Australia 18 November 2019



## GALAXY CORPORATE STRATEGY AND PROJECTS UPDATE

#### **HIGHLIGHTS**

- · Focused and simplified corporate strategy to accelerate growth
- Targeting a Final Investment Decision ("FID") on Sal de Vida stage one in Q2-Q3 2020
- · Simplified Sal de Vida flowsheet developed in-house that greatly reduces technical complexity and risk
- Sal de Vida execution to be staged in multiple modules and the new product strategy considers initial commercialisation
  of a primary lithium carbonate to accelerate earnings realisation
- Sal de Vida stage one expected to be primarily funded from the balance sheet
- Mt Cattlin operations focused on optimising production and costs whilst meeting customer demand
- James Bay works focused on advancing the asset to an execution decision on an integrated project solution

Galaxy Resources Limited ("Galaxy" or the "Company") (ASX:GXY) is pleased to update the market regarding the Company's corporate strategy for 2020 and beyond, together with project updates on each of the Company's assets.

Galaxy is committed to leveraging its two world-class development assets to create a sustainable, large scale, global lithium chemicals business via organic growth. One of the primary actions in this strategy is to advance Sal de Vida to execution in 2020.

This update will be presented by Galaxy's Chief Executive Officer, Simon Hay, at the UBS Australasia conference in Sydney today and at Galaxy's Strategy Briefing Day to be held in Perth on Thursday, 21 November 2019. Please refer to Galaxy's announcement dated, 8 November 2019 for further details regarding the Strategy Briefing Day.

#### SAL DE VIDA – ADVANCE TO EXECUTION

Galaxy has now concluded its process test work and the evaluation of alternative technologies for the Sal de Vida project. The result of this work is the selection of an in-house developed, simplified flowsheet which will underpin the development phase of the project.

The selected flowsheet is a simplified version of the flowsheet utilised in previous study work. Optimisation work has resulted in fewer process steps, reduced pond sizing and an accelerated initial evaporation period. Overall lithium recovery has improved due to lower pond losses and independent test work has demonstrated that Galaxy's product purifies to battery grade simply and cost effectively.

The revised flowsheet also decouples the onsite operations from the purification process. This allows purification activities to be undertaken offsite at a location of lower altitude where operating conditions are easier to control.

Further, Galaxy will seek to de-risk development by staging project execution in 2-3 modules. This approach allows the staging of capital expenditure, simpler management of construction logistics and reduces development risk. It also enables the first phase of development to be funded from the Company's balance sheet after a partial equity sell down of the project.

Galaxy is targeting FID for stage one in Q2-Q3 2020 with first production in 2022.

#### MT CATTLIN - RECORD 2019, WITH 2020 MINE PLAN TO PRIORITISE VALUE OVER VOLUME

Galaxy has demonstrated operational excellence at Mt Cattlin in 2019 with a record production volume, operating cost and product quality. Mt Cattlin is a stable and reliable operation currently positioned as one of the lowest cost spodumene producers.

In 2020, Galaxy will implement a lower activity mine plan focused on reducing volumes and costs to maintain positive cash margins and preserving resource life. Production and existing inventory will be sufficient to satisfy contracted commitments and additional product demand in 2020. Production can be ramped up swiftly and efficiently should market conditions materially improve.

### JAMES BAY - VALUE ENGINEERING WORK PROGRESSING

Key works for 2020 include a comprehensive value engineering exercise, a detailed geotechnical program at James Bay and a continuation of permitting activities and Impact and Benefit Agreement negotiations with the Cree Nation of Eastmain.

#### ENDS

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#### About Galaxy (ASX: GXY)

Galaxy Resources Limited is an international S&P / ASX 200 Index company with lithium production facilities, hard rock mines and brine assets in Australia, Canada and Argentina. It wholly owns and operates the Mt Cattlin mine in Ravensthorpe Western Australia, which is currently producing spodumene and tantalum concentrate.

Galaxy is advancing plans to develop the Sal de Vida lithium and potash brine project in Argentina situated in the lithium triangle (where Chile, Argentina and Bolivia meet), which is currently the source of more than 40% of global lithium production. Sal de Vida has excellent potential as a low-cost brine-based lithium carbonate production facility.

Galaxy's diversified project portfolio also consists of the wholly owned James Bay lithium pegmatite project in Quebec, Canada. James Bay will provide additional expansion capacity to capitalise on future lithium demand growth.

Lithium compounds are used in the manufacture of ceramics, glass, pharmaceuticals and are an essential cathode material for long life lithium-ion batteries used in hybrid and electric vehicles, as well as mass energy storage systems and consumer electronics. Galaxy is bullish about the global lithium demand outlook and is aiming to become a major producer of lithium products.





# GALAXY RESOURCES LIMITED (ASX: GXY) Strategy presentation

Simon Hay – Chief Executive Officer

November 2019







#### **Caution regarding forward looking statements**

This document contains forward looking statements concerning Galaxy. Statements concerning mining reserves and resources may also be deemed to be forward looking statements in that they involve estimates based on specific assumptions.

Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward-looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of the Company. Such factors include, among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, production risks, regulatory restrictions, including environmental regulation and liability and potential title disputes.

Forward looking statements in this document are based on Galaxy's beliefs, opinions and estimates of Galaxy as of the dates the forward-looking statements are made and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future developments. There can be no assurance that Galaxy's plans for development of its mineral properties will proceed as currently expected. There can also be no assurance that Galaxy will be able to confirm the presence of additional mineral deposits, that any mineralization will prove to be economic or that a mine will successfully be developed on any of Galaxy's mineral properties. Circumstances or management's estimates or opinions could change. The reader is cautioned not to place undue reliance on forward-looking statements. Data and amounts shown in this document relating to capital costs, operating costs, potential or estimated cashflow and project timelines are internally generated best estimates only. All such information and data is currently under review as part of Galaxy's ongoing operational, development and feasibility studies. Accordingly, Galaxy makes no representation as to the accuracy and/or completeness of the figures or data included in the document.

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# Corporate overview and strategy



# Company overview



### A proven lithium operator with an existing low cost operation and a world class project expansion portfolio

#### **Investment case highlights**

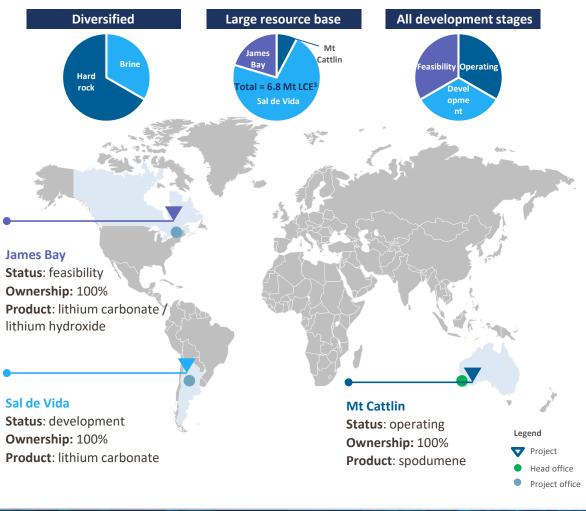
- Multi-project portfolio diversified geographically and across brine and hard rock
- Proven hard rock operator one of the lowest cost spodumene projects globally
- Sal de Vida is a tier one development project
  - Capital intensity and operating cost expected to be in lowest cost quartiles
  - Process to **sell a minority stake** to a strategic partner underway
  - Stage 1 expected to be funded from the balance sheet after partial sell down
- Net cash of US\$137m<sup>2</sup> affording flexibility to invest in growth at the cycle trough
- Strong relationships with lithium customers and end-users
- Chairman and CEO proven in developing material, global project portfolios
- Trading at 1.8 times cash backing

### Financial information (as at 15 Nov. 2019)

Share price	A\$	1.08
Number of shares (undiluted) <sup>1</sup>	# (million)	409.5
Market Capitalisation	A\$m	442.2
Cash and investments (30-Sep-19) <sup>2</sup>	A\$m	248.1
Debt (30-Sep-19) <sup>2</sup>	A\$m	47.0
Enterprise Value	A\$m	241.1

#### **Global lithium business**

Notes



# Establishing a platform for growth



June 2019	Jun – Nov 2019	Future
CEO Initial observations	Transition and integration period	Strong outlook for the future
<ul> <li>Differentiated project portfolio</li> </ul>	<ul> <li>Implemented strategic planning process</li> </ul>	<ul> <li>Delivery and execution of strategic plan</li> </ul>
<ul> <li>Multiple, high value growth options</li> <li>2018 POSCO deal set the company apart</li> </ul>	<ul> <li>Developed 18 month plan with focused deliverables</li> </ul>	<ul> <li>Transparency and accountability to all stakeholders</li> </ul>
from its peer group	<ul> <li>Restructuring of business units underway</li> </ul>	<ul> <li>Capital allocation discipline</li> </ul>
<ul> <li>Corporate strategy yet to be fully defined</li> </ul>	<ul> <li>Focus on de-risking and accelerating Sal de Vida</li> </ul>	<ul> <li>Sal de Vida to move to execute in 2020</li> </ul>
<ul> <li>progressing too many project options</li> </ul>	<ul> <li>streamlined management &amp; reporting lines</li> </ul>	<ul> <li>Value over volume strategy at Mt Cattlin</li> </ul>
<ul> <li>— siloed and unaligned business units</li> </ul>	<ul> <li>Definition and early integration of necessary</li> </ul>	<ul> <li>James Bay a tier one asset that requires</li> </ul>
<ul> <li>under-resourced for growth</li> </ul>	systems and processes	further work and definition before a decision
<ul> <li>Improvement required in role definition,</li> </ul>	<ul> <li>Updated values and business culture objectives</li> </ul>	to proceed
accountability and prioritisation in areas	<ul> <li>Commenced sustainability program fit for a global minerals business</li> </ul>	
	<ul> <li>Assessing Alita restructuring options with</li> </ul>	

**Receivers and with Administrators** 

## Corporate strategy



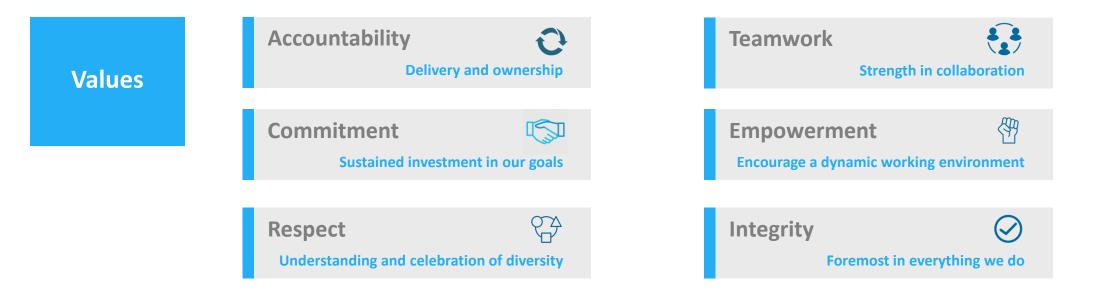
### A focused and simplified strategy, with timebound actions to accelerate growth

Timeframe	Present	0 – 2 years	0 – 5 years
Strategy d by executives	Optimise Mt Cattlin	Build / execute Sal de Vida	Expansion and further growth
nd department managers	<ul> <li>Sustained operational execution</li> <li>Free cashflow generation at cycle trough</li> <li>Prioritisation of value over volume</li> <li>Optimise production volume and mining quantum to meet customer requirements and reduce operating cost</li> <li>Optionality and reservation of resource for period of market recovery</li> </ul>	<ul> <li>Simplified and optimised flowsheet</li> <li>Stage 1 execution de-risked, including funding</li> <li>Pilot plant to commence operations in Q1 2020</li> <li>Targeting stage 1 FID in Q2 – Q3 2020</li> <li>Construction to commence in 2020</li> <li>Targeting first production in 2022</li> <li>Staged development to minimise funding and execution risks</li> </ul>	<ul> <li>Complete integrated feasibility study, value engineering and permitting at James Bay</li> <li>Sal de Vida stage 2 expansion</li> <li>Sal de Vida downstream facility</li> <li>Diversify into downstream hard rock conversion</li> <li>Pursue opportunities that support growth objective</li> </ul>
Enablers	Disciplined Build It	mplement Improved Refine a	and the second

## Galaxy identity and values



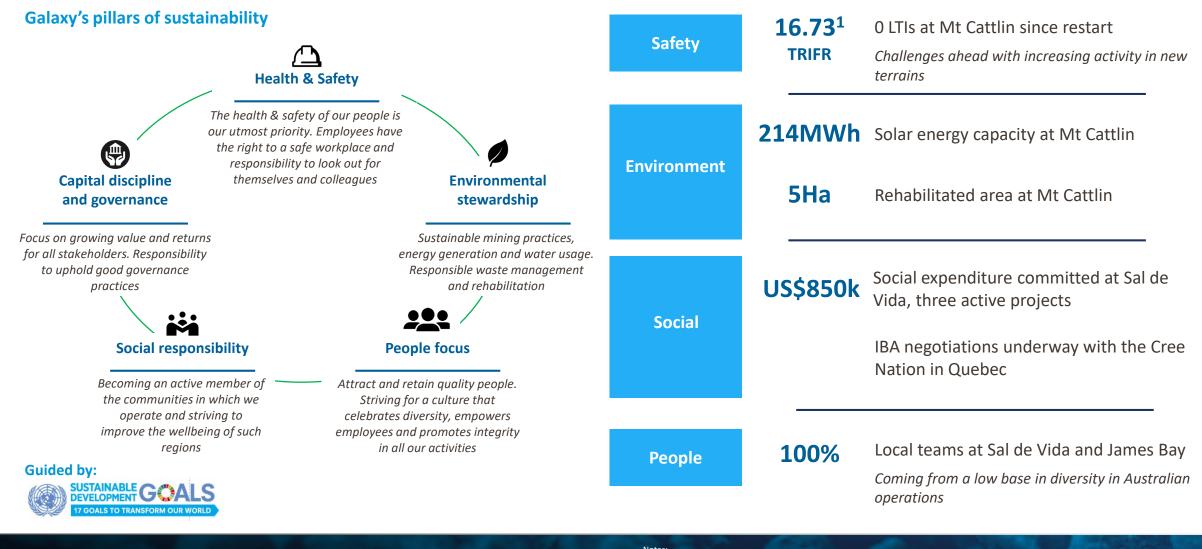
	<ul> <li>Galaxy is a low cost producer, with experienced management, a strong financial position and two world class growth projects</li> </ul>
Who we are	<ul> <li>Galaxy will leverage these assets to create a sustainable, large scale, global lithium chemicals business</li> </ul>
	<ul> <li>Fueling an electrical revolution in power generation, energy storage and transportation</li> </ul>



## Focused on sustainable development



### Promoting a sustainable future through our product output and behaviours



Notes: 1. For the rolling 12 months ended 30 September 2019

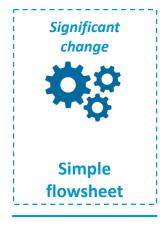
# Project development – Sal de Vida



# Sal de Vida investment highlights



One of the highest quality lithium deposits globally, with a low-cost simple flowsheet and de-risked development plan



- Simplified process flowsheet optimised for lithium production
- Technical risk associated with operating at altitude greatly reduced
- Low energy and water requirement enhances sustainability



- Targeting the lowest quartile for greenfields capital intensity
- Targeting to de-risk execution via staged, modular development
- Targeting operating cash cost within the lowest quartile
- Learnings from stage 1 to be applied to expansion



- Stage 1 expected to be funded from the balance sheet after partial sell down
- First production aligned with period of double digit lithium demand growth
- Positioned to deploy capital at the bottom of the commodity cycle
- Swift time to market



Superior brine chemistry

- One of the highest lithium concentrations in Argentina
- Low concentration of magnesium, boron and calcium aids production of battery quality products
- Demonstrated extractability with high flow rates



### Long project life

- Globally significant resource supporting a project life of 40+ years
- 1.1 Mt LCE reserve<sup>1</sup>
- 4.9 Mt LCE resource<sup>1</sup>
- Substantial resource upside

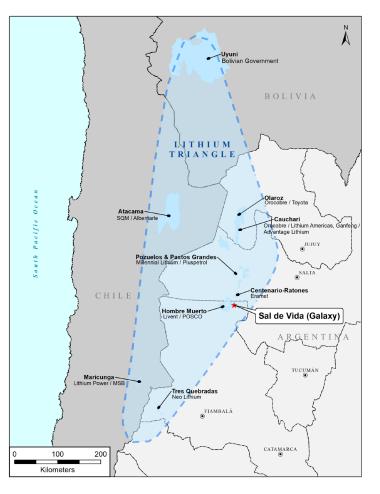
# Sal de Vida overview



### A development-ready, long life, low cost lithium brine project

- Lithium rich brine project located 630 km north west of Catamarca City, Catamarca Province, Argentina
  - -Adjacent to Livent's Fenix operation on the Salar del Hombre Muerto
- 100% Galaxy owned providing complete control over development & funding decisions
- Large stored brine volume with demonstrated extractability and excellent chemistry
- Well serviced by infrastructure, including major highways, a nearby international rail link and onsite water resources
- Study work completed to date has outlined a long life (>40 years), low-cost operation
- Environmental Impact Assessment approved for the current phase and to be updated as works develop (renewed for a further two years in July 2019)
- Catamarca has a long-established mining policy, where mining operations comprise c.66% of the provincial economy
- 100% local, senior leadership team in place headed by Guillermo Calo, who has extensive senior level experience in the South American mining sector
- CSR projects underway demonstrating pre-development commitment to communities

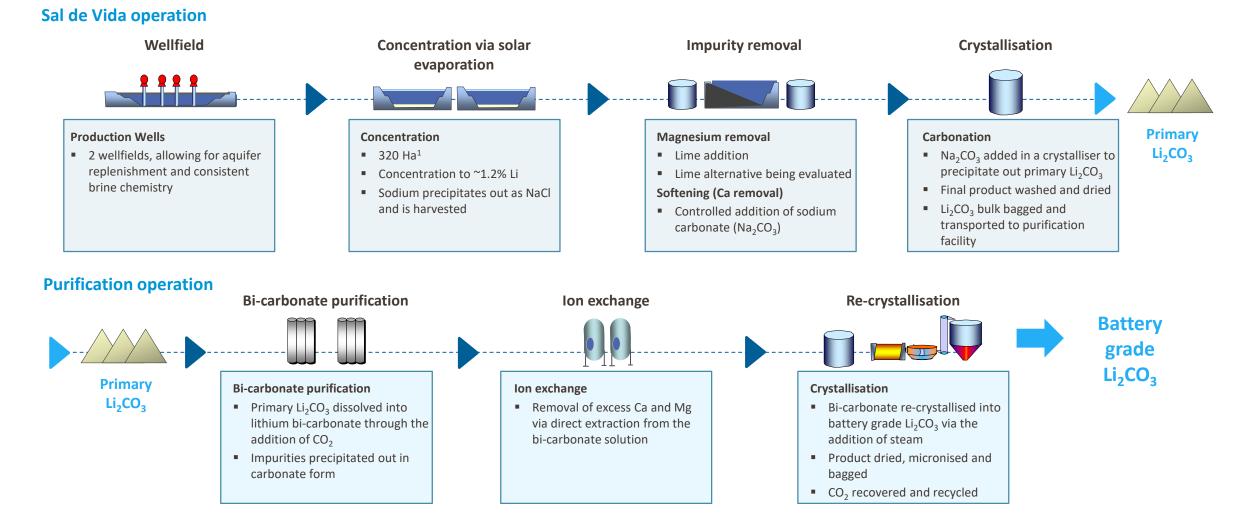
### Sal de Vida located within the lithium triangle



# **Optimised process flowsheet**



### Simple, efficient flowsheet with a decoupled purification circuit to be located offsite



Note:

# Advantages of flowsheet

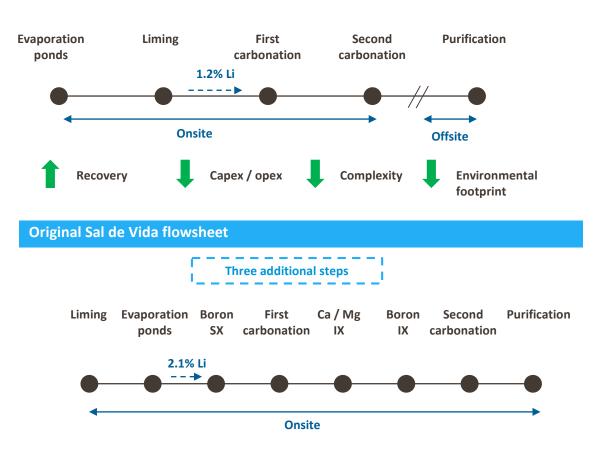


### Improved recovery, lower capital and operating costs and improved consistency of final product quality

#### Substantial flow sheet simplifications / optimisations

- Informed through a fundamental review of chemistry and the superior quality Salar del Hombre Muerto brine
- Culminated in a simplified process
  - Multiple process steps removed from flowsheet
- Final pond concentration reduced to 1.2% Li (previously 2.1% Li)
  - Pond sizing reduced and evaporation cycle time greatly accelerated
  - Overall lithium recovery improved due to lower pond losses
- Consistency of battery grade final product quality is challenging at altitude
  - Flowsheet decoupled between onsite operation and offsite purification
- Independent test work demonstrates Galaxy's product purifies to battery grade simply, easily and cost effectively
- Liming to occur after evaporation ponds (as opposed to before)
  - Greatly reduces the volume of brine treated and lime reagent requirement
- Controlled first carbonation allows impurity removal without major lithium losses

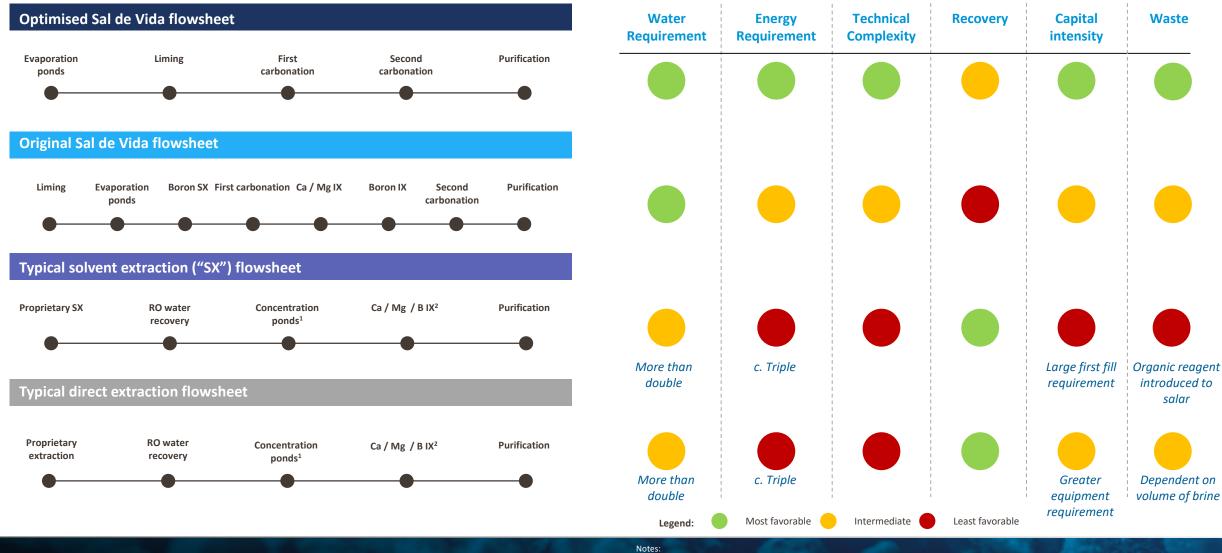
#### **Optimised Sal de Vida flowsheet**



# Comparison with other technologies



### Lower technical complexity and environmental impact compared to alternative processing technologies



- Theoretical lower limit of no pond area required 2.
  - Depends on the brine source

# **Project execution strategy**



### Staged, scalable project execution strategy that reduces development risk and does not threaten market balance

- Decision made to stage project execution into 2-3 modules
  - -Allows the staging of capital expenditure, simpler management of construction and logistics and reduces development risk
- Exact sizing is equipment driven, dictated by the capacity of the crystallisers and road freight size restrictions
  - -Ongoing collaboration with equipment OEMs to define crystalliser capacity

#### Sal de Vida – Stage 1

- Capital intensity targeted to be in the lowest quartile of greenfield projects
- Estimated pond size of 320 Ha, subject to output capacity<sup>1</sup>
- Targeting FID in Q2 Q3 2020
  - Preliminary investment decision earlier regarding pond / wellfield construction
- Targeting to commence construction in H2 2020 and first production in 2022

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- **Expansion Hurdles:** Demonstrate successful production of batterygrade quality
- Customer acceptance
- Cashflow / returns Stage 1 to meet investment hurdles on stand alone basis

### Sal de Vida – Expansion<sup>2</sup>

- Straight copy of stage 1 with appropriate adjustments for learnings
- Potential for multiple modules
- Expect a 6-12 month demonstration **period** for stage 1 before launching stage 2
- Maintain ultimate flexibility in expansion

### **Purification Facility**

- Targeted purification capacity will be matched to full scale output from all Sal de Vida stages
- Maintain flexibility to delay capital expenditure until Sal de Vida Stage 1 is operating efficiently
- Purification not required for stage 1 earnings realisation as primary Li<sub>2</sub>CO<sub>3</sub> can be sold into the purification market
- Purification facility to be built in parallel to Sal de Vida stage 2
- Work continuing to define final location

- Note:
- Capacity subject of ongoing collaboration with equipment OEMs and further engineering 2.
  - Number of modular stages the subject of ongoing equipment sizing and engineering works

# Sal de Vida product strategy



### Targeting early revenue generation through sale of primary carbonate, significantly reducing project development risk

- Product produced at Sal de Vida will be a "battery quality" primary carbonate
  - Moderate additional cost to upgrade to battery grade
  - Not all brine based primary products can be upgraded at a cost competitive price
- Galaxy will initially sell primary carbonate to purification customers
  - Customer engagement underway with five parties and positive initial responses
  - Seeking to progress expressions of interest to memorandum of understandings
  - Discussions include potential strategic arrangements on tolling, margin share & investment
- Medium-term **Galaxy will construct a purification facility** individually or with a strategic partner
- Retain flexibility to produce battery-grade lithium hydroxide in the future
  - Brine quality and flowsheet preserves optionality, allowing Galaxy to adapt to market
  - Flexibility enables potential marketing pivot to Japan/Korea at that stage

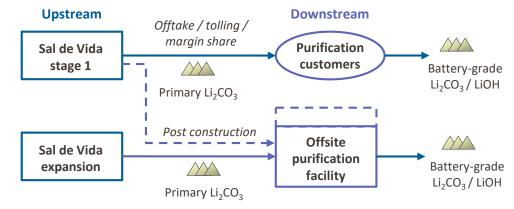
### **De-risking characteristics of product strategy**

- ✓ Ultimate flexibility retained
- ✓ Early revenue generation
- ✓ Smoothed capex profile

✓ Organic funding for expansion

- ✓ Reduced technical complexity
- ✓ Retain flexibility to produce lithium hydroxide

### **Product strategy**



### Galaxy's battery grade Li<sub>2</sub>CO<sub>3</sub> specification

Element	Specification
В	<2
Са	<25
К	<10
Mg	<15
Na	<181
S	<133
Cl	<10
Li <sub>2</sub> CO <sub>3</sub> (%)	>99.66
	Multiple test work runs that have exceeded this specification

# Onsite pilot program and other key site works



Onsite pilot to optimise key operating parameters and allow customer qualification of primary lithium carbonate product

### Lithium carbonate pilot plant

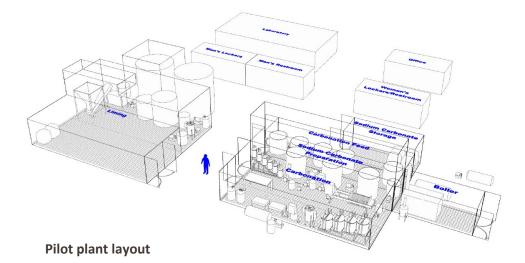
- Installation of process equipment underway; commissioning to commence in Dec 2019
- 2 3 month pilot of the optimised flowsheet to begin in Q1 2020
- Key objectives related to refining key operating assumptions and customer qualification of final product
- Pilot scale purification of primary carbonate to be completed at an offsite laboratory

### **Demonstration evaporation ponds**

- 15 Ha of pilot ponds initially decoupled from pilot plant operation
- Engineering for the pumping and piping of brine to the pilot ponds has been finalised
- Pond lining and filling commences in 2 weeks contracts let and contractor mobilising

### Camp upgrade and value engineering

- Expansion of camp to 112 beds nearing completion
- Camp expansion to cater for the implementation, commissioning and operation of the pilot ponds and plant
- Detailed expansions of the Project logistics study and energy generation options commenced in November
  - Exploring shared infrastructure options with neighbouring operators





Pond earthworks complete

Pond liners on site

# Indicative schedule for Sal de Vida stage 1<sup>1,2</sup>



### Targeting Final Investment Decision ("FID") on stage 1 in Q2 – Q3 2020

		2019	2020	2021	2022
Decision making	FID stage 1			Targeted stage commissioning an initial productio	d 📉
	Pilot pond lining, filling and evaporation				
Pilot	Onsite pilot production				
operation	Purification piloting at independent laboratory				
	Confirmatory pilot run utilising evaporated brine				
Other	Camp and onsite facilities upgrades				
works	Logistics and energy studies to refine operating plan and costings				
	Front end engineering design ("FEED") and detailed engineering ("DE") for ponds and wells				
Engineering &	Commence construction of wellfield, brine distribution and ponds		Stage 1		
construction	FEED and DE for commercial process plant			· · · · · · · · · · · · · · · · · · ·	
	Commercial plant construction				

#### Galaxy Resources Limited (ASX:GXY)

Note:

1. High level schedule that is indicative only - subject to various conditions

Definitive schedule to be defined through H1 2020 and finalised at time of FID

# Execution philosophy and final investment decision



Staged work packages for execution with concurrent implementation of internal project controls

### **Execution Philosophy**

- FEED to be divided in separate work packages (e.g. wellfields, ponds, plant, infrastructure)
- Contracting strategy will be developed fully during FEED
- Highly experienced Argentinian general manager brings essential in-county expertise
  - Extensive senior level experience in the South American mining sector
- Required project management systems and project controls being defined and implemented
- Currently supported by Worley team has significant South American brine experience

#### **Final investment decision**

- Targeting Q2 Q3 2020 for stage 1 FID
- FID subject to certain conditions:
  - Customer qualification
  - Product offtake arrangements in place
  - Regulatory approvals
  - Construction approvals
  - Confirmation of financials
  - Galaxy Board approval
- Early works expenditure prior to FID to be approved in 2020 budget

# Capital and operating costs



### Near term value add through accelerated development via efficient execution

### Capital and operating cost definition

**Previous** 

Historical study work completed (May 2018 FS)

- Previous feasibility work completed
- Outputs from value engineering works, such as the detailed geotechnical study
- Updated hydrogeological modelling and wellfield design

**Current Assessment** 

Indicative costs based on factoring of previous work

#### Process flowsheet optimisation complete

- Definitive costing currently being completed
- Indicative costs based on recent engineering work completed are highly encouraging
  - Core assumptions derived from previous study work
  - Inputs factored for inflation, comparable projects, simplification and elimination of certain process steps, and improved recovery
  - Factored for project scale and changes to project operations (e.g. no potash)
  - Order of magnitude estimates completed for the purification operation

### **Next steps**

FEED work packages and key contract tendering

- Tendering of key contracts, such as pond construction, will be completed during Front End Engineering Design ("FEED") to improve confidence in cost estimates
- FEED will be broken into multiple work packages to accelerate key project work streams
- Capital reduction opportunities, such as infrastructure sharing continue to be explored
- More detailed definition of purification design and costings

# Permitting



### Environmental Impact Assessment approved for the current phase

- Mining license granted over the total 250 km<sup>2</sup> of Sal de Vida
- The Sal de Vida environmental permit ("EIA") approved for the current phase and extended for a further 2 years in July 2019
  - Will be progressively updated to cater for upcoming development and construction works
  - Detailed design and engineering documents related to specific work packages will be periodically submitted for expansion of permitted activities
- Groundwater permit filed to extract fresh water for domestic and industrial use
- Surface easement applications filed to cover all infrastructure and plant workings



# De-risking project development



A different way of executing on growth – staged investment, scalable expansion and accelerated time to market

Breakthrough	Impact	Expected outcome
Simple flowsheet	<ul> <li>↓ energy / water intensity and waste</li> <li>↓ operational complexity</li> <li>↓ reagents required</li> <li>★ potash production</li> </ul>	<ul> <li>↓ environmental impact and risks</li> <li>↓ capital and operating costs expected</li> <li>↓ reagents required</li> <li>↓ dilution associated with potash</li> </ul>
Lower lithium tenor	<ul> <li>↓ pond size required</li> <li>↓ faster evaporation cycle</li> <li>↑ recovery of lithium through the ponds</li> </ul>	<ul> <li>↓ environmental footprint</li> <li>↓ capital costs expected</li> <li>↓ exposure to the weather</li> <li>↓ working capital tied up in inventory</li> </ul>
Staged project development	<ul> <li>multiple stages of development</li> <li>anticipating that stage 1 is funded</li> <li>proof of capability in Argentina before committing second round of capital</li> </ul>	<ul> <li>↓ Initial capital expenditure (smoothed capital cycle)</li> <li>↓ development risk</li> <li>↑ sources of finance for expansion stages</li> </ul>
Decoupling purification	<ul><li>initial commercialisation of primary carbonate</li><li>commit to construction once proven</li></ul>	<ul> <li>accelerated time to earnings</li> <li>↓ technical risk</li> <li>↑ operational control over battery grade production</li> <li>capital peak smoothed</li> </ul>

# Benchmarking

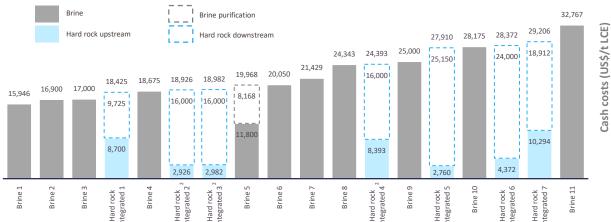


### Combination of superior brine chemistry, grade and the volume of extractable brine volume distinguishes Sal de Vida

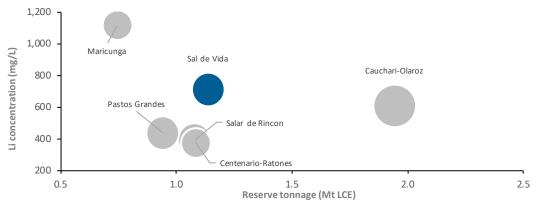
- Galaxy enforcing capital discipline across the whole portfolio
- Current low pricing environment demonstrates requirement for lowest cost quartile for development of new projects
- Galaxy committed to developing Sal de Vida in a competitive position from both capital intensity and unit operating cost perspectives
  - -All current works indicating this is feasible for Sal de Vida
  - Work program through to FID **targeting to realise both objectives**

#### Capital intensity (US\$/t capacity)<sup>2</sup>

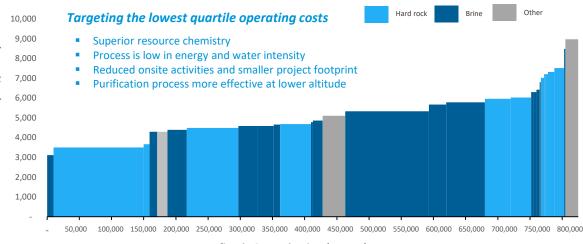
#### Targeting the lowest quartile for greenfields capital intensity



#### Reserve size and grade – SdV hits the "sweet spot" on grade and size



#### Lithium carbonate cost curve 2025(e)<sup>1</sup>



Refined LCE production (tonnes)

2.

- Notes:

   All direct and indirect cash costs related to the production of lithium compounds and estimated government royalties
  - Hard rock downstream capital intensity of US\$16,000/tpa LCE capacity assumed based on Galaxy's analysis, if not discernible from company announcements

# Corporate social responsibility



### Sustainable project development focused on improving the wellbeing of local communities

#### Communities local to Sal de Vida in Catamarca province



#### **Community projects currently underway**

Location: El Peñón

**Commitment**: US\$530,000

**Description**: Construction of an annexed secondary school on the same campus as the elementary school

Location: Antofagasta de la Sierra

**Commitment**: US\$262,000

**Description**: Primary School expansion. Classrooms, facilities and supporting infrastructure

Location: Ciénaga La Redonda Commitment: US\$50,000 Description: Construction of a first aid facility and an ambulance parking lot







# Corporate social responsibility

### Sustainable project development focused on improving the wellbeing of local communities

- Commitment to maximise local employment and procurement of local goods and services
  - -70% of the current workforce are from Catamarca
  - -New office in Antofagasta de la Sierra for this purpose
- Recent community contributions:
  - Lithium seminar at the University of Catamarca 4 classes and a site visit run by Galaxy employees
  - Hosting several courses on how to write a resume and prepare for an employment interview (140 attendees at first event)
  - Professional dental care training for all students at Antofagasta de la Sierra primary school
- Contributing to several UN sustainable development goals

# SUSTAINABLE GOALS



Education





Community partnerships



GA

**Employment upskilling** 



### Catamarca



### Catamarca is a proven mining jurisdiction; Provincial government highly supportive of Sal de Vida



Status	Operating			Develo	pment	Feasibility	
Project	Bajo la Alumbrera	Farallon Negro	Fenix	Minas Capillitas	Agua Rica	Sal de Vida	3Q
Location	Belen - Andalgala	Belen	Antofagasta de la Sierra	Andalgala	Andalgala	Antofagasta de la Sierra	Tinogasta-salar tres quebradas
Commodity	Au, Mo, Cu	Au, Ag	Li	Rhodochrosite	Mo, Cu	Li	Li
Years of operation	Since 1997	Since 1978	Since 1992	Since 1992	-	-	-
Owner(s)	GLENCORE =GOLDCORP YAMANAGOLD	Yacimientos Mineros de Agua de Dionisio	🛟 Livent	Caymen S.E. (Arg)	YAMANAGOLD	GALAXY	NEOLITHIUM

#### Argentina update

- Peaceful elections that saw Alberto Fernandez elected as the President and Raul Jalil as the Governor of Catamarca
- Seemingly smooth transition early in the process stabilisation of macroeconomic and currency indicators
- Galaxy plans to re-engage with the new leaders early in Q1 2020

# **Operations – Mt Cattlin**

# **Project overview**



### Stable and reliable production of high quality lithium concentrate ("spodumene") at a low operating cost

- Producing spodumene operation in Ravensthorpe, Western Australia
- Galaxy is a proven operator, having demonstrated stable and reliable production of a high quality lithium concentrate
- Generating a positive cash margin in a soft market
- Simple processing plant, with all major capital already invested allowing Galaxy the flexibility to enforce production discipline
- Current cash costs in the lowest quartile of operating spodumene producers
- 2019 production guidance of 183 193kt of lithium concentrate
- 2020 operational plan is focused on value over volume, cost reduction and mining efficiency

### Mt Cattlin resource (cut-off grade – 0.4% Li<sub>2</sub>O)<sup>1,2</sup>

Category	Tonnage (tonnes)	Grade (% Li <sub>2</sub> O)	Tonnes (kt)
Measured	2,200,000	1.32	29,800
Indicated	9,900,000	1.26	124,900
Inferred	4,600,000	1.30	59,700
Total	16,700,000	1.28	214,400

### Mt Cattlin reserve (cut-off grade – 0.4% Li<sub>2</sub>O)<sup>1,2</sup>

Category	Tonnage (tonnes)	Grade (% Li <sub>2</sub> O)	Tonnes (kt)
Proven	6,100,000	1.28	78,080
Probable	4,700,000	0.98	46,060
Total	10,700,000	1.15	123,050



Note: 1. Totals may differ due to rounding 2. As at 31 December 2018

# Record year in 2019



### Operational excellence demonstrated in 2019 with record production volume, operating cost and product quality



- Record production volume achieved in the first 3 quarters of 2019
- 148,000 dmt lithium concentrate produced (+21% YoY)
- Throughput capacity increased to 1.8 Mtpa following completion of yield optimisation project



- Low unit operating cost achieved in the first 3 quarters of 2019
- US\$387/t produced (FOB)
- In pit waste dumping has reduced average haul distances
- Major contracts being renegotiated
  - —Good support from contract partners



- Significant improvement in quality of final product
- Average grade of concentrate produced of 6.0% Li<sub>2</sub>O in Q2-Q3 2019 (2018 average grade was 5.76%)
- Meaningful reduction in key impurities
- Product qualified in tier 1 supply chains

Stable operations at capacity, hitting the required final product grade reliably 2020 focus on optimising production and costs whilst meeting customer demand

# 2020 operating plan



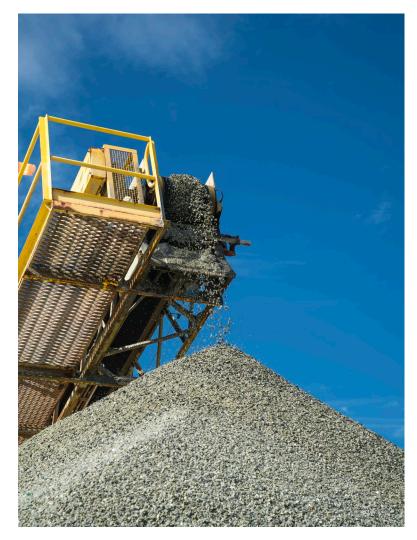
### Operational discipline to be enforced to maintain positive operating margins and preserve resource life

	Increased focus on costs and operating efficiencies
H2	<ul> <li>Renegotiation of key contracts leading to material cost savings</li> </ul>
2019	<ul> <li>Greater alignment of operations and marketing units</li> </ul>
	<ul> <li>Work continues on the mine plan and budget to finalise 2020 operating plan</li> </ul>
	Lower activity mine plan focused on reducing costs and staying in business
	-c.60% reduction in mining reduces operating cost by c.US\$20 million
	<ul> <li>Priority utilisation of stockpiles (final product / low grade ore)</li> </ul>

- 2020
- Production and existing inventory sufficient to satisfy customers in 2020
  - $\mbox{Sufficient}$  for contracted commitments and other expressions of interest

- Front-end optical sorters for treatment of low grade ore - US\$1.5m capex

• **Production ramp up will be swift and efficient** when required



# Feasibility – James Bay

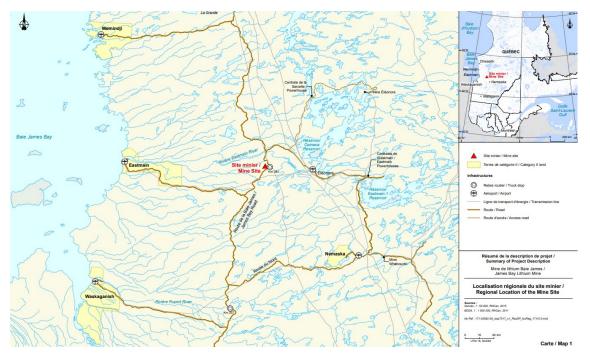
# James Bay project overview



### Shallow lying, high grade spodumene resource providing further expansion potential for Galaxy's project portfolio

- Hard rock spodumene project located 100 km east of Eastmain, Quebec, Canada
- 100% owned by Galaxy
- Shallow, flat lying resource with an estimated strip ratio of less than 4:1 making it amenable to open pit mining
  - Outcrop pattern and continuity of the pegmatite bodies suggest that **the pegmatite extends at length and along strike**
- Proximity to existing infrastructure, including the James Bay highway and hydropower infrastructure is a key advantage
- Ongoing feasibility study encompassing an integrated upstream mining and concentration and downstream chemical operation
- Environmental and Social Impact Assessment submitted in Q4 2018
- Tier one jurisdiction with Quebec ranked the 4<sup>th</sup> most attractive mining jurisdiction, globally, in the Fraser Institute's 2018 survey

#### James Bay location



#### James Bay resource (cut-off grade – 0.62% Li<sub>2</sub>O)

Category	Tonnage (tonnes)	Grade (% Li <sub>2</sub> O)	Tonnes (kt Li <sub>2</sub> O)
Indicated	40,300,000	1.40	564,200
Total	40,300,000	1.40	564,200

# Strategy for James Bay



### Diligent capital deployment and bankable project definition work to culminate in an execution decision in H2 2020

- James Bay has high strategic value to the emerging growth markets of North America and Europe
- Galaxy views diversity of production between hard rock and brine as a core component of the Company strategy
- The current strategy is to take our time and get it right on the full integrated solution
  - Currently employing our proven operating expertise to avoid the pitfalls encountered by lithium peers in Quebec
  - Seeking to minimise capital intensity and de-risk execution
- Development of a project execution plan and corporate development initiatives to be explored in parallel throughout 2020



**James Bay pegmatites** 



James Bay drill core

# Work program



## Focus on optimising project definition with minimal capital expenditure whilst market conditions remain soft

#### Upstream project

- Preliminary upstream project design and costings complete
- Comprehensive value engineering exercise underway
- Detailed geotechnical program commencing in Q1 2020
- Phase II testwork confirmed suitability of DMS only flowsheet

#### **Downstream integration**

- Completion of phase II downstream test work in Q1 2020
  - Preliminary recovery results greater than industry average
- Global downstream location study expected to complete in Q4 2019
- Stronger business case as an integrated North American project

#### Permitting

- Specialist in-country team assembled to focus on approvals
- ESIA clarifications with the government underway
- Impact and Benefits Agreement negotiations with the Cree Nation of Eastmain

Targeted completion of all key works in H2 2020

# **Benchmarking**



## Market indicators provide an indication of project value (upstream only)

EV / Resource multiples (A\$ / t Li<sub>2</sub>O)<sup>1,2,3</sup>

#### **James Bay**



Adjusted for resource ownership

2.

CAD:AUD = 1.11 GBP:AUD = 1.89

5.

- From scoping study for Kathleen Valley only
- From PFS study

# Corporate activity



# Alita Resources ("Alita") restructuring



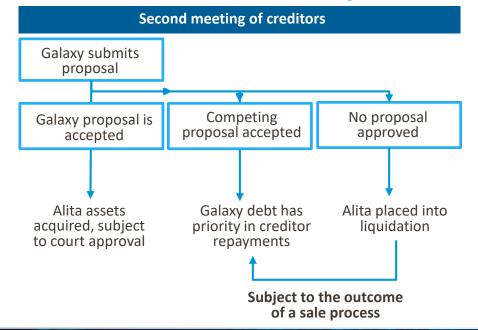
### Restructuring proceedings approaching the second meeting of creditors

#### **Restructuring timeline**

Galaxy acquired the Alita loan facility (" <b>facility</b> ")		Alita appointed voluntary administrator and Galaxy appointed receivers & managers		Second meeting of creditors – restructuring proposals presented to creditors by the Administrator	
•	C	Restructurin	g proceedings	•	Dependent on whether restructuring proposal is accepted or rejected by creditors
27 August 2019	28 / 29 Aug	ust 2019	Decemt	per 2019	

- Galaxy is the sole secured creditor to Alita
  - First ranking security over all the assets of Alita and its key subsidiaries and priority creditor in liquidation hierarchy<sup>1</sup>
- Alita facility purchased to provide the greatest flexibility in restructuring proceedings
  - Review of the Alita opportunity consistent with Galaxy's strategy of having long term spodumene supply
  - Capital discipline and comprehensive due diligence are the key focus areas in the review
- Value of the Galaxy's receivable is the sum of the facility principle (US\$28.8m), accrued interest (LIBOR + 15% p.a.)<sup>2</sup>, and costs incurred in managing the facility and funding restructuring
- Bald Hill spodumene is high quality and desired by customers due to the nature of the ore mineralogy

#### Possible outcomes from creditors meeting



Notes

Includes a 2% p.a. default penalty

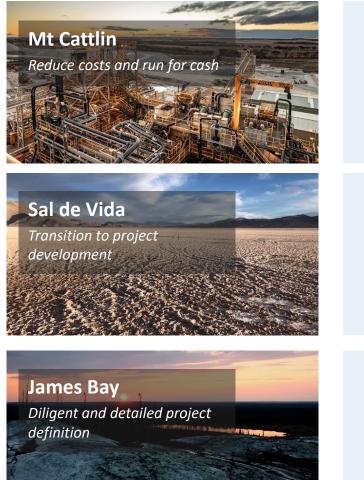
After employees who have already been reimbursed and administrator costs prior to appointment of receivers and managers

# Outlook and key catalysts

## **Outlook and catalysts**



## Galaxy accelerating a major growth transition through project development at Sal de Vida



- Scaled back mining operation and further cost reduction initiatives
- Installation of front end optical sorting units to facilitate treatment of low grade stockpiled ore
- Healthy spodumene sales pipeline with contracted volumes and further expressions of interest
- Production output can be swiftly and easily ramp-up to match market demand
- Completion of detailed energy and logistics studies in Q1 2020
- Onsite pilot plant operations to commence in Q1 2020 customer engagement underway
- Targeting final investment decision on stage one in Q2 Q3 2020
- FEED and detailed engineering on ponds and wellfields to commence in Q1 2020
- Detailed geotechnical program to commence in Q1 2020
- Value engineering underway on the upstream operation to minimise capital intensity
- Completion of phase 2 downstream test work in Q1 2020
- Targeting completion of key works to underpin project execution by H2 2020

# Market update

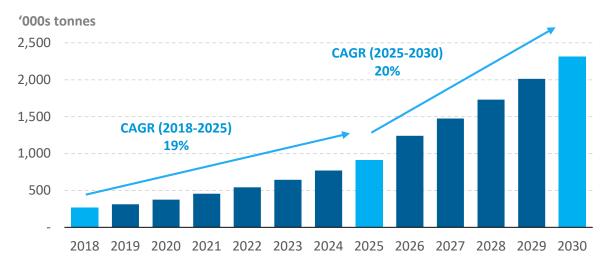
## Galaxy positioned to meet demand growth



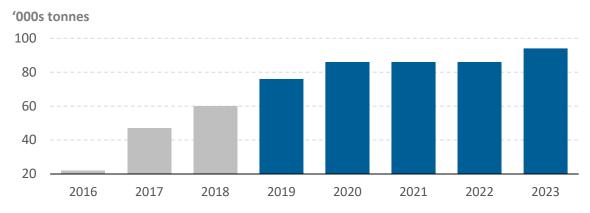
### Sal de Vida and James Bay both required in order for supply to meet demand growth

- Double digit demand growth forecasted over the next decade
- Mid 2020's expected to be the key inflection point for EV sales, the key driver of forecasted demand growth
  - Price and performance parity expected from manufacturing scale and technological advancement
  - Increasing consumer choice (+200 models by 2020)
- Further advancement and enforcement of government policy
  - Strict emissions standards across China and Europe
- Higher average battery size to support vehicle range and performance
- Increasing investment in supporting infrastructure
- Sal de Vida stage 1 targeting a subset of global lithium demand via the purification market
  - Total capacity growth of 57% expected in China alone by 2023
  - -9.4% compound annual growth rate (2018 2023)

#### Forecast lithium demand growth (kt LCE)<sup>1</sup>



#### Estimated effective lithium purification capacity in China (kt LCE)



Consensus of variety of investment banking and independent research estimate

Notes

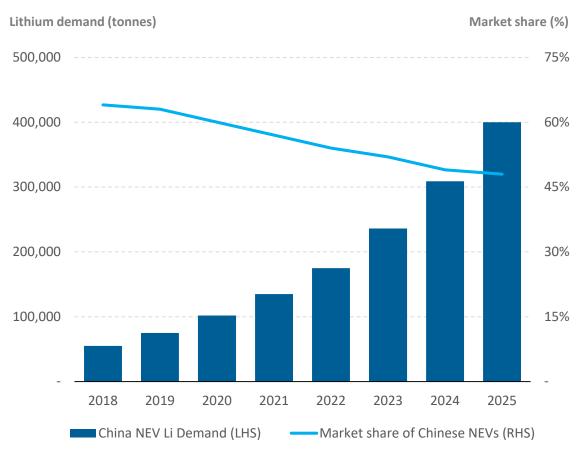
## Short term weakness in China



### Despite short term volatility, China will still represent the largest market for lithium demand

- Current volatility in China New Energy Vehicle ("NEV") sales is transitory
  - 25-30% growth in NEV volumes expected in 2020
  - Targeting 20% NEV penetration (5 million vehicles p.a.) by 2025
- China VI emissions standard is one of the world's strictest
- Short term volatility NEV sales a function of several temporary factors:
  - Revisions to Chinese NEV subsidies
  - Heavily discounted ICE vehicles in China and government support for the contracting auto-manufacturing industry
  - Escalating trade tensions and slowing global growth
- Near term price headwind remains
  - Subsidy changes and a lower lithium carbonate price have slowed the transition pace to high nickel intensity cathode chemistries
  - Manufacturers of traditional chemistries, such as LFP, willing to use lower specification product

#### Forecast market share and lithium demand of Chinese NEVs



# Rest of the world emerging



## Growing demand pull for electric vehicles ("EV") from other key global markets, led by Europe

- 2020 set to be a breakout year in global EV model releases
- Greater than 30 new EV models estimated for release in 2020, across Europe and the USA alone
- Increasingly strict emissions standards and growing public awareness of climate change risks requires OEMs to invest in EV capacity
- Despite the slowdown in upstream investment, committed investment in battery manufacturing has continued to increase

#### 2020 EV model releases

Volkswagen ID3					
	Type: Battery <sup>3</sup> : Range <sup>3</sup> : Price:	BEV <sup>1</sup> 45-80 kWh 275-600 km US\$28,500 <sup>2</sup>			
BMW IX3					
BM\	N IX3				

#### Plug-in electric vehicle sales in Europe





BEV = battery electric vehicle – a vehicle that is powered only by an electrical engine (no internal combustion)

Estimated starting price for the standard model in the UK; pricing for specific global regions will differ

Price:

43

US\$60,600<sup>2</sup>

Notes

Estimates based on publicly available information from EV database and manufacturer announcements

Galaxy Resources Limited (ASX:GXY)

# Supply rationalising



- The **ability to invest in growth at the cycle trough** differentiates Galaxy
- Spodumene and lithium chemical markets are currently oversupplied and marred by excessive product inventories
- Current pricing for lithium products is unsustainable
  - -Further supply rationalisation expected as a result
  - -Insufficient to incentivise the quantum of new capacity required
  - -Financing structures being challenged
- Demand acceleration, increasing significance of operating cost and delayed investment in new capacity will return the market to deficit
- The key supply side challenges remain:
  - US\$10-US\$12 billion in further investment required to meet anticipated 2025 demand<sup>1</sup>
  - Significant project lead times mean investment decisions need to be made during the period of oversupply
  - -Lack of traditional forms of project capital currently available

#### Announced supply rationalisations



. Assuming an additional 600 kt of capacity required at an average capital intensity range of US\$16,000 / t – US\$20,000 / t



## Sal de Vida reserve and resource



#### Sal de Vida reserve (cut-off grade – 500mg/L)<sup>1</sup>

Category	Li total mass (tonnes)	LCE (tonnes)	K total mass (tonnes)	KCl eq. (tonnes)
Proven	34,000	181,000	332,000	633,000
Probable	180,000	958,000	1,869,000	3,564,000
Total	214,000	1,139,000	2,201,000	4,197,000

#### Sal de Vida resource (cut-off grade – 500mg/L)<sup>1</sup>

Category	Brine Volume (m3)	Avg. Li (mg/L)	In-situ Li (kt)	LCE (kt)	ln-situ K (kt)
Measured	4.9x10 <sup>8</sup>	759	369	1,964	3,952
Indicated	6.8x10 <sup>8</sup>	717	485	2,583	5,446
Inferred	1.0x10 <sup>8</sup>	706	71	376	676
Total	1.3x10 <sup>9</sup>	732	925	4,923	10,073

Note: <u>1. Totals may not agree due to minor rounding differences</u>

## **Competent Person Statements**



#### Mt Cattlin

Any information in this report that relates to Mt Cattlin Mineral Resources and Ore Reserves is extracted from the report entitled "42% increase in Mt Cattlin resource to 16.7Mt" created on 23 January 2019 which is available to view on www.gxy.com and www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resources and Ore Reserves estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

#### Sal de Vida

Any information in this report that relates to Sal de Vida Project Mineral Resources is extracted from the report entitled "Sale of Northern Tenements at Sal de Vida to POSCO Completed" created on 26 November 2018 and the Sal de Vida Project Ore Reserves is extracted from the report entitled "Sal De Vida: Revised Definitive Feasibility Study Confirms Low Cost, Long Life and Economically Robust Operation" created on 22 August 2016 both of which are available to view on www.gxy.com and www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the Mineral Resources and Ore Reserves estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement

#### James Bay

Any information in this report that relates to James Bay Mineral Resources is extracted from the ASX announcement, entitled "James Bay Resource Update" dated 4 December 2017 which is available to view on www.gxy.com and www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resources in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.