

# INFINITY LITHUM Pre-Feasibility Study

August 2019
San Jose Valdeflorez
Lithium Hydroxide Project



## Disclaimer

#### 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.



### INFINITY LITHIUM PROJECT LITHIUM HYDROXIDE PRE-FEASIBILITY STUDY



Europe to be the 2nd largest market for battery grade lithium after China



Producing 15Kt¹ of
Lithium Hydroxide per
year, able to power
>10M Electric Vehicles



Lithium production supported by the EU and targeted by the EIB



Pre-tax NPV at US\$860M, a Pre-tax IRR at 42% and a payback period of 2.5 years



Infinity is a **fully integrated** project with a **low carbon footprint**and sustainable operation



OPEX before by-product credit of \$5,434/t¹ LiOH at the bottom of the global cost curve



**30-year production**, with total revenues expected to reach **US\$6 Billion** 



Creating a new industry for Europe, **generating employment** and supporting the community

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Full PFS announcement is available here: <a href="https://www.infinitylithium.com/asx-announcements">https://www.infinitylithium.com/asx-announcements</a>







# 1. SUMMARY



## 1.1 PFS Project Economics - Lithium Hydroxide



NPV <sub>10</sub> Pre-tax \$	US\$860M	IRR Pre-tax	42.3%
Total Revenue From Lithium Hydroxide	US\$6Bn	CAPEX <sup>2</sup> (Pre-production)	US\$268M
OPEX <sup>1·3</sup>	US\$5,434/t	Capital Intensity	\$US16K/t
Annual Production <sup>3</sup> of lithium hydroxide	15,000t/y	Project Life Mine Life	30 years 19 years
Resource (2 <sup>nd</sup> largest in EU, largest open pit based project)	1.6Mt LCE	Strip Ratio	0.43:1

#### 100% Project Ownership Basis

- (1) Average C1 cost over 10 years of production including ramp-up and C1 cost at nameplate capacity is US\$5,043/t, without by-product credits. Potential tin and boron credits are available and are being assessed in the ongoing optimization studies.
- (2) Excludes contingency. Total pre-production CAPEX including contingencies US\$309m
- (3) First 10 years of production



## 1.2 PFS Highlights



#### **HIGHLIGHTS**

Outstanding project economics (pre-tax) based on 100% project ownership:

- NPV<sub>10</sub> of US\$860 million
- o IRR of 42.3%
- Generating US\$6 billion in gross revenue



Extended project life from integrated activities with:

- o 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 battery grade lithium hydroxide confirmed

 Wave International completed the PFS which at nameplate capacity delivers lithium hydroxide at US\$5,043/t



Average production of 15ktpa in the first 10 years



## 1.2 PFS Highlights



#### **HIGHLIGHTS**

Significant project improvements over Scoping Study\*:

- Maiden Ore Reserve
- Exceptionally low average LOM strip ratio of 0.43: 1 and a reduction in total movement of 13.5%





- Optimisation of the process flowsheet through extensive test work results in increased overall plant recovery
- Cost reductions through confirmation of the recycling and successful reuse of key reagent potassium sulphate in the roasting and water leach process







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

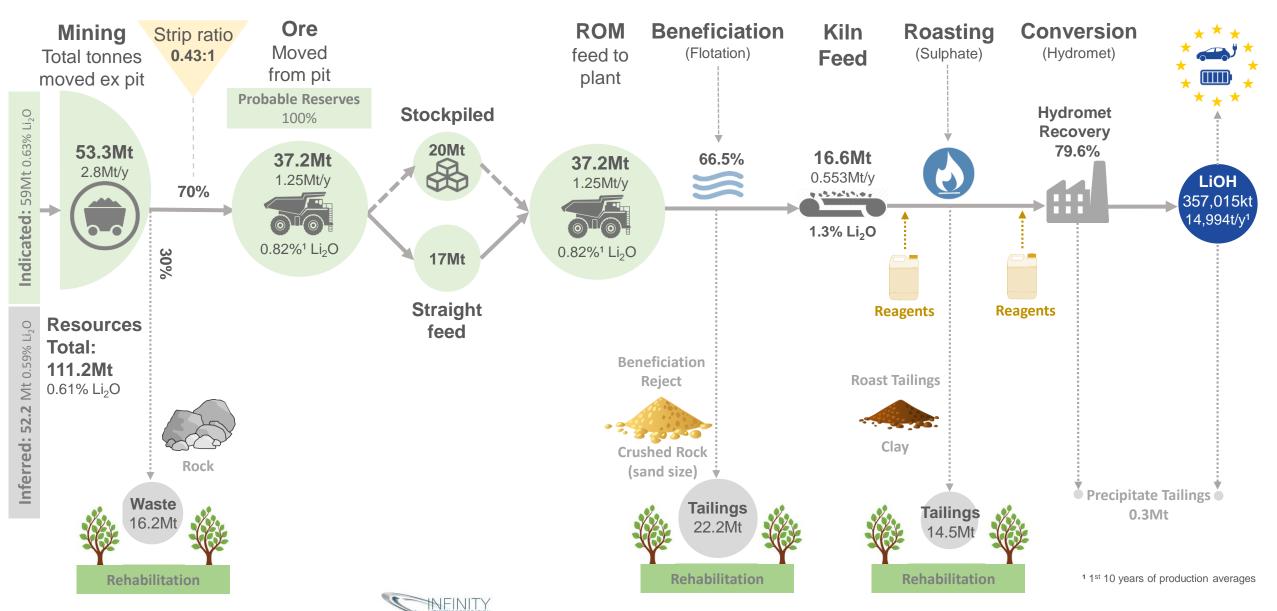




<sup>\*</sup>Scoping study published on 29 November 2018

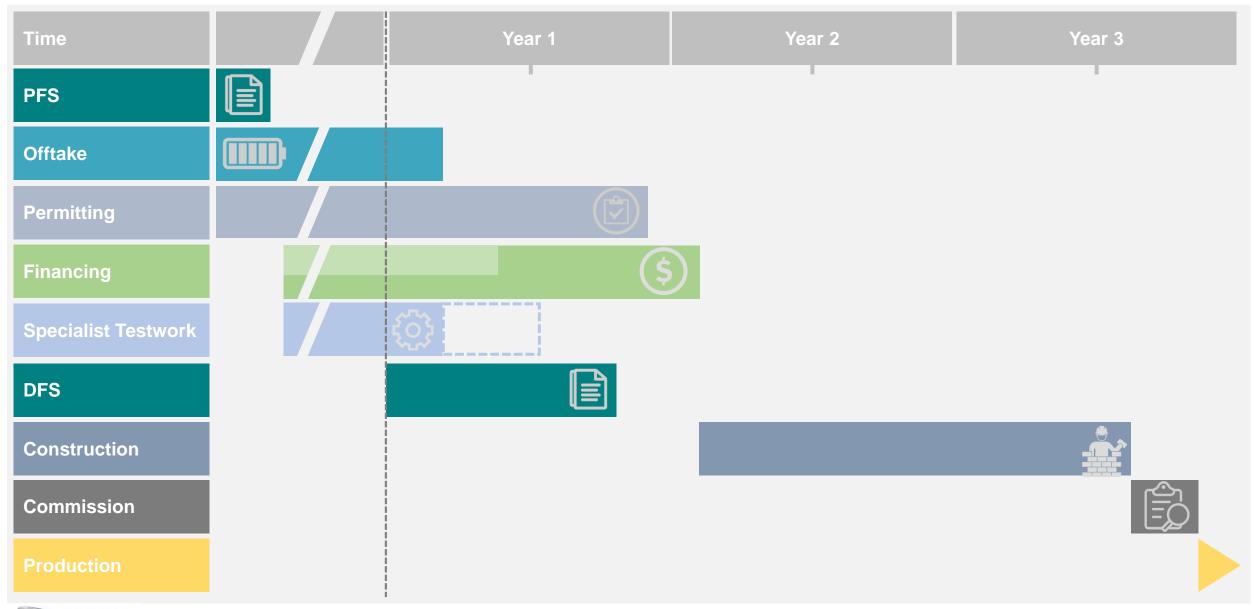
## 1.3 A Uniquely Fully Integrated Lithium Project





# 1.4 San Jose Project Timeline











# 2. ECONOMICS



## 2.1 PFS Project Economics vs. Scoping Study



Parameter	Unit	Amount	Scoping Study Delta
Project Economics (100% Ownership Basis):			
NPV <sub>10</sub> (pre-tax)	US\$	860m	<b>↑19.9%</b>
IRR (pre-tax) (1)	%	42%	17.6%
Capital payback from start of production	years	2.5yrs	$\longleftrightarrow$
Foreign Exchange Rate	€:US\$	1.11	↓2.6%
Revenue from lithium hydroxide (life of project) Total net operating cash flow LOM Average EBITDA pa over first 10 years of production	US\$ US\$ US\$	6.0Bn 3.7Bn 157.3m	↑16.6% ↑12.8% ↑28.6%
Average long-term lithium hydroxide price First 5 years of production First 10 years of production	US\$/t US\$/t	14,770 16,004	↑5.8% ↑13.3%
Average C1 cost over 10 years of production <sup>(2)</sup> without by-product credits	US\$/t	5,434	↓6.9%

<sup>(1)</sup> Project life extended by 25% from 24 years to 30 years of production.



<sup>(2)</sup> C1 cost at nameplate capacity is US\$5,043/t/ Potential tin and boron credits are available and are being assessed in the ongoing optimisation studies. Additional work is required to define a value of the potential by-product credits, or if it would be economic to extract a value from these credits.

## 2.1 PFS Project Economics vs. Scoping Study



Parameter	Unit	Amount	Scoping Study Delta
Resource:			
Indicated Resources	Mt	59.0	$\leftrightarrow$
Inferred Resources	Mt	52.2	$\leftrightarrow$
Reserves (Maiden Resource):			
Proven Reserves	Mt	-	$\longleftrightarrow$
Probable Reserves	Mt	37.2	<b>↑</b>
Production Metrics:			
Initial Life of Mine ('LOM') (3)	Years	30	<b>†25%</b>
Mining activity	Years	19	<b>†18%</b>
Processing post mining movement	Years	11	<b>↑37%</b>
Project ROM LOM	Mt	53.3	↓13%
Project initial LOM ore feed	Mt	37.2	<del>1</del> 31%
Average Strip Ratio	X:X	0.43 : 1	↓64%

<sup>(3) 19-</sup>year mine schedule and 11-year stockpile schedule. In total a 30-year production of battery grade lithium chemicals.



## 2.1 PFS Project Economics vs. Scoping Study



Parameter	Unit	Amount	Scoping Study Delta
Annual throughput prior to beneficiation	Mt	1.25	$\leftrightarrow$
Annual throughput process plant	Mt	0.553	<b>↑ 10%</b>
Process plant feed grade average 1st 10 years	%	1.3%	↓0.7%
Overall plant recovery	%	53%	<b>↑6%</b>
Annual production of lithium hydroxide average first 10 years	t	14,994	↑3%
Capital Investment:			
Pre-production capital expenditure (4)	US\$	267.9m	<b>↑2.2%</b>
Capex per annualised tonne of production over first 10 years (4)	US\$/t	17,867	<b>†</b> 0.6%
Capital Intensity – Processing plant nameplate (4)	US\$/t	16,236	↓ 7.1%
Pre-production capital expenditure contingencies	US\$	41.1m	↑ 57.0%

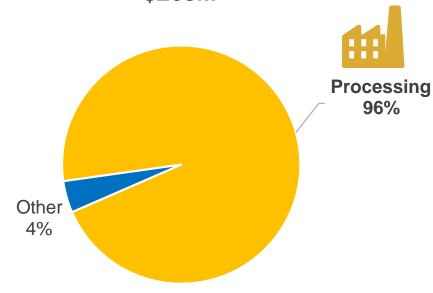
<sup>(4)</sup> Excludes contingency. Total CAPEX including contingencies US\$309m.



## 2.2 Capital costs estimates





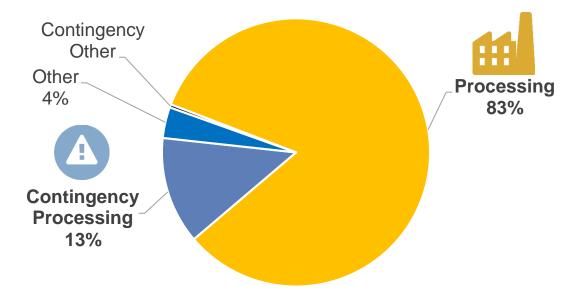


Process Plant US\$256.4m

Other US\$11.5m

TOTAL US\$267.9m

# Pre-Production Capital Expenditure Including Contingency \$309M





\* \* \*

**★**Equipment★

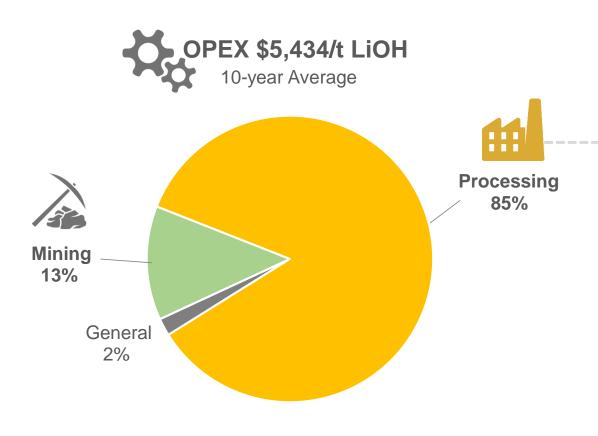
★almost solely
 ★sourced from

TOTAL	US\$309.0m
Contingency Other (10%)	US\$1.2m
Other	US\$11.5m
Contingency Processing (15.6%)	US\$39.9m
Process Plant	US\$256.4m

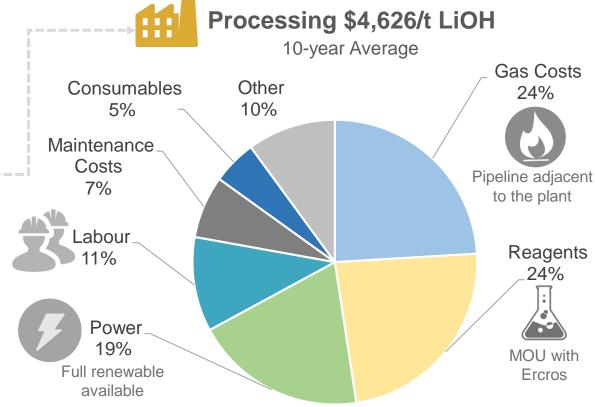


## 2.3 Operating costs estimates





TOTAL	US\$5,434/t
Processing	US\$4,626/t
Mining	US\$700/t
General	US\$108/t

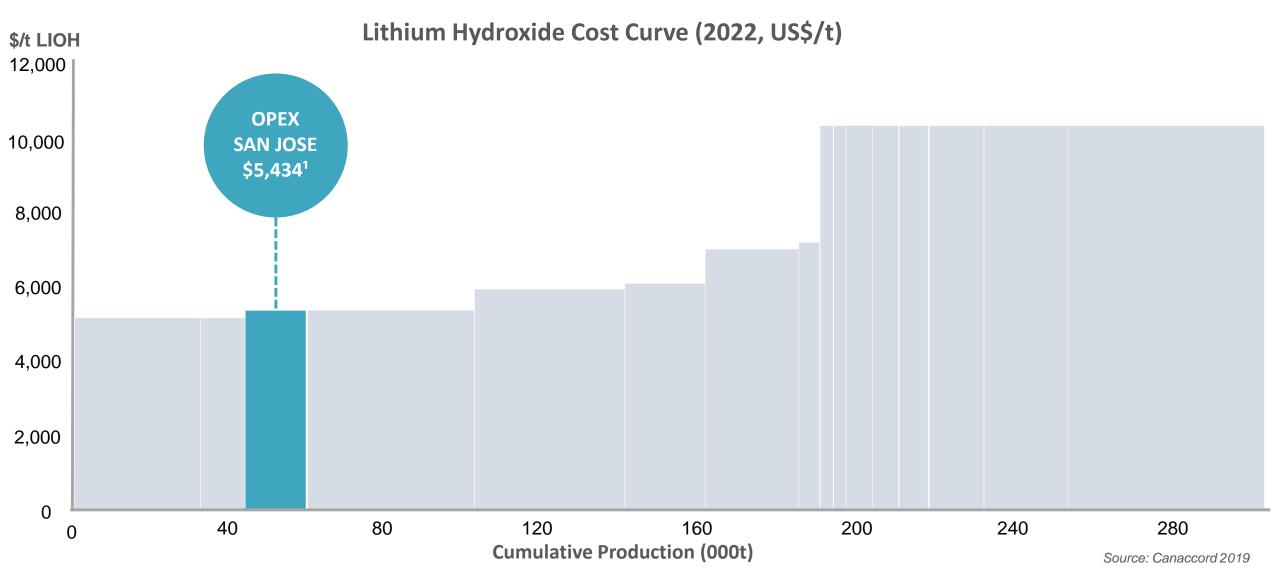


TOTAL	US\$4,626/t
Other	US\$465
Maintenance	US\$328
Gas	US\$1,113
Power	US\$903
Labour	US\$497
Consumables	US\$233
Reagents	US\$1,088



### 2.4 Position On The Cost Curve





<sup>1</sup>Average C1 cost over 10 years of production including ramp-up and C1 cost at nameplate capacity is US\$5,043/t, without by-product credits. Potential tin and boron credits are available and are being assessed in the ongoing optimization studies.









# 3. GEOLOGY & RESOURCES

#### **Disclaimer**

#### **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 (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 (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.

# 3. Geology & Resources



# San Jose Mineral Resource, Reported Above 0.1% Li Cut-off

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

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:

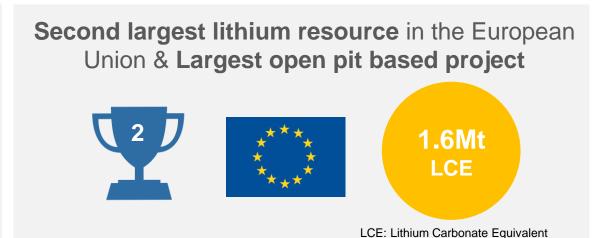
1.0% Li = 2.153% Li2O

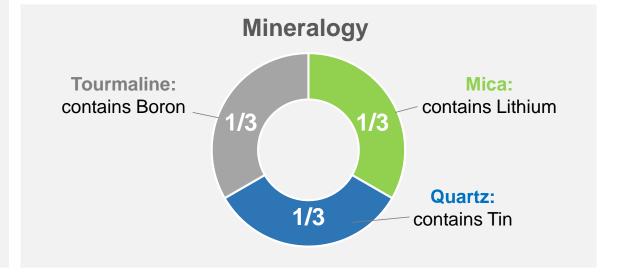
1.0%Li = 5.32% Li2CO3

1.0% Li2CO3 = 0.880% LiOH.H20

X2 – Potential to double

PFS based 100% on Indicated Resources



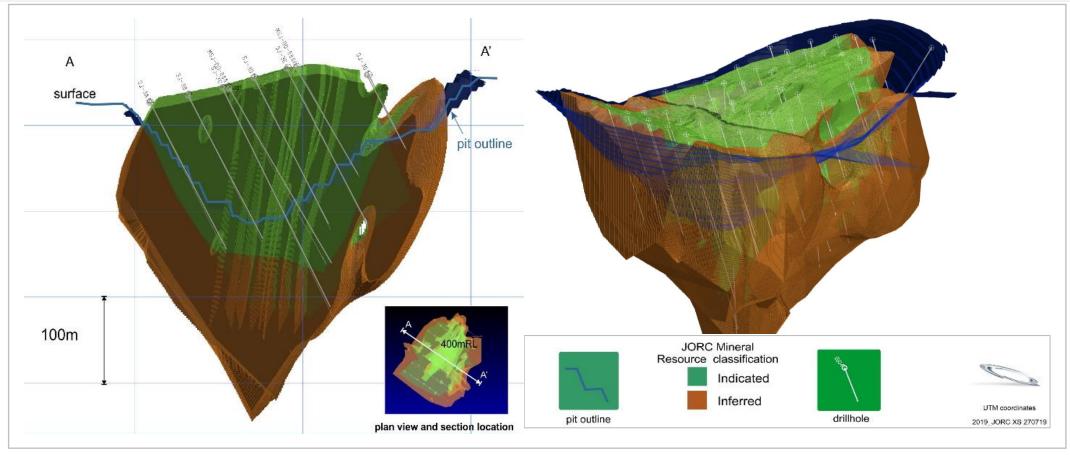








## Plan View Of San Jose Showing Drilling, Distribution Of Resources Showing Indicated (Lime Green), Inferred (Orange) Against Drill Pattern



100% of processed material from pit is from probable ore reserves







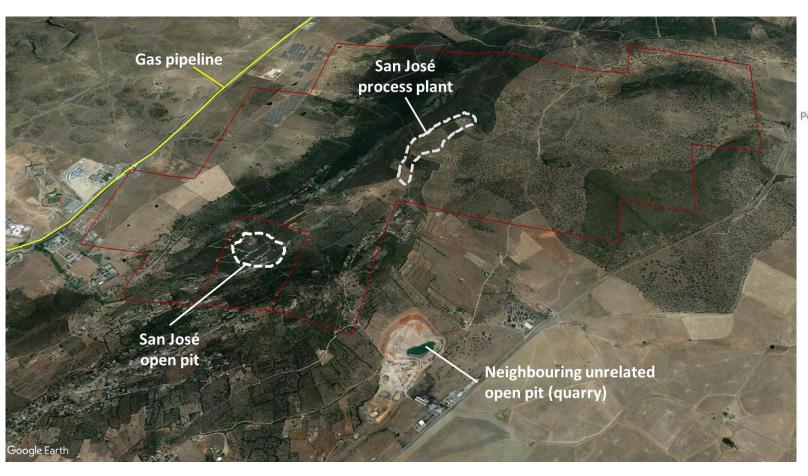
# 4. OPERATION



# 4.1 Site Layout



The San Jose Lithium Project is located approximately 280km west-southwest of Madrid in the region of Extremadura. The Project open pit development is in a narrow valley (Valhondo Valley) directly to the east of the town of Caceres.







## 4.1 Site Layout



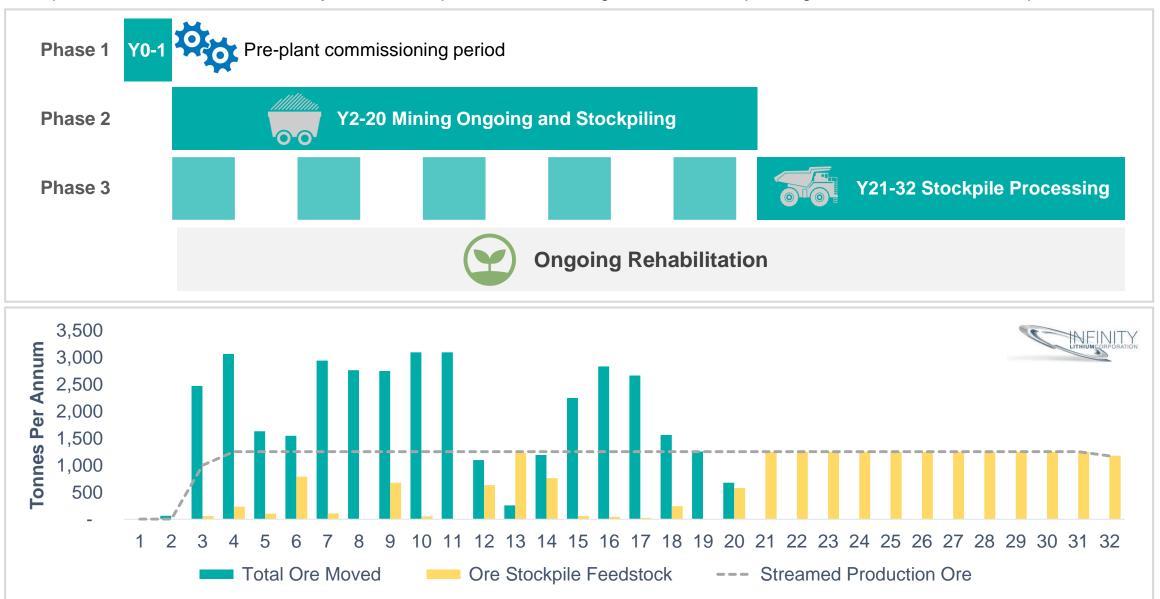


Infinity Lithium Corporation

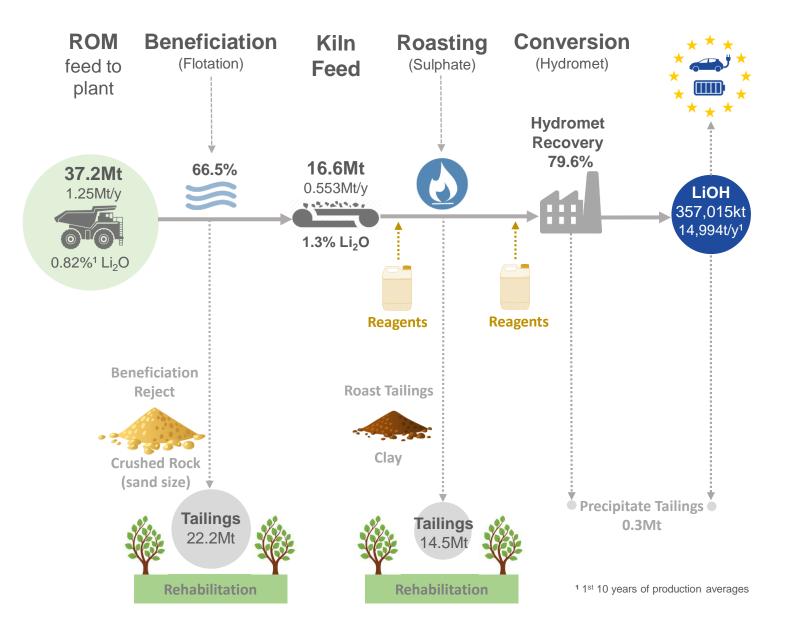
## 4.2 Mining Schedule



The operation has an overall life of 32 years with the plant commissioning in Year 1. The operating life is broken down into 3 periods:







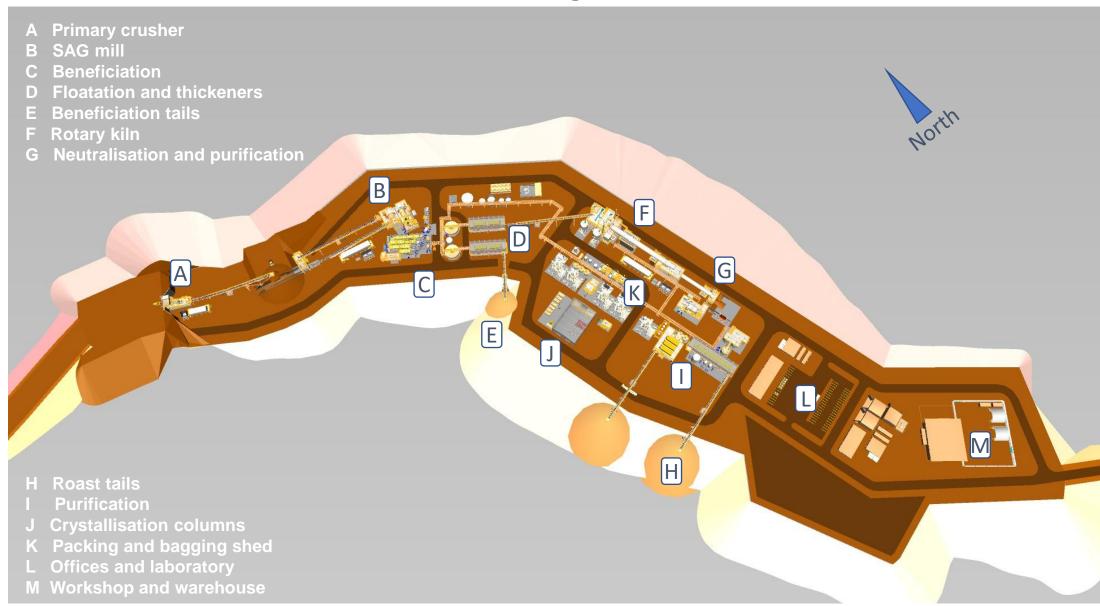
Parameter (average Year 1-10)			
Average ROM feed to beneficiation plant (dry)	1.25Mtpa		
Average ROM feed grade to beneficiation plant (Li <sub>2</sub> O)	0.82%		
Average post beneficiation concentrate (dry)	0.55Mtpa		
Average concentrate grade pre process plant (Li <sub>2</sub> O)	1.3%		
Recovery beneficiation	66.5%		
Recovery hydromet	79.6%		
Overall lithium recovery	53%		
Annual production <sup>1</sup> (battery grade LiOH)	15,000t		

<sup>&</sup>lt;sup>1</sup> 1st 10 years of production averages



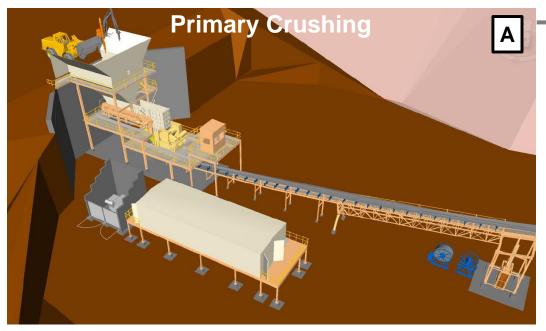


#### **Processing Plant**

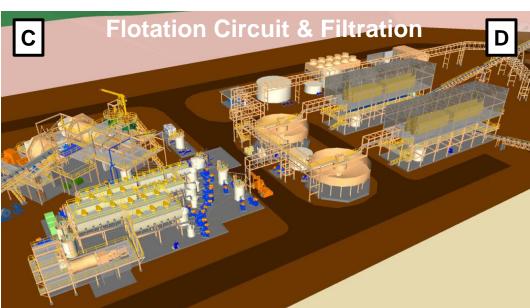


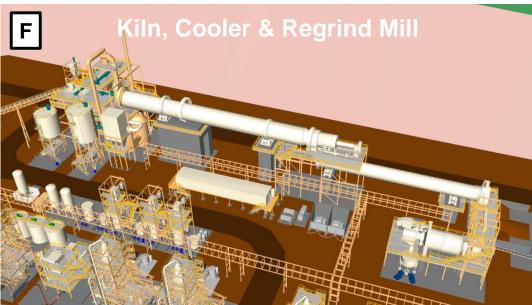












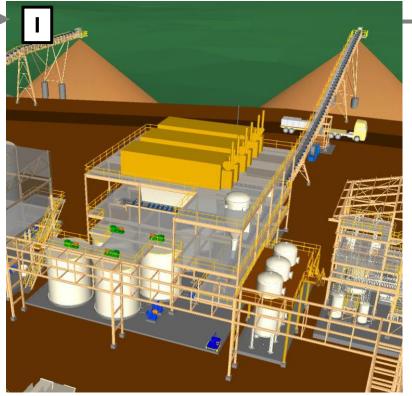


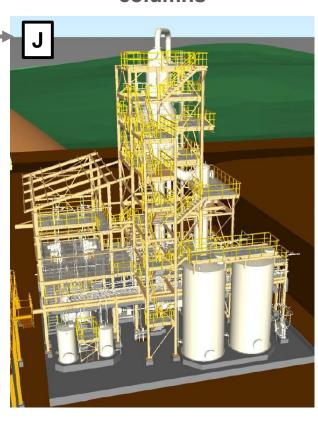
Water Leaching, Filtration, Filtration Tailings to stockpile

Purification, Neutralisation, Ion Exchange Circuits

Crystallisation columns





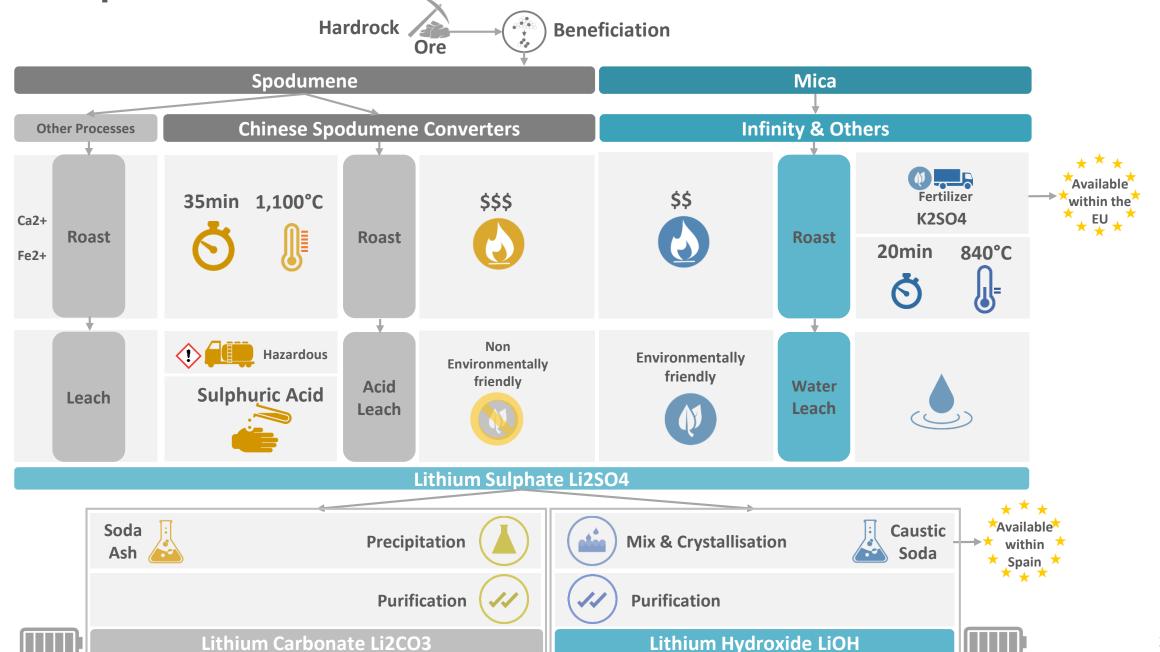




## **4.4 Comparative Flowsheets**







## 4.5 Waste and tails storage



- Our tailings are not a mud or slurry material, they are **dry stack tailings**. As opposed to slurry, our tailings contains little water and are safe to store without a need for a pond
- Dry stacked tailings process results contain initially 15-20% water in tailings which is then further utilized through a **recirculation** design
- Drainage channels a large amount of this contained water where it is then captured and reused





Dry Stack Tailings

Tailings Slurry



## 4.5 Waste and tails storage

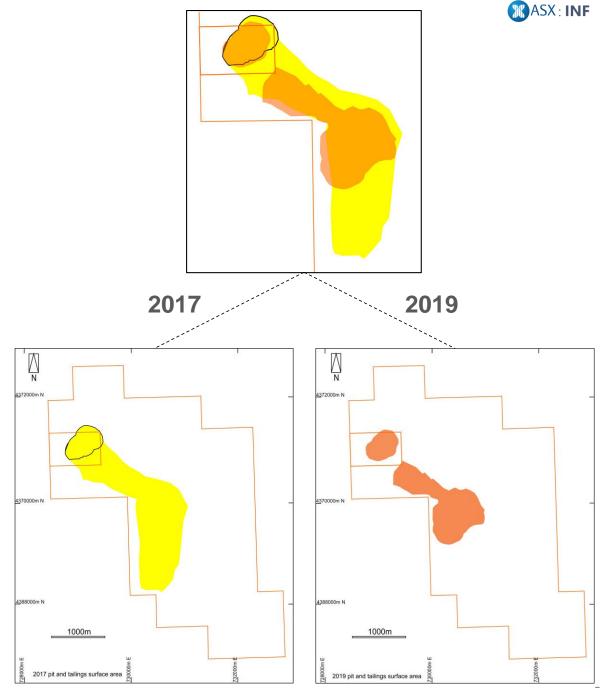
We have reduced our total waste stored (~50%)



We have also significantly reduced:

- √ Tailings volume
- √ Tailings surface

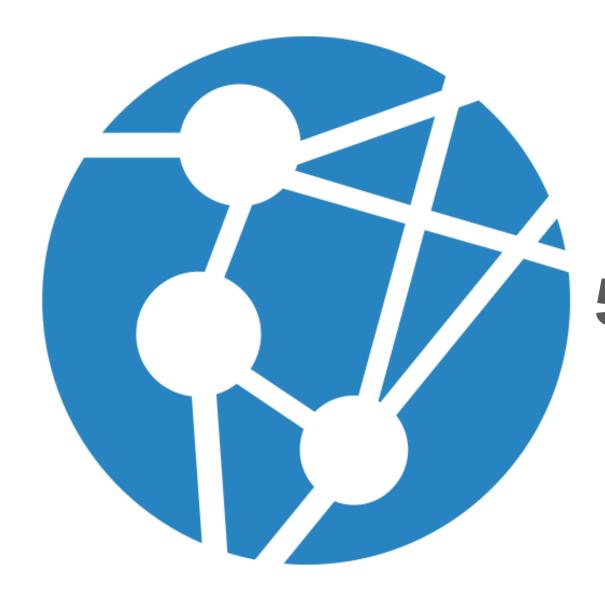
The results are preliminary, further improvements will be released through the DFS work





Infinity Lithium Corporation





# 5. INFRASTRUCTURE



#### 5. Infrastructure



The project is very well located in relation to supporting transport, energy and communications infrastructure. The workforce is expected and encouraged to be drawn from residential areas surrounding in the region. There will be no requirement to transport or house the workforce and substantial savings can be made in relation to administration and warehousing facilities in the proximal town of Caceres.



- The net requirement into the project will be recycled water from the EDAR (water treatment plan) of Cáceres
- The plant/project will also recycle water from tailings and use recirculated process water treated through water purification



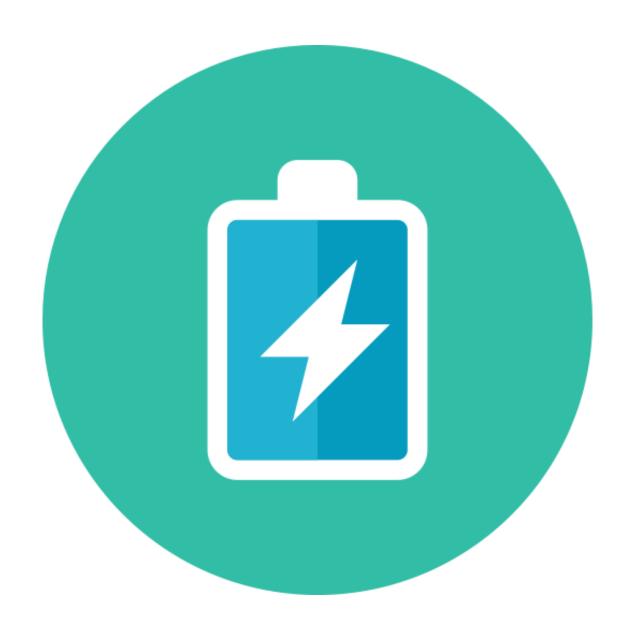
- The open pit is proposed to be 2km from the proposed plant site. Access to site is via sealed road and the pit will be accessed via entry into the main mine and process area first
- Multilane highways to Madrid and the regional capital, Merida are located within 3km and 6km respectively of the proposed plant location



- The extensive regional and municipal electricity and gas networks will be utilized for supporting the San Jose Lithium Project
- Gas infrastructure is exceptionally well located with the spur from the main regional line running to the town of Caceres passing within 2km of the proposed plant site







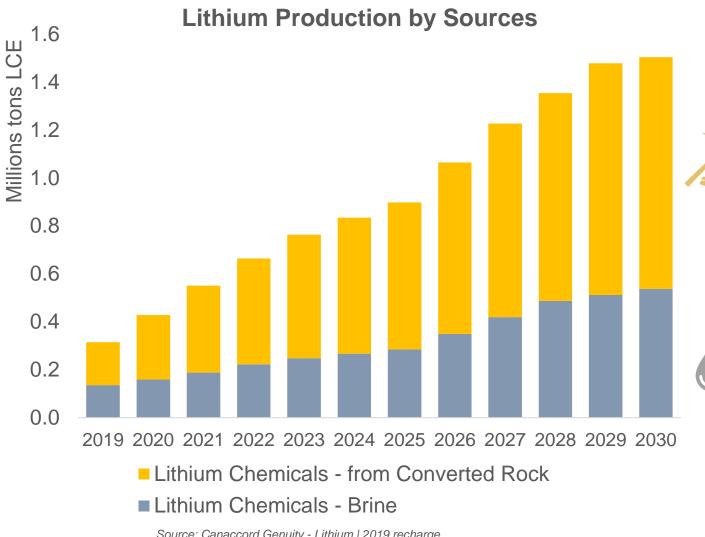
# 6. MARKET OVERVIEW



## 6.1 Lithium Supply



### Hard Rock Production to Dominate Lithium Supply



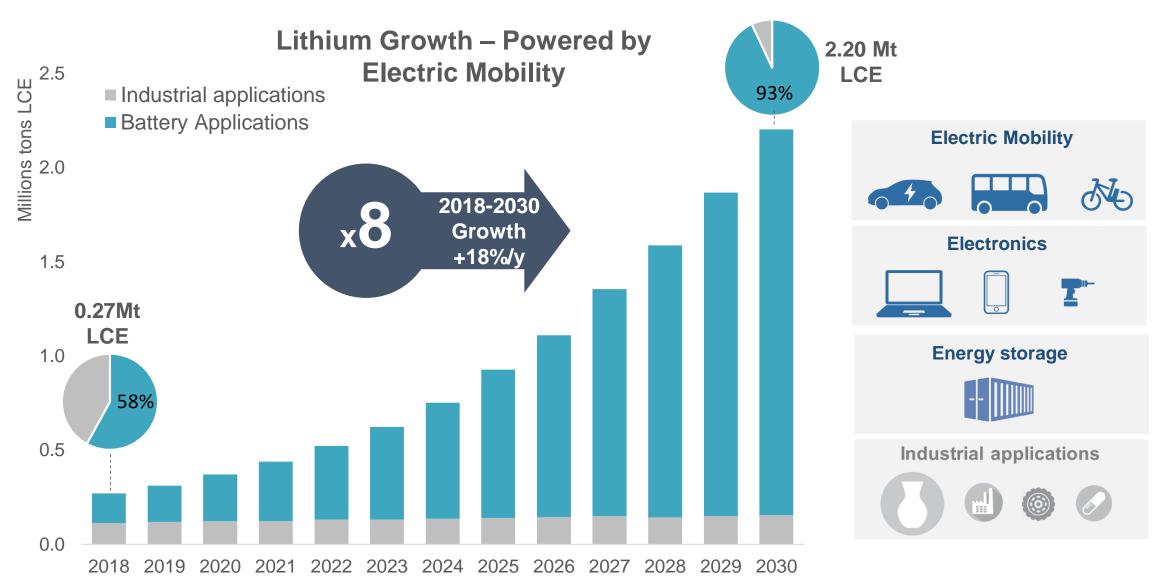
- Hard rock expected to dominate mine supply response
- Faster to develop, easier mining jurisdiction to operate in, lower risk environment
- Preferred feedstock for lithium hydroxide production which is the fastest growing lithium chemical
- Supply is expected to growth faster on the rock side, reaching almost 1Mt by 2025
- However, mine production does not equal lithium chemical production





### 6.2 Lithium Demand

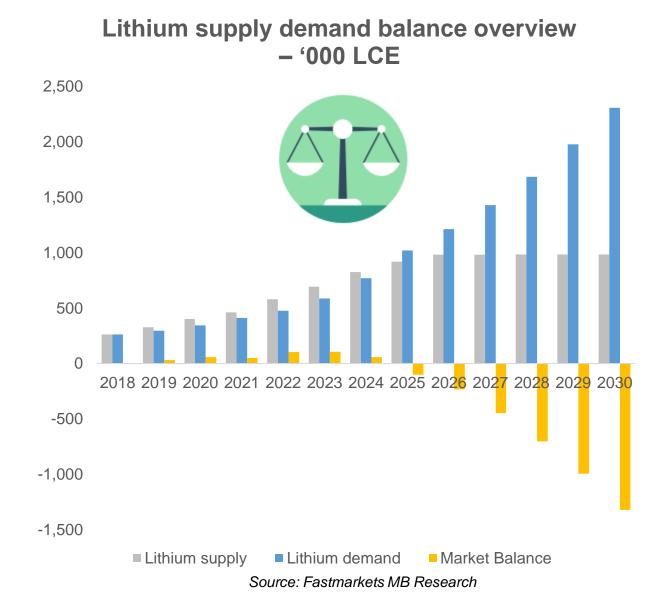




#### 6.3 Market Balance



- 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 enduse 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 represents 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







#### The European Lithium-ion Battery Supply Chain

**Battery Metals** 

**Battery Manufacturing Chain** 

**End-Users** 



Lithium



Cathodes



Battery Cells & Packs



**Electric Vehicles** 

Mining

Chemical Conversion





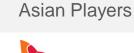
Infinity Lithium's Integrated Project



































































And...

**SVOLT Energy Technology** plans to build 20 GWh factory in Europe

is looking at launching battery production in Europe

全沙江资本
GSR Capital signed a deal to build a factory that would launch production in 2023



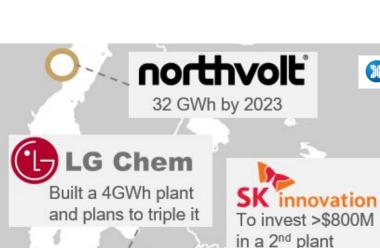
Slackstone Resources to invest \$230M in German EV battery factory plan

to develop a consortium to develop cell production with companies including Saft (Total) and PSA



A Number of New Lithium-ion

**Factories Planned in Europe** 





#### SAMSUNG

Built a 3GWh factory

# (GSYUASA

To set up a lithium ion batteries assembly plant and would consider producing cells on the site in the future



6-10GWh

starting in

2022

Favors Germany as the location for its first European Gigafactory



ASX: INF



#### A Fully Integrated European Lithium-ion Battery Supply Chain



The EU is pushing to have a fully integrated domestic supply chain, from producing EVs all the way back to producing raw materials. What would it mean for domestic lithium demand?





Notes: Electric cars include HEV, PHEV and EV. Average battery pack for EV is 33kWh in 2017, 45kWh in 2025 and 52kWh in 2030. PHEV average battery pack around 12kWh, HEV around 1kWh. LCE consumption per kWh averaging 0.9Kg.



#### **Multilevel Of Support – Some News From The Last 6 Months**

LITHIUM CORPORATION	Electric Vehicles	Lithium-ion Batteries	Lithium
Industry	<ul> <li>Daimler Ambition 2039: a         CO2-neutral fleet line-up</li> <li>VW embarks on €50Bn         electrification plan</li> <li>Audi will invest over €14Bn in         e-mobility advance</li> </ul>	<ul> <li>CATL boosts battery cell factory in Germany – up to 100 GWh</li> <li>VW Board releases €1Bn for battery cell factory</li> <li>SK Innovation starts construction of 2nd battery factory in Hungary</li> </ul>	VW to promote lithium production in Europe in the medium term - relevant deposits in Central and Southern Europe
Governments	<ul> <li>Germany to introduce new EV quota &amp; grants</li> <li>Spain to subsidize electric mobility</li> <li>Italy offers incentives for Evs</li> </ul>	<ul> <li>Germany has set aside €1Bn to support battery cell production</li> <li>France will invest €700M into projects to boost the European EV battery</li> <li>Germany and France launch €2 billion kick-start for battery cells</li> </ul>	<ul> <li>Spain: Mining in Extremadura is a key strategy in the energy transition</li> </ul>
Europe	<ul> <li>European parliament backs 40% cut in vehicle CO2</li> <li>Brussels agrees 2030 carbon dioxide targets for cars</li> </ul>	<ul> <li>EIB lends Northvolt €350M for Europe's largest battery project</li> <li>EU to offer billions of funding for electric battery plants</li> </ul>	<ul> <li>EC - Lithium chemical supply within Europe has been identified as imperative</li> <li>Race for lithium illustrates EU drive for 'strategic' raw materials</li> </ul>





# 7. PRICING



# 7. Pricing



An HKEX Company

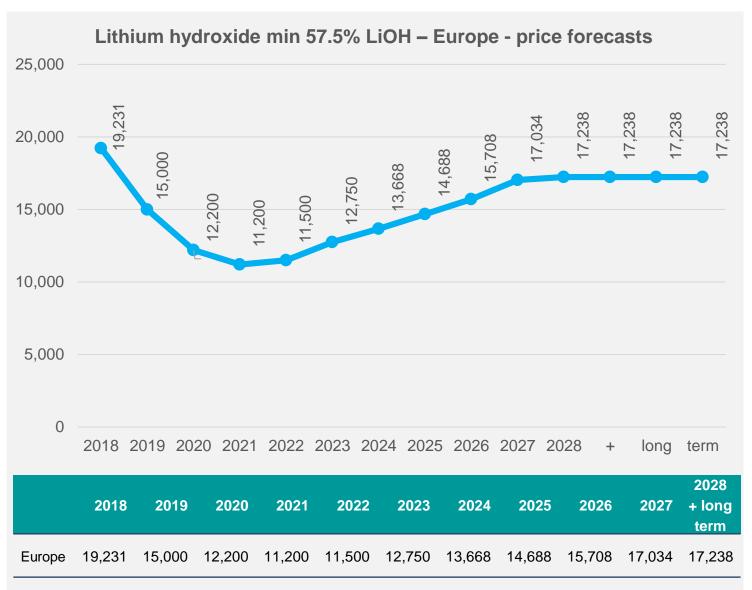
- Fastmarkets has recently been selected as the preferred PRA service provider for the London Metals Exchange ('LME') after a comprehensive tender process.
- The LME has been working towards the development of a lithium pricing benchmark.
- The selection of Fastmarkets was influenced by:
  - The group's long-standing track record in the delivery of Fastmarkets' lithium prices with more than 30 years' experience in recording lithium price that have been used in physical lithium supply deals
  - Fastmarkets has been working with the LME in the battery metals space on a cash settled LME Cobalt contract
  - The company has a transparent, IOSCO compliant and fully auditable lithium pricing methodologies
- Fastmarkets was selected by Infinity to supply a price forecast for lithium hydroxide battery grade prices in Europe, a market that Fastmarkets already tracks daily
- 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

## 7. Pricing

Fastmarkets SASX: INF



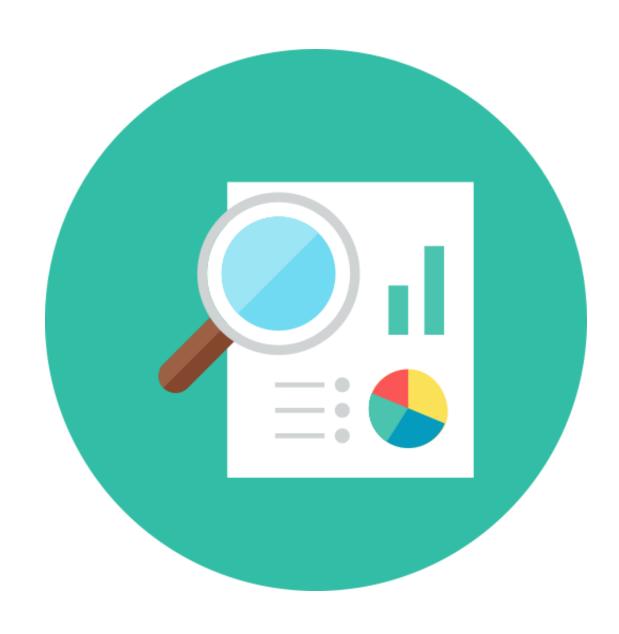
- current market imbalance. Despite the according to Fastmarkets' supply-demand these forecasts recent investments production facilities are well placed in the context of the mid-term demand prospects
- Their forecast rate of demand growth also indicates that by 2024-2025 supply is yet again expected 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



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







# 8. SUPPORTING DATA



## **8.1 Employment Opportunity**



#### **Direct Employment**

**Construction**: up to 310 workers for ~2 years,

>€96M of salaries

**Operational:** >195 employees for up to 30 years, average salary at the plant estimated at €48,000/y ,more than €230M of salaries over the life of the project

✓ Mining: 40 employees (20%)

✓ <u>Processing site</u>: 120 employees (62%)

✓ Administration: 15 employees (8%)

✓ Corporate: 20 employees (10%)

Direct & indirect employment: > 1,000 jobs

**Indirect employment** is anticipated to be in the range of 500-750 people in the surrounding area and towns.





# 8.2 A Low Carbon Footprint Project





San Jose is

a unique

integrated

offering the

lithium

project,

fully

 Very small water requirement and most of the water is recycled All reagents available domestically

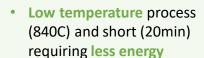
Chemical plant <3km away from the mine

Roasting process uses safe reagents such as potassium sulphate

 Leaching process uses water which is almost entirely recycled

Very low strip ratio 0.43:1

Minimum waste



Able to supply end-users regionally, only a few hundred kilometers away

Light footprint











Spodumene mines have strip ratio over 4-10:1

- Spodumene roasting is energy intensive (1,100C) and longer (35min)
  - Roasting in China involves large volumes of sulfuric acid, a hazardous and polluting chemical
  - Leaching also involves sulfuric acid

• The lithium inside your car can travel more than 50,000km before you even start driving

Heavy footprint

- More waste
- Chemical plant <8,000km away in China
- Future chemical plants in Australia will still be 200-400km away from mine
  - Brine operations in South America require very large amounts of water in extremely dry locations
  - Water rights and environmental issues

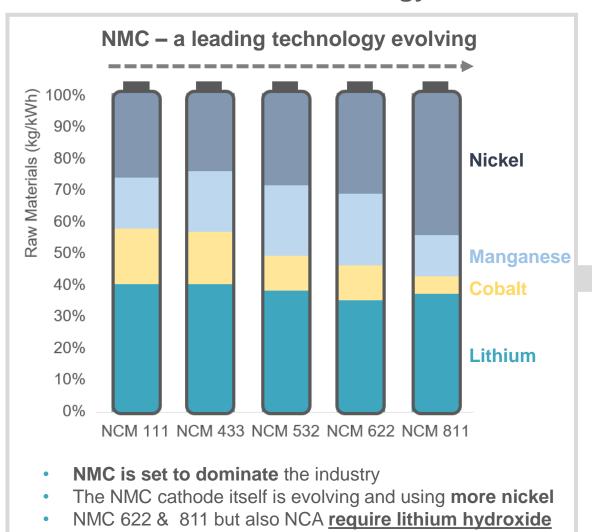
Reagents often need to be imported from thousands of kilometers away

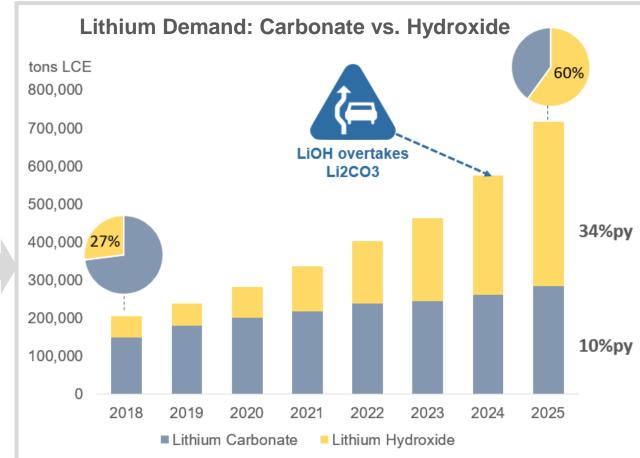


European lithium-ion battery industry in Europe a long term, large, and sustainable source of supply.



#### Cathode Technology Evolution Leading To Shift In Lithium Demand





Lithium hydroxide demand is growing faster than lithium carbonate and most of the recent investments in lithium chemical plants have been in lithium hydroxide production

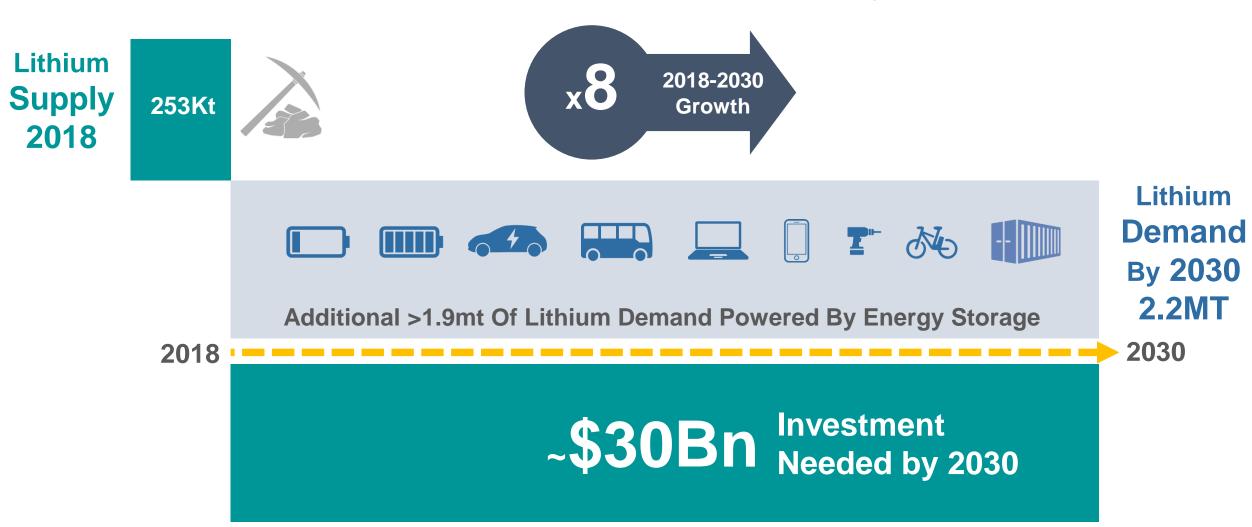
Source: BNEF, Canaccord







#### \$30Bn Investments Needed in Lithium for Supply to meet Demand





A Number Of Cathode Plants Planned In Europe In The Early 2020s

**Northvolt** is also planning to build its cathodes inhouse after they start their battery factory in Sweden

**BASF** and Norilsk Nickel to cooperate on raw material supply for battery materials production in Europe. BASF intends to invest up to €400M in a first step to build production plants for cathode materials in Europe

**Johnson Matthey** expects to start production in 2021-22 in Poland of a battery material it has developed with improved performance and reduced cobalt content to contain costs

**Umicore** is planning to build a cathode plant in Poland. The first phase of this investment is included in the €660M programme. Umicore is due to start deliveries in late 2020







The Chemical Company





ASX: INF









#### June 2019 – Speech to the European Investment Bank:

"Without undertaking its own exploration, the EU will have no mining projects

This, in turn, means no refineries and, without refining capacity, the EU will continue to be in great part dependent on foreign supplies of high quality materials

#### Unless we develop our own capacity

We have identified with the Member States that there are 10 potential mining projects for lithium that, if developed, could allow the EU to move from 1 to 30% of the world production by 2030

We therefore need our European Investment Bank to become more fully engaged in raw material projects in exploration, mining and refining

The European Bank for Reconstruction and Development (EBRD) is preparing a EUR 60 million Exploration Investment Facility."



# 8.4 Supporting Pricing Data



#### **Expert Confirms Fastmarkets' Views Of The Industry**

- "We have seen erosion in lithium prices recently, especially in the spot market, both for hydroxide and carbonate, however contract prices have seen a more moderate decline
- Cathode, battery and car makers in Europe are looking at **long term contracts** with trusted suppliers. The validation process for new supply of lithium chemical is long and includes different steps that can take up to a year, making it very difficult for a buyer to go and source its product from the spot market
- Both buyer and supplier want to avoid volatility and will prioritize pricing mechanism smoothing prices and **limiting significant variations** in the short term.
- 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 prices
- If low prices remain in the short term, it will lead to a reduced investment pipeline. This in turn will lead to an even more dramatic undersupply situation down the line and much higher prices



Vincent Ledoux
Pedailles
Executive Director –
Corporate Strategy

Vincent started his career with Talison Lithium back in 2011. He has been involved since then with several world leading consultancies looking at battery metals including Lithium

#### 8.4 Supporting Pricing Data



 "Fastmarkets also understands the unique momentum taking place in Europe and the need to develop domestic supply to supply the automotive and battery industries



With a looming **trade war** between the US and China and the potential for others, the world is approaching a new era of protectionist trade policies – and the subsequent impact on global supply chains is a significant risk



• 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 Europe, Electric Vehicles and lithium-ion batteries are getting a lot of attention but increasingly the focus is moving towards lithium itself



- The European Commission has publicly stated that they are willing to support and provide capital to develop lithium
  production in Europe. 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 support is also coming from the industry itself with automakers like **Volkswagen**, who publicly stated that it has set itself the goal of **promoting lithium production in Europe**
- 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. Therefore, domestically produce battery-grade lithium is likely to be **tight to severely insufficient**."



# 8.4 Supporting Pricing Data



 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



• 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, not just for their vehicles, but for their entire 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. A regionalized
  European market will lead to a better carbon footprint for the industry and therefore, domestic automakers, battery and cathode
  producers are likely to prioritize 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

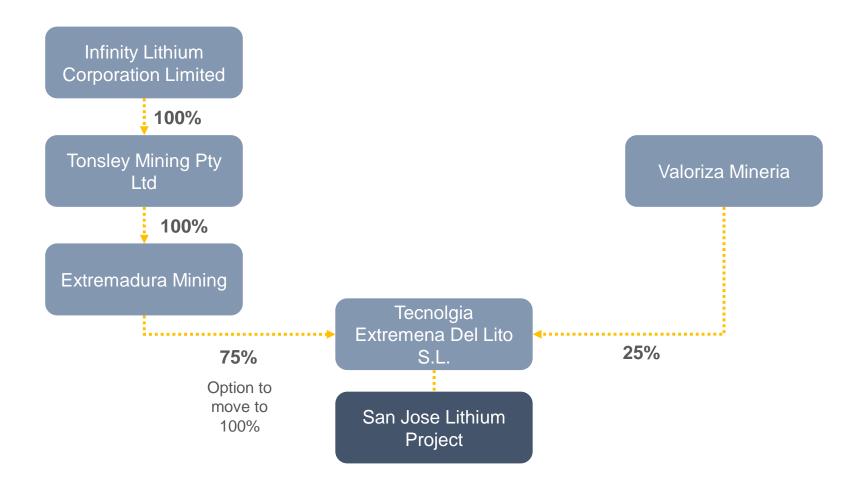


European lithium buyers will prioritize a lithium source who respect both aspects and Infinity's project is a leading example of a sustainable operation. It is not unlikely to see premiums being paid for both ethical and sustainable sourced battery metals such as lithium



# 8.5 Project Ownership and Joint Venture Agreement







# 8.6 Study Team



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)	in the second
Tailings - Waste Dump Design and Stability	Land and Marine Geological Services	<b>米</b> ・
Markets	Fastmarkets MD	
Logistics	Mining Sense	in the second



#### 8.7 Board of Directors & Management



# **Kevin Tomlinson Non Executive Chairman**



MSc Geol, Grad Dip Finance & Investment

- +30 years experience in mining and finance within the Toronto, Australian, and London stock markets
- Background in project finance, development, and mining experience includes previous roles as Managing Director at Westwind Partners/Stifel Nicolaus and as a board member of Medusa Mining
- Currently on Boards of Centamin (LSE.CEY and dual TSX.CEE listed) and Cardinal Resources (ASX.CDV)



Ryan Parkin
Managing Director/CEO



CA ANZ BComm Accounting & Finance

- +15 years experience in corporate development, accounting and finance in both listed and unlisted companies
- Currently on Board of non-listed mining industry entity

# Robert Orr CFO & Company Secretary



Chartered Accountant

 Acted as Chief Financial Officer and Company Secretary for a number of ASX listed companies, with over 30 years' experience in public practice and commerce.

#### Adrian Byass Executive Director



BSc Geol Hons, B. Econ

- +20 years in the mining industry both in listed and unlisted entities globally, Non-Executive and Executive Director of various listed and unlisted mining entities, which have successfully transitioned to production in bulk, precious and specialty metals around the world
- Currently on Boards of ASX phosphate, zinc and nickel companies.
- ASX and AIM Board experience

Vincent Ledoux Pedailles
Executive Director



MA Business

- Background in consulting and research in the petrochemical industry, specialty chemicals, industrial minerals, base and minor metals
- Led the Lithium & Battery Metals team at IHS Markit and involved in the lithium industry since the early 2010's starting with Talison Lithium

#### David Valls Technical Manager - Spain

BSc Geology



 +10 years in the mining and exploration industry in Europe and Africa as technical manager in the development of base and energy metals projects