

**ASX: INF ANNOUNCEMENT** 

22 August 2019

# SAN JOSÉ LITHIUM PROJECT INFINITY DELIVERS EXCEPTIONAL LITHIUM HYDROXIDE PRE-FEASIBILITY STUDY AND DECLARES MAIDEN JORC ORE RESERVE

Infinity Lithium Corporation Limited (ASX:INF) ('Infinity', or 'the Company') is pleased to announce the completion of the Pre-Feasibility Study ('PFS', or 'the Study') for the fully integrated San José Lithium Project ('the Project') including the production of lithium hydroxide. The Company had previously completed the lithium hydroxide Scoping Study (ASX announcement 29 November 2018) which demonstrated the potential for an integrated lithium chemicals development project strategically located in the Extremadura region of Spain.

#### Pre-Feasibility Study – Cautionary Statement

The Study referred to in this announcement is a preliminary technical and economic investigation of the potential viability of the San José Lithium Project. It is based on low accuracy technical and economic assessments, (+/- 25% accuracy) however is sufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage; or to provide certainty that the conclusions of the Study will be realised. Infinity is in Joint Venture ('JV') with Valoriza Mineria SA, a subsidiary of SACYR S.A. Infinity have independently engaged the services of Wave International Pty Ltd ('Wave') to assess the technical and economic viability with regards to producing battery grade lithium hydroxide under the San José Lithium Project. Whilst the Pre-Feasibility Study has yielded robust outcomes and provided independent perspective on the opportunity to produce battery grade lithium hydroxide, there is no guarantee that the JV will choose to adopt the outcomes of the study.

The Production Target referred to in this presentation is based on 100% Probable Reserves for the life of mine life covered under the Study. In accordance with the thirty (30) year mine plan incorporated into the Study, the first three (3) years of production (covering payback period) will come 100% from Probable Reserves.

The Study is based on the material assumptions outlined below and include assumptions about the availability of funding. While the Company considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Study will be achieved. To achieve the potential mine development outcomes indicated in the Study, additional funding will be required. Investors should note that there is no certainty that the Company will be able to raise funding when needed however the Company has concluded it has a reasonable basis for providing the forward looking statements included in this announcement and believes that it has a "reasonable basis" to expect it will be able to fund the development of the San José lithium deposit.

To achieve the outcomes indicated in this Study, initial funding in the order of US\$309m (which includes a 15.3% contingency) will likely be required, and US\$318m (including a 15.3% contingency) over the life of the Project. Investors should note that there is no certainty that Infinity will be able to raise funding when needed. Infinity holds a total of 75% interest in the San Jose Lithium Project, with Valoriza Mineria holding the balance of 25% interest. It is also possible that Infinity can pursue a range of funding strategies to provide funding options. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Infinity's existing shares. It is also possible that Infinity could pursue other value realisation strategies such as sale, partial sale, or joint venture of the Project. If it does, this could materially reduce Infinity's proportionate ownership of the Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of this Pre-Feasibility Study.



# San José Lithium Project Lithium Hydroxide Pre-Feasibility Study **HIGHLIGHTS** Outstanding project economics (pre-tax) based on 100% project ownership: NPV<sub>10</sub> of US\$860 million • IRR of 42.3% Generating US\$6 billion in gross revenue Extended project life from integrated activities with: 30 years lithium hydroxide production from 19 years of mining operations • Substantially improved employment dynamics for the region of Extremadura with a 25% increase in production life vs Scoping Study Process flow sheet to produce lithium hydroxide confirmed • Wave International completed the PFS which at nameplate capacity m delivers lithium hydroxide at US\$5,043/t • Average production of **15ktpa** in the first 10 years Significant project improvements over Scoping Study\*: Maiden Ore Reserve $\bigcirc$ Exceptionally low average LOM strip ratio of 0.43 : 1 and a reduction in 0 total movement of 13.5% Project life extended and total movement minimised through $\bigcirc$ improvements in pit design and process efficiencies Optimisation of the process flowsheet through extensive test work 0 results in increased overall plant recovery Cost reductions through confirmation of the recycling and successful 0 reuse of key reagent potassium sulphate in the roasting and water leach process Improvement in project economics and environmental impact through 0 reduction in tailings, waste footprint and visible impact of processing plant Discussion progressing with strategic financiers and European offtake partners Infinity maintains the right to move to 100% Project ownership as a result of the renegotiated Joint Venture agreement

\*Scoping study published on 29 November 2018

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### Introduction

Infinity Lithium Corporation Limited (ASX:INF, 'Infinity' or 'the Company') is pleased to announce the completion of the Pre-Feasibility Study ('PFS') to produce lithium hydroxide at the integrated San José Lithium Project ('San José', or 'the Project'), located in the Spanish region of Extremadura. The PFS outcomes confirm exceptional Project economics and offer several improvements including an extended production life and reduced social, environmental and visual impacts. The completion of the PFS provides robust support for ongoing discussions with key strategic partners in the delivery of essential battery grade lithium chemicals within Europe.

The Company's Managing Director, Ryan Parkin commented, "The PFS has confirmed San José as a long life, low cost Project that is essential to meet the European Commission's goal to secure critical lithium chemicals that are imperative for the economic survival of their automotive industry. The value of the Project is significant with a pre-tax NPV<sub>10</sub> of US\$860m and an attractive IRR of 42% over an extended project life, which, when coupled with the potential support of major European institutions such as the European Investment Bank, provides confidence for the development of the flagship lithium chemicals Project within Europe.

The Project presents the potential for exceptional multi-decade employment positions and tax revenues that are largely retained within the region of Extremadura, whilst also providing a world class beacon for complimentary activities in lithium-ion battery production and technologies in the region and throughout Spain. San José retains unique sustainability characteristics that further compliment Europe's aggressive carbon emissions compliance requirements through the implementation of an environmentally advantageous process flowsheet and superior carbon emissions profile for European end markets."

# **Overview of San José & Key PFS Outcomes**

San José is a very large lithium-tin deposit located in the Extremadura region of western Spain. The PFS has confirmed the exceptional technical and economic outcomes from a fully integrated "quarry-to-speciality chemical" lithium hydroxide Project located in the heart of the European Union. This integrated project is shown in Figure 1. The key outcomes of the PFS are detailed in Table 1.

Parameter	U	nit Amo	Scoping unt Study Delta
Project Economics (100% Ownership Basis):			
NPV10 (pre-tax)	υ 🔥	S\$ 860	im <b>1</b> 9.9%
IRR (pre-tax) <sup>(1)</sup>	<b>+ +</b> •	% 42	% 🗸 17.6%
Capital payback from start of production	ye	ars 2.5	∕rs ↔
Foreign Exchange Rate	€:(	US\$ 1.1	1 12.6%
Project Economics (100% Ownership Basis):			
Revenue from lithium hydroxide (life of project)	U Contraction	S\$ 6.0I	Bn <b>1</b> 6.6%
Total net operating cash flow LOM	U Les U	S\$ 3.7I	3n <b>个</b> 12.8%
Average EBITDA pa over first 10 years of production	U	S\$ 157.	3m <b>1</b> 28.6%
Average long-term lithium hydroxide price			
First 5 years of production		\$/t 14,7	70 15.8%
First 10 years of production	US	5\$/t 16,0	04 13.3%



Parameter		Unit	Amount	Scoping Study Delta
Average C1 cost over 10 years of production <sup>(2)</sup> without by-product credits	$(\mathbf{X})$	US\$/t	5,434	<b>↓</b> 6.9%
Resource:				
Indicated Resources		Mt	59.0	$\leftrightarrow$
Interred Resources		IVIT	52.2	$\leftrightarrow$
Reserves (Maiden Resource):				
Proven Reserves	X	Mt	- 27 2	$\leftrightarrow$
Probable Reserves		IVIT	37.2	Т
Production Metrics:	_			
Initial Life of Mine ('LOM') (3)	<b>A</b>	Years	30	↑25%
Processing post mining movement	U	Years	19	↑37%
	-			
Project ROM LOM		Mt	53.3	<b>↓</b> 13%
Project initial LOM ore feed		Mt	37.2 0.43 · 1	<b>↑</b> 31%
		A.A	0.45 . 1	V 0 470
Annual throughput prior to beneficiation		Mt	1.25	$\leftrightarrow$
Annual throughput process plant		Mt	0.553	↑ 10%
Overall plant recovery		%	1.3% 53%	<b>↓</b> 0.7% <b>↑</b> 6%
Annual production of lithium hydroxide average first		t	14,994	<b>1</b> 3%
10 years				
Capital Investment:				
Pre-production capital expenditure <sup>(4)</sup>		US\$	267.9m	<b>1</b> 2.2%
Capex per annualised tonne of production over first 10 years <sup>(4)</sup>		US\$/t	17,867	<b>1</b> 0.6%
Capital Intensity – Processing plant nameplate <sup>(4)</sup>		US\$/t	16,236	<b>V</b> 7.1%
Pre-production capital expenditure contingencies	-	US\$	41.1m	<b>↑</b> 57.0%
TABLE 1: SAN JOSÉ ECONOMIC METRICS AND KEY	ASSUMPTION	S (100% OWN	IERSHIP BASIS)	
(1) Project life extended by 25% from 24 years to 30 years of productio	n.	ontimication		nal work is required
to define a value of the potential by-product credits, or if it would b	e economic to	extract a val	ue from these cr	edits.
<ul> <li>(3) 19-year mine schedule and 11-year stockpile schedule. In total a 30</li> <li>(4) Excludes contingency. Total CAPEX including contingencies US\$309</li> </ul>	-year producti m.	on of battery	grade lithium ch	emicals.







# **Upcoming Project Deliverables**

San José has progressed the commercial and social validation of the vertically integrated lithium hydroxide project through the delivery of an economically robust and responsive PFS. The Study includes the provision of a longer life project and reduced environmental footprint in the heart of the European Union and the PFS can allow Infinity to more vigorously engage discussions with key strategic offtake partners, and progress future financing opportunities that can be potentially facilitated through the alignment of key European Commission objectives. The Company will now focus on the key aspects of offtake, project finance and permitting in and around a tailored Definitive Feasibility Study ('DFS') that will be designed to respond to end user specific product and timing requirements.

The lithium chemicals industry is growing rapidly and battery technology dictates specialist offtake specifications. These strategic offtake partners requirements are manifest in the provision of a specific industrial battery grade product that will guide the nature and requirements for the progression of technical work for a DFS. The development timeline as provided by Wave International considers the concurrent process engineering and DFS program scheduled of 8 months.

The Company is in partnership (75/25) with local Spanish Company Valoriza Mineria S.A, a subsidiary of large Spanish engineering and construction company Sacyr S.A. The JV company Tecnología Extremeña Del Lito S.L. ('TEL') does not currently have the financial capacity to internally fund 100% of the development of the San Jose Project. External funding, likely in the form of debt, equity and product prepayments will be required to finance construction and development. There is no guarantee that this funding is or will be available upon completion of a DFS.

The Company is allocating 6 months post DFS to obtain relevant permits and financing. There is no certainty that regulatory approvals or financing will be obtained in this time frame or at all.

Upon obtaining the required approvals, permits and financing is available post DFS, an estimated timeline for construction of 20 months from Financial Investment Decision to reach commissioning stage has been estimated by Wave.

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# Summary of the Pre-Feasibility Study

San José is a very large, outcropping lithium-tin deposit located in the Extremadura region of western Spain. The Project area was previously mined into the 1960s for tin and more recently was the subject of a feasibility study into the production of lithium carbonate in the early 1990s by Spanish diversified mining group Tolsa S.A. ('Tolsa'). At the time the Project did not progress, and the tenure lapsed due to the vastly different market conditions and requirements for technical grade lithium carbonate in a period prior to the widespread adoption of lithium-ion batteries. The previous feasibility study proposed to use acid digest as the process route. There previously was also no ability to seriously consider alternative processing options as the adjoining gas pipeline which has supported the current process flow sheet route was only completed in 2007 and therefore not available to Tolsa at the time. The Extremadura regional government conducted a public tender process in 2015 to invite companies to examine and advance possible lithium chemical production at San Jose. The tender was awarded in May 2016 and Infinity has been in Joint venture on the project with its partner since June 2016.

As a result of the tender process and subsequent Joint Venture agreements Infinity holds a 75% interest in the project and is in partnership with Spanish company Valoriza Mineria S.A ('Valoriza'), a wholly owned subsidiary of the large, listed Spanish construction and engineering company Sacyr S.A (Sacyr). The IBEX35 traded Sacyr has a market capitalisation in excess of  $\leq 1$  (A $\leq 1.5$ ) billion (at the date of the PFS) and operates internationally with a focus in engineering, water treatment and construction. Infinity holds an option to acquire the remaining 25% interest in the Project as a result of the renegotiated Joint Venture ('JV') agreement that was completed in Q1 2019 (Figure 2).



Infinity completed a San José Lithium Hydroxide Scoping Study ('Scoping Study') on 29 November 2019, and the PFS was managed by Wave International (Wave) a recognised industry leader in the lithium industry. The PFS has confirmed the strong technical and economic outcomes of this earlier study. The Project deposit is located within tenement application 10C10343-00 P.I Valderflorez ('PIV') and is surrounded on three sides by the larger tenement application 10C10359-00 P.I Amplicacion de Valderflorez ('PIAV').

The PFS has delivered an improved project in terms of social, environmental, financial and technical aspects. Significant Project Enhancements manifest in the PFS include:

#### 1) Improved Pit Design and Tailings Profile

The PFS has benefited from efficiencies in the pit design due to improved geotechnical inputs and lowering cutoff grade of plant throughput (possible due to process efficiency increases). This has resulted in a reduction in total material moved from the pit and the ratio of ore to waste for the material moved. The open pit quarry has an operating life of 19 years and an extremely low average strip ratio of 0.43:1, with a 53.3Mt total material movement over the life of the Project representing a 13% reduction from the Scoping Study assumptions. The tailings profile was further reduced through an improved dry stack tailings design which enabled a reduction in the volume and footprint of tailings as well as allowing a large amount water recirculation back to the process plant.



# 2) Prolonged Production Rate

The PFS is based on a 1.25Mt per annum throughput rate as per the Scoping Study for a nameplate production capacity of 16,500tpa of lithium hydroxide ('LiOH'). The Scoping Study delivered a 24 year of production lifespan The PFS will deliver an additional 6 years of production for a total of 30 years (Figure 3). It should be reiterated that this is from a smaller amount of total mined material than that used in the Scoping Study and is based upon improved processing efficiencies.



The potential benefits of the prolonged process life are not restricted to the employees and authorities who will receive tax revenues and wider increased employment and economic activity but also to potential off takers, related and dependent industries and the European Union ('EU').

# 3) Improvements in the Process Flow Sheet

Minor variations to improve efficiency and recovery have been made to the flow sheet subsequent to the Scoping Study. This supports the robustness of the Scoping Study assumptions and benefits from the utilisation of the sulphate roast and water leach process in other projects.

The PFS combines a long life, low cost open pit or quarry type operation with a processing plant located adjacent on-site. The Project envisages the adoption of a traditional crush/grind/float process whereby the ore is crushed and lithium bearing mica separated from quartz and tourmaline through a froth flotation beneficiation process. This concentrate is then processed utilising the sulphate roast and water leach process.

The availability of key reagents including the abundant availability of natural gas from a pipeline adjacent to the Project has enabled the proposed adoption of an environmentally advantageous sulphate roast and water leach process prior to purification of the lithium-bearing solution through heating, resulting in an increased concentration prior to sulphate recovery. The proposed addition of caustic soda (sodium hydroxide) to lithium sulphate, and subsequent crystallisation and purification stages, derive a market ready lithium hydroxide end product.

A nameplate capacity of 16,500tpa LiOH (increased from 15,000tpa) is based upon improved process efficiencies. The 30-year production life (increased from 24 years in the Scoping Study) is the result of lowering cut-off grades based upon improved process efficiencies and the treatment of previously discarded material.

#### 4) Robust Capital Expenditure Assumptions and Project Economics

The PFS assumes a steady-state production of concentrate of approximately 525kt per annum. Pre-production capital expenditure is estimated to be US\$268m excluding contingencies (US\$309m including contingencies). An increase in the contingency rate to 15.6% combined with an expanded mechanical equipment list accounts for the majority of the increase from the Scoping Study assumptions.



The nameplate capital intensity of US\$16,236/t pre-contingencies or US\$18,730/t including contingencies both represent improvements on Scoping Study outcomes with an ability to process the increased volumes produced in the first 10 years of production. The increased production of lithium hydroxide follows increased recoveries from testwork flotation and hydrometallurgy testwork.

The average C1 cost over the first 10 years of production is at the lowest end of the cost curve at US\$5,434/t with nameplate at full production of US\$5,043/t (Figure 4).



#### FIGURE 4: OPERATING COSTS FIRST 10 YEARS OF PRODUCTION EST

#### Pricing

Infinity engaged global leaders and London Metals Exchange's recently announced preferred Price Rating Agency provider Fastmarkets MB to provide pricing assumptions for battery grade lithium hydroxide. A section on Pricing and Markets is available in Appendix 1 and shown in Figure 5. The PFS pricing assumptions comprised a range between US\$12,750 and US\$17,238 per tonne for battery grade lithium hydroxide, resulting in an NPV<sub>10</sub> of US\$860m and an IRR of 42.3%.

An exchange rate of €:US\$1.11 was assumed over the life of the project for all costs denominated in Euros. A\$:US\$ of 0.70 was assumed for the life of the project but its impact is restricted to the initial 3 years based on design and engineering work yet to be completed.





Note: Over 2018-2021 Fastmarkets expects European prices to track Asian benchmark export pricing Source: Fastmarkets MB Research

# **Project Overview**

#### **Project Location**

San José is located approximately 280 kilometres westsouthwest of Madrid near the town of Caceres (Figure 6). Spain is considered a low sovereign risk investment destination and enjoys an established and transparent mining law, no government royalties on mining and a low tax rate (corporate tax rate 25%). Extremadura is extremely well endowed with infrastructure and the Project is a recipient of adjoining electricity, road, water and gas infrastructure. The Project is located in close proximity to European lithium-ion battery end markets which are rapidly developing to support the burgeoning EU electric vehicle industry.

The project is located on tenement application 10C10343-00 P.I Valderflorez ('PIV') and is surrounded on



FIGURE 6: PROJECT LOCATION

three sides by the larger tenement application 10C10359-00 P.I Amplicacion de Valderflorez ('PIAV'). These are held 100% by Tehnologia Extremeña de Litio S.L. ('TEL') of which Infinity is a 75% owner (Figure 7).





FIGURE 7: AERIAL VIEW OF TENURE, PROJECT SETTING AND GAS PIPELINE

#### Geology and Mineral Resource Estimate

San José is a zinnwaldite mica replacement deposit hosted by pelitic slates of the Central Iberian Zone, with lithium mineralisation occurring predominantly within the slates and to a lesser extent in the quartz carbonate veins which have been historically mined for tin and tungsten. Material is roughly equal parts mica, quartz and tourmaline (Figure 8). There is low-grade contained within quartzite. The pervasive mineralisation implies that the mineralisation extends beyond 10C10343-00 PIV and into the adjacent tenement area.

San José has a very large JORC 2012 Mineral Resource Estimate with the majority of mineralisation classified in the Indicated resource category. Cube Consulting estimated the total Mineral Resource for the San Jose lithium deposit using Ordinary Kriging interpolation methods and reported above a 0.1% Li cut-off grade. Full details of block modelling and estimation are contained in the ASX announcement dated 5 December 2017 and updated 23 May 2018 (Table 2).

Parameter		Amount Mt	Li%	Li2O (%)	Sn ppm
Resource:					
Indicated	<b>a</b>	59.0	0.29%	0.63	217
Inferred		52.2	0.27%	0.59	193
TOTAL		111.3	0.28%	0.61	206



 TABLE 1: SAN JOSÉ MINERAL RESOURCE REPORTED ABOVE 0.1% LI CUT-OFF
 FIGURE 8: SAN JOSÉ RESOURCE CLASSIFICATION

 Infinity is not aware of any new information or data that materially affects the information included in this ASX release, and Infinity
 confirms that, to the best of its knowledge, all material assumptions and technical parameters underpinning the resource estimates in this release continue to apply and have not materially changed.

Estimated using Ordinary Kriging methodology. Note: Small discrepancies may occur due to rounding. Further details ASX release 23 May 2018

Lithium (Li) mineralisation is commonly expressed as either lithium oxide (Li2O) or lithium carbonate (Li2CO3) or Lithium Carbonate Equivalent (LCE). Lithium Conversion:

1.0% Li = 2.153% Li2O, 1.0%Li = 5.32% Li2CO3, 1.0% Li2CO3 = 0.880% LiOH.H2O



All of the San José Ore Reserves in the mining model of the PFS are derived from Indicated category Mineral Resources following the application of modifying factors. The current pit design optimises approximately 63% of the defined Indicated MRE. The relation of optimised open pit to MRE is shown in Figure 9.



FIGURE 9: SAN JOSE PIT, RESOURCES AND DRILLING IN CROSS SECTION AND 3D VIEW

Table 3 summarises the San José Maiden Ore Reserve estimate.

Classification		Tonnes (Mt)	Li(%)	Li2O (%)	Sn ppm
Proven	1	-	-	-	-
Probable		37.2	0.29	0.63	217
TOTAL		37.2	0.29	0.63	217
TABLE 2: SAN JOSÉ JORC ORE RESERVE STATEMENT					

#### **Competent Persons Statement**

Production Target, Ore Reserve and PFS Study: The information in this report that relates to Exploration Results is based on the information compiled or reviewed by Mr Adrian Byass, B.Sc Hons (Geol), B.Econ, FSEG, MAIG and an employee of Infinity. Mr Byass has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code for Reporting of Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves. Mr Byass consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to the December 2017 and updates in May 2018, updated Mineral Resources is based on the information compiled by Mr Patrick Adams, FAusIMM CP (Geology). Mr Adams has sufficient relevant professional experience with open pit and underground mining, exploration and development of mineral deposits similar to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of JORC Code. Mr Adams has not visited the project area and has relied on the documented (Peters, May 2017) drilling, logging and sampling techniques used by Infinity in collection of data used in the preparation of this report. Mr Adams is a Principal Geologist and a Director of Cube Consulting Pty Ltd and consents to be named in this release and the report as it is presented.

100% of the material in the PFS mining schedule is included in the Probable Ore Reserves category. The Ore Reserves were calculated assuming the mining and processing methods determined for the PFS.



### Processing

The PFS combines a long life, low cost open pit or quarry operation with a processing plant located on-site and within 2 kilometres of the resource. The PFS and work undertaken by Wave International envisages a process flowsheet whereby ore containing an average of 0.82% Li<sub>2</sub>O over the first 10 years is mined and delivered to the ROM. The lithium bearing mica ore is separated from quartz and tourmaline through a crush, grind and froth flotation beneficiation process. The mica concentrate will then be treated via a sulphate roast using water leach with crystallisation and precipitation. A summary of the process flowsheet is detailed in Figure 10.



FIGURE 10: SAN JOSÉ PROCESS FLOWSHEET

The lithium sulphate leachate produced from this process is then purified and treated with hydroxide to produce lithium hydroxide. Additional purification and crystallisation processes are required. The beneficiation process plant will produce approximately 553ktpa of concentrate from approximately 1.25mtpa of ROM. The mine schedule is designed to produce approximately 15ktpa of battery grade lithium hydroxide over the first 10 years of production. The aerial overview of the processing plant is detailed in Figures 11-13.



FIGURE 11: SAN JOSÉ AERIAL OVERVIEW OF THE PROCESSING PLANT



#### Stage 1: Comminution and Beneficiation

The ROM grade for the first 10 years of mine life is approximately 0.82% Li<sub>2</sub>O. It is stored on the ROM stockpile and subsequently crushed and milled. Beneficiation of mined ore is envisaged using froth flotation to upgrade to on average 1.36% Li<sub>2</sub>O over the first 10 years of the Project with retention of ~42% of mass.

The residual ~58% reject will be stored in separate dumps. The possibility of tin credits is noted and further work is proposed. Tin-rich quartz reject from beneficiation will be stored separately. This could potentially be processed in future activities, although insufficient work has been completed on this to date and there is no guarantee that any economic development of the tin may occur.



FIGURE 12: 3D RENDER OF THE PROPOSED SAN JOSÉ PROCESSING PLANT

#### Stage 2:

#### Sulphate Roast, Water Leach and Purification

The Project process flowsheet envisages the conversion of refectory lithium host mica minerals into a soluble sulphate compound that can be water leached. The beneficiated filtered mica concentrate is added to a mixture of potassium sulphate to form small agglomerates, where they are then fed into a kiln and roasted for 20 minutes at a temperature of approximately 840°C. The roasting component of the process is made possible on site due to the availability of natural gas (required to power the kiln) from a gas pipeline adjacent to the Project area.

The product is cooled and transferred to the water leach circuit where potable water is used to leach the lithium where recovery into solution is in excess of 90%. The lithium sulphates present in the roasted cake material are dissolved allowing for the leached slurry to be filtered for the removal of solid impurities such as silica.

The environmental credentials of San José remain a priority for the Project and Stage 2 provides advantageous components on two fronts. It is envisaged utilisation of a Stage 2 sulphate roast and water leach process

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mitigates the requirement to introduce large volumes of sulphuric acid as commonly used in hard rock lithium conversion plants and as was originally proposed at San Jose. This is a clear positive differentiation and improvement for the environmental profile of San José when compared to a tradition non-sulphate roast and sulphuric acid leach pathway.



FIGURE 13: 3D RENDER OF THE PROPOSED SAN JOSÉ PROCESSING PLANT

#### Stage 3:

#### Crystallisation, Purification and Production of Lithium Hydroxide

The leachate material is neutralised and then treated in a press filter to remove solid particles. The lithium is in solution and then treated with addition of sodium carbonate (purification). This purified liquor is then transferred to a sulphate recovery stage (crystallisation), then cooled and with the use of alunite, sulphate (potassium and sodium if used) is recovered and can be recycled.

The resultant liquor is then enriched through evaporation and the addition of caustic soda (sodium hydroxide) is made in the reactor producing lithium hydroxide. Key reagents such as potassium sulphate are recycled and reused in Stage 2.



### Marketing

San José's end product is being marketed as battery grade lithium hydroxide, an essential requirement in high nickel content cathodes that form a major cost component in lithium-ion batteries used in electric vehicle production.

A full section on markets and pricing is available in Appendix 1.

#### Supply

Lithium hydroxide, which is becoming the preferred chemical for cathode production is increasingly produced from hard rock. It involves a straight conversion process as opposed to a brine, which first need to produce carbonate and then convert it to hydroxide. However, the issues affecting lithium chemicals derived from hard rock sources is not the underlying process but rather the concentration of process facilities, which are leaving customers highly exposed to Chinese conversion. There are many other factors influencing conversion efficiency such as the feedstock grade, the age of the conversion plant and environmental inspections (Figure 14,15).





#### Demand

In 2018, lithium demand was estimated at approximately 270,000 tonnes. Total lithium demand is expected to grow at around 18% per annum to 2030 with the size of the market being multiplied by 8 times over this period. Lithium-ion batteries ('LIB') are responsible for most of this growth, accounting for more than 93% of demand by 2030.

The cathode is the largest cost component of a battery cell and where key products such as lithium, cobalt, nickel and manganese are required. The movement towards higher nickel content cathodes increases the energy density of LIBs (and therefore range for EVs), noting the shift towards this evolving technology is reliant on battery grade lithium hydroxide as opposed to lithium carbonate. The demand for lithium hydroxide is forecast to surpass lithium carbonate in 2024, growing at 34% per annum from 2018 to 2025.

#### **Market Balance**

In the medium to long term, the supply/demand balance will change as lithium demand is expected to grow 8 times to 2030. It has been projected that more than US\$30Bn in further investment is needed for supply to meet demand. Fastmarkets estimates that from 2025, the market will start moving towards a severe volume deficit (Figure 16).





FIGURE 16: LITHIUM SUPPLY/DEMAND OVERVIEW ('000T LCE)

### **The European Situation**

Momentum continues to build in Europe as automakers transition to electric vehicles ('EVs') and therefore committing to enormous investment decisions to drive decades of growth. Volkswagen has committed to not only automotive facilities but also an investment in a LIB plant in Germany, highlighting how more than US\$300Bn has been spent globally EV technology by automakers. As electric vehicles gain popularity in Europe, there has been a significant increase in interest in the manufacture of lithium-ion batteries within the region.

Government initiatives will be a key driver in the advancement of the European LIB industry, and some have already pledged financial support to the sector in a bid to reduce the reliance of European carmakers on Asian battery manufacturers. A significant number of new LIB Giga factories will be required if European EVs are to be fitted with locally produced cathodes, and several companies are planning to set up new facilities to produce cathode materials. Major European based companies such as Umicore, BASF and Johnson Matthey have announced plans to construct cathode production facilities to start in the early 2020s and require significant amounts of battery metals. By 2021, Bloomberg New Energy Finance forecasts that Europe will already be the 3rd largest cathode producer in the world after China and Japan.

Battery metals such as lithium are required for cathode production and there is currently no lithium extraction and conversion in Europe If Europe moves to a fully integrated position, by 2030 and based on its EV targets, the region will require in excess of 250,000 tonnes of lithium chemicals to be produced domestically. The European Union and the European Commission have publicly stated that they are willing to support and provide capital to develop lithium production in Europe.

Executive Director Vincent Ledoux-Pedailles was selected as a lithium expert by the European Commission to contribute to the next EU critical assessment, expected to result in a list of Critical Raw Materials for the EU in 2020. The list of CRMs for the EU, and the underlying European Commission criticality assessment methodology, are key instruments in the context of the EU raw materials policy. Lithium is not currently listed as a CRM by the EU, as opposed to cobalt which is currently required for consumption in cathodes for lithium-ion batteries in electric vehicles. However, the requirement for lithium and lithium chemicals has been recognised in the EU, with the next critical assessment of CRMs by the European Commission due to evaluate the merits of adding lithium to the list in 2020.



#### **Transport and Logistics**

#### Construction and Operational

A logistical solution has been delivered for the construction and operation of the San José integrated lithium chemical production facility. It is envisaged there will be the requirement to deliver substantial amounts of equipment to site prior to and during construction. The PFS has envisaged the utilisation and acquisition of capital equipment almost exclusively produced in the EU, and the availability of all reagents required within the EU and Spain means that international shipping and transport is not required at this stage.

During operation, reagents and consumables will have to be delivered and finished product transported to consumers. A major component which reduces transport and improves the logistical solution is the gas pipeline which runs adjacent to the Caceres-Madrid highway, immediately north of the project. It is proposed that gas, electricity (grid) and municipal water will be accessed by the project via power line and pipeline, reducing transport requirements substantially.

#### **Consumables Transport and Logistics**

Spain and the EU have an excellent infrastructure network covering transport, water, power, and communications. The ability to move within the EU and not incur duty is also an important aspect of this logistical benefit.

All of the reagents required for San José that are inbound to the site including consumables (such as diesel fuel for the operational vehicles) can be obtained in Spain and trucked to site. Transport infrastructure includes multilane highway within 3 km of the project which has a direct connection to Madrid or major ports/continental Europe. The link road/bypass to the east of the town separates the project from the town and allows access to the project from the south (Miajadas Road). The major road network in Spain (see Appendices) is expected to be a large part of the logistical solution. Typical transport will be conducted using rigid, 25t capacity haulage vehicles.

Alternatively, the consumables have an option to arrive via Spain's extensive rail network. There is an extensive national rail network that can facilitate the carriage of goods either to, or from José. European Union "Ten-T Core Rail Network" includes the region of Extremadura as detailed in Appendix 2. There is a station in Caceres and a siding for heavy goods use. Trucks will not have to drive through the town of Caceres with adequate access from major highways adjacent to the project area, with the added benefit of the Caceres ring road.

If maritime shipping was required there is easy access to ports throughout Spain including Algeciras Port, Huelva Port or Valencia.

#### **Product Transport and Logistics**

Lithium hydroxide monohydrate is a high value product that requires an airtight transport solution. It is anticipated that product would be transported in sealed sea containers and can be safely transported by road, rail and/or seaborne freight. It is anticipated that product will be sold at the mine gate and transport arranged by the consumer.



# **Pre-Production Capital Expenditure**

The total capital expenditure required to the first year of production at San José is outlined in Table 4. The capital estimates for the Project based on the production of up to 16,500tpa of battery grade lithium hydroxide. The estimate is considered a Class 3 estimate (+/- 25% accuracy) and it is considered to be suitable for a preliminary project evaluation and the basis for further optimisation and de-risking work.

Capital Cost Category	E	c-Contingency	Contingency	Total
Total	US\$m	267.9	41.1	309.0
TABLE 4: CAPITAL COST SUMMARY				

# **Operating Costs**

Operating costs are shown at an average Yr1-10 (including ramp up) and at nameplate in Table 5.

		1 <sup>st</sup> 10 Years of Production	Nameplate Production
		US\$/t	US\$/t
Mining & General		808	613
Processing			
Reagents		1,088	1,186
Consumables		233	134
Labour		497	451
Power		903	789
Gas		1,113	1,021
Maintenance		328	331
Other		465	518
Total		5,434	5,043
	TABLE 5: OPERATING COSTS SUMMARY		

# **Production Metrics**

Production metrics are shown in Figure 17.





FIGURE 17: SAN JOSÉ LOM PRODUCTION PROFILE



# **Financial Assumptions and Project Economics**

Financial assumption (Table 6) and sensitivity analysis (Table 7) are shown below.

Average long-term lithium hydroxide price		
First 5 years of production	US\$/t	14,770
First 10 years of production	US\$/t	16,004
Exchange Rate	€: US\$	1.11
Discount Rate	%	10%
Royalties Payable	%	nil
Conversion Factor Li <sub>2</sub> O : Li <sub>2</sub> CO <sub>3</sub>	:	2.473
Conversion Factor LiOH.OH : Li <sub>2</sub> CO <sub>3</sub>	:	0.880
Beneficiation Recoveries	%	66.5%
Hydrometallurgy Recoveries	%	79.6%
Total Gross Revenues	US\$m	5,970.9
Operating Costs - Mine	US\$m	296.4
Operating Costs - Processing	US\$m	1,976.2
Gross Margin	US\$m	3,698.3
Capital Expenditure – Pre-Production and Sustaining	US\$m	318.1
Project Cash Flow (Pre-Tax)	US\$m	3,380.2
NPV <sub>10</sub> Pre-Tax	US\$m	860.5
IRR <sup>(1)</sup>	%	42.3%
Average EBITDA pa over first 10 years of production	US\$m	157.3m
Average EBITDA margin over first 10 years of production	%	65.4%
Total net operating cash flow LOM	US\$m	3,698.3m
(1) Project life 32 years		

TABLE 3: FINANCIAL ASSUMPTIONS AND PROJECT ECONOMICS

Pre-Tax			NPV US\$m		
	-20%	-10%	Base	+10%	+20%
Lithium Hydroxide Price	503.3	681.9	860.5	1,039.0	1,217.7
Operating Costs	991.8	926.2	860.5	794.8	729.2
Capital Expenditure	914.3	887.4	860.5	833.6	806.7
Pre-Tax			IRR		
	-20%	-10%	Base	+10%	+20%
Lithium Hydroxide Price	30.1%	36.3%	42.3%	48.3%	54.1%
Operating Costs	47.1%	44.7%	42.3%	40.0%	37.6%
Capital Expenditure	51.2%	46.3%	42.3%	39.0%	36.1%
	TABLE 7: SENSIT	IVITY ANALSYIS			



#### Social

San José is in the western part of Extremadura, approximately 280 km west-southwest of Madrid. In 2017 the region had less than 1.1 million inhabitants (Eurostat, 2018), being one of the least populated zones and continuing the negative natural growth rate trend registered during last years (Instituto Estadístico de Extremadura – ieex). The European Commission has recognised the economy of Extremadura as lagging in context of the national position and it is the only Spanish region categorised as "less developed" by the European Commission.

The density of the population is one of the lowest in the country with demographic trends showing an increasingly aging population. This phenomenon is exacerbated by migration movements and significant depopulation impacted by the lack of economic opportunity, particularly with regards to the migration of younger people. Significant social impacts are associated with poverty and unemployment as well as shrinking populations and lower tax revenue to support required services.

The European Commission noted Extremadura "continues to be one of the poorest regions in Spain" with the lowest average income in the country. Unemployment remains one of the major challenges for the region, with the 2017 rate of 26.3% well above the national average (17.2%) and EU average (7.6%).

San José is projected to provide significant economic stimulus and a positive social impact to the town of Caceres and the Extremadura region. The JV intends to work closely with stakeholders to ensure that initiatives and revenues can be well directed. A large number of jobs will be created during the life of the project, with initial estimates of 80 to 285 workers during a 2-year construction period and more than 186 employees during the steady state operations over the following 30 years. This does not include related jobs created in the supporting industry that will be created as a result, either in support or through location of complementary and related new industries in the region.

It is projected that significant corporate and personal tax, VAT and other financial benefits will flow to the local and regional governments during the Project's life.

The impact of the operation on local residents and all stakeholders has been considered, and the Project has been modified in several ways based on stakeholder feedback to minimise social and environmental impacts. This is evidenced in the variation of several project aspects including but not limited to; mining activity, tailings storage, and visual impacts and prolonged industrial activity for employment. Further explanation on the variations from the prior Scoping Study to this PFS on those matters is summarised below;

- mining activities which previously were planned to extend throughout large parts of the day and evening have been amended into a day-shift only operation, reducing possible noise and light pollution outside of normal working hours,
- dry stacked tailings reduce the area of impact of tailings storage and allow a very high level of water recycling for the process plant,
- the process plant height and size and the pit extents are minimised to ensure they are not visible from the old town of Caceres or the highway entry to Caceres from the north.

Significant opportunity also exists to incorporate beneficial social development in the rehabilitation of pit and tailings storage areas. The areas will be contoured to natural land surfaces, covered with topsoil and revegetated in a continual process throughout the life of the operation. The pit will cease operations over a decade prior to the proposed completion of processing and this will ensure significant focus and funding is in place during this operation for all restoration and rehabilitation. The JV notes that former quarries and other areas worldwide can be successfully rehabilitated into useable public space with a wide range of activities possible. These include

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water parks, public amphitheatres, trails for hiking and biking on purpose built and designed dump layouts. The JV intends to ensure detailed stakeholder discussion and input is taken on possible rehabilitation improvement.

#### Tenure

The prescriptive Spanish mining law provides a clear and well documented pathway to progress projects and strong security of tenure. The Spanish system is based on a tiered system of initially Exploration Permits, followed by Investigation Permits (which are designed to allow drilling and other significant technical information gathering), and then Exploitation Licences that allow active mining operations. These permits and related environmental approvals are assessed and issued by the regional government ('Junta').

The Project JV tenure (Appendix 4) was comprised of Investigation Permits applied for and previously granted. This allowed access for drilling, sampling, baseline environmental studies and other works to complete the Exploitation Licence Application that was submitted in December 2017 for an integrated lithium carbonate production facility. There is a further Investigation Permit which covers the total extent of all prior tenure lodged over the top of existing tenure. All rights to this overarching Investigation Permit are held by the JV and this is designed to further guarantee security of tenure.

The San José JV will require a new Exploitation Licence application to be made in order to develop an integrated lithium hydroxide production facility. The underlying tenure is still 100% beneficially held by the JV but reverted to and is currently in application (see ASX release 5 June 2019). The JV intends to submit a new lithium hydroxide-based Exploitation Licence Application subsequent to the delivery of the PFS.

Approvals from the regional government, and land rezoning approval from rural to industrial classification is also required prior to development. This approval is applied for at the local government (Council) level. There are provisions in the regional government legislation to implement this rezoning on the basis that a project may be of 'regional significance'. The JV intends to continue working with all stakeholders to demonstrate the opportunity and potential benefits of the project and work in collaboration with the Junta through the administrative procedure of permitting process (see ASX release 5 June 2019).

# INFINITY LITHIUM PROJECT LITHIUM HYDROXIDE PRE-FEASIBILITY STUDY





# Pre-Feasibility Preparation, Key Consultants and Advisors

#### **PFS Preparation, Key Consultants and Advisors**

Infinity has undertaken the PFS by engaging a group of consultants and sub-consultants led by Wave, who were responsible for executing the PFS for San José and producing a final report incorporating the contributions from different key contributors.

The Wave scope within the PFS focused on the management of the entirety of the study process in delivering a professional complete PFS study report which meets industry standard expectations for content and structure. In additional to Wave's responsibility to co-ordinate with key contributors to obtain relevant information, Wave was responsible to manage and oversee test work programmes. The final PFS report included the following:

- PFS level engineering services across all engineering disciplines including Process, Earthworks, Civil, Structural, Mechanical, Piping, Electrical and Instrumentation, and controls;
- Study management and controls;
- Capital expenditure estimate (± 25% accuracy);
- Operating expenditure estimate (± 25% accuracy);
- Implementation encapsulation the contracting strategies, development program and operational manpower estimates;
- Final PFS report by coordinating with all the different contributing parties.

Infinity and other third-party consultants were responsible for other work items for the PFS:

Responsibility	Company	Country
Process Plant Design and Cost estimates	Wave International	⋇
Geology and Mineral Resource Estimate	Snowden	*
Mining Ore Reserve	Snowden	*
Beneficiation Laboratory Testworks	Nagrom Laboratories	*
Hydromet Laboratory Testworks	ALS Laboratories (managed by Wave)	*
Environment, Community & HSE	Valoriza Mineria (JV partners in San José)	- <u></u>
Tailings - Waste Dump Design and Stability	Land and Marine Geological Services	*
Markets	Fastmarkets MD	
Logistics	Mining Sense	

Infinity Lithium Corporation Limited:

Ryan Parkin CEO and Managing Director



#### Pre-Feasibility Study – Cautionary Statement

The Study referred to in this announcement is a preliminary technical and economic investigation of the potential viability of the San José Lithium Project. It is based on low accuracy technical and economic assessments, (+/- 25% accuracy) and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage; or to provide certainty that the conclusions of the Study will be realised.

Infinity is in Joint Venture ('JV') with Valoriza Mineria SA, a subsidiary of SACYR S.A. Infinity have independently engaged the services of Wave International Pty Ltd ('Wave') to assess the technical and economic viability with regards to producing battery grade lithium hydroxide under the San José Lithium Project. Whilst the Pre-Feasibility Study has yielded robust outcomes and provided independent perspective on the opportunity to produce battery grade lithium hydroxide, there is no guarantee that the JV will choose to adopt the outcomes of the study.

The Production Target referred to in this presentation is based on 100% Probable Reserves for the life of mine life covered under the Study. In accordance with the thirty (30) year mine plan incorporated into the Study, the first three (3) years of production (covering payback period) will come 100% from Probable Reserves.

The Study is based on the material assumptions outlined below and include assumptions about the availability of funding. While the Company considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Study will be achieved. To achieve the potential mine development outcomes indicated in the Study, additional funding will be required. Investors should note that there is no certainty that the Company will be able to raise funding when needed however the Company has concluded it has a reasonable basis for providing the forward looking statements included in this announcement and believes that it has a "reasonable basis" to expect it will be able to fund the development of the San José lithium deposit.

To achieve the outcomes indicated in this Study, initial funding in the order of US\$309m (which includes a 15.3% contingency) will likely be required, and US\$318m (including a 15.3% contingency) over the life of the Project. Investors should note that there is no certainty that Infinity will be able to raise funding when needed. Infinity holds a total of 75% interest in the San Jose Lithium Project, with Valoriza Mineria holding the balance of 25% interest. It is also possible that Infinity can pursue a range of funding strategies to provide funding options. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Infinity's existing shares. It is also possible that Infinity could pursue other value realisation strategies such as sale, partial sale, or joint venture of the Project. If it does, this could materially reduce Infinity's proportionate ownership of the Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of this Pre-Feasibility Study.



#### Appendices 1: Market & Pricing

#### **Market Overview**

Lithium is produced from either brine-based deposits or from hard-rock mineral deposits. The brine production is derived predominantly from South America and more precisely from Chile, followed by Argentina. Lithium brine is extracted from salt flats and pumped into ponds where it is stored and water evaporated for a period of up to a year. Lithium is then purified into lithium chemicals.

Lithium can also be produced from hard rock mining and the majority of this form is derived from spodumene resources in Western Australia. The lithium is often shipped to China as either direct shipping ore ('DSO') or as spodumene concentrate where it is further processed into lithium battery chemicals.

#### Supply

Lithium carbonate presently accounts for the majority of all forms of lithium chemicals, followed by lithium hydroxide. Lithium carbonate and hydroxide are then further split into either battery grade or technical grade classifications. Lithium hydroxide has traditionally been used in the production of greases and lubricants, but the rapidly changing dynamic in battery cathode technologies has seen a surge in demand for high purity lithium hydroxide. Lithium derived from hard rock mining can also be used directly as a mineral into technical applications such as heat proof glass and ceramics.

Lithium supply was dominated by 4 major participants for a number of years, and in 2014 they accounted more than 90% of market share. There are now more producers and more projects coming on stream, and they are competing with existing players and therefore reducing their market share. Albemarle, SQM, Tianqi and Livent still account for a large part of global supply in 2019, however, market shares for lithium extraction from brine and hard rock are very different to market shares for lithium chemicals, which are dominated by Chinese players.



**FIGURE A: Global Lithium Feedstock Production 2018** 





FIGURE B: Global Lithium Chemical Production 2018

Most brines are situated in adverse locations with high altitudes, very hot and dry weather, and long distances from cities and transport infrastructure. It makes building lithium sites logistically, technically and humanly, difficult and expensive. The requirement to provide a lithium product of sufficiently high specification can have long lead times and its is difficult to keep specifications of the lithium consistent.

Each brine source is unique, therefore every project is unique and can't be replicated. Furthermore, brines have varying amounts and types of impurities (which need to be reduced to a minimum for battery grade product). Developing a battery grade product takes a long time and to get the battery-grade specification right and approved by the customer is challenging. It is not unusual for a lithium producer's output to require further refining by another company to reach the required grade.

Many brines are located in very remote places with harsh climates. Brine operations have evaporation ponds, however they are subject to climatic risk, noting rainfall can affect the concentration process and lead to production delays.

Lithium produced from hard rock sources are likely to experience faster growth rates than brine for a number of reasons. A hard rock production plant is faster to bring on stream than a plant based on brine, with many hard rock resources located in safe and mining friendly countries such as Australia, Canada or Spain.





FIGURE C: Lithium Production by Sources

Lithium hydroxide, which is becoming the preferred chemical for cathode production, is increasingly produced from hard rock. It involves a straight conversion process as opposed to a brine, which first needs to produce carbonate and then convert it to hydroxide. However, the issues affecting lithium chemicals derived from hard rock sources is not the underlying consideration, but rather the concentration of process facilities. Very few companies are both mining spodumene and converting it into battery grade lithium chemicals. There are hard rock miners who sell their product to Chinese third-party convertors and there are a number of converters with limited experience, leading to financial instability. There are many other factors influencing conversion efficiencies such as the feedstock grade, the age of the conversion plant and environmental inspections.

More conversion processing plants are planned in Australia with a number of market participants planning to build lithium hydroxide plants domestically. It is crucial to develop integrated conversion facilities in order to improve operating costs and margins.

#### Demand

In 2018, lithium demand was estimated around 270,000 tonnes. Traditionally lithium has been used in industrial applications including glass, ceramics, grease, synthetic rubber, pharmaceuticals and air treatment. In 2018, industrial applications were not accounting for a majority of lithium demand and were taken over by battery applications. In recent years, lithium has been increasingly used in batteries for portable devices such as laptops, mobile phones, power tools and cameras. Today lithium demand is driven largely by electric mobility ('eMobility') applications including not only electric cars but also electric buses, bikes and scooters.







FIGURE D: Lithium Growth – Powered by Electric Mobility

Total lithium demand is expected to grow at around 18% per annum to 2030 with the size of the market being multiplied by 8 times over this period of time. Battery applications are responsible for most of this growth, accounting for more than 93% of demand by 2030. Electric cars are primarily driving this increase in demand as opposed to hybrids, as they have much larger battery packs and the size of the battery packs are increasing.

LIBs are also used for storage of electricity and are an indispensable technology to EVs. An exponential number of LIBs are therefore needed to keep pace with the rapid growth of this market. The LIB market was merely approximately 2GWh in 2000, however by 2018 it was estimated at more than 150GWh. From 2018 to 2030, projected growth will be led by demand in EVs and energy storage applications.

In order to be able to feed demand, battery manufacturers are building giant plants, or so called Mega or Giga factories (>1 GWh capacity) ensuring economies of scale. Today there are more than 60 mega factories across the world, with Benchmark Mineral Intelligence projecting an increase from 135 GWh in 2017 to more than 1,900 GWh by 2028. This continued growth will not only be progressed solely in the traditionally dominant Asian LIB factories, but also in Europe. There is a wave of investment in new battery capacity on the old continent but many investments to date have been made by Asian based companies including Samsung, LG Chem, SK Innovation. However, there are some European based organisations such as Northvolt or Volkswagen planning giga capacities in Europe (see section 3.3.4 The European Dynamics)

The large majority of battery components are produced in Asia. The cathode is the largest cost component of a battery cell and where key products such as lithium, cobalt, nickel and manganese are required. Today, cathode production is dominated by Chinese companies followed by Japanese and South Korean cathode producers. In each cathode technology there is a different blend of raw materials. An NMC (or NCM) cathode utilises nickel, manganese and cobalt, and its applications are dominating the EV space and other eMobility applications. Cathode producers have expressed a desire to reduce their reliance on cobalt. The movement towards higher nickel content cathodes increases the energy density of LIBs (and therefore range for EVs), noting the shift towards this evolving technology is reliant on battery grade lithium hydroxide as opposed to lithium carbonate.





FIGURE E: LIB CATHODE COMPOSITION TRENDING TOWARDS NMC

Moving towards nickel-rich cathodes and advanced battery technology requires:

- 1) the need for high purity lithium; and
- 2) the need for lithium hydroxide.

The demand for lithium hydroxide is forecast to surpass lithium carbonate in 2024, growing at 34% per annum from 2018 to 2025. Lithium players understand that demand has adapted and thus recent expansion announcements and new projects have been linked to hydroxide. Furthermore, cost is a major consideration in the production of lithium hydroxide a straight conversion process is possible from hard rock resources. Brines need to produce lithium carbonate and then further convert it to hydroxide. There is the potential that future lithium carbonate demand will be largely sourced from brines and lithium hydroxide from hard rock.



FIGURE F: BATTERY GRADE LITHIUM CARBONATE AND HYDROXIDE OUTLOOK

The LIB supply chain remains very fragmented. From extracting raw materials to converting them to chemicals, producing precursors, battery components, cells and packs to finally manufacturing EVs, integration is limited. With the tightening of the market and higher prices for several battery raw materials, not only battery makers but also EV producers are starting to invest upstream. Battery producers are also increasingly signing offtake agreements with lithium, cobalt and nickel producers in order to secure long term supply.



#### **Market Balance**

Although markets are currently in a technical surplus, Fastmarkets expects ramp up rates at new facilities, both integrated and non-integrated, to be constrained as qualification processes are advanced and output is adjusted in line with end-use demand. Nevertheless, this effective capacity overhang will lead the market to remain on the longer side of over H2 2019 and out to 2022. In the medium to long term, the supply/demand balance will change. Lithium demand is expected to grow 8 times to 2030 and it has been projected that >US\$30Bn in further investment is needed for supply to meet demand, which is very far from being secured. The impact of an additional 2 or 3 producers in the short term is obviously impacting supply and leading to price erosion but it is taking place in a market in its infancy which represent less than 300,000tpy. In the long term, bringing a few new suppliers on stream will have a small to no impact on the market balance. Fastmarkets estimates that from 2025, the market will start moving towards a severe volume deficit.



FIGURE G: Lithium Supply/Demand Overview ('000t LCE)

#### The European Situation

There is great momentum in Europe at the moment around EV with large investment being allocated by automakers to eMobility. According to Reuters, European automakers are planning to spend more money than anyone else on EV technology. Volkswagen is leading the way and more than US\$300Bn have been spent globally EV technology by automakers.

As electric vehicles gain popularity in Europe, there has been a significant increase in interest in the manufacture of lithium-ion batteries within the region. Government initiatives will be a key driver in the advancement of the European lithium ion battery industry and some have already pledged financial support to the sector in a bid to reduce the reliance of European carmakers on Asian battery manufacturers. Asian battery manufacturers are already investing in the European sector, initially with pack plants, but increasingly with direct cell manufacture in the European region. Battery cells are heavy, and Asian companies are opting to set up plants in Europe to both reduce logistics costs, and to be close to their customer base. There are also some European based companies such as Northvolt who are planning on building giga capacities on the continent. Tesla is also eyeing



Germany as the site for its third battery plant. More recently, VW announced they were going to spend €1Bn to build their own batteries, therefore back integrating into the battery business.



FIGURE H: LITHIUM-ION FACTORIES PLANNED FOR EUROPE

Fastmarkets' projections for European battery demand are based on the EV sales forecasts moving from 0.4M in 2018 to around 7.5M by 2030. They estimate the European cell demand in 2018 was 24.6GWh against installed manufacturing capacity of 9.7GWh If battery cell production facility investment in Europe follows the timelines indicated above, by 2022-2023, supply and demand (of Li-ion batteries) would be close to balance. However, from 2024 onwards, the deficit will keep growing and significant additional investment will be required.







Note: Assumes all European cell capacity is targeted at the EV sector - Source: Fastmarkets MB Research FIGURE I: Forecast European EV sales and European cell production supply-demand\* - GWh

What is clear though is that a significant number of new Giga factories will be required if European EVs are to be fitted with locally produced cathodes. Several companies are planning to set up new facilities to produce cathode materials. Some of the cell manufacturers will produce cathodes in-house whilst other will source material from third parties, either from Asia, or increasingly from Europe as more capacity becomes available. Umicore, BASF and Johnson Matthey, all European based companies, have all announced plans supporting this strategy. Their plants will start in the early 2020s and require significant amounts of battery metals. By 2021, Bloomberg New Energy Finance forecasts that Europe will already be the 3rd largest cathode producer in the world after China and Japan.



FIGURE J: Investments into Cathode Plants in Europe

Source: Infinity Lithium



Source: Infinity Lithium

The last step up this supply chain will be battery metals such as lithium. There is currently no lithium extraction and conversion in Europe. However, the EU is pushing to have a fully integrated supply chain including everything from lithium all the way down to producing EV. If Europe moves to a fully integrated position, by 2030 and based on its EV targets, the region will require in excess of 250,000 tonnes of lithium chemicals to be produced domestically.

Battery Metals	Battery Manufacturing Chain		Chain	Er	nd-Users		
Lithium	Cathodes	Battery Cells & Packs		Battery Cells & Packs		Elec	ctric Vehicles
Mining Chemical Conversion	Control of the contro	Asian Players SK innovation C LG Chem SAMSUNG (GSYUASA CATL BYD	Western Players northvolt Saft TESLE Plackstone Resources	CONTRACTOR OF CO	JAGUAR CHORN CONTRACTOR CONTRACTOR AUDI		
	2/3	J	2 7	7	# world by 2025		

FIGURE K: European Lithium-ion Battery Supply Chain

# Product pricing

Infinity's Pricing Methodology: Fastmarkets was selected by Infinity to supply a price forecast for lithium hydroxide battery grade prices in Europe, a market that Fastmarkets already tracks on a daily basis. The recent successful preferred PRA status with LME ads further weight to their analysis and standing in the market, upon which time Infinity commissioned Fastmarkets to provide a European focused independent and lithium chemical specific pricing report that has been used in the PFS.

Fastmarkets is a leading commodity Price Reporting Agency ('PRA') who have been providing commodities price reporting services for use by market participants in their day-to-day commercial activities for over 130 years in the metals, mining, minerals and forestry products industries. These services include assessments and indices of commodity prices as well as news, research and commentary on the underlying markets.

Fastmarkets' global team of over 160 price reporters provide over 5,500 proprietary prices, which are used regularly for benchmarking both physical and financial contracts. The group is committed to deliver prices that are comprehensive, transparent and market reflective, aligned with core IOSCO principles. This ensures that their price assessments are standardized and impartial, with accountability measures built in and confirmed by independent, external auditors.

Fastmarkets has recently been selected as the preferred PRA service provider for the London Metals Exchange ('LME') after a comprehensive tender process. The LME has been working towards the development of a lithium pricing benchmark and the selection of Fastmarkets was influenced by the group's long standing track record in the delivery of Fastmarkets' lithium prices. The group has more than 30 years' experience in recording lithium



price observations that have been used in physical lithium supply deals. Furthermore, Fastmarkets has been working with the LME in the battery metals space on a cash settled LME Cobalt contract.

#### **Pricing Assumption**

Fastmarkets forecasts that Lithium Hydroxide Battery Grade Europe, Contract, will average around \$14,100 per tonne during the next 10 year to 2028 and will then average \$17,238 per tonne thereafter.



Note: Over 2018-2021 Fastmarkets expects European prices to track Asian benchmark export pricing Source: Fastmarkets MB Research

FIGURE L: LITHIUM HYDROXIDE MIN 57.5% LIOH – EUROPEAN PRICE FORECAST

Fastmarkets explains that European imports of lithium chemicals are still very limited in volume but from 2022-2023 onwards there will be a significant increase in requirements, particularly for lithium hydroxide. This will be driven by the shift into nickel rich batteries, which have an increased proportion of lithium and reduced share of cobalt.

Fastmarkets adds that global lithium prices are currently experiencing a period of downward adjustment as the heavy investment in new production facilities driven by elevated prices in 2016-2017 hits the market. In particular, spodumene concentrator and hydroxide conversion capacity has run ahead of near-term demand growth, which is pushing prices lower across all lithium product ranges. Although markets are currently in a technical surplus, Fastmarkets expects ramp up rates at new facilities, both integrated and non-integrated, to be constrained as qualification processes are advanced and output is adjusted in line with end-use demand.

According to Fastmarkets' supply-demand forecasts these recent investments in production facilities are well placed in the context of the mid-term demand prospects. Their forecast rate of demand growth also indicates that by 2024-2025 supply is yet again expected to fall short of demand which will lift prices again. Given low volumes of European demand at present there are no lithium hydroxide benchmark prices for the region. However, as regional volumes increase from 2022 onwards, Fastmarkets expects to see this situation change



and anticipate that a small premium emerge on European produced lithium hydroxide. This will reflect the logistics and environmental benefits of using a locally sourced product.

Vincent Ledoux Pedailles, Infinity's Executive Director, started his career with Talison Lithium back in 2011. He has been involved since then with several world leading consultancies looking at battery metals strongly emphasized some of the points highlighted by Fastmarkets in their study:

"Fastmarkets also understands the unique momentum taking place in **Europe** and the need to develop domestic supply for the automotive and battery industries. Potential future European based lithium suppliers will be in a unique position to support the industry and in return industrial players are likely to prioritise European based lithium producers.

With a looming **trade war** between the US and China, and the potential for other increased trade friction between other countries and regions, the world is approaching a new era of protectionist trade policies – and the subsequent impact on global supply chains is viewed as a significant risk for Europe's burgeoning EV industry. In particular, critical raw materials such as lithium and other battery metals have attracted much recent attention with noted concerns over their limited availability and concentration in a small number of countries such as China or Chile. In order to assure both the functioning European automotive industry and other markets relying on energy storage, it is vital to **de-risk the supply chain** and source competitive products locally, as the EU and industry players have recognised and are moving rapidly to address.

In Europe, EVs and lithium-ion batteries are getting a lot of attention, but increasingly the focus is moving towards lithium itself, both as a feedstock and a refined product. Currently lithium chemicals are not produced within the EU. The **European Commission** has publicly stated that they are willing to support and provide capital to develop lithium production in Europe. Furthermore, in close collaboration with the EC's major partners, the European Investment Bank has identified the significant gap in the market for battery chemicals, reinforcing their focus on raw materials and refining facilities. The EU understands that it needs to support lithium production in Europe to de-risk its supply chain and protect its industries. The support is also coming from the industry itself with automakers like Volkswagen, who have over the last 12 months publicly stated that it has set itself the goal of promoting lithium production in Europe, specifically in Central and Southern Europe, which captures the location of the San Jose Lithium Project. The EU is encouraging industrial players to, in the future, source lithium domestically and operate in a closed loop and within a fully integrated lithium-ion battery supply chain.

Fastmarkets have noted that currently there is **not enough supply** to meet demand in Europe, and even with all lithium projects coming on stream on the continent, this will not be sufficient to meet domestic demand. Therefore, domestically produce battery-grade lithium is likely to be tight to severely insufficient.

All existing cathode producers planning on building cathode plants in Europe have already communicated they will be sourcing **lithium hydroxide battery grade** as opposed to carbonate as they will be producing high-nickel content cathodes. Bloomberg New Energy Finance is forecasting that by 2021, Europe will be the third largest region of cathode production in the world after China and Japan. It is also likely that, after European-based cathodes companies, Asian cathode players will target Europe to build new capacity. Not all lithium projects in Europe are planning on producing lithium hydroxide and therefore, combined with limited capacity, further pressure will be exerted on domestic lithium hydroxide suppliers to feed the European cathode, battery and auto industries. Industrial players are already trying today to secure domestic lithium for their future consumption in Europe.

Automakers are increasingly looking at their **carbon footprint**, as the main reason to move to EVs is to be greener and reduce **CO2 emissions**. However, automakers understand they can't just look at their vehicles, they need to be able to look at their entire supply chain inclusive of the supply chain all the way back to mining and chemicals. Some of the key elements to reduce CO2 emissions are integration and full transparency from suppliers. As an



example, Infinity's plant is fully integrated and at close proximity to its end-market, Europe, where the lithiumion battery industry will be significantly more integrated than what it is today. It is not uncommon to see lithium travelling globally for more than 50,000km before you actually start driving your car, following a high fragmentation of the supply chain. A regionalised European market will lead to a better carbon footprint for the industry and therefore domestic automakers, battery and cathode producers are likely to prioritise locally produced lithium chemicals.

There is also a heavy focus on **visibility of the battery metals supply chain**, from both an ethical and sustainable perspective. European lithium buyers will prioritise a lithium source who respect both aspects and Infinity's San Jose Lithium Project is a leading example of a sustainable operation. As well as being fully integrated, the site will be using fertilizer as opposed to sulfuric acid in its roast & leach process, and will use very little water of which most will be recycled. All reagents necessary for lithium processing are available domestically as opposed to importing them from thousands of kilometres away. It is not unlikely to see premiums being paid for both ethical and sustainable sourced battery metals such as lithium and the possibility to see green label certifications set by the EU."

#### **Market Cost Curve**

Lithium hydroxide is increasingly produced from hard rock, a straight conversion process when compared to brine processing which first needs to produce carbonate prior to conversion to hydroxide. The gap between the lowest and the highest cost producers have narrowed for lithium carbonate and will reduce further in the future with integrated rock producers progressively moving towards lithium hydroxide. By 2025, McKinsey estimates that lithium hydroxide production from hard rock will be around 16% cheaper than production from brines. Recent announcements of new capacities and expansions projects have validated this theory as numerous rock producers in Australia have expressed their focus on hydroxide. It is foreseeable that in the future cost advantages for brines will be aligned to lithium carbonate production whist hard rock will be strongly aligned to lithium hydroxide production.



FIGURE M: ROCK RESOURCE PROVIDES ADVANTAGEOUS PROCESSING ROUTE

Through vertical integration of lithium production on site, Infinity will enjoy the benefits of infrastructure and no additional transport or third-party processing. Infinity can reasonably project that the San Jose Project will be in the first quartile of all types of lithium production for total C1 costs.









OPEX

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FIGURE N: LITHIUM HYDROXIDE COST CURVE 2022



#### **Appendices 2: Transport**

The Project is very well located in relation to supporting transport, energy and communications infrastructure. Administration and warehousing facilities are envisaged in the proximal town of Caceres, and the end lithium hydroxide product can be transported to final destinations in Europe by road, rail or by seaborne freight.



FIGURE A: SPAIN MAJOR ROAD HAULAGE NETWORK



FIGURE B: EUROPEAN UNION TEN-T CORE NETWORK / CORE NETWORK CORRIDORS



**Appendices 3: Collar Plan** 



DRILL COLLAR PLAN OF SAN JOSE SHOWING TOLSA AND INFINITY (PREVIOUSLY PLYMOUTH: PLH) DRILLING. SECTION LINE A-A' AS SHOWN IN FIGURE 1A AND 1B.



#### **Appendices 4: Tenure**



TENURE PLAN AND LAYOUT



**Appendices 5: Block Model Details** 

**Block Modelling And Grade Estimation** 

Mineralised domains are zinnwaldite-bearing shales (domain 1) and the less-mineralised quartzite (domain 3). Composite intervals were extracted by domain and do not cross lithological boundaries.

Statistical analysis indicates that the domains are largely single populations, with low to moderate skew. Variograms were modelled for all elements for each domain to assess the grade continuity and to inform grade estimation.

A block model was constructed, based on a parent block size of 20mE x 20mN x 10mRL, with a minimum subblock size of 1.25mE x 1.25mN x 0.625mRL. The parent block size is based on the nominal drill-hole spacing and consideration of the mineralisation geometry and grade continuity analysis. A high resolution was chosen for the minimum block size to allow definition of the thin quartzite beds and quartz carbonate veins (domain 2).

Cube estimated Li, Cs, Sn and Fe grades using ordinary block kriging (parent cell estimates) using SURPAC software. A minimum of 4 and maximum of 20 samples were used with a single search pass strategy.

The block grade estimates were validated both globally and locally to ensure that the estimates appropriately reflect the trends in the input sample data. A comparison of the global drill-hole mean grades with the mean grade of the block model estimate, by domain, indicates that the block model mean grades are typically less than 5% of the drill-hole composite means.

#### **Bulk Density**

Bulk density has been left unchanged from the previous estimate (Peters, May 2017) as no additional material data was available.

In May 2017, bulk density was estimated within zones where sample numbers allowed for ordinary kriging methods to be applied. Estimation parameters were extracted after modelling variograms to all bulk density data.

Average bulk density values for the quartzite and the quartz veins were applied based on lithological wireframes and any other blocks were assigned an average bulk density.

#### **Resource Classification**

The November 2017 San José Mineral Resource estimate is classified and reported in accordance with the JORC Code.

The Mineral Resource has been classified as a combination of Indicated Mineral Resources and Inferred Mineral Resources:

Indicated Resource – mineralisation that is constrained by a 0.1% Li isoshell, within a defined central zone where geological continuity is demonstrated in drill holes at a spacing equal to or less than 70m by 45m. The resulting Indicated blocks have an average distance to composite data of less than 35m and an average slope of regression of 0.65.



Inferred Resource – mineralisation that is constrained by a 0.1% Li isoshell, where reasonable geological
and mineralisation continuity is displayed, however due to the wide drill spacing, both geological and
grade continuity is assumed rather than verified. Extrapolation beyond the drilling is limited to
approximately one drill section (70 m) in most cases. The resulting Inferred blocks have an average
distance to composite data of less than 70m and an average slope of regression of 0.30.

Outside of the Inferred material is a halo of extrapolation constrained within the mineralisation isoshell is considered Exploration Potential. Material is this category consists of blocks with an average distance to composite data of less than 130m and an average slope of regression of 0.02.

# JORC (2012) Table 1 – Section 1 Sampling Techniques and Data

Ī	Item	JORC Code explanation	Comments
	Sampling techniques	<ul> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Infinity ('Infinity') samples collected were rock chips from Reverse Circulation (RC) and HQ core from Diamond Drill Holes (DDH) in one metre intervals.</li> <li>Historic RC rock chip samples were collected in two metre intervals.</li> <li>RC Drilling was used to obtain one metre samples. Samples were composited in two meters, crushed, dried, mixed, riffle split and pulverised to produce a representative sub-sample for analysis. The following elements are included in the analysis: Li, Sn, Rb, La, Cs, Nd, W, Nb</li> <li>Diamond Core was crushed, dried, mixed, riffle split and pulverised to produce a representative sub-sample for analysis. The following elements are included in the analysis: Li, Sn, Rb, La, Cs, Nd, W, Nb</li> <li>Diamond Core was crushed, dried, mixed, riffle split and pulverised to produce a representative sub-sample for analysis. The following elements are included in the analysis: Li, Sn, Rb, La, Cs, Nd, W, Nb</li> <li>No details are available as to the historical sampling techniques.</li> </ul>
)	Drilling techniques	<ul> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Banka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</li> </ul>	<ul> <li>Diamond drilling using a HQ diameter with a Longyear 44 Drill Rig. RC Drilling using a 5 1/8" Tricone with a RCG 2500 model Drill Rig.</li> <li>No details are available as to the historical drilling techniques</li> </ul>
	Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Sample recovery was calculated by comparing the difference between the theoretical weight and the actual weight and recorded onto a logging sheet.</li> <li>The average recovery for DDH drilling is greater than 95%.</li> <li>The average recovery for RC drilling is greater than 80%.</li> <li>Measures taken to maximise sample recovery and ensure representative samples are unknown.</li> <li>No relationship between sample recovery and grade has been established.</li> </ul>
	Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	<ul> <li>Chip samples have been geologically logged to a level of detail to support Mineral Resources estimation studies.</li> <li>The diamond core has been logged geologically to a level of detail to support Mineral Resource estimation studies</li> </ul>



			ACN 147 415 950
	Item	JORC Code explanation	Comments
		<ul> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul><li>The logging is qualitative.</li><li>All drill holes have been logged in full.</li></ul>
ersonal use	Subsampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all subsampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Historical RC drill hole samples were collected on 2 m intervals.</li> <li>Historic holes had all core taken for sample. Diamond Core was crushed, dried, mixed, riffle split and pulverised to produce a representative sub-sample for analysis.</li> <li>RC Drilling was used to obtain one metre samples. Samples were composited in two meters, crushed, dried, mixed, riffle split and pulverised to produce a representative sub-sample for analysis.</li> <li>The sample sizes are considered to be reasonable to correctly represent the mineralisation based on the style of mineralisation (amblygonite (Li)-bearing slate and quartzite), the thickness and consistency of intersections and the drilling methodology.</li> <li>The sample preparation of drill chip samples follows industry best practice in sample preparation involving oven drying, crush to 1mm, 0.4kg split sample and pulverised to 85% passing 53 microns.</li> </ul>
	Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	<ul> <li>The analytical technique for Li of NaOH fusion and Hydrochloric solution with Atomic Absorption Spectroscopy finish is considered appropriate for the mineralisation style.</li> <li>The analytical technique for Sn of NH4 sublimation and Hydrochloric solution with Atomic Absorption Spectroscopy finish is considered appropriate for the mineralisation style.</li> <li>Duplicates are taken at regular intervals. No bias has been observed in the recent assays.</li> </ul>

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	Item JORC Code explanation		Comments
			Comments
	Verification	• The verification of significant intersections by either independent or	• Cube has not conducted any independent verification of the assay data.
	and assaying		• The assay data from which the significant intercepts have been verified by
		• The use of twinned holes.	Tolsa and Infinity Geologists.
(15)		• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	<ul> <li>Between Dec 2016 and March 2017 Infinity twinned a number of Tolsa holes. MSJ-DD0009 and SJ1C, MSJ-DD-0010 and SJ-5C, MSJ-DD-0004 and SJ-4CMSJ-</li> </ul>
$\bigcirc$		• Discuss any adjustment to assay data.	DD-0008 and SJ-2E, MSJ-DD-0007 and SJ-2C, MSJ-DD-0006 and SJ-3E.0005 and SJ-4E. Results from the sets of holes were comparable.
			<ul> <li>Between May and July 2017 Infinity twinned two additional Tolsa holes MSJ- DD0011 and SJ-4B, MSJ_DD0012 and SJ-2B. Results from these two sets of holes were comparable.</li> </ul>
(D)			<ul> <li>Procedures for all aspects of drilling, sampling and geological logging are documented by PLH.</li> </ul>
			• Diamond drillholes have been twinned by RC drillholes. Analysis of the twinned holes shows a reasonable comparison between the drilling techniques.
			• Values below the analytical detection limit were replaced with half the detection limit value. No other adjustments have been made to the assay data.
	Location of data points	• Accuracy and quality of surveys used to locate drillholes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	• No down hole survey information is available for historic holes. Historic Drill hole collar locations have been checked using historic drill plans and local grids verified with coordinates collected from historic holes with a DGPS.
		<ul> <li>Specification of the grid system used.</li> <li>Quality and adapting of tanggraphic control.</li> </ul>	• Historic holes have been drilled according to a local grid. Local grid transform to ETRS Transverse Mercator Zone 29 co-ordinates are used.
<u> </u>			Topographic survey has been done in local grid.
			<ul> <li>A LIDAR topographic survey based on 1 m contours of the project area was provided. The topography surface is validated by the drillhole collar surveys.</li> </ul>
	Data spacing	Data spacing for reporting of Exploration Results	• Drill holes have been drilled in a 70 * 48 m grid pattern.
	and distribution	• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral	• The section spacing is sufficient to establish the degree of geological and grade continuity necessary to support the resource classifications that were applied.

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נר	ltem	JORC Code explanation	Comments
		<ul> <li>Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>The drilling was composited downhole using 2 m intervals.</li> <li>Data spacing and distribution is sufficient to establish a degree of geological and grade continuity appropriate for the Mineral Resource estimation procedures.</li> <li>57 drill holes for 11,774m of RC and DDH drilling have been completed on site</li> </ul>
	Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>The location and orientation of the majority of the drilling is appropriate given the strike and morphology of the lithium slate mineralisation.</li> <li>There are no known biases caused by the orientation of the drill holes.</li> </ul>
	Sample security	• The measures taken to ensure sample security.	<ul> <li>There are no details available regarding sample security of historical sampling.</li> <li>Once received at the laboratory, samples were compared by the laboratory to the sample dispatch documents.</li> <li>Cube does not believe that sample security poses a material risk to the integrity of the assay data used in the Mineral Resource estimate.</li> </ul>
	Audits and reviews	• The results of any audits or reviews of sampling techniques and data.	<ul> <li>Historic data has been reviewed by Infinity Geologists.</li> <li>Cube is not aware of any other independent reviews of the drilling, sampling and assaying protocols, or the assay database, for the project.</li> </ul>



# JORC (2012) Table 1 – Section 2 Reporting of Exploration Results

	Item	JORC Code explanation	Comments
	Mineral tenement and land tenure	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>The San Jose Project is located 4km SE of Caceres in Spain. The San Jose Project is held within Investigation Permit No 10C10343-00 which is owned by Valoriza Mineria. The San Jose Project is held within Investigation Permit No 10C10343-00 PI and 10C10359-OO PI. Both tenements were applied for and granted during the period of technical work. A Mining Licence Application can be made with or without granted underlying tenure if sufficient technical work has been completed. Infinity previously lodged a Mining Licence Application over San Jose for an integrated lithium carbonate mining and production facility. Subsequent to the grant and applications, errors in the public advertising by the regional government have required both permits to be readvertised in Application status. There is no loss of legal rights to ownership for the JV during this period and the JV retains the rights, as expressly stated by the regional government to lodge a new Mining Licence Application for an integrated lithium hydroxide processing facility with or without underlying Investigation permits.</li> </ul>
	Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• San Jose was historically mined for tin and tungsten in the 1960s and later underwent extensive evaluation and feasibility work for lithium and tin mineralisation between 1985 and 1991 which was conducted by Tolsa SA.
	Geology	• Deposit type, geological setting and style of mineralisation.	<ul> <li>The San Jose Deposit was formed by an amalgamation of quartz and quartz-pegmatite veins, which formed a stockwork hosted by metasediments. The mineralisation is disseminated in both the host as lithium micas and the veins hosting tin as cassiterite, lithium as amblygonite-montebrasite and minor tungsten as wolframite. The lithium is found mainly in the micas of muscovite-fengite type in the host rock and in lesser proportion in the amblygonite-montebrasite of the veins.</li> <li>Primary mineral occurrences in the area appear to be of 3 types, lodes,</li> </ul>
_			stratabound or stratiform. The lode deposits are essentially quartz vein or stringer systems that fill late-Variscan Orogeny fractures and carry tin and/or tungsten minerals. Most of these occurrences, even if they are

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ltem	JORC Code explanation	Comments	
1		hosted by meta-sediments are regarded as being related to the ubiquitous late-Variscan granitic intrusions.	
Drillhole information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:	No exploration results being reported.	
)	<ul> <li>easting and northing of the drillhole collar</li> </ul>		
	<ul> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar</li> </ul>		
	<ul> <li>dip and azimuth of the hole</li> </ul>		
	<ul> <li>downhole length and interception depth</li> </ul>		
	– hole length.		
	• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.		
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results being reported.	
	• Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.		
	• The assumptions used for any reporting of metal equivalent values should be clearly stated.		
Relationship between mineralisation	• These relationships are particularly important in the reporting of Exploration Results.	No exploration results being reported.	

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Item	JORC Code explanation	Comments
widths and intercept lengths	• If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.	
	• If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'downhole length, true width not known').	
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.	Refer to figures in main summary.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration results being reported.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No exploration results being reported.
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Cube recommends that Infinity expand the Indicated Mineral Resource through infill and extensional drilling, undertake preliminary geotechnical examination and metallurgical testing for metal recovery, leading to progression of a Feasibility Study.</li> </ul>



# JORC (2012) Table 1 – Section 3 Estimation and Reporting of Mineral Resources

ltem	JORC Code explanation	Comments
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	• Cube undertook a routine check of the data for potential errors as a preliminary step to compiling the resource estimate. No significant flaws were identified.
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Snowden Principal Consultant, Jeremy Peters, visited the project on 18 October 2016, observing the exposed Li bearing slate as outcrop and the overall geometry and nature of the mineralisation.</li> <li>Cube Principal Geologist has not visited the site and has relied on the documented observations on Mr Peters.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>Cube believes that the local geology is reasonably well understood as a result of work undertaken by PLH and Tolsa.</li> <li>Lithium mineralisation occurs within three zones; hosted by slate, quartzite or quartz veins. The quartz veins have previously been mined for Tungsten (W).</li> <li>A mineralisation isoshell has been created using LeapFrog software implicit modelling techniques based on the complete Li assay dataset and main directions of grade continuity to define a 3D wireframe encompassing the plus 0.1% Li mineralisation.</li> <li>The isoshell based on a Li plus 0.1% Li (domain 1) was considered appropriate to constrain mineralisation whilst honouring grade trends shown in the raw drillhole data.</li> <li>The quartzite was interpreted and wireframed in section by PLH and supplied to Cube as validated solids. These zones were domained (domain 3) as the low-grade, coarser grained Li mineralisation zone.</li> <li>The banging wall contact of the quartz-carbonate veins were interpreted and</li> </ul>
		• The hanging wall contact of the quartz-carbonate veins were interpreted and wireframed in section by PLH and supplied to Cube as validated surfaces. These were used to generate solids, assuming a thickness of 0.5 m. This average thickness is based the previous work by Peters, May 2017. It has been

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עו	Item	JORC Code explanation	Comments
			assumed that the full extent of these veins has been mined out and the volume defined (domain 2) has been excluded from the Mineral Resource.
			• Outcrops and exposure of the Li enriched slates and quartzite documented, confirm the validity of the geological interpretation based on the drilling.
			• Alternative interpretations of the mineralisation are unlikely to significantly change the overall volume of the mineralised envelopes in terms of the reported classified resources.
	Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the	• The drilling at the deposit extends over a strike distance of 420m and includes a 480m vertical interval from 530m to 50m.
		upper and lower limits of the Mineral Resource.	<ul> <li>Mineralisation is hosted within the slate (bearing 220°) the quartzite (bearing 300°) and the quartz veins (bearing 220°)</li> </ul>
	Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation	• Estimation of Li ppm, Fe%, Sn ppm and Cs ppm using ordinary block kriging with hard domain boundaries and top-cuts where required to control the impact of outlier grades. No top-cuts were applied to Li. Grade estimation was completed using Surpac v6.7 Mining Software (Surpac).
		method was chosen include a description of computer software and	• High grade cuts were applied to Fe (15%), Sn (5,000ppm) and Cs (9,000ppm)
		<ul> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> </ul>	<ul> <li>A Surpac block model was used was designed to encompass the full extent of the deposit with a block size of 20m NS by 20m EW by 10m vertical with sub-cells of 1.25m by 1.25m by 0.625m. The sub-cells were given a high resolution to enable the representation of the thin quartz veins parallel to the main</li> </ul>
		• The assumptions made regarding recovery of by-products.	mineralisation trend (domain 2).
		<ul> <li>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</li> </ul>	• The search ellipse orientation was based on the results of the grade continuity analysis (variography), with individual search neighbourhood parameters used for each element estimated. A single search radius designed to fill the defined
• In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	mineralised domains (domain 1 and domain 3) was used, with a minimum of 4 and maximum of 20 samples based on the QKNA analysis of Li ppm. No limit to number of samples per drillhole was used.		
		<ul> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> </ul>	• Lithium mineralisation was used as the limiting mineralised volume, based on the plus 0.1% Li threshold isoshell.



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	ltem	JORC Code explanation	Comments	
For personal use on		<ul> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>Within the mineralised volume, Quartz (domain 2) and quartzite (domain 3) zones were attributed to the model based on 3DM Surpac wireframes.</li> <li>Grade estimates were validated against the input drillhole composites (globally and using grade trend plots) and show a reasonable correlation.</li> <li>Two previous resource estimates have been completed in 1993 and in May 2017. Whilst the procedures and parameters used for 1993 resource estimation aren't available, the average grade and tonnes are still comparable. Comparison of the November 2017 MRE with the May 2017 MRE shows no material differences within the May 2017 common volume.</li> </ul>	
	Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages have been estimated as dry tonnages.	
	Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>The mineralisation has been reported above a 0.1% Li cut-off grade.</li> <li>The 0.1% Li cut-off grade was applied for the reporting based on pit optimisation carried out by Snowden in May 2017. The sensitivity of the Mineral Resource to the reporting cut-off grade is minimal at cut-offs below 0.1% Li due to the limiting mineralisation threshold.</li> </ul>	
	Mining factors and assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The mineralisation is amenable to conventional truck and shovel mining techniques and no complications have been observed at this stage.	
	Metallurgical factors and assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions	• Cube is not qualified to comment in detail on metallurgy, but has examined a summary of previous metallurgical test-work and understands that Infinity has commissioned its own metallurgical assessment of the project.	

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<u> </u>	Item	JORC Code explanation	Comments
		regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
nal use	Environmental factors and assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• The area in which the project is located is a historic mining district. However, the project has not advanced to the stage where concrete options regarding waste and process residue disposal; options or potential environmental impacts are being examined. Currently no environmental assumptions have been applied to the MRE.
	Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>Variograms modelled by Snowden in May 2017 for bulk density are reported as poor due to a limited sample number based on lithology (374 samples total)</li> <li>Correlation between bulk density and grade was analysed by Snowden and considered significant enough to apply Li estimation parameters to the bulk density estimation constrained to the main mineralisation zone (domain = 1)</li> <li>Where there was insufficient data within domain 1 to estimate bulk density an average value for the estimated bulk density was applied (2.75 kg/cm<sup>3</sup>)</li> <li>Average values based on lithology were assigned to the quartzite (2.68 kg/cm<sup>33</sup>) and the quartz veins (2.66 kg/cm<sup>33</sup>).</li> <li>A background value of 2.76 was set for all other material.</li> <li>Cube in the November 2017 MRE have used the modelled bulk density unchanged from the May 2017 MRE.</li> </ul>
	Classification	• The basis for the classification of the Mineral Resources into varying confidence categories.	• The Mineral Resource has been classified by Cube as a combination of Indicated and Inferred Resources using the following criteria



Item	JORC Code explanation	Comments	
	<ul> <li>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	1. 2.	Indicated Resource – a central zone of the mineralisation where drill hole spacing is generally below 70m by 45m (N x E) and mineralisation appears to be supported down-dip. Inferred Resource – that part of the remaining mineralisation constrained by the 0.1% Li isoshell where reasonable geological and mineralisation continuity is displayed, however due to the wide drill spacing, both geological and grade continuity is assumed rather than verified.
		<ul> <li>Extrapola approxim dip. Outs isoshell is based on variogram</li> </ul>	ation of the Inferred mineralisation beyond the drilling is limited to nately one drill section along strike and 50m across strike and down- side of this extrapolation and constrained within the mineralisation s considered exploration potential. The resources have been classified the continuity of both the geology and the grades (as modelled in ms), along with the drillhole spacing and data quality considerations.
		<ul> <li>The dept optimised Hydroxid</li> </ul>	h extent of the Mineral Resource has been reviewed using an d pit shell, designed using industry standard costs and a Lithium le revenue of US\$10,000/t.
		The Mine     Compete	eral Resource classification appropriately reflects the view of the ent Person.
Audits and reviews	• The results of any audits or reviews of Mineral Resource estimates.	Cube is n	ot aware of any external reviews of the Mineral Resource estimate.



ltem	JORC Code explanation	Comments
Discussion of relative accuracy/ confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>The Mineral Resource statement relates to a global Mineral Resource.</li> <li>No geostatistical procedures have been undertaken to establish the relative accuracy of the resource within confidence limits.</li> <li>The Mineral Resource has been validated both globally and locally against the input composite data, in section, cross-section and by RL. The Indicated portion of the Mineral Resource estimate is considered to be locally accurate at the scale of the parent block size. Close spaced drilling will be required to assess the confidence of the short range grade continuity.</li> <li>This report uses the May 2018 Mineral Resource prepared by Cube Consulting.</li> <li>No production data is available for comparison with the Mineral Resource estimate at this stage due to the early stage of the mining.</li> </ul>



Item	JORC Code explanation	Comments
Mineral Resource	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	• JORC 2012 resource Estimate, where the Mineral resource is based on Ordinary Kriging interpolation methodology.
estimate for conversion to Ore Reserves	• Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Minerals Resources are inclusive of the Ore Reserve
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	• The Competent Persons listed have visited site.
	• If no site visits have been undertaken indicate why this is the case.	
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	• A Pre-Feasibility Study has been completed to enable Mineral resources to be converted to Reserves at a +/- 25% accuracy.
	• The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	<ul> <li>Open pit mining contractor rates have been applied and process testwork and plant engineering conducted.</li> </ul>
Cut-off parameters	• The basis of the cut-off grade(s) or quality parameters applied.	• Cut-off grades of 0.1% lithium were applied to define the extend of mentalisation. 0.12% lithium is the calculated breakeven based on overall plan recovery, market rate open pit mining and processing costs and an implied price of US\$10,000 tone for lithium hydroxide.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by antimination on humanizing and statistical design)	• A Pre-Feasibility level study was performed which built on the prior Scoping Study. This PFS study was designed to determine the economic viability of the deposit.
	<ul> <li>optimisation or by preliminary or detailed design).</li> <li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> </ul>	No Inferred resource was used in the calculation of the Reserves.
		• Mining and processing schedules were based on detailed, multi-stage pit designs.
	<ul> <li>The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.</li> <li>The major assumptions made and Mineral Resource model used for</li> </ul>	• Geotechnical conditions are good to very good at San Jose. The deposit has a very low strip ration (<1:1) due to the outcropping nature of the deposit and its bulk mining style allows simple mining methodology and application.



Item		JORC Code explanation	Comments
		<ul> <li>pit and stope optimisation (if appropriate).</li> <li>The mining dilution factors used.</li> <li>The mining recovery factors used.</li> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	<ul> <li>Mining dilution 5%</li> <li>Mining recovery 95%</li> <li>Selective Mining Unit 20m x 20m x 10m XYZ</li> <li>Approximately 9% of the mined Minerals Resources is Inferred and this is in the later stages of the mine life.</li> </ul>
Metc facto assur	allurgical ors or mptions	<ul> <li>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li> <li>Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>Any assumptions or allowances made for deleterious elements.</li> <li>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> <li>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	<ul> <li>Crushing, grinding and flotation is used in the upgrading of mined pre prior to roasting</li> <li>A sulphate roast process which is used in several lithium mica treatment facilities around the world is then used.</li> <li>Roasted ore is leached in fresh water and a lithium sulphate aqueous solution treated with a hydroxide compound to precipitate lithium hydroxide.</li> <li>This process utilises commonly used portions of a lithium flow sheet and applies a hydroxide finalisation component. This is being implemented by other lithium companies to meet the growing lithium hydroxide demand. Battery grade requirements have been taken into consideration in the preparation of this study. Process testwork has been planned and implemented by a lithium industry specialist engineering company and testwork conducted in Western Australia under their supervision.</li> <li>N/A</li> <li>Yes</li> </ul>
リ Envir tal	ronmen-	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	<ul> <li>Environmental base line studies have been performed on San Jose. No restrictions on potential development were identified in the form of classified flora or fauna.</li> <li>Waste rock and plant tailings waste characterisation has been completed. Material is not classified as acid forming and has been classified as 'inert'.</li> </ul>

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	Item	JORC Code explanation	Comments
	Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	<ul> <li>There is all required supporting infrastructure in the immediate vicinity. This includes reticulated power, water and natural gas.</li> <li>Communications will be on normal 4G or 5G mobile networks.</li> <li>Product will be shipped to end users in Europe by truck.</li> </ul>
For personal us	Costs	<ul> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	<ul> <li>Capital Costs are based on detailed studies on Sa Jose by industry recognised study manager and specialist subcontractors. A range of contingencies related to specific component have been included and range from 10% to 30% and average 16%.</li> <li>Operating Costs are based on detailed process flow sheet construction, specific reagent and consumable quotations and industry benchmarking where required.</li> <li>No problematic deleterious elements have been identified that the process flow sheet does not remove.</li> <li>Transport is considered a low-cost component as lithium hydroxide is a high value product (estimated US\$10,000/t base) and end users will be supplied by 25t truck from site within continental Europe.</li> <li>Industry specific offtake contracts are common, and the lithium industry is reasonably new. A conservative pricing assumption is therefore used as the basis of supporting economic viability.</li> <li>A range of pricing</li> <li>A\$:US\$ 0.70</li> <li>US\$:EUR 1.11</li> <li>LiOH US\$10,000 for mine optimisation</li> <li>There are no local, private or government royalties. Tax is 25% (Company matched)</li> </ul>



Щ и	ltem	JORC Code explanation	Comments
For personal use on	Revenue factors	<ul> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	<ul> <li>A plant feed grade of 0.9-1.3% Li2O is treated to produce lithium hydroxide during the life of mine. The average plant feed grade for the initial 10 year period averages 0.8% Li<sub>2</sub>O</li> <li>A long-term price forecast (average first 10 years) of US\$16,004/t has been used based on Industry leading research group "Fastmarkets" research which was purchased by Infinity for this study.</li> </ul>
	Market assessment	<ul> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul> <li>Fastmarkets has recently been selected as the preferred PRA service provider for the London Metals Exchange ('LME') after a comprehensive tender process.</li> <li>Detailed reference to Fastmarkets pricing and market outlook in Appendix 1</li> </ul>
	Economic	<ul> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul> <li>Industry standard levels of accuracy in MRE and modifying factors have been applied by experienced, independent contractors</li> <li>NPV sensitivities and ranges applied for major economic drivers and significant assumptions with a range of +/- 20%.</li> </ul>
	Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	<ul> <li>The National Level – there are no agreements in place, there is no need to be put in place with the National Government</li> <li>The Regional Level – the regional Junta of Extremadura put the tender forward</li> <li>The Local</li> </ul>
	Other	<ul> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> </ul>	<ul> <li>N/A</li> <li>Offtake Agreements have to be arranged and end users with commercial contracts in place prior to funding being available. Discussions are ongoing and require completion prior to development.</li> </ul>



Item	JORC Code explanation	Comments
	• The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and	• The nature of the project relies upon a mining licence application to be lodged. This can be either via an Indirect or Direct process. The route the Company takes in this next stage has to be outlined in due course and the Company has yet to decide. Full discussion on this optionality is covered in ASX release 5 June 2019.
Classification	<ul> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</li> </ul>	<ul> <li>Naturally occurring risks – N/A</li> <li>Offtake Agreements have to be arranged and end users with commercial contracts in place prior to funding being available. Discussions are ongoing and require completion prior to development.</li> <li>The National Level – there are no agreements in place, o need to be put in place with the National Government</li> <li>The Regional Level – the regional Junta of Extremadura put the tender forward and award the investigation permits and mining licences. These are in application. Infinity is not aware of any reason why by following due process and best practice work they will not be awarded.</li> <li>The Local Level – change of land use from rural to industrial is required and this has to be obtained at local government level or provided by the regional government if they choose to override local government. Currently there is no mining licence application in place for an integrated lithium hydroxide process plant and no formal comment has been or can be made as yet. Previous work on a lithium carbonate plant was not deemed acceptable without changes and acceptance by local stakeholders.</li> </ul>
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	No audit has been undertaken
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence.	• Industry standard levels of accuracy in MRE and modifying factors have been applied by experienced, independent contractors in the preparation of MRE and Reserves under JORC guidelines Confidence in the Reserve is high due to the conventional bulk-style open pit mining methods being applied.



Item	JORC Code explanation	Comments
	<ul> <li>limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> </ul>	<ul> <li>Confidence in the processing is high due to the nature of test work done by experienced independent metallurgical laboratories with relevant commodity experience and established industry use of the sulphate roast leach route.</li> <li>No modifying factors are expected to be significantly changed prior to mining.</li> </ul>
	• It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	