

ASX Announcement

20 May 2024

Los Pumas Manganese Project in Northern Chile

Southern Hemisphere Mining Limited ("Southern Hemisphere" or "the Company") (ASX: SUH, FWB: NK4) attaches a copy of a presentation of the Company's second project, the Los Pumas Manganese Project in Northern Chile.

Work on the Company's flagship project the Llahuin Copper-Gold deposits continues to expand existing JORC measure and indicated resources of 686,000t CuEq towards a substantial open pit mine. (Refer [ASX Announcement Technical Report - Llahuin Copper/Gold Project: Total Measured and Indicated Resources – JORC \(2004\) Compliant](#), as announced to the market on 19 August 2013).

Record copper price today of \$5.05 per pound and the gold price over \$2,400 per ounce strongly supports the ongoing exploration of Llahuin towards mining stage.

Further details will be reported in due course.

CONTACTS:

For further information on this update or the Company generally, please visit our website at www.shmining.com.au or contact the Company :

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Telephone: +61 8 6144 0590

BACKGROUND INFORMATION ON SOUTHERN HEMISPHERE MINING:

Southern Hemisphere Mining Limited is an experienced minerals explorer in Chile, South America. Chile is the world's leading copper-producing country and one of the most prospective regions of the world for major new copper discoveries. The Company's projects include the Llahuin Porphyry Copper-Gold Project and the Los Pumas Manganese Project, both of which were discovered by the Company.

Llahuin Copper/Gold/Moly Project: Total Measured and Indicated Resources - JORC (2004) Compliant. As announced to the market on 18 August 2013.

Resource (at 0.28% Cu Equiv cut-off)	Tonnes Millions	Cu %	Au g/t	Mo %	Cu Equiv*
Measured	112	0.31	0.12	0.008	0.42
Indicated	37	0.23	0.14	0.007	0.37
Measured plus Indicated	149	0.29	0.12	0.008	0.41
Inferred	20	0.20	0.19	0.005	0.36
Total M+I+I	169	0.28	0.128	0.008	0.40

Note: *Copper Equivalent ("Cu Equiv"): The copper equivalent calculations represent the total metal value for each metal, multiplied by the conversion factor, summed and expressed in equivalent copper percentage. These results are exploration results only and no allowance is made for recovery losses that may occur should mining eventually result. It is the Company's opinion that elements considered have a reasonable potential to be recovered as evidenced in similar multi-commodity natured mines. Copper equivalent conversion factors and long-term price assumptions used are stated below:

Notes on copper recovery from historical test work

- "Recoveries of copper vary between 75% Cu and 91% Cu with the weighted average of the results being 84% Cu, which is a typically acceptable commercial level";
- "Recoveries of gold vary between 41% Au and 57% Au, which is in line with expectations given the relatively low gold grades within the deposit"; and
- "Flotation concentrates produced during testing contained the resource weighted average copper grade of 28% Cu and 4.9g/t Au. They also contained low levels of deleterious materials in the concentrate. Given that these tests were designed to set parameters and were not optimised, the results indicated good flotation process characteristics".

Copper Equivalent Formula= Cu % + Au (g/t) x 0.72662 + Mo % x 4.412
Price Assumptions- Cu (\$3.20/lb), Au (\$1,700/oz), Mo (\$12.50/lb)

Los Pumas Manganese Project: Total Measured and Indicated Resources - JORC (2012) Compliant. As announced to the market on 3 May 2023.

Resource (at 2.5% Mn cut-off)	Tonnes	Mn %	Al%	Fe2O3%	K%	P%	SiO2%	SG%
Indicated	23,324,038	6.21	5.71	2.78	2.98	0.05	57.07	2.15
Inferred	6,940,715	6.34	5.85	3.05	2.83	0.05	54.61	2.14
Indicated plus Inferred	30,264,753	6.24	5.74	2.84	2.95	0.05	56.50	2.15

Total JORC Resources for the Los Pumas Manganese Project at a 2.5% Mn cut-off.

In relation to the above resources, the Company confirms that it is not aware of any new information or data that materially affects the information in the announcements, and all material assumptions and technical parameters in the announcements underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

COMPETENT PERSON / QUALIFIED PERSON STATEMENT:

The information in this report that relates to copper and gold exploration results for the Company's Projects is based on information compiled by Mr Adam Anderson, who is a Member of The Australasian Institute of Mining and Metallurgy and The Australian Institute of Geoscientists. Mr Anderson has sufficient experience which is 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 "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Anderson is a consultant for the Company and consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

For further information, please refer to the Technical Reports and News Releases on the Company's website at www.shmining.com.au.



Manganese Battery Metals

The Los Pumas Manganese Project – Chile 100% owned





Disclaimer



Disclaimer Notice

This presentation has been prepared by Southern Hemisphere Mining Limited a.c.n 140 494 784 (“SUH”, “Southern Hemisphere” or the “Company”). This presentation contains certain forward – looking information and forecasts. Such forecasts, projections and information are not a guarantee of the Company’s future performance and include unknown risks and uncertainties. Accordingly, the actual results and developments may differ from those expressed or implied. SUH makes no representation and can give no assurance, guarantee or warranty, express or implied, as to, and take no responsibility and assume no liability for, the authenticity, validity, accuracy, suitability or completeness of, or any errors in or omission, from any information, statement or opinion contained in this presentation. Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities. You should conduct your own analysis in order to satisfy yourself as to the accuracy and completeness of the information, statements and opinion contained in this presentation.

Process Specialist

Process modelling and analysis was undertaken by Dr Will Goodall, Principal Consultant, MinAssist Pty Ltd. Dr Goodall is a metallurgical process consultant with 20 years’ experience in process development and optimisation across a wide range of commodities. With a focus on battery and specialty metals Dr Goodall has undertaken process assessment and development for several battery metal projects, including detailed assessment of alternative feedstocks and process options for production of HPMSM.

Competent/Qualified Person Statement

The information in this presentation that relates to exploration activities, exploration targets, exploration results or Mineral Resources, was prepared under the supervision of Adam Anderson who is a Member of the Australasian Institute of Mining and Metallurgy. Mr. Anderson has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as a “competent person” as defined in the 2012 edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr. Anderson has reviewed and approved the information contained in this presentation.

For further information regarding the projects, including a description of SUH’s quality assurance program, quality control measures, the geology, samples collected and testing procedures in respect of SUH’s projects, please refer to the Technical Reports and News Releases on the Company’s website at www.shmining.com.au

In relation to resources, the company confirms that it is not aware of any new information or data that materially affects the information in the announcements and all material assumptions and technical parameters in the announcements underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

ASX announcements referred to in this presentation are dated: 3 May 2023 (JORC Resource Los Pumas Mn)

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Los Pumas

Battery Manganese Project

30.2mt @ 6.24% Mn

27.5% increase on 2011 MRE

Mn for EV Battery Market
for production of NCM & HPMSM



www.shmining.com.au





Manganese – A Growing Demand



- ❑ Manganese (Mn) is the fourth most used metal on earth in terms of tonnage,
- ❑ Mn price rising
- ❑ Offtake parties interested in Electrolytic Manganese for steel manufacture,
- ❑ HPMSM manufacture alternative process route
- ❑ Used in steel, specialty alloys and aluminium products
- ❑ Batteries are trending toward higher manganese content for safer, more cost-effective solutions





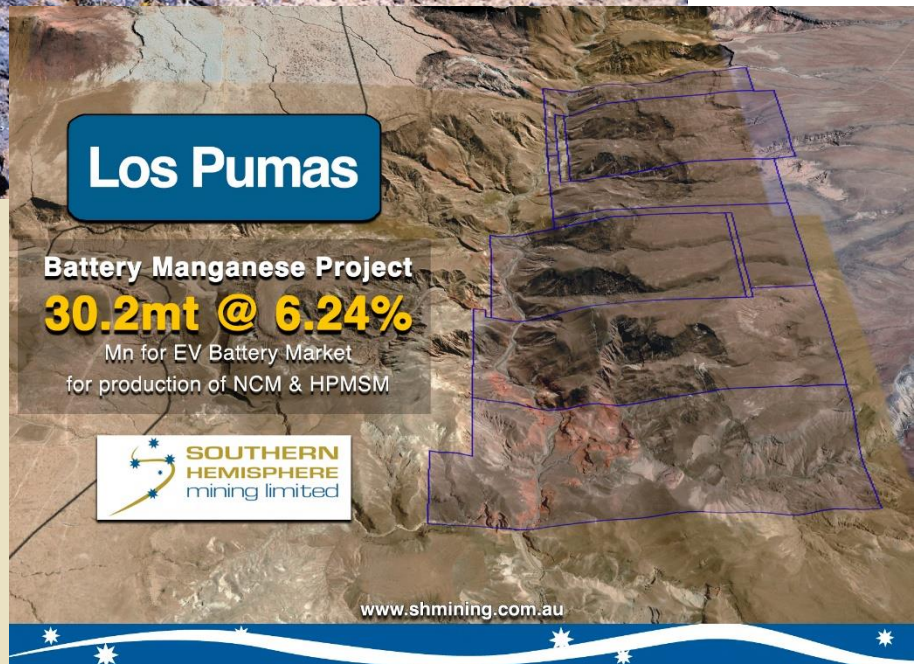
The Los Pumas Manganese Project



- ❑ Project 100% owned by Southern Hemisphere Mining located in northern Chile



- ❑ **Mineral Resource Estimate – 30.2Mt @ 6.24% Mn**
(2.5% Mn Cut Off Grade) | ASX release 3 May 2023
- ❑ 38% Mn concentrate from initial metallurgical Test work
- ❑ Low Iron & Phosphorous, High Silica
- ❑ Close to surface
- ❑ Simple mining – proposed 2.5mtpa plant
- ❑ Strip ratio circa 1:1
- ❑ Excellent logistics and near-mine infrastructure
- ❑ Project plan to utilise hydro and solar power and minimise carbon footprint in all phases of production in this low population area





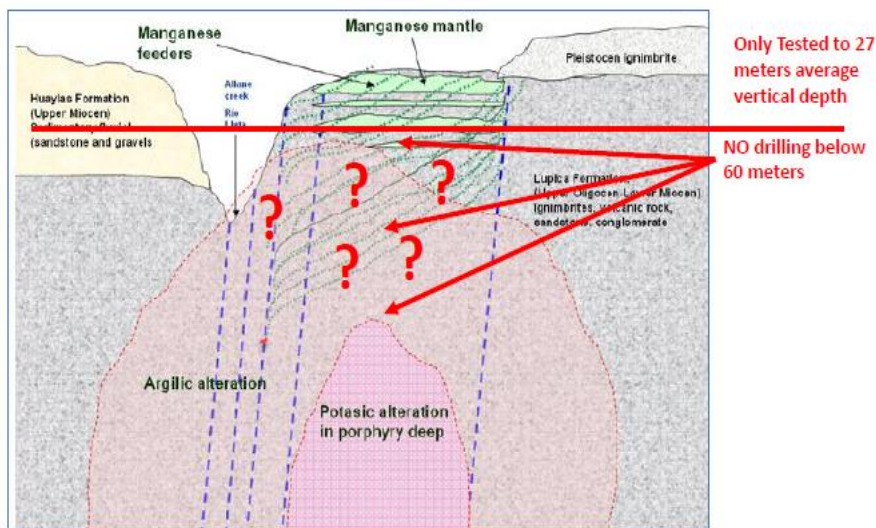
- Located in Tertiary and Quaternary volcanic sequences that forms the Andes Mountains in northern Chile
- Deposit hosted by the Huaylas Formation (Upper Miocene age) and the Lauca Ignimbrite (Upper Pliocene)
- Lauca Ignimbrite hosts the majority of the manganese mineralisation at Los Pumas
- Cryptomelane ($K(Mn^{4+}, Mn^{2+})_8O_{16}$) is the predominant manganese mineral represented
- 3 key mineralized zones
 - UG1 Block & Ash (Andesite – Dacite)
 - UG3 Ignimbrite
 - UG4 Volcanic Sediment
- 3 to 15 meters thick.
- Sub horizontal,



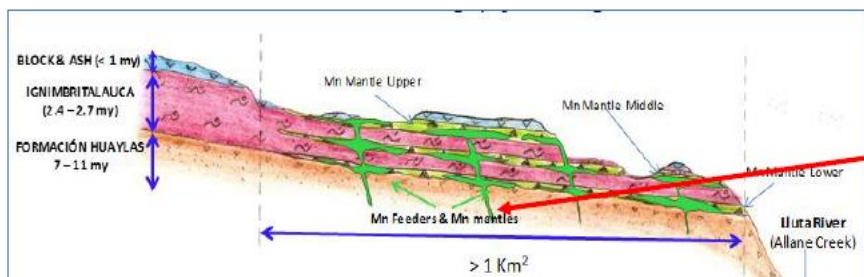
Manganese Outcrop at Los Pumas



Substantial Exploration and Resource Upgrade Potential



- Drilled on average to 27 meters depth.
- Repeats of manganese mantle can extend but are untested at depth > 30 meters
- Vertical feeder zones have not been tested (vertical drilling used only)



NO angled drilling
to test feeders



Los Pumas Manganese Resource - May 2023



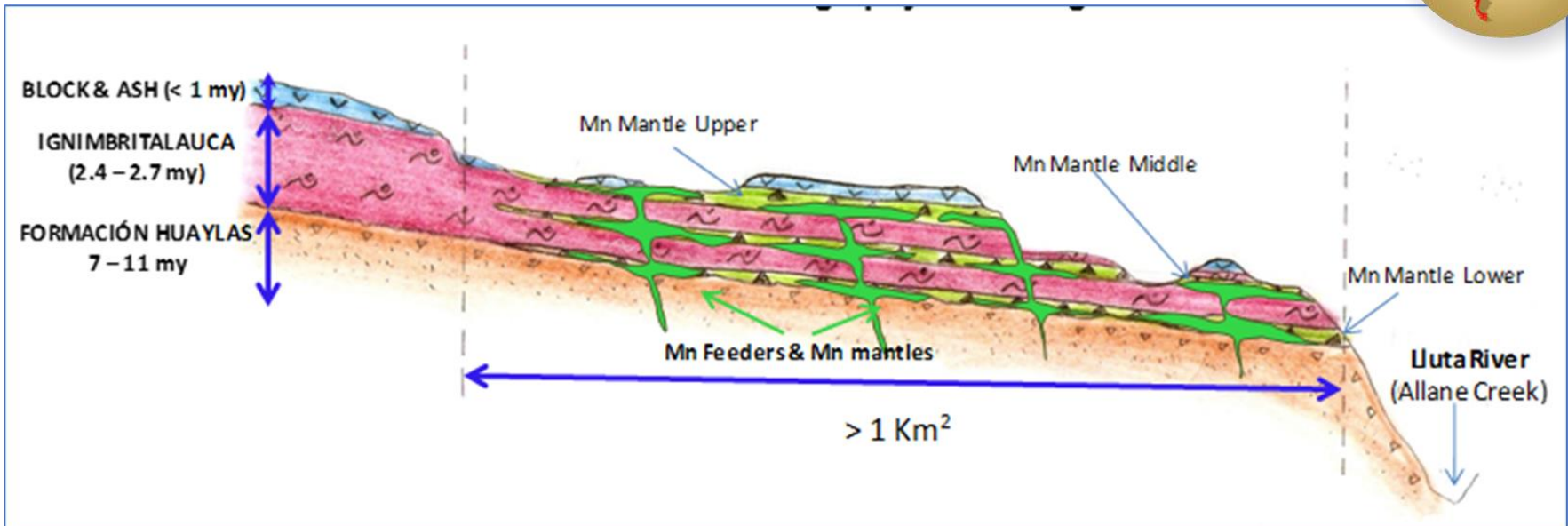
- Independent consultants, Global Commodity Solutions, estimated the Resource for the Los Pumas Manganese Project. The updated Mineral Resource has been estimated in accordance with the guidelines set in the 2012 JORC.
- 27.5% increase in the JORC Mineral Ore Resource** at the 100% owned Los Pumas Battery Metal Manganese Project in Northern Chile **to 30.26 Million Tonnes of Ore. Low deleterious elements.**

Resource (at 2.5% Mn cut-off)	Tonnes	Mn %	Al%	Fe ₂ O ₃ %	K%	P%	SiO ₂ %	SG
Indicated	23,324,038	6.21	5.71	2.78	2.98	0.05	57.07	2.15
Inferred	6,940,715	6.34	5.85	3.05	2.83	0.05	54.61	2.14
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- Further upside is evident for exploitation of high grade manganese feeder zones within the orebody which outcrop at surface and have had little or no prior exploration.



Simple Geology – Good mining parameters



- ❑ Sub-horizontal mineralization (in top 20 meters) with negligible stripping in early years
- ❑ Excellent potential to increase resources laterally and deeper
- ❑ Resource limited to drilling
- ❑ Drilled on average to 27 meters depth
- ❑ Vertical feeder zones have not been tested (vertical drilling used only)



Los Pumas - Location



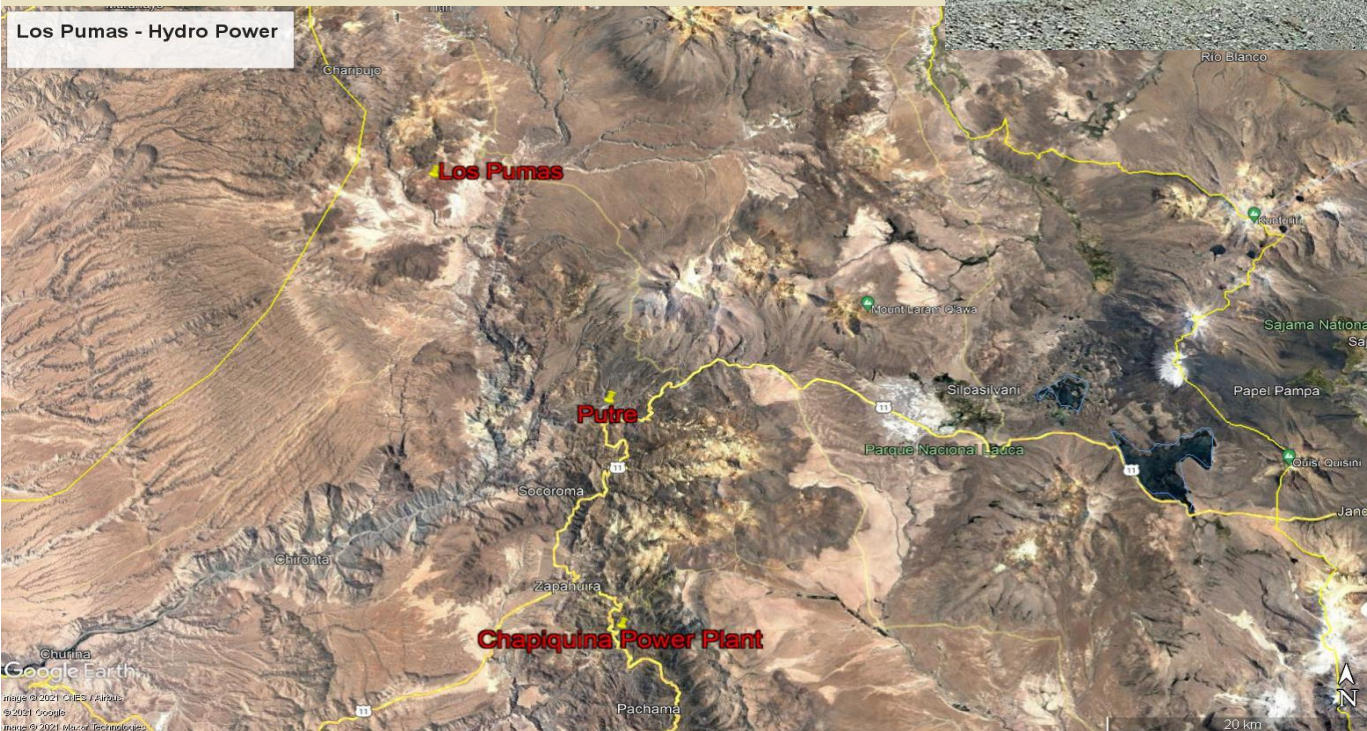
- ❑ Los Pumas located in northern Chile
- ❑ 175km from Arica (Port city)
- ❑ Main port for Bolivia
- ❑ Exports & Imports Tin, Steel, Lead concentrate & Soya
- ❑ Location is close to USA west coast and China for optimal end user supply



Los Pumas - Infrastructure



- ❑ Arica – La Paz railway line runs next to Los Pumas
- ❑ Chapinquina Hydroelectric Power ~ 55km from Los Pumas
- ❑ Town of Putre ~2,500popn, 35km - workers, logistics and equipment support

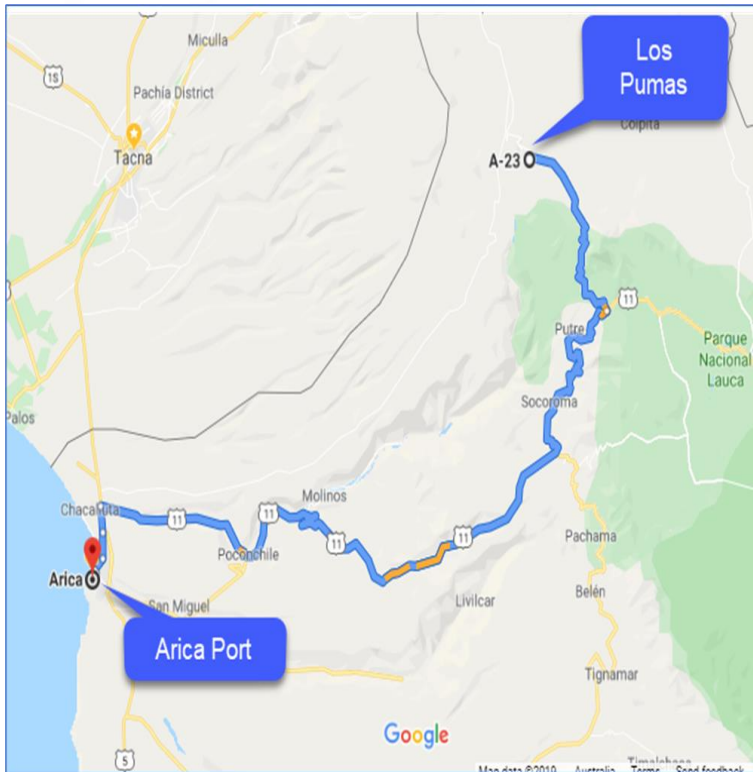




Los Pumas - Logistics



- ❑ 175km by sealed road and railway to the Arica port town (230k popn)
- ❑ Arica – La Paz railway line re-opened May 21
- ❑ Opportunities for lower transport costs





Next Steps



- ❑ Secure equity interests from offtake partners for funding for DFS
- ❑ Commence DFS to develop the Los Pumas Manganese Project
- ❑ Finance and construction stages

Engineering Consultants for prelim preparation for the DFS engineering and scope commenced



Company Board and Management



❑ **SUH Board & Management:** *Our Team Knows Critical Minerals*

- ❑ Over 40 years combined mine discovery, development and / or operating experience internationally

Mark Stowell B.Bus CA	Chairman	Internationally experienced resource sector executive. Founding Chairman of Mawson West Ltd; an international copper producer & explorer which completed an IPO on the Toronto Stock Exchange in one of the largest base metal IPO's of 2011. A founder of Incremental Petroleum Limited and Anvil Mining Ltd.
David Frances BSc Geol (Hons)	Director	Managing Director of Province Resources Ltd (ASX:PRL). Mr. Frances led Mawson West (TSX: MWE) from 2006 – 2012; he was instrumental in developing into a significant international copper producer, developer, & explorer in the DRC.
Natalie Dawson B.Com CPA MBA	Director	Significant Australian & international experience as a Director / CFO / Major Projects Commercial Director Experience includes boots on the ground - West Papua Grasberg copper/ gold mine, multi-national publicly listed companies (Including: Rio Tinto, MacMahon, Clough Engineering).
Richard Caldwell B.Ec LLB F.Fin	Director	Formerly Head of Corporate Finance & Equity Capital Markets at StoneBridge, Head of Equity Capital Markets at Burdett Buckridge & Young; before holding several senior management positions with Citibank Sydney, JP Morgan London.
Adam Anderson B.Sc Geol (Hons) MAusIMM	Exploration Manager	Australian and international expertise including; discovery team on the Golden Cities gold project in Australia, taking the project to prefeasibility; Certej Deeps Gold Porphyry in Romania, planning and drilling the discovery hole which ultimately saw the resource increase from 2Mozs to over 4Mozs; and responsible for seven JORC compliant copper resources in the DRC for Mawson West and others.



Carbon Neutrality Concepts



- ❑ Emissions impact will be an integral part of our project plan and possible future mine design, not an add-on or an afterthought
- ❑ Minimise transportation of consumables and people to/from site
- ❑ Energy efficiency key consideration for all mine processing equipment
- ❑ Water usage – recycling, reducing, reusing
- ❑ Circular economy – minimise waste, reduce/reuse wherever practical
- ❑ United Nations Sustainability Development Goals
- ❑ Look to implement ESG reporting

