

ASX/Media Announcement

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Positive Phase 1 L-Max[®] Plant Pre-Feasibility Study

Lepidico Ltd (ASX:LPD) (“Lepidico” or “the Company”) is pleased to announce that it has received the results of the Phase 1 Plant Pre-Feasibility Study (“PFS”) from lead consultant MinMet Services Pty Ltd. The Study is based on a small scale commercial L-Max[®] plant processing a lithium-mica concentrate feed at a rate of 3.6 tonnes per hour (tph) to produce approximately 3,000 tonnes per annum of battery grade lithium carbonate and a suite of valuable by-products.

The PFS has confirmed the viability of constructing a strategically located Phase 1 L-Max[®] Plant at Kenora, Canada, processing lithium-mica concentrates purchased from third party suppliers. The positive PFS results have provided the confidence to commit to a Definitive Feasibility Study (DFS) once finance is secured. The PFS results have enabled planning parameters for the DFS to be further developed as summarised below.

Key metrics for Definitive Feasibility Study planning parameters are:

- Plant throughput rate of approximately 3.6 tph of lithium-mica concentrate, 29,000 tonnes per annum (tpa)*;
- **Battery grade lithium carbonate equivalent (LCE) production of approximately 3,000 tpa*;**
- Average targeted **C1 Costs of nil or negative after by-product credits*;**
- Average targeted **C3 Costs in the US\$1,000 to US\$2,000 /t range after by-product credits and amortisation of expected development and sustaining capital*;**
- Estimated study costs US\$5 million and Development **Capital Expenditure of US\$35-40 million**, including 20% contingency;
- By-products include sulphate of potash (SOP), caesium, tantalum concentrate and sodium silicate

Lepidico’s Managing Director, Joe Walsh said, “*The PFS results are a huge endorsement of L-Max[®] and demonstrate a clear pathway for Lepidico to become a low cost lithium carbonate producer in a relatively short period of time. The lithium-micas represent an opportunity to develop high quality assets with only limited competition, due to Lepidico owning the process technology.*”

**The assumptions set out above and elsewhere in this announcement contain reference to broad indicative plant operating parameters (Parameters) for the purpose of the DFS which have been developed through scoping level work and subsequent PFS work. For the avoidance of doubt, investors are advised that the Parameters expected to be adopted for the DFS do not constitute a production forecast or target in relation to mineral resources associated with any project owned by the Company. The Company wishes to expressly clarify that any references in either this announcement or the PFS to annual production rates relate to scoping and planning parameters, and are not a production target. The Company cautions investors against using any statements made in either this announcement or the PFS which may indicate or amount to the reporting of a production target or forecast financial information, as a basis for making any investment decisions about shares in the Company. The primary purpose of disclosing the DFS Parameters is to inform on the scope of work for the study and provide an estimate of the intended scale and nature of a potential future Phase 1 Plant.*

Joe Walsh said, *“Planning parameters for the Phase 1 L-Max® Plant Definitive Feasibility Study that include C1 costs after by-product credits at the low end of the global cost curve, suggest compelling project fundamentals, which have provided Lepidico with the confidence to commit to the DFS subject to securing funding.”*

“Lepidico is uniquely well positioned to benefit from the significant demand growth for lithium chemicals via a differentiated business model that is based on the highest sustainability and ethical standards.”

Pre-Feasibility Study Key Findings

The PFS has highlighted the considerable economic potential of a strategically located L-Max® process facility, close to sources of bulk consumables, established infrastructure and markets for bulk by-products rather than near to sources of concentrate feedstock.

A Phase 1 L-Max® Plant strategically located at Kenora, Canada allows for:

1. Close proximity to **abundant, low-cost sources of bulk consumables**, in particular sulphuric acid. Copper smelters are the largest single source of sulphuric acid globally and in many developed countries disposal of sulphuric acid can be a challenge. L-Max® is a relatively acid intensive process and can act as an acid-sink if strategically located near a smelter, which also provides for excellent sustainability credentials. In such locations sulphuric acid prices tend to be at their most competitive.
2. A location close to **markets for bulk by-products**, in particular SOP and sodium silicate. L-Max® can produce liquid sodium silicate, a high-value chemical with a large variety of manufacturing uses. However, it only represents value when produced within economic transport distance for the market in a particular region. Market depth is greatest in major manufacturing centres, such as certain parts of North America, Central Europe and North Asia. The market for sodium silicate in Australia is small, necessitating the export of domestic lithium-mica concentrate if project cash flow potential is to be maximised.
3. A region with **established infrastructure**, in particular road, rail and port infrastructure that makes for competitive transport charges for bulk consumables and products, and will assist in minimising capital expenditure. Proximity to established power also benefits capital expenditure. The L-Max® process is not energy intensive and therefore the project is not particularly sensitive to power costs, although competitive rates are beneficial.
4. Close proximity to a **skilled labour force with competitive labour rates** makes for a modest sized workforce. In turn this makes for competitive operating and capital costs, in part as there will be no requirement for building and operating a remote location camp.

Strategic positioning for L-Max® facilities means consumable and labour related costs are minimised and by-product potential is maximised, allowing lithium-mica concentrates to be shipped over considerable distances and potentially half-way round the world for high quality feed.

An assumed concentrate feedstock price of approximately US\$350/t was used for the PFS, based on a quoted supplier price, inclusive of feed preparation and shipment costs. This figure also reconciles well with the prevailing spodumene market price, as adjusted for the lower lithium content of lepidolite.

Compelling economic returns from the PFS have provided Lepidico with the confidence to commit to a DFS for a Phase 1 L-Max® plant, subject to securing funding.

Definitive Feasibility Study Commitment

The Lepidico Board has approved full commencement of a DFS, once funding is secured. The DFS is expected to be completed within nine months of starting the full work program and cost an estimated US\$5 million (A\$6.5 million) including owners' costs.

Lepidico has been formulating plans to undertake a pro-rata non-renounceable Rights Issue of fully paid ordinary shares in the capital of the Company ("New Shares") to advance the DFS. The Rights Issue will not be underwritten and therefore the offer will only be available to shareholders on the register as at the record date (to be advised). The Company is seeking to raise between \$3 million and \$8 million, which will be used to commence DFS activities for the Phase 1 L-Max[®] Plant following the excellent results already reported from the PFS. Proceeds from the proposed issue will also be used for exploration activities and general working capital.

Background on the Phase 1 L-Max[®] Plant Pre-Feasibility Study Results, Key Findings & Definitive Feasibility Study Scope: MinMet Services Pty Ltd, 25 February 2017

Introduction

A Pre-Feasibility Study (the Study) to evaluate the Phase 1 L-Max[®] Project (the Project) has been completed by MinMet Services Pty Ltd. The Project is based on the L-Max[®] process technology which extracts lithium from lithium bearing micas to produce a lithium carbonate product. The Phase 1 Plant is a demonstration scale plant designed to produce 2,000 – 4,000 tpa of battery grade lithium carbonate. The plant can also produce valuable by-products.

A DFS for the Project is planned to be completed in 2017, with project implementation commencing early in 2018 and first production in 2019.

L-Max[®] Overview

L-Max[®] is a hydrometallurgical process which uses low cost and readily available mainstream chemicals such as sulphuric acid, lime and limestone to extract and recover lithium from lithium containing micas. Lithium micas are abundant across the world, but are not typically treated due to a perception that they are uneconomic, when compared to conventional hard rock spodumene or brine deposits.

The flowsheet is based on an extensive body of data from both batch testwork as well as continuous mini-plant testing of the L-Max[®] process. Strategic Metallurgy, located in Perth, Australia, have undertaken the testwork and flowsheet development. Strategic Metallurgy have a record of accomplishment in successfully developing and applying new process technology for the mining industry.

The L-Max[®] process flowsheet is designed to be robust and can treat a variety of lithium mica's. Modifications and/or additions to the flowsheet can be made to allow flexibility in whether to produce one or more of the by-products associated with the L-Max[®] process. The potential by-products include sodium silicate, caesium, and rubidium (as formates), sulphate of potash (SOP), tantalum or tin concentrate, gypsum, and sodium sulphate.

Equipment selection for the Phase 1 plant has been made to ensure that the equipment used is suited for use in a commercial L-Max[®] plant. The Phase 1 plant equipment will represent a smaller version of

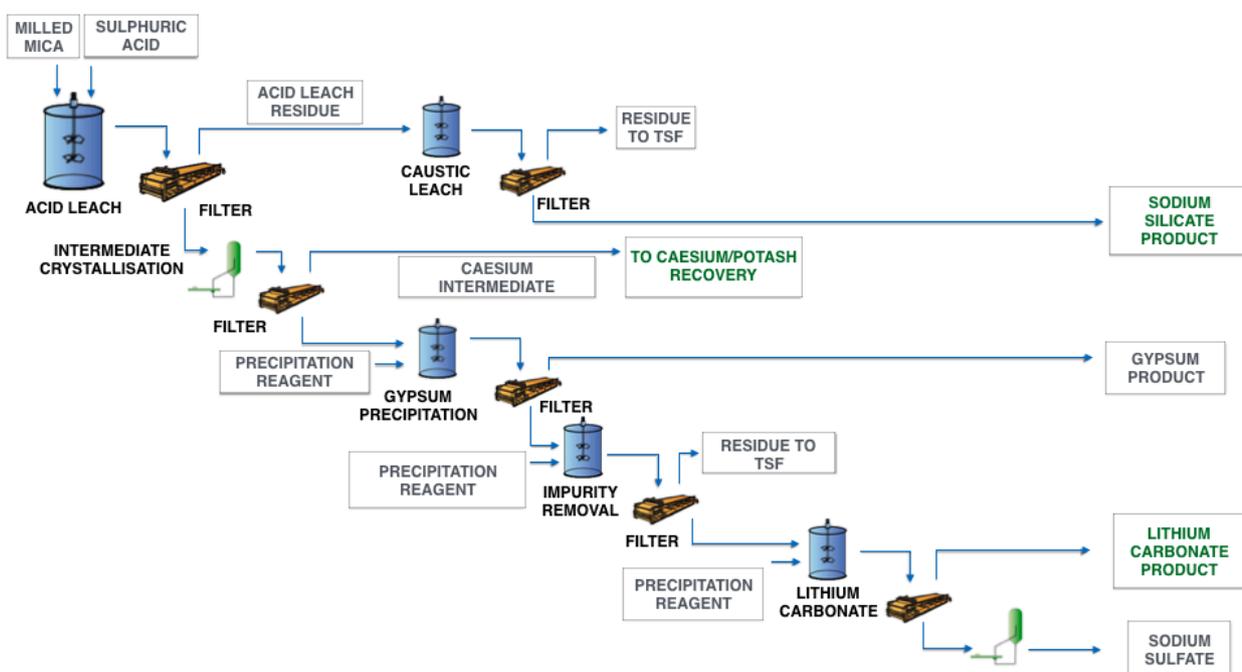
the equipment selected for use in a larger Phase 2 plant, with anticipated production capacity of 15,000-25,000 tpa lithium carbonate. This is intended to minimise the scale-up risk of using equipment that is unsuited to larger throughputs. The path from batch testwork to commercial operation incorporates several development milestones. The construction of a commercially viable demonstration plant prior to a full scale commercial operation is a critical step in reducing project risk and optimising the process.

The L-Max[®] process flowsheet is shown in Figure 1, below.

Project Description and Location

The testwork completed has shown the L-Max[®] process to be technically viable for several feed sources. Due to the abundance of lithium bearing micas several feed sources and several locations for the L-Max[®] plant have been evaluated in the Study. The key drivers for location selection include: the availability of the major process chemical consumables at competitive cost, proximity to by-product markets and logistics costs in general.

Figure 1: L-Max[®] Process Flowsheet



The L-Max[®] plant would receive mica concentrates of a suitable lithium grade and quality. The mining and concentrating processes would be owned and operated by a third party and the concentrate would be purchased by Lepidico “Free on Board” (FOB) transport at the mine gate, although this arrangement will be finalised in the feasibility study. The L-Max[®] plant could process concentrate from more than one source however a specific location has been selected in the Study.

The L-Max[®] plant is planned to be located in Kenora, Ontario, Canada, a location which provides favourable economics over the other locations evaluated. The PFS has demonstrated that lithium bearing mica can be economically transported to Kenora from existing mining operations overseas which currently mine lepidolite mineralisation. It is planned that the L-Max[®] plant would receive concentrates from two of those operations and potentially from the deposit of Separation Rapids

(located 80 kms to the north of Kenora) where suitable mineralisation has been identified, tested and found to be amenable to the L-Max® process.

A review of project permitting requirements has been undertaken for Ontario which indicate that permitting is not on the critical path of the project development schedule to achieve first production in the second half of 2019.

Kenora is a town with a population of 15,000 with well-established services. It is located approximately 200 kms east of Winnipeg, Manitoba. The town has excellent transport connections to other parts of Canada and the United States. The Minnesota border is about 215 kms south via road. The Canadian Pacific Railway passes through the town and the port of Thunder Bay on Lake Superior is 489 kms to the east with access to the St Lawrence Seaway.

L-Max® Process Testwork

Bench scale and sighter testwork has been completed on several potential feed sources. The results discussed here are for one specific source with moderate caesium and tantalum grades but the testwork has produced consistent results.

A lepidolite sample containing approximately 40% mica and 1.0% lithium (2.2% Li₂O), was subject to a series of batch tests to assess the amenability of the run of mine mineralisation for lithium extraction and recovery by L-Max®. Concentration of the micas occurs through simple rougher flotation at a coarse grind size and with rapid flotation kinetics. Flotation of the sample achieved a lithium recovery to concentrate of 96% and produced a high-grade mica concentrate containing 2.1% lithium (4.5% Li₂O) that was used as feed to the L-Max® process testwork.

The leach liquor was subjected to a series of impurity removal and precipitation steps to produce a >99.88% Li₂CO₃ product. The leach residue as reacted with caustic soda to produce sodium silicate solution at a SiO₂:Na₂O ratio of 1.6. There is also potential to recover both caesium and rubidium into a formate solution. The testwork completed on various mica samples, has resulted in recoveries greater than 80%.

Results of the L-Max® testwork are presented in Table 1.

Table 1: L-Max® Product Recoveries

Element	Lithium	Potassium	Silica	Caesium	Tantalum
L-Max® Feed Grade	2.10%	6.77%	23.10%	0.05%	0.03%
Recovery to product	94%	85%	85%	81%	70%

Capital Cost

An estimate of capital costs associated with the L-Max® processing plant has been prepared in consultation with Professional Cost Consultants (PCC), an independent cost estimating firm. The scope covers all costs associated with the processing plant. The capital cost is summarised in Table 2:

Table 2: Capital Cost Summary

Item	US\$M
Feasibility Study and 2017 Owners Costs	5.0
L-Max [®] plant direct costs	16.2
L-Max [®] plant services	4.6
Infrastructure	2.6
Indirect costs	6.7
Contingency at 20%	6.0
Total	41.1

The cost has been developed based on a comprehensive equipment list. Equipment pricing from up to three vendors has been obtained. Many of the bulk commodities for installation have been estimated using material take offs. The infrastructure scope is limited due to the location in the town of Kenora and the direct access to utilities including power, water, natural gas, and transport infrastructure. The plant is planned to be housed on a vacant industrial site in Kenora, with direct access to the transport network.

The capital cost of the process plant can be reduced by approximately \$5M by eliminating the SOP circuit.

The accuracy of the estimate is -20% to +30% and meets the requirements for a pre-feasibility study.

Sustaining capital has been estimated at US\$1.1M pa which is largely required for residue disposal. A closure cost of \$1M has been included to provide for removal of the plant at the end of the project life.

Definitive Feasibility Study Planning Parameters

As previously discussed the L-Max[®] process has the potential to produce several by-products alongside lithium carbonate. The annualised Phase 1 process plant production rates of those products are shown in Table 5, together with the price assumptions for each project. Market research studies have been completed for all major products which support the assumptions used. The price for the sodium silicate has been sourced from the PQ Corporation website for a comparable quality product to that produced by L-Max[®] but discounted by up to 15% in the first three years of operation to allow product quality to be fully established.

The following should be noted:

The caesium is a high value product which will be recovered as a formate brine solution. Formate brines are in demand as drilling completion fluids in the oil and gas industries. Only the caesium content of the brine is valued. Rubidium typically occurs in the micas at much higher grades than caesium. No value has been attributed to rubidium recovered in a formate brine. The market for this product will be evaluated during the feasibility study.

The process residue contains significant quantities of sodium sulphate and gypsum. The feasibility study will investigate the recovery of these as saleable products.

The feasibility study will also evaluate the conversion of lithium carbonate to lithium hydroxide.

Table 3: DFS Production Parameters

Product	Annual Production (tpa)
Lithium Carbonate (>99.5%)	3,000
SOP (>95% K ₂ SO ₄)	3,000-4,000
Sodium Silicate (40wt% solution at SiO ₂ :Na ₂ O ratio of 2)	40,000-50,000
Caesium (as metal contained in formate)	10-100
Tantalite Con (30% Ta ₂ O ₅)	20-25

Table 4: Expected Unit Operating Cost Summary (at current prices)

Item	US\$/t of concentrate processed
Concentrate purchase	350
Concentrate transport	4
Inbound consumables logistics	144
Consumables FOB	286
Processing costs other	186
Sales, marketing, and outbound logistics	55
General and administration	104
Total Unit Cost	1,130

Greater than 90% of the operating costs have been estimated from first principles based on quoted pricing.

The lithium-mica concentrate purchase price of US\$350/t is based on the forecast price for spodumene which is \$500/t (source: Roskill) but adjusting for the lower grade of the lepidolite concentrate (4.5% Li₂O vis 6% for a typical spodumene concentrate). This does not account for the lower capital and operating costs associated with the simple lepidolite concentrator compared to a typical spodumene concentrator which would result in a further discount of the cost. Furthermore pricing of an existing mined lepidolite feed source has been obtained from a supplier in Europe. The total cost of delivery to Kenora falls below the \$350/t used in the Study. The total cost of delivery includes the quoted purchase price from the supplier, concentration costs and transport costs.

Of the consumables costs 67% is attributable to sulphuric acid and caustic soda (for production of sodium silicate). The consumables costs and consumption rates are summarised in Table 5, following. Processing costs (other) includes personnel, maintenance parts and laboratory analytical services.

Table 5: Major Consumables – Unit Costs and Consumption Rates (per tonne of concentrate processed)

Consumable	Consumption rates Kg/t	Estimated Cost of consumable (FOB) \$/t
Sulphuric Acid (93%)	1,054	60
Limestone and Hydrated Lime	706	38/120
Sodium carbonate	143	239
Caustic Soda (50% solution)	614	207
Formic acid	13	600
Natural Gas	7.6 GJ/t	\$3.38/GJ

Applying the above costing to the DFS throughput planning parameter of approximately 29,000 tpa, indicates an estimated Consumables unit cost of around US\$285/t of concentrate feed.

General and Administration includes all functions required to support the Project independently including management, marketing, safety and security and insurance etc.

Definitive Feasibility Study Planning Parameters

The key parameters for the Phase 1 L-Max Project are summarised in Table 6.

Table 6: Key Financial Parameters

Parameter	Unit	Value
Plant throughput (concentrate)	tpa	29,000
Lithium Carbonate Production	tpa	3,000
LiC C1 cost (co-product basis)	\$/t	4,000-5,000
LiC C3 cost (co-product basis)	\$/t	5,000-6,000
LiC C1 cost (net of by-product credits)	\$/t	<=0
LiC C3 cost (net of by-product credits)	\$/t	1,000-2,000

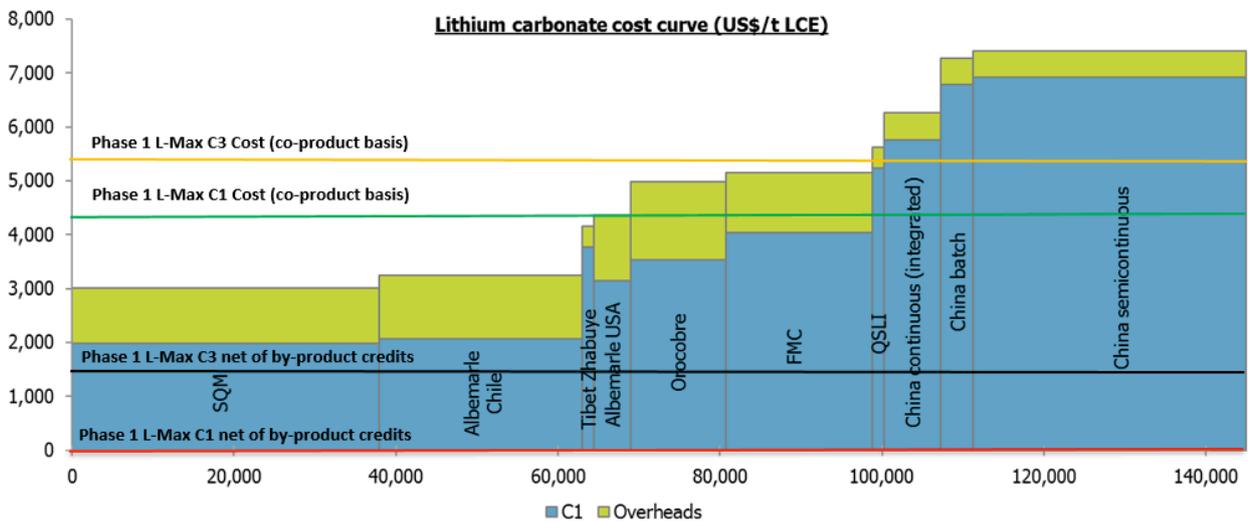
The cost of production has been calculated on both a by-product and a co-product basis, for the latter that is: costs for lithium and by-product production are divided proportionately between products based on the ratio of commodity prices.

The targeted C3 cost ranges above include mining royalties (included in the concentrate purchase price), depreciation and amortisation, Corporate Income Tax (at 25%), and an allowance for Corporate overheads. The taxation schedule allows for the free cash flow from the Project to be allocated to non Project-related Corporate activities for example, exploration and the development of a full-scale L-Max® plant which the Company is planning to implement from 2020, once full cash flow is established from the Phase 1 plant.

A comparison of these cost targets for the Project with Roskill’s 2016 industry cost curve in Figure 2, below.

The comparison shows that L-Max[®] is expected to be cost competitive even at the Phase 1 scale. At a larger scale, the Company would be targeting further reductions in C3 costs on a co-product basis to approximately \$3,000/t – which would place L-Max[®] projects comfortably in the lowest cost quartile.

Figure 2: Lithium Carbonate Cost Curve 2016 co-product basis (Source: Roskill)



Key findings

The following key findings have been determined as a result of completing this Study:

- Several lithium bearing micas have been shown to be amenable to the L-Max[®] process technology
- The process flowsheet is robust and can cater for variations in feed mineralogy although the quality of L-Max[®] feed in terms of lithium grade and lithium occurrence influences project economics
- The mineralisation type is abundant and there are several feed source options available world wide
- A single plant could be fed with multiple feed sources
- The process plant uses readily available lower cost chemicals in an atmospheric pressure, low temperature (c. 100°C) leaching environment
- Access to the main process chemical and to the high-volume by- product markets within proximity to the L-Max[®] plant improves the project economics
- The process uses conventional equipment which is simple to operate and maintain and can be procured with short lead times
- Battery grade lithium carbonate can be produced directly from the process
- Several valuable by-products can be produced from the process with low cost enhancements to the flowsheet – the credits are expected to provide a negative cash cost of production for lithium carbonate
- Opportunities exist to recover further products from the process residue and flowsheet enhancements will be evaluated in the feasibility study
- The process residue is stable and benign

- Project permitting is straight forward and not considered to be on the critical path of the Project schedule which has first production planned for the second half of 2019
- Opportunities exist to modularise and streamline the design and construction of the plant
- Equipment can be scaled for low cost debottlenecking after production stabilisation occurs
- The Phase 1 (demonstrate scale) Project provides strong returns using realistic third party sourced assumptions
- Preliminary evaluation of a full-scale plant show that the economics will be significantly improved with scale of production

Further Information

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Forward-Looking Statements

This announcement includes certain “Forward-Looking Statements”. Such statements are only predictions, based on certain assumptions and involve known and unknown risks, uncertainties and other factors, many of which are beyond Lepidico’s control. Actual events or results may differ materially from the events or results expected or implied in any forward looking statement. The inclusion of such statements should not be regarded as a representation, warranty or prediction with respect to the accuracy of the underlying assumptions or that any forward looking statements will be or are likely to be fulfilled. Lepidico undertakes no obligation to update any forward-looking statement to reflect events or circumstances after the date of this presentation (subject to securities exchange disclosure requirements). The information in this presentation does not take into account the objectives, financial situation or particular needs of any person. Nothing contained in this announcement constitutes investment, legal, tax or other advice.

The assumptions set out in this announcement contain reference to broad indicative plant operating parameters (Parameters) for the purpose of the DFS which have been developed through scoping level work and subsequent PFS work. For the avoidance of doubt, investors are advised that the Parameters expected to be adopted for the DFS do not constitute a production forecast or target in relation to mineral resources associated with any project owned by the Company. The Company wishes to expressly clarify that any references in this announcement or the PFS to annual production rates relate to scoping and planning parameters and are not a production target. The Company cautions investors against using any statements made in either this announcement or the PFS which may indicate or amount to the reporting of a production target or forecast financial information, as a basis for making any investment decisions about shares in the Company. The primary purpose of disclosing the DFS Parameters is to inform on the scope of work for the study and provide an estimate of the intended scale of a potential future Phase 1 Plant.

The assumptions have been determined by the Company as being reasonable having regard to all the information currently available to the Company and general economic conditions as at the date of this announcement:

- *The Company’s ownership of the Plant is 100%*
- *The Plant will be located in Canada*

- *The economic viability of a Phase 1 L-Max Plant is dependent on a number of variables including the Company sourcing appropriate feedstock. For the purposes of the PFS it has been assumed that sufficient lepidolite concentrate will be sourced from a European Supplier.*
- *It is anticipated that Lepidolite concentrate will be acquired at a price based on the prevailing market price for spodumene concentrate, adjusted for lithium content variance in lithium-micas, which also reconciles with a supplied quoted price for lepidolite concentrate on a delivered basis. The Company considers this to be a realistic estimate as there is a larger established market for spodumene concentrates than lepidolite concentrate.*
- *All production is sold in the year it is produced on the basis that full production is achieved from the second half of calendar year 2019.*
- *In addition to lithium carbonate the Plant will produce payable by-products of sulphate of potash (SOP), caesium in formate and sodium silicate. Other potential by-products have not been valued due to insufficient market information.*
- *The Company will be able to secure the necessary equity and/or debt finance to complete the development of the Plant.*

Lepidico advises that caution should be exercised in relying on the above assumptions when analysing the estimates of the potential financial contribution from the Plant. There can be no assurance that statements made in this announcement will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements.

About Lepidico Ltd

Lepidico Ltd is an ASX-listed Company focused on exploration, development and production of lithium. Lepidico owns the technology to a metallurgical process that has successfully produced lithium carbonate from non-conventional sources, specifically lithium-rich mica minerals including lepidolite and zinnwaldite. The L-Max[®] Process has the potential to disrupt the lithium market by providing additional lithium supply from alternative sources. The Company has completed a pre-feasibility study for a Phase 1 L-Max[®] plant, targeting production for 2019. Four potential sources of feed to the planned Phase 1 Plant are being evaluated, one of which is the Separation Rapids deposit in partnership (currently under a Letter of Intent) with its owner Avalon Advanced Materials Inc. Lepidico's current exploration assets include options over the Lemare and the Royal projects, both in Quebec, Canada; ownership of the Euriowie project near Broken Hill in New South Wales; joint venture agreements with ASX-listed Pioneer Resources (ASX: PIO) in Australia; Crusader Resources (ASX: CAS) in Brazil; and ongoing discussions with Latin Resources (ASX: LRS) aimed at leveraging L-Max[®] in Peru and Argentina to jointly evaluate lithium opportunities.