



Manganese Battery Metals The future for the Los Pumas Manganese Project-Chile



FOCUS ON THE EV BATTERY MARKET

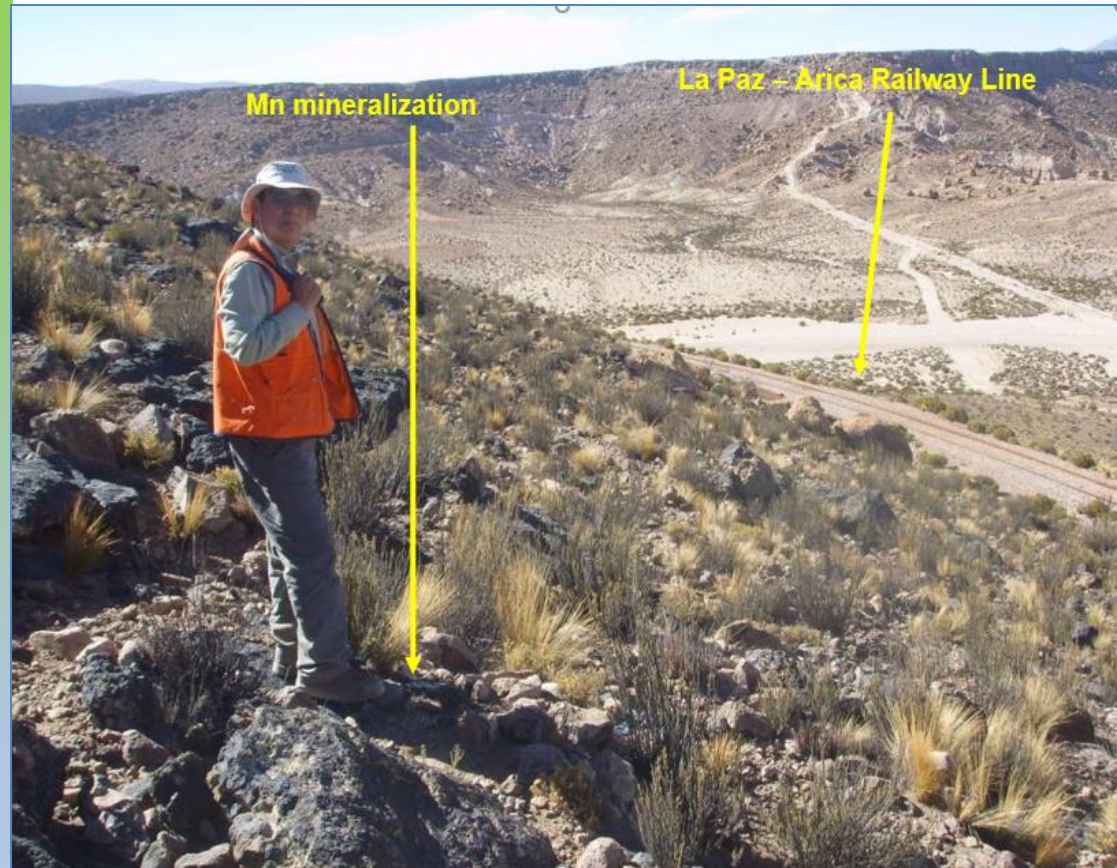
- SUH is engaging technical specialists to guide process and development option studies for the use of Los Pumas ore in Nickel Cobalt Manganese (NCM) batteries or similar, aimed at the EV market
- SUH target is to provide manganese ores to produce High Purity Manganese Sulphate Monohydrate (HPMSM)
- Mn used in the vast majority of NCM batteries. HPMSM is currently the lowest cost NCM cathode metal and lowers the cost of batteries
- SUH strives to produce Zero Carbon Manganese for HPMSM or similar





THE LOS PUMAS MANGANESE PROJECT

- Project 100% owned located Northern Chile
- Mineral Resource Estimate - 23.7Mt @ 7.81% Mn (4% Mn COG) - (ASX release 25 March 2011 - Resources & ASX 2 February 2011 - PEA)
- 38% Mn concentrate from initial metallurgical Test work
- Low Iron & Phosphorous, High Silica
- Close to Surface
- Simple Mining – 2.5mtpa plant
- Strip ratio circa 1:1
- Excellent logistics and near mine infrastructure
- Project plan to utilise solar power and minimise carbon footprint in all phases of production in this low population area





LOCATION

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





MANGANESE – A GROWING DEMAND

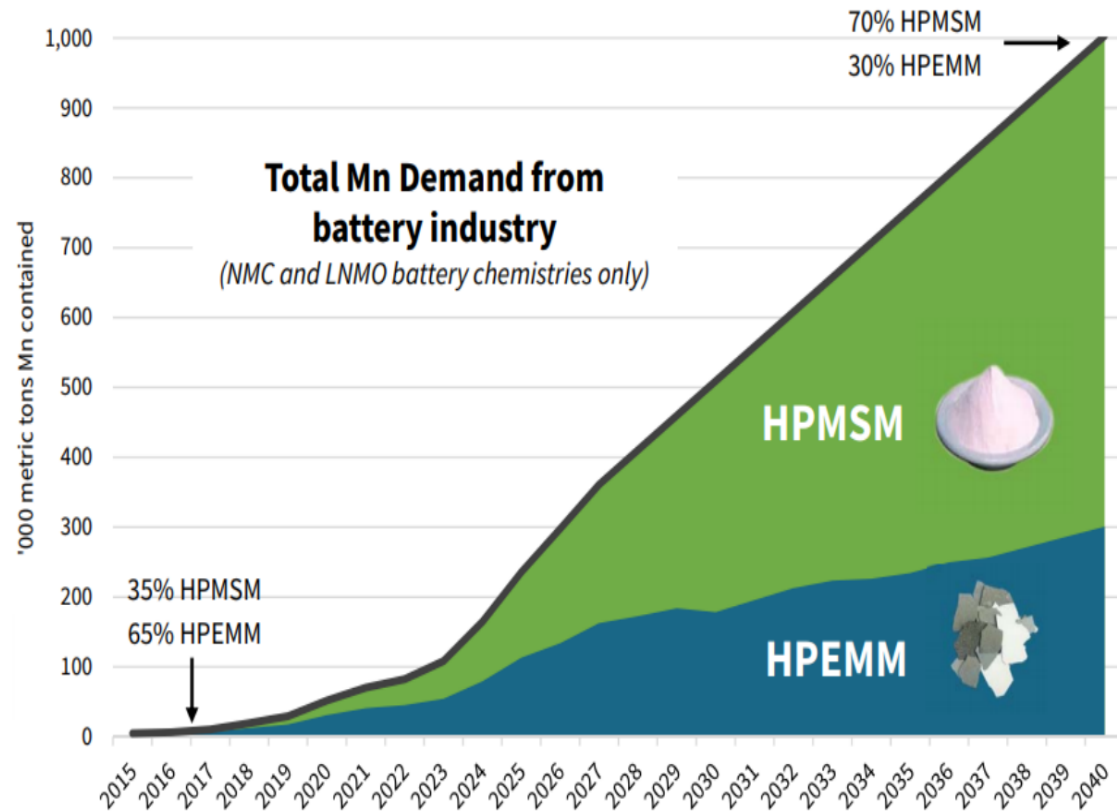
- Manganese (Mn) is the fourth most used metal on earth in terms of tonnage
- Used in steel, specialty alloys and aluminium products
- Traditionally the market has been dominated by the steel and alkaline battery industries
- The electrification of the global vehicle fleet requires vast amounts of cathode materials
- Batteries are trending toward higher manganese content for safer, more cost-effective solutions





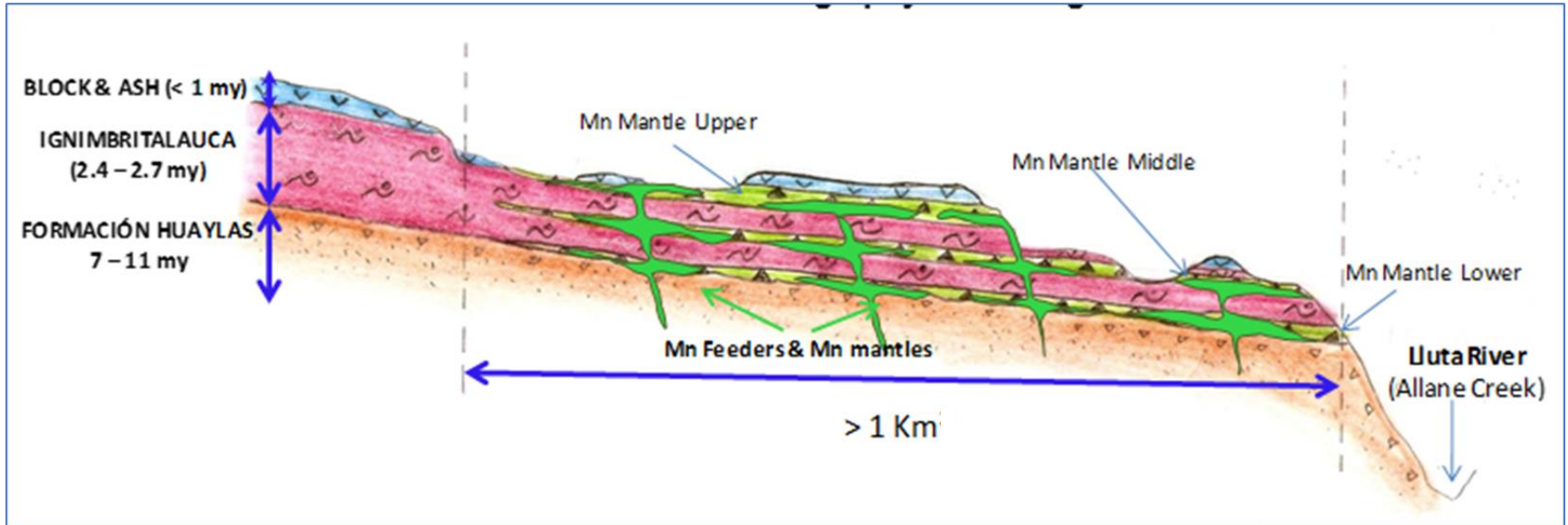
HIGH PURITY MANGANESE

- Nickel and cobalt supply constraints to meet the demand for projected EV growth
- Tesla and VW plan to mass produce a new battery with a high proportion of manganese and no cobalt - Tesla ~ 33% Mn & VW >50% Mn
- The new cathode designs are expected to reduce costs without compromising performance



Ref: Future Battery Industries – Li-ion battery cathode manufacture in Australia

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)



PEA/SCOPING STUDY OVERVIEW

Geology & Drilling

- Deposit hosted by the Huaylas Formation (Upper Miocene age) and the Lauca Ignimbrite (Upper Pliocene)
- Lauca Ignimbrite hosts most of the manganese mineralisation at Los Pumas
- Sub-horizontal mineralization (in top 20 meters)
- 487 holes of RC completed for 14,024 m
- 32 diamond holes for 652m mainly for metallurgical holes and bulk density samples
- 220 holes to 1m depth at surface assayed and included in the resource – effective grade control for early mining
- 11 samples from 4 shafts (depths between 16 to 20m) for dense media pilot plant testing and comminution tests

Processing

- Throughput 2.5mtpa
- Concentration is best achieved via Dense Media Separation (DMS)
- Proposed process plant consists of a three-stage crushing circuit, screening facilities, and two stage dense media separation
- DMS plant split into coarse and fine circuits to maximise efficiency from the cyclones to suit the size ranges
- 38% Mn concentrate from initial metallurgical Test work

Environmental & Social

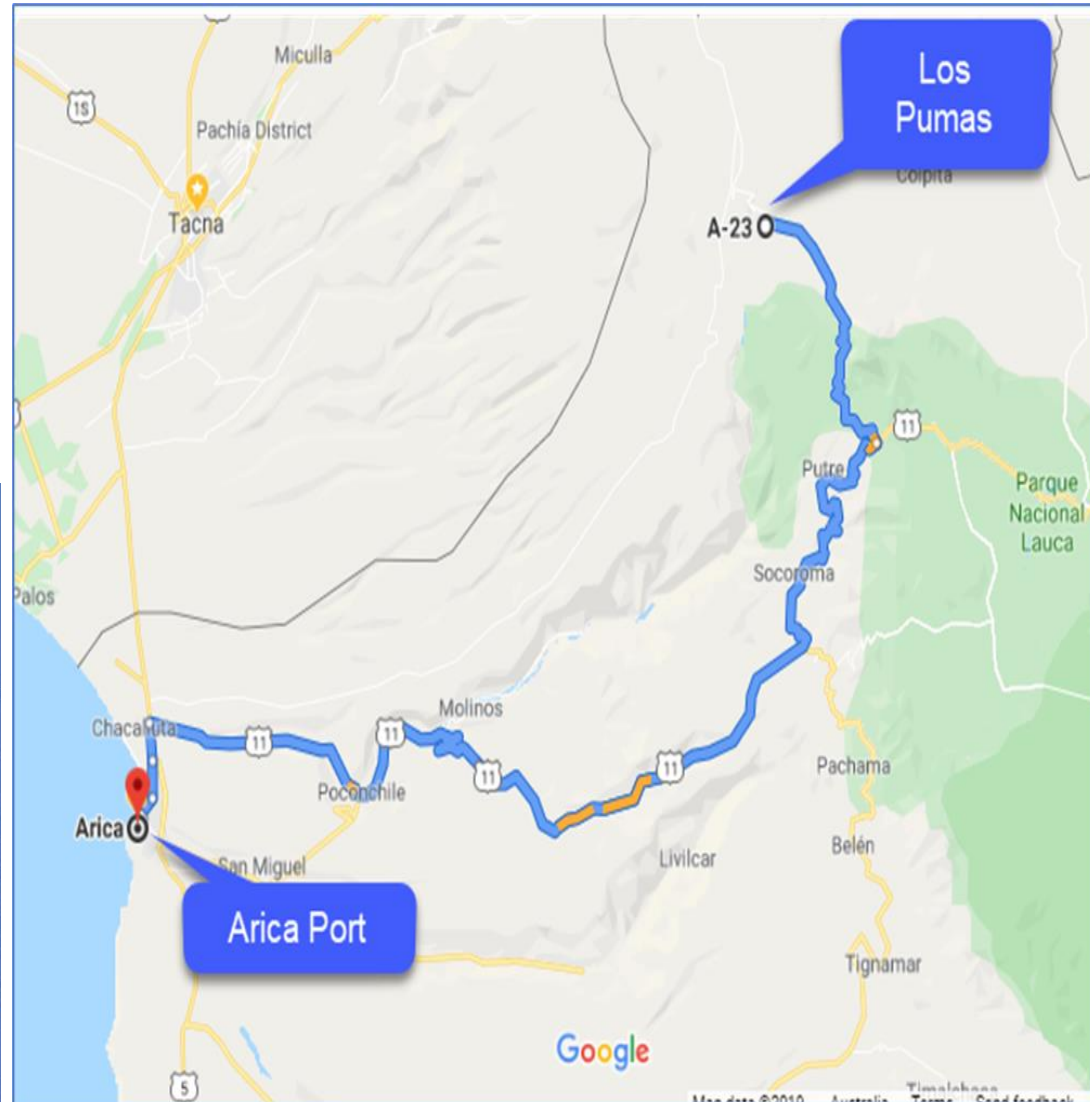
- Environmental Impact Statement completed – resubmission required

(Ref: ASX release 25 March 2011 - Resources & ASX 2 February 2011 - PEA)



LOGISTICS

- 175km by sealed road and railway to the Arica port
- **Arica – La Paz railway line re-opened May 21**
- Opportunities for lower transport costs





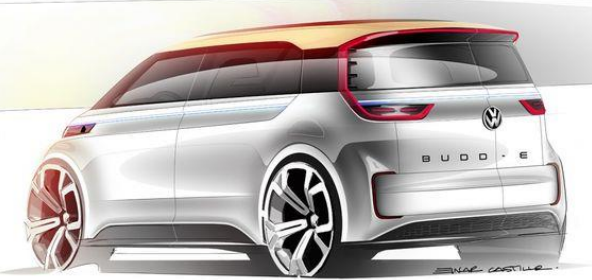
PATHWAY TO CARBON NEUTRALITY

- 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
 - Adherence to global climate standards
 - Task Force on Climate-related Financial Disclosures
 - Sustainability Accounting Standards Board
 - United Nations Sustainability Development Goals
 - Look to implement ESG reporting





NEXT STEPS



- SUH engaging technical specialists to guide process and development option studies for the use of Los Pumas ore in NCM batteries and EV markets
- Capex from historic PEA study (ASX Release 2 Feb 2011) was US\$74.2m and engineering studies underway to revise and reduce
- **Bring in a JV end user partner (EV Manufacturer or EV Battery manufacturer)** to develop the Los Pumas Manganese Project to supply a carbon neutral battery cathode product

LOS PUMAS MANGANESE RESOURCE

Los Pumas Manganese Project: Total Measured and Indicated Resources - JORC (2004) Compliant. As announced to the market on 25 March 2011.

Resource (at 4% Mn cut-off)	Tonnes Millions	Mn %	SiO ₂ %	Fe ₂ O ₃ %	Al %	K %	P %
<i>Measured</i>	5.27	7.39	57.85	2.78	5.62	2.88	0.05
<i>Indicated</i>	13.06	7.65	55	2.96	5.64	2.92	0.05
<i>Measured plus Indicated</i>	18.34	7.58	55.82	2.91	5.62	2.91	0.05
<i>Inferred</i>	5.39	8.59	51.44	2.72	5.49	2.69	0.06
Total	23.73	7.81					

Metallurgical studies have demonstrated greater than 38% Mn concentrates are achievable by DMS with low impurities and high silica product.

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.



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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

*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 mines. Copper equivalent conversion factors and long-term price assumptions used are stated below:

- Copper Equivalent Formula= $Cu \% + Au (g/t) \times 0.72662 + Mo\% \times 4.412$
- Price Assumptions-Cu (US\$3.20/lb), Au (US\$1,700/oz), Mo (US\$15/lb)