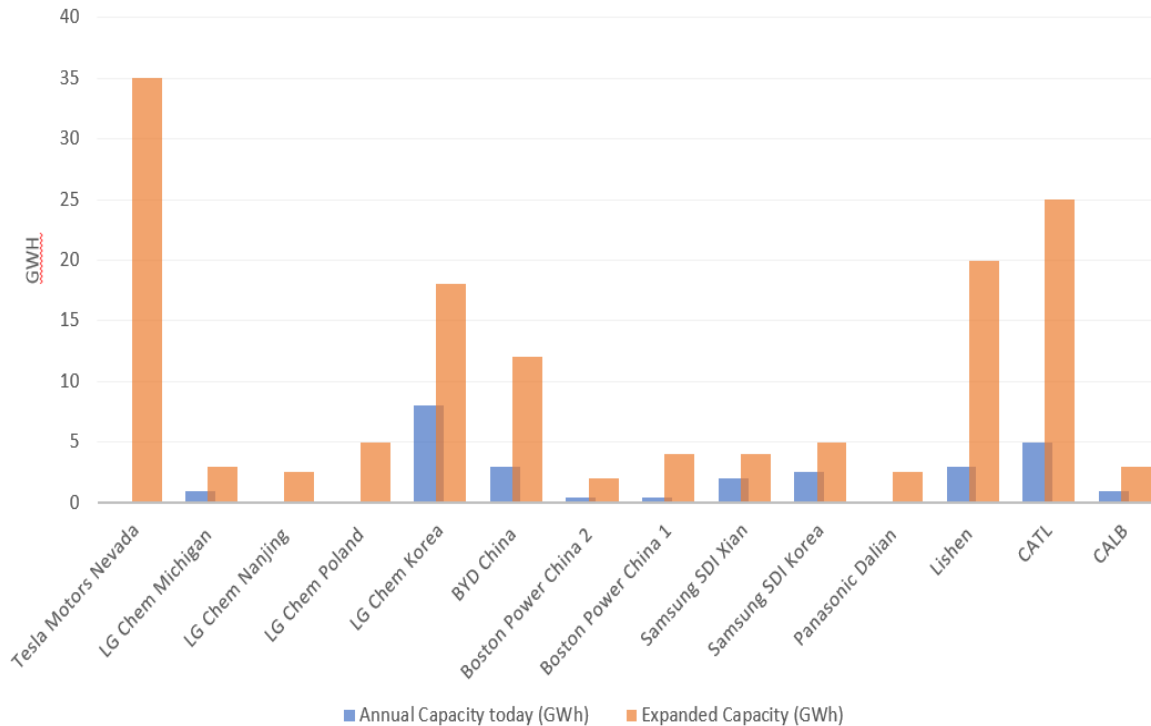
	2016 Capacity (GWh)	2020 Capacity (GWh)	% of Global Total (2020)
United States	1.0	38.0	22%
China	16.4	107.5	62%
Korea	10.5	23.0	13%
Poland	0.0	5.0	3%
Total	27.9	173.5	100%

Relates to batteries for EV's only.

Massive expansion of Lithium ion battery making capacity underway

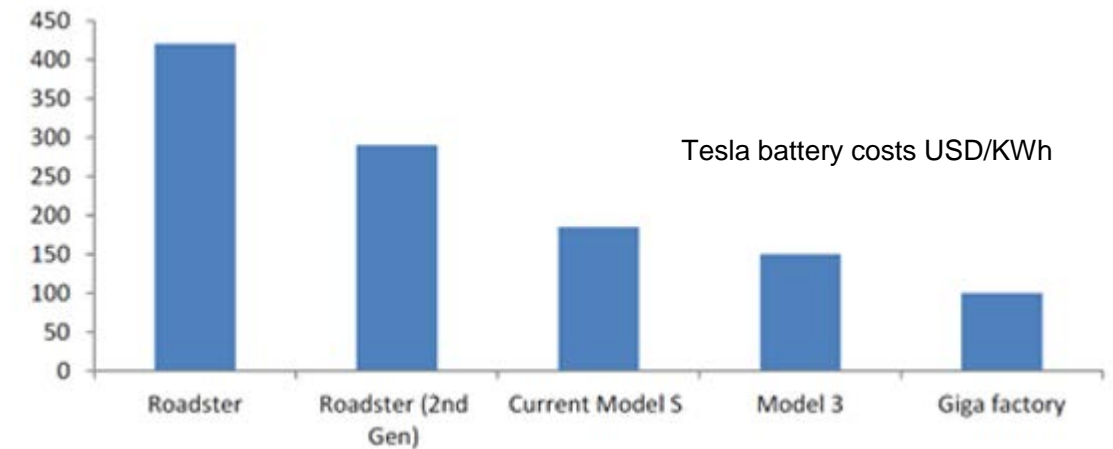


Battery making capacity set to increase significantly



- Significant expansion through entire lithium-ion supply chain, including major chemical conversion capacity expansion (spodumene to Carbonate & Hydroxide) over the coming five years

Battery Costs continue to decline (2008 – late 2017)...



...driving mass adoption of lithium ion batteries as to 'go-to' battery technology, including for transport applications.....

More than USD20bn of committed investment expected to result in new battery manufacturing expansions that will increase global production capacity significantly and drive production costs down

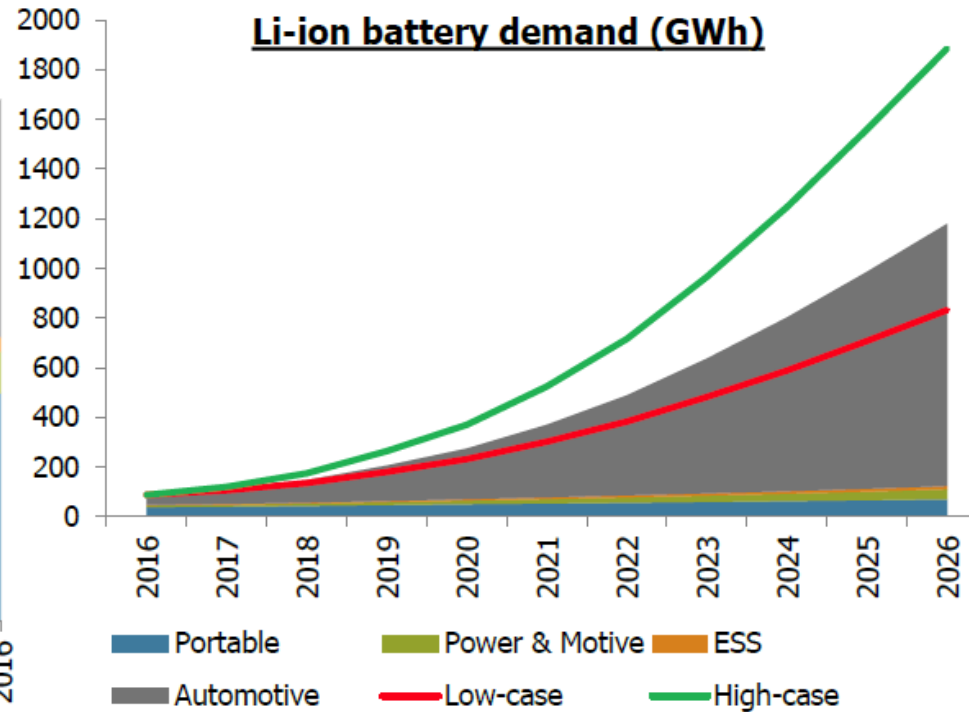
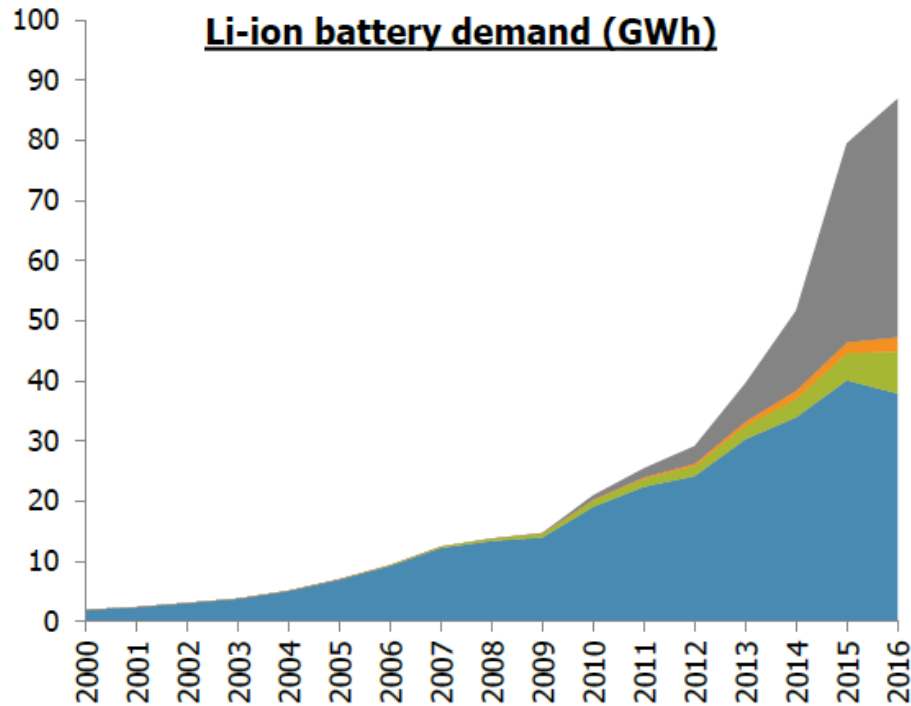
Massive expansion of Lithium ion battery making capacity underway



The past



The future



Source: Roskill

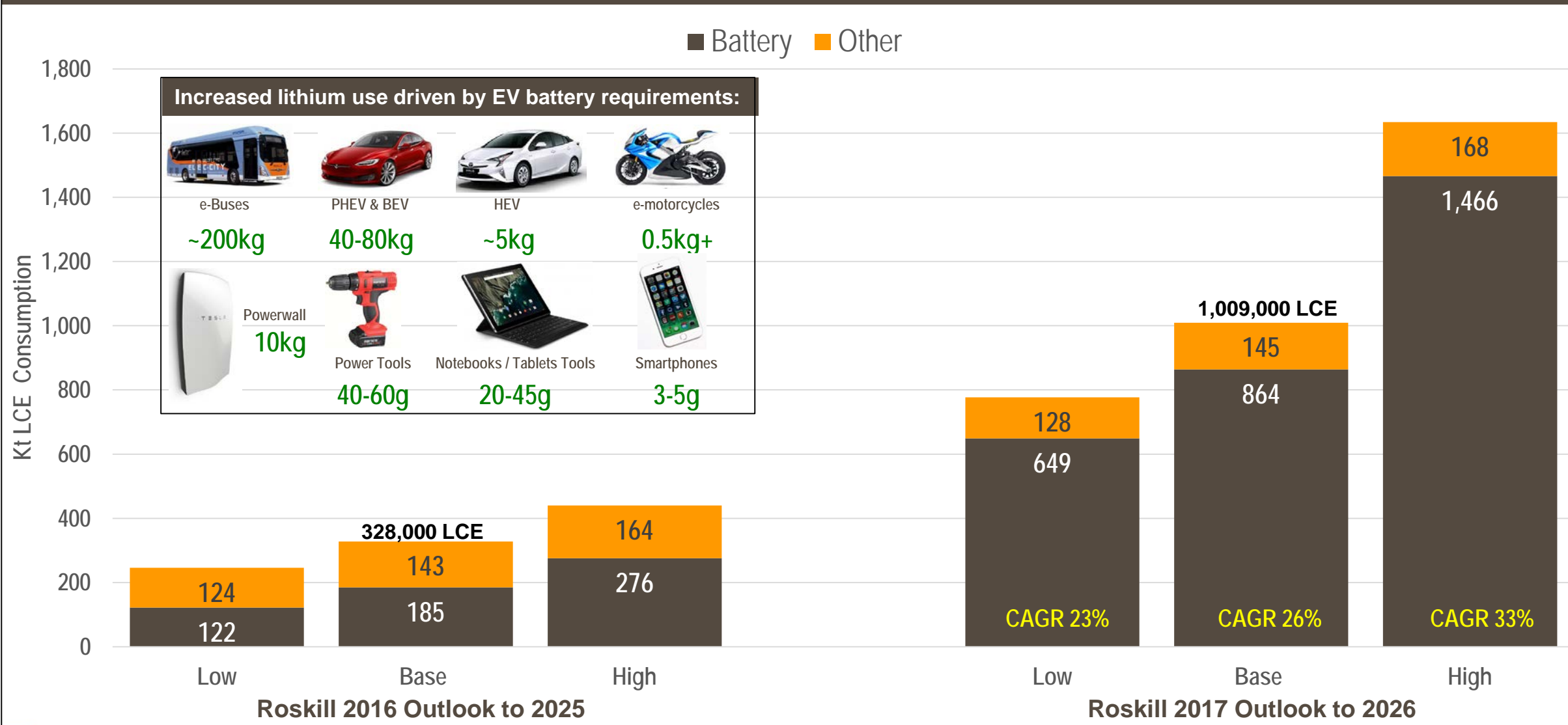
Roskill
Approachable • Independent • Expert

More than USD20bn of committed investment expected to result in new battery manufacturing expansions that will increase global production capacity significantly and drive production costs down



Independent research group, Roskill, significantly upgrade Lithium Outlook

Significantly increased outlook driven by Li-Ion Battery demand in Electric Vehicles

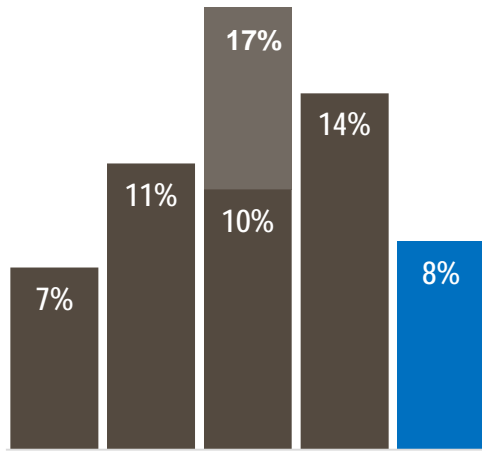


Transition to Electric Vehicles – Exponential Adoption Curve

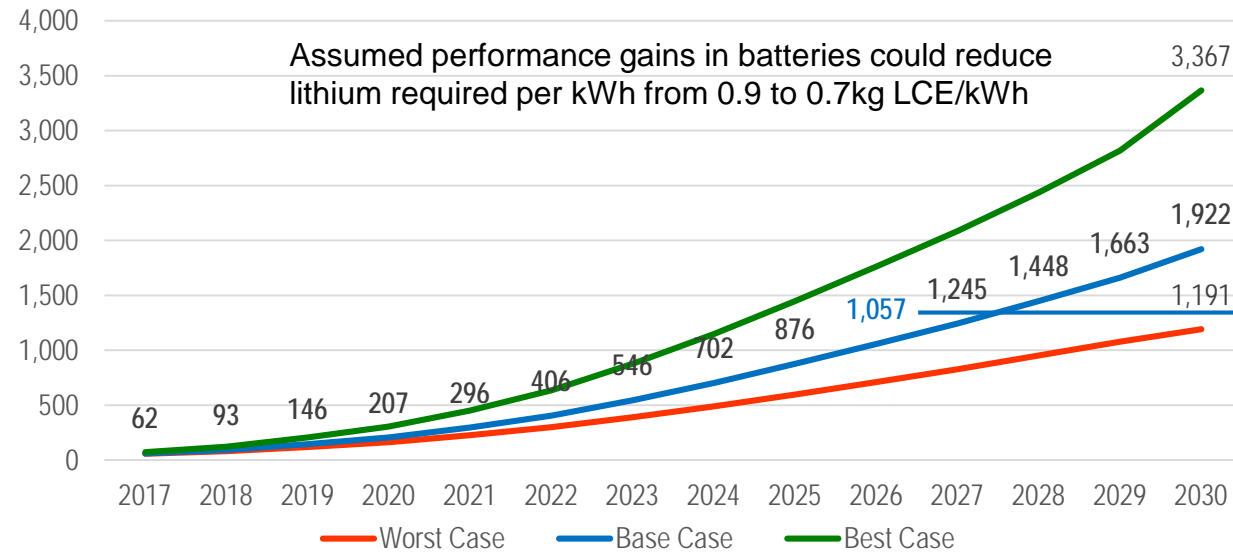


2025 Forecast EV Penetration Rates

(% of total vehicle sales)

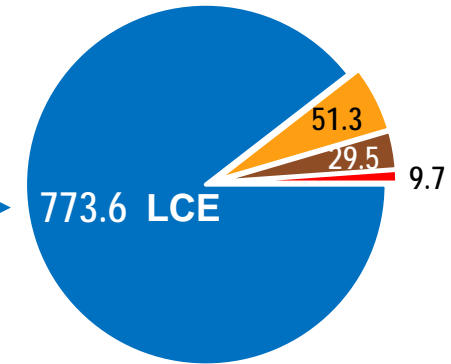


Roskill's forecast scenarios for sales of EV's (GWh)



LCE Demand in Li-ion batteries

10 x growth from 83kt (2016) to 864kt (2026)



■ EV ■ Portable ■ Power ■ ESS

Roskill 2026 Forecast

Vehicle Manufacturers:

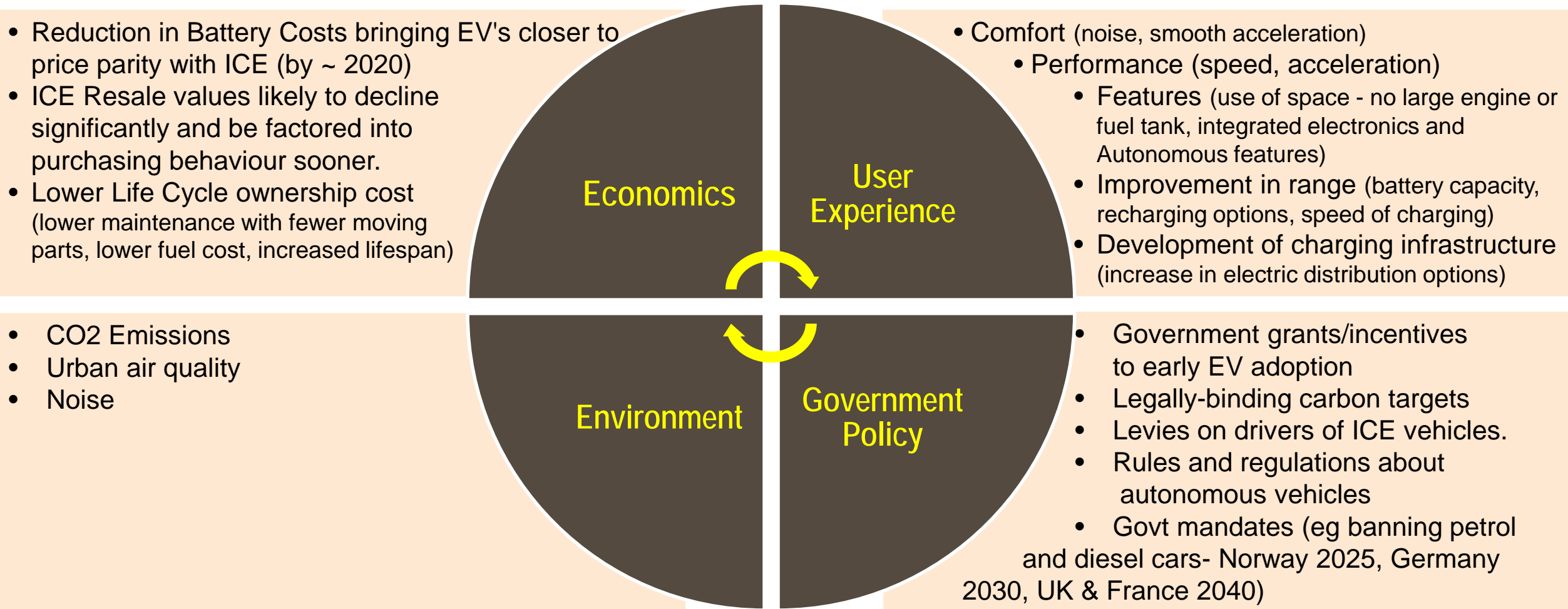
Established car makers fear being left behind in the technology battle or being shut out of car markets:

- New pure electric vehicle manufacturers such as **Tesla, BYD, Faraday Future, Lucid Motors** competing with traditional ICE companies. Tesla mass market Model 3 now in production.
- All **Volvo** cars to be electric or hybrid from 2019. Between 2019 and 2021, the firm will introduce five 100% electric models. **Volkswagen** is targeting 25 percent of its sales to be electric by 2025
- **BMW** Group expects electrified vehicles to account for between 15–25% of sales by 2025. BMW Group already has nine electrified models on the market and has plans to convert all models to electric drive trains.

Transition to Electric Vehicles – Factors Driving Adoption



Momentum growing from consumers, car manufactures and regulators – EV's fast becoming mainstream – tipping point is accelerating



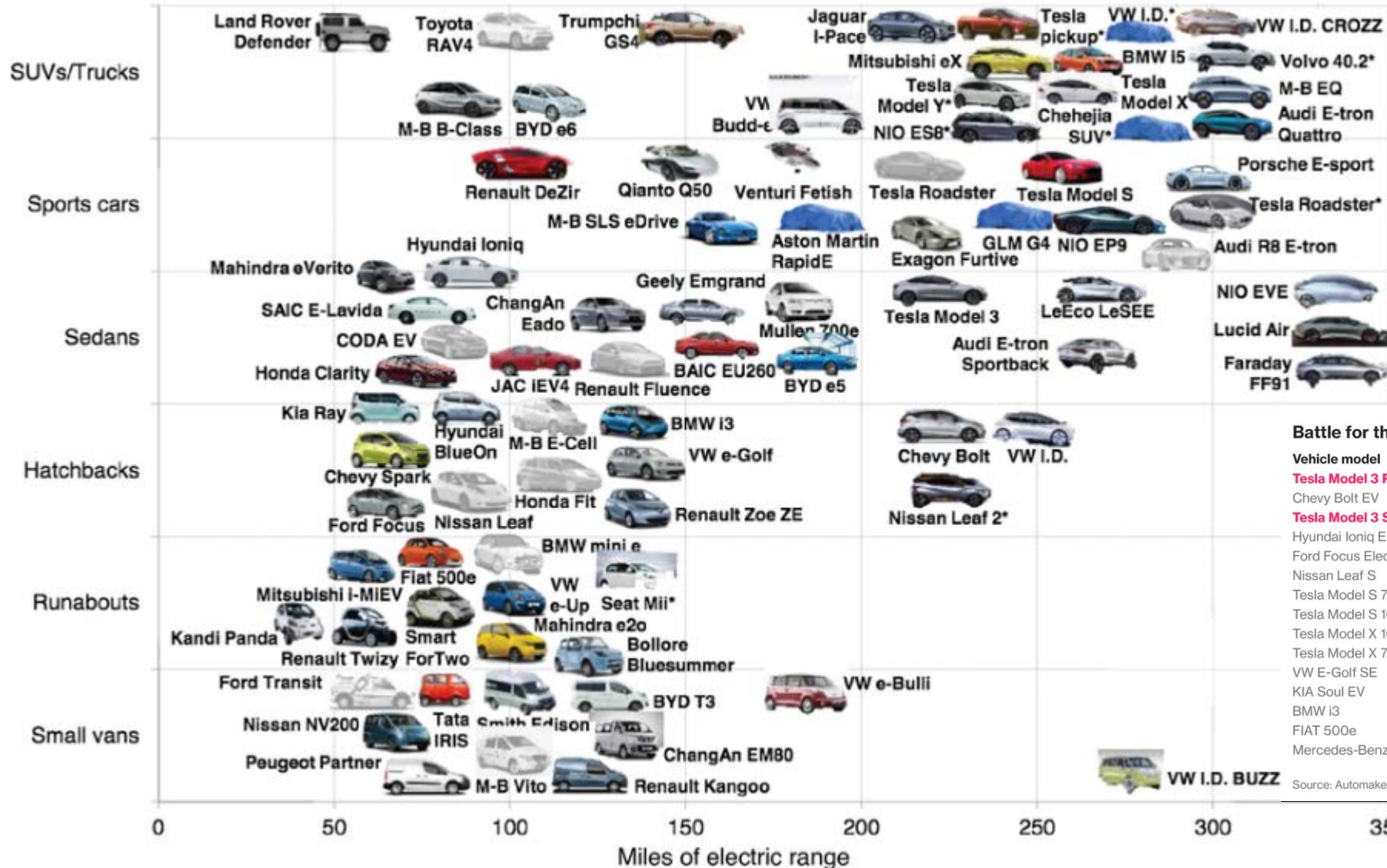
Increasing availability and choice of Electric Vehicles



Models by style and range available through to 2020:

Telsa Model 3 released with 2 battery types:

- Standard – 220 Miles
- Long Range – 310 Miles



Current EV's on the market:

Battle for the Cheapest Range

Vehicle model	Range	MSRP	Price-per-mile of vehicle range
Tesla Model 3 Range+	310 miles	\$44,000	\$141.94
Chevy Bolt EV	238	37,495	157.54
Tesla Model 3 Standard	220	35,000	160.54
Hyundai Ioniq Electric	124	29,500	237.90
Ford Focus Electric Hatch	115	29,120	253.22
Nissan Leaf S	107	30,680	286.73
Tesla Model S 75D	259	74,500	287.64
Tesla Model S 100D	335	97,500	291.04
Tesla Model X 100D	295	99,500	337.29
Tesla Model X 75D	237	82,500	348.10
VW E-Golf SE	83	28,995	349.34
KIA Soul EV	93	33,950	365.05
BMW i3	114	42,400	371.93
FIAT 500e	84	32,995	392.80
Mercedes-Benz B250-e	87	40,000	458.62

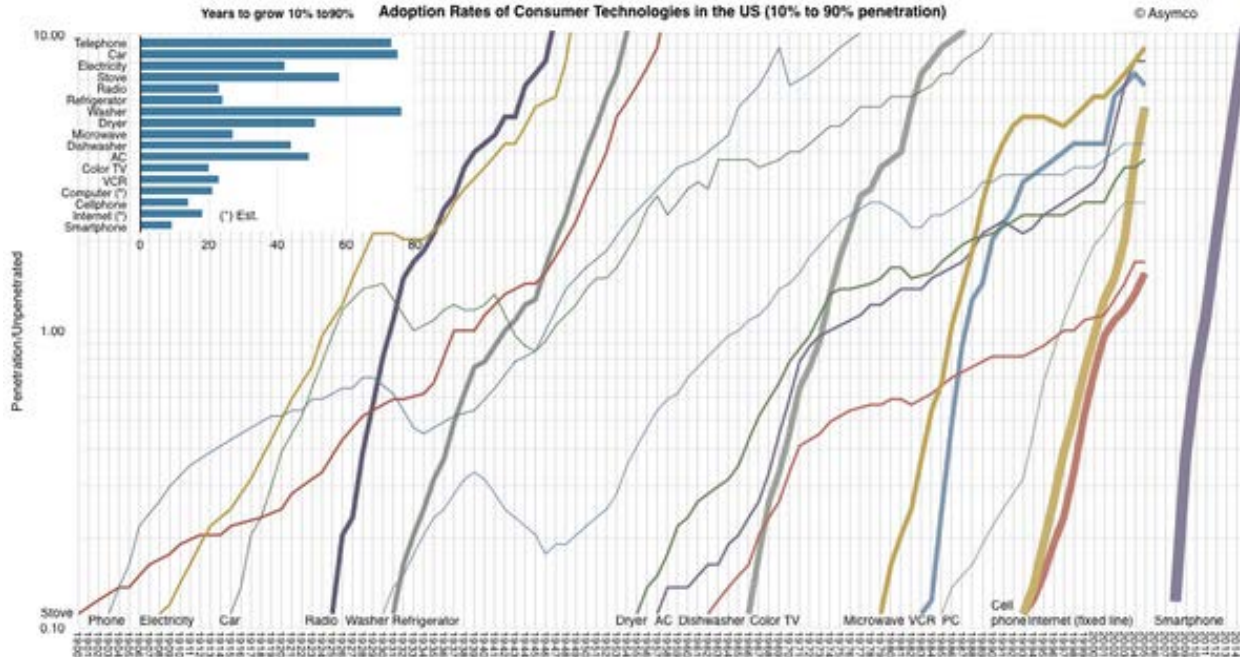
Source: Automaker figures

Bloomberg

Technology Adoption



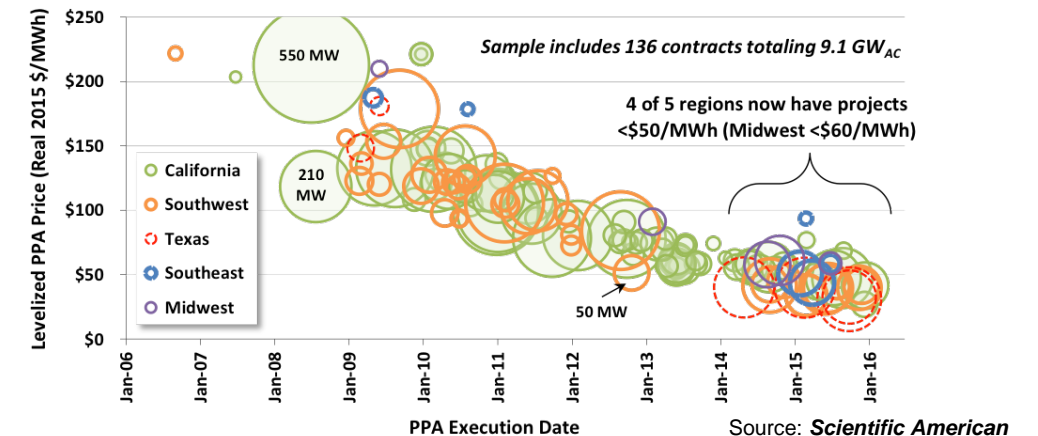
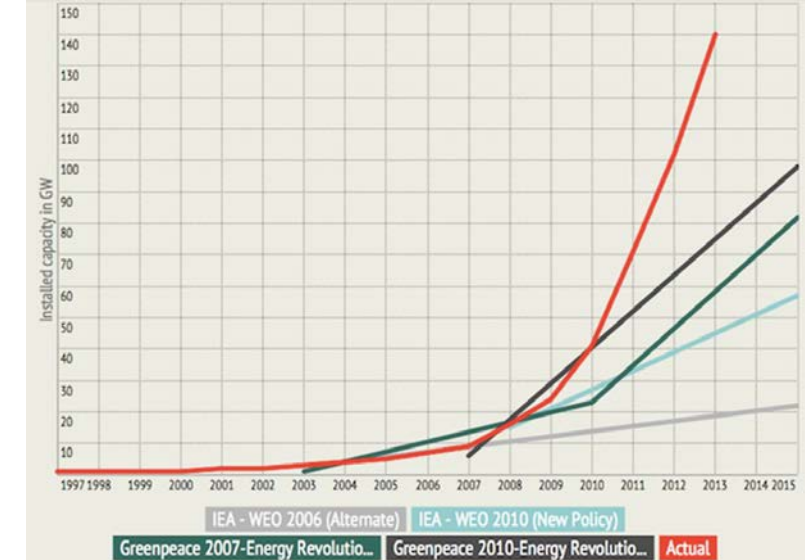
Adoption Rates of Consumer Technology



“There are two kinds of forecasters: those who don’t know, and those who don’t know they don’t know.”

— [John Kenneth Galbraith](#)

Solar – Installed Capacity, Estimates vs Actual and the influence of cost



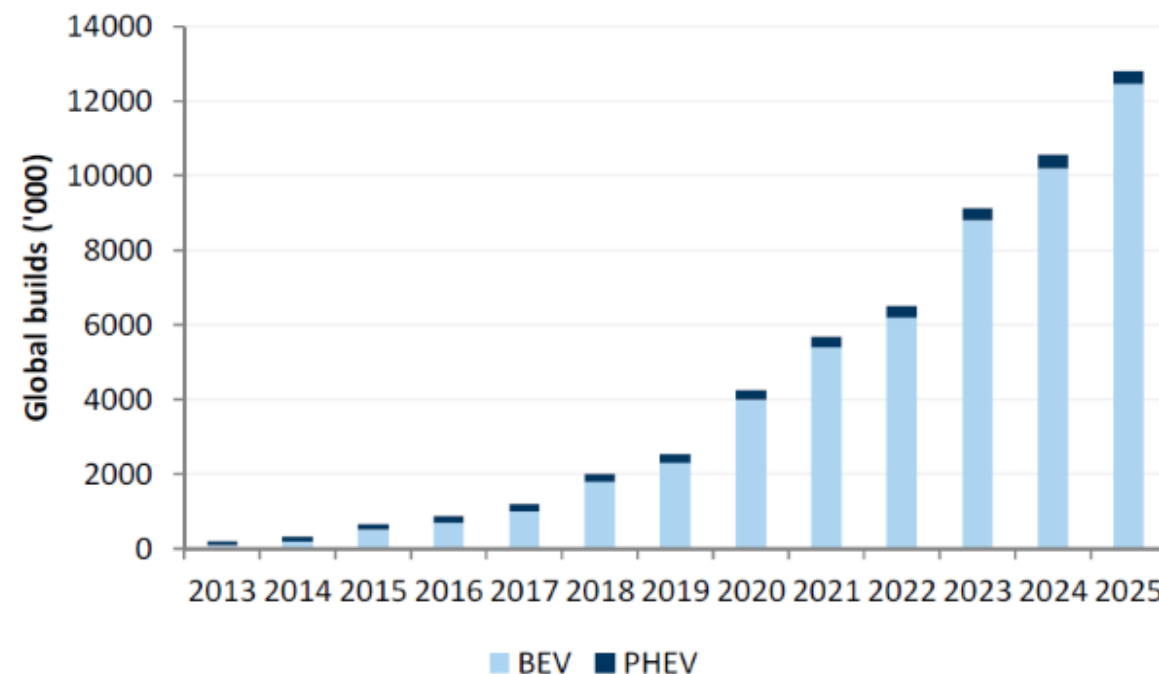
Technology adoption in consumers markets has accelerated over time, and adoption rates often out-perform estimates

Global motor vehicle lithium demand growing strongly



- ▶ Tesla Model 3 to be released in 2017, retail price of USD 36,000
 - ▶ *400,000 orders already and growing*
- ▶ Mercedes Benz releasing twelve new models of EVs in 2017
- ▶ BMW i3 Series due for release 2017 in direct competition with Tesla Series 3
- ▶ Audi and Volkswagen propose major EV model expansion in 2017 and 2018
- ▶ China, Japan and Korean Government policy strongly supports EVs with large rebates, zero sales tax and free licensing
- ▶ Japanese and Korean car makers anticipated to announce major adoption of EVs by 2020
- ▶ One million EVs expected in Korea by 2020

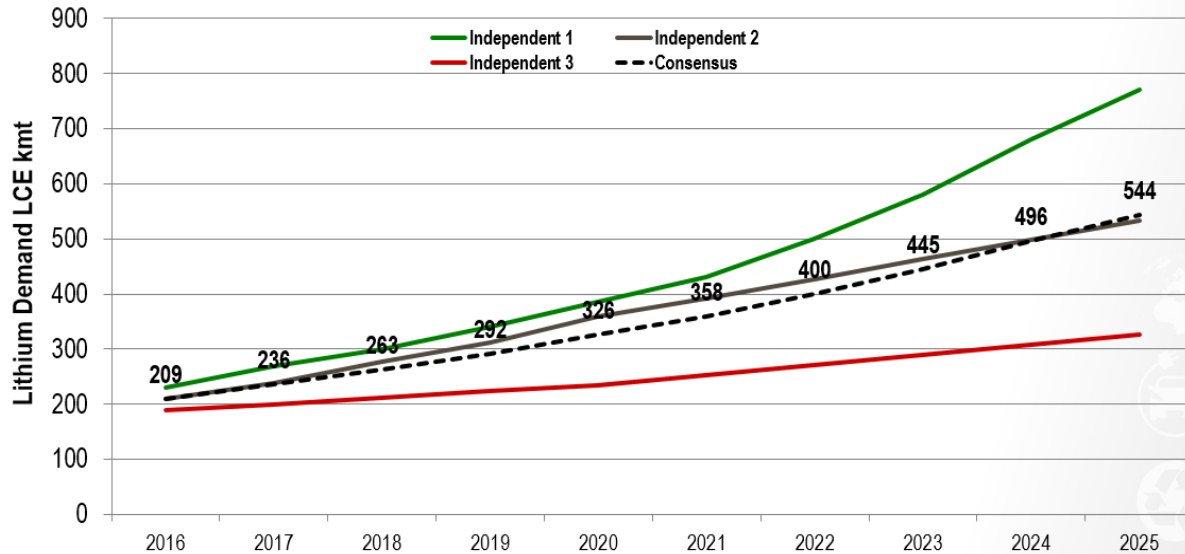
Global EV Builds



Global lithium market demand growing strongly



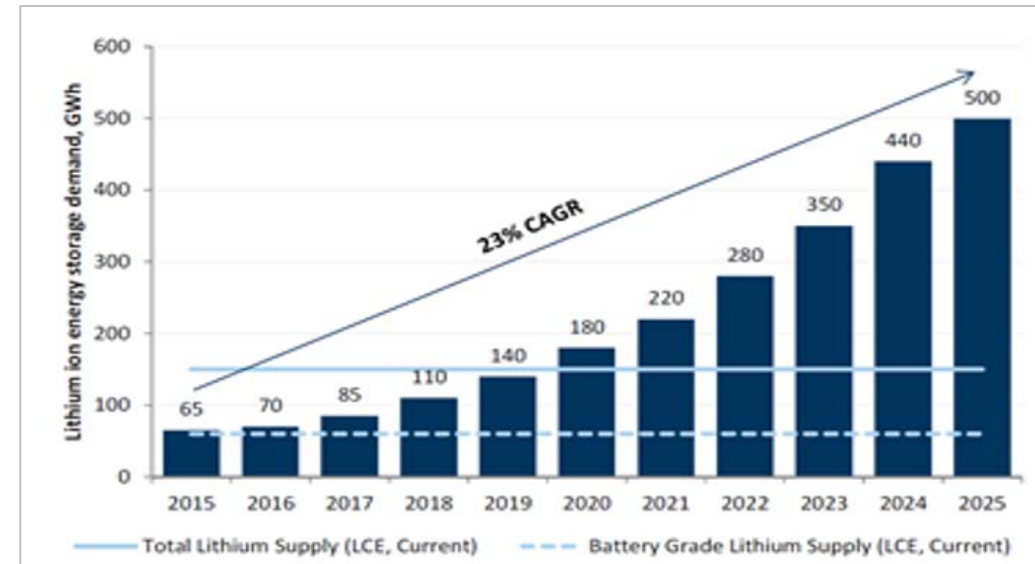
Consensus Global lithium demand forecast



- ▶ Technological advancements in the application of lithium in rechargeable batteries is the major growth factor in the future demand for lithium
- ▶ Declining battery costs are accelerating lithium demand

China – A Lithium Consumption Powerhouse

- ▶ Central Government policy position towards ‘New Energy’
 - ▶ *Domestic carbonate pricing took-off coincidentally with acceleration in EVs and Electric Bus sales*
- ▶ E-Bike phenomenon
 - ▶ *30 million E Bikes produced annually in China, converting to Li ion batteries*
- ▶ Broad transport electrification
 - ▶ *Targeting five million new energy vehicles by 2020*



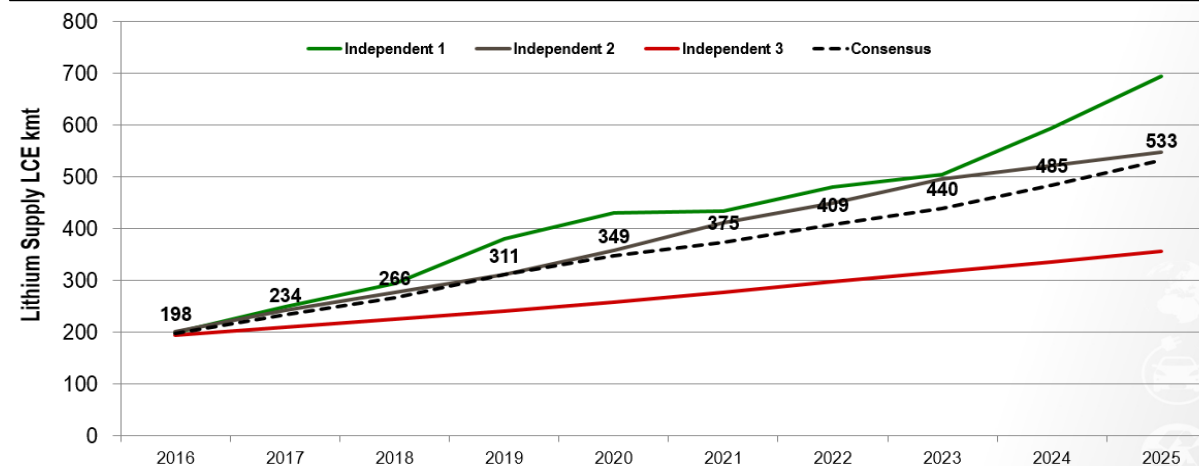
Source: Benchmark Minerals Intelligence

Global supply of lithium – new mines required



- ▶ The top four producers of global lithium supply accounted for ~88% of global production in 2015
- ▶ Lithium sourced from hard-rock operations represented 49% of global supply with 51% from brine operations
- ▶ The global top four producers are:
 - ▶ *Albemarle Corp, Tianqi Lithium Industries Inc, SQM and FMC Corporation*
- ▶ In 2016 two new hard-rock operations in Australia entered commissioning:
 - ▶ *Mt Marion (Ganfeng Lithium, Mineral Resources, Neometals);*
 - ▶ *Mt Cattlin (Galaxy Resources)*
- ▶ 2017 – commencement of Direct-Shipping-Ore (DSO) at Wodgina
- ▶ History of delay in brine operations being able to reach name-plate capacity
- ▶ Market keen to see new mine supply

Global Lithium Supply Forecast (LCE)



Significant Potential Global lithium projects

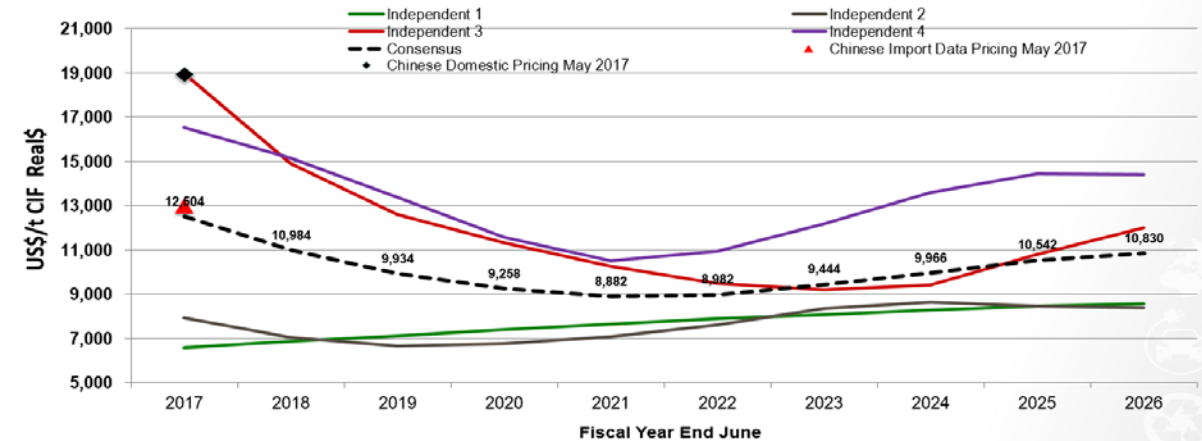
Mine	Company	Country	Type	Development Stage	Target Start Date	Production (kt LCE)
Mibra	AMG	Brazil	Hard-rock	Development	2018	12
La Negra 2	Albemarle	Chile	Brine	Development	2018	20
Pilgangoora	Pilbara Minerals	Australia	Hard-rock	Development	2018	44
Pilgangoora	Altura Mining	Australia	Hard-rock	Development	2018	27
Bald Hill	Tawana	Australia	Hard-rock	PFS	2018	12
Wodgina	Mineral Resources	Australia	Hard-rock	-	2018	≈60
Mt Holland JV	Kidman / SQM	Australia	Hard-rock	-	2018	?
Olaroz Stage 2	Orocobre	Argentina	Brine	DFS	2019	15
Sal de Vida	Galaxy Resources	Argentina	Brine	DFS	2019	25
Whabouchi	Nemaska Lithium	Canada	Hard-rock	Development	2019	29
Greenbushes	Albemarle/Tianqi	Australia	Hard-rock	DFS	2019	80
Cauchari-Olaroz	Lithium Americas	Argentina	Brine	DFS	2019	25

Pricing – outlook strong

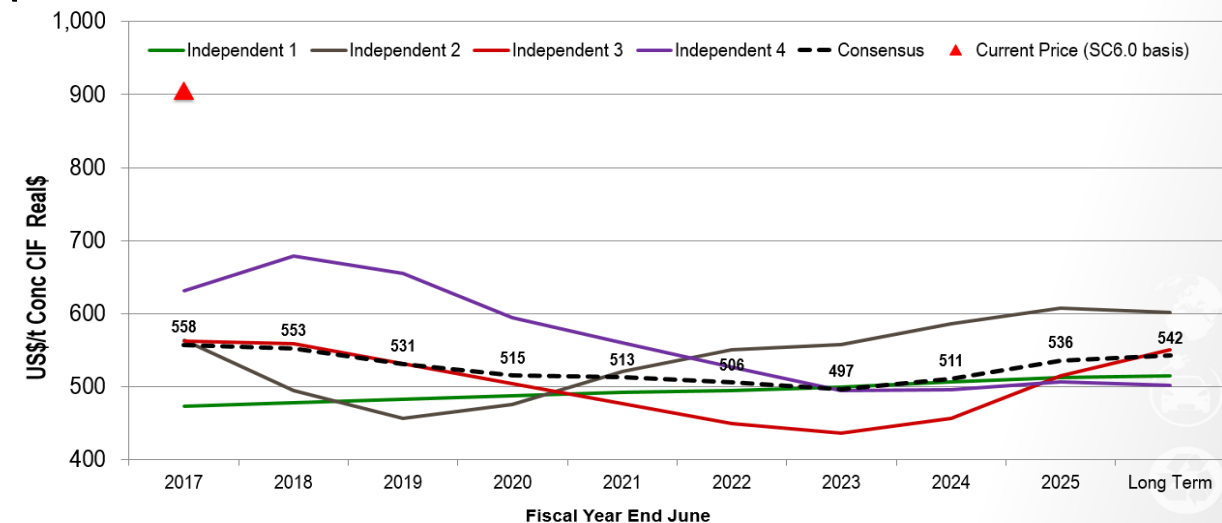


- ▶ Forecast DFS price deck derived from basket of independent economic and bank/broker models
 - ▶ *China domestic pricing, import pricing and spodumene import pricing models*
- ▶ Expectation that domestic battery grade carbonate pricing and import pricing will converge over time
- ▶ Ganfeng Lithium and General Lithium spodumene offtake price based on relativity to the combined Chinese domestic and import market pricing outcomes for battery grade lithium carbonate
 - ▶ *Offtake contracts include floor price protection*
- ▶ Remaining concentrate priced against the consensus spodumene price forecast
- ▶ Recent spodumene price settlements for 2017 of USD 905/t FOB Esperance (Galaxy Resources) & USD 750/t CFR China (Neometals) (SC6.0 basis)
- ▶ Robust operating margins expected for the Project based on DFS price forecast (average of USD 537/t CFR China assumed in DFS)

Price forecast – Battery-grade Lithium Carbonate



Price forecast – SC6.0 Chemical-grade Spodumene



Ganfeng Lithium – China's largest fully integrated lithium company

- ▶ Established in 2000 in Jiangxi Province, China, Ganfeng Lithium has a capacity of around 35,000tpa of LCE and produces lithium carbonate, lithium hydroxide, lithium metals, butyl lithium, and a number of other lithium compounds
- ▶ Ganfeng Lithium is currently commissioning an additional 20,000tpa LCE and is proposing further developments of another 45,000tpa LCE
- ▶ Ganfeng Lithium is listed on the Shenzhen Stock Exchange (SHZ:002460) with a market capitalization of USD ~4.4bn
- ▶ Ganfeng Lithium has interests in the Mt Marion spodumene project in Australia (43.1%), Lithium America's Caucharí-Olaroz brine project in Argentina (USD 165m in debt and equity) and International Lithium Corporation's Mariana brine project in Argentina (17.6%) & Blackstairs Project in Ireland (51%)

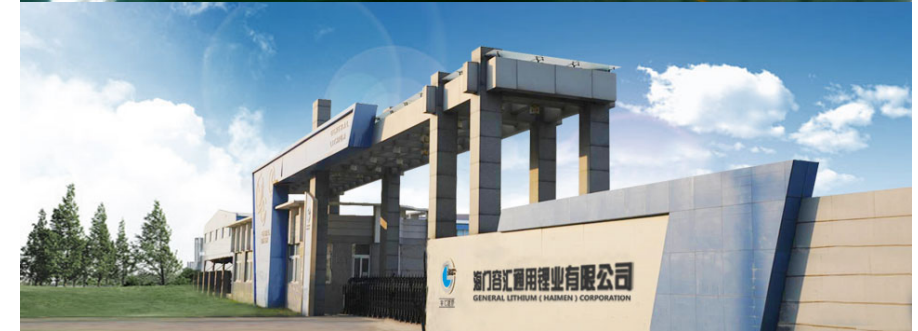


 **GanfengLithium** 赣锋锂业

General Lithium – a major producer of lithium chemicals in China

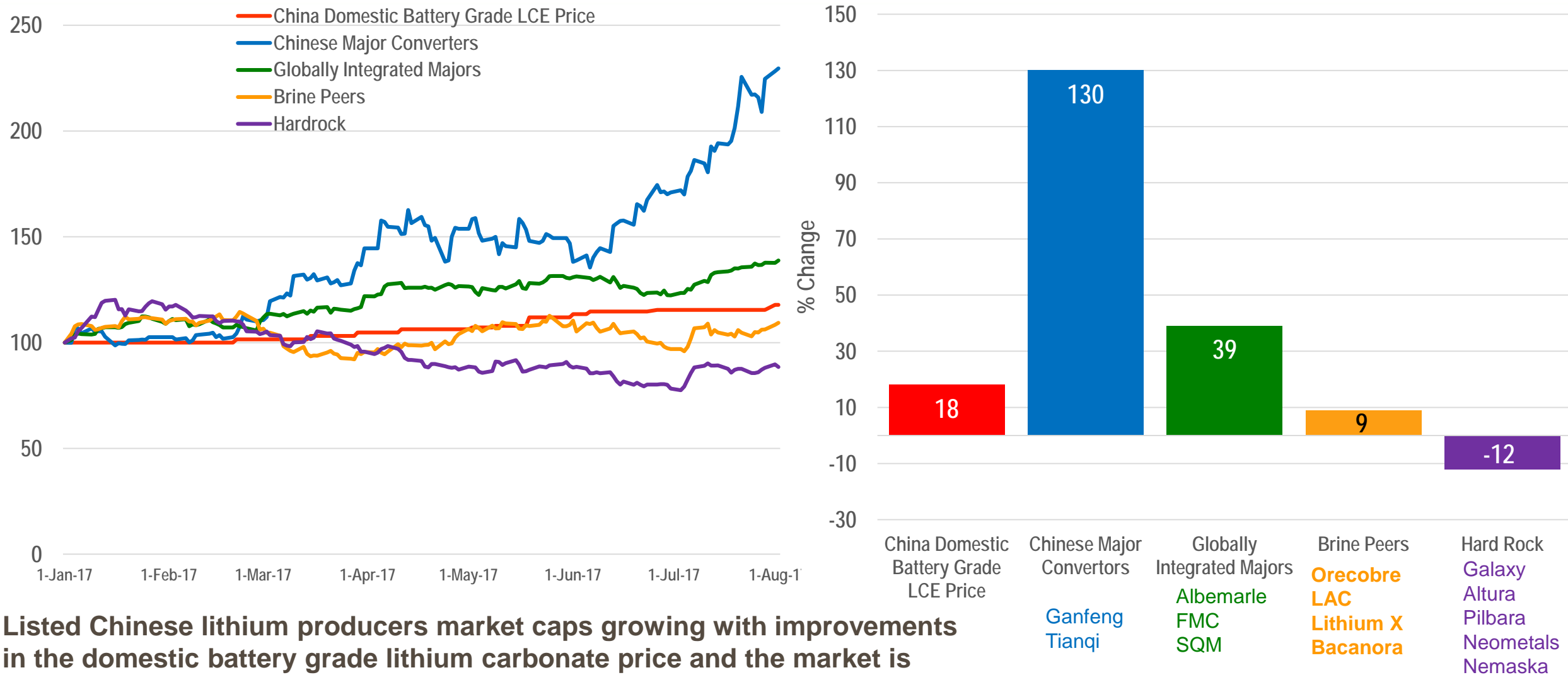


- ▶ Listed on NEEQ, Beijing, Code No: 837358 with a market capitalisation of USD ~325m
- ▶ Completed a RMB 268m (USD 38m) capital raise in December 2016
- ▶ Currently produces 8,000tpa of Lithium Carbonate (LC) & 2,000tpa of High Purity LC 4N (99.99%)
- ▶ Recently commissioned 5,000tpa of Lithium Iron 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 to be commissioned at the end of 2017, with further expansions being planned
- ▶ 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 Corporation

Lithium Sector Market Performance 2017 YTD



Listed Chinese lithium producers market caps growing with improvements in the domestic battery grade lithium carbonate price and the market is running hot. Little of that value reflected in ASX lithium pure plays.

The integrated majors are now looking to invest in hard rock mines (Albemarle/Tianqi – Greenbushes expansion & SQM with Kidman)

Investment highlights



- ▶ Emerging low-cost Australian lithium producer
- ▶ Second largest spodumene lithium resource and high grade relative to its peers
- ▶ Outstanding project economics demonstrated by DFS
 - ▶ *Stage 2 PFS demonstrating potential to double scale to 4Mtpa*
- ▶ Offtake and equity funding secured with two key Chinese industry groups, Ganfeng Lithium and General Lithium
- ▶ Rapid pathway to financing and production from 1Q 2018
- ▶ Ideally placed to capitalize on robust lithium market outlook and demand

