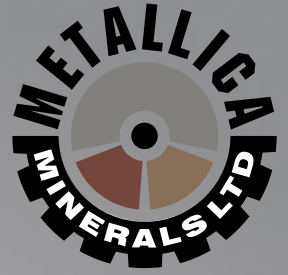


# METALLICA MINERALS LTD

ABN 45 076 696 092



Annual Report 2012

An Australian  
Resource Development Company

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## Corporate Directory

### BOARD OF DIRECTORS

**David K Barwick** – Non-Executive Chairman

**Andrew L Gillies** – Managing Director

**John K Haley** – Executive Director/CFO

**Barry J Casson** – Non-Executive Director

**Shu Wu** – Non-Executive Director

**Tao Li** – Alternate Director to Shu Wu

### CHIEF EXECUTIVE OFFICER

Gavin S Becker

### COMPANY SECRETARY

John K Haley

### PRINCIPAL AND REGISTERED OFFICE

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GPO Box 122 Brisbane QLD 4001

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### SHARE REGISTER

Link Market Services Limited

Level 19, 324 Queen Street, Brisbane QLD 4001

### AUDITOR

BDO Kendalls (QLD)

Level 18, 300 Queen Street, Brisbane QLD 4001

### SOLICITOR

HopgoodGanim

Level 8, Waterfront Place, 1 Eagle Street,

Brisbane QLD 4001

### STOCK EXCHANGE LISTING

Metallica Minerals Ltd is listed on the

Australian Stock Exchange (ASX)

Home Stock Exchange is Sydney

20 Bridge Street, Sydney, NSW 2000

### ASX CODE

**MLM** (ordinary shares)

# Chairman's letter



We have listened to feedback from our shareholders and investors, who have indicated to us that they would prefer our structure to be simplified.

We have sold Metallica's shareholdings in both Planet Metals Limited and Orion Metals Limited, which has freed up substantial additional funds and management time to concentrate on our core assets in Metallica.

Dear fellow shareholders,

I am pleased to report that 2011/2012 has been a decisive year for Metallica in which we have simplified our business structure and made significant advances towards our goal of becoming the world's first reliable supplier of Scandium.

Highlights for the year have included the appointment of Gavin Becker as CEO, a role in which he was given special responsibility for championing the advancement of the NORNICO project in North Queensland, now renamed SCONI.

He has enjoyed great success, assembling an exemplary team to work on the project and offering valuable support to Andrew Gillies.

Milestones at SCONI have included a doubling of its measured and indicated Scandium resource, the completion of a scoping feasibility study which determined SCONI was economically viable, and the production of a kilogram of high-purity scandium oxide from our detailed metallurgical test work on our SCONI ore types using our proprietary technology.

To reflect this the new name – SCONI – an acronym of the metals Scandium-Cobalt-Nickel, was adopted for increased emphasis on Scandium.

As well as the substantial developments on SCONI, it would be remiss of me not to mention our heavy minerals sands (HMS) projects at Weipa (100%) and Gippsland (Option to Acquire 100% from Rio Tinto).

The Weipa Project has high potential to generate significant cash flow starting as early as late 2013, subject to permitting and funding for its development. The Gippsland zircon-rutile project is very promising with a declared maiden inferred mineral resource of 1.7 billion tonnes. We

are very encouraged by the large size of the resource, its grade, and the amount of zircon in the mineral assemblage.

While actively progressing these projects, we have also listened to feedback from our shareholders and investors, who have indicated to us that they would prefer our structure to be simplified.

In mid 2012, we have sold Metallica's shareholdings in both Planet Metals Limited and Orion Metals Limited, which has freed up substantial additional funds and management time to concentrate on our core assets in Metallica.

I have also resigned from the board of MetroCoal and Orion Metals and Andrew Gillies has resigned from Orion Metals and Planet Metals, so shareholders can be confident that our focus is firmly on Metallica and its core projects.

I am pleased to report as at 30 September, that Metallica is still in a healthy cash position, with more than \$6.4 million in total net available cash.

Our listed investments in MetroCoal and Cape Alumina are worth around \$13 million, therefore it is the Board's view that Metallica remains substantially undervalued.

In closing, and on behalf of all our loyal shareholders, I would like to offer my personal thanks to Andrew Gillies, my fellow directors, our management team and our valued employees and contractors for their tireless efforts throughout the year.

Thanks to their efforts, Metallica has progressed greatly during the year towards achieving its long term vision.

  
David K. Barwick  
CHAIRMAN

# The Company

Metallica Minerals listed on the ASX in late 2004 (ASX:MLM) as a progressive multi-minerals explorer and developer.

Metallica's core mineral assets can be split as follows:

1. Flagship SCONI Scandium-Cobalt-Nickel project (100%) in North Queensland (previously NORNICO)
2. Wholly owned subsidiary Oresome Australia Pty Ltd which owns the Weipa zircon-rutile project (100%) and has an option to acquire a 100% interest in the Gippsland zircon-titanium HMS project

Metallica also holds several limestone projects and three copper-gold exploration projects in South Australia (Metallica 75%, Salisbury 25%)

The Company has over 2,000 shareholders, which include:

- The Jilin Nickel Group (Jien Mining Pty Ltd) – China's second largest nickel producer (19.0%)

- Victorian Ferries Pty Ltd – a private investor with mineral sands interests (12.5%)
- Golden Breed Pty Ltd – a company controlled by Metallica's Managing Director Andrew Gillies (7.3%)

Metallica currently has approximately 132.4M ordinary shares on issue and 15.4M unlisted options. The top 20 shareholders hold a combined 57.8% interest in the Company.

As at 30 September 2012, Metallica had approximately \$7.4M cash at bank. This includes \$1.0M of cash drawn down from a \$5.0M debt facility (\$4.0M of available credit remains undrawn). Metallica also owns listed investments in MetroCoal (ASX:MTE, 30.8% interest) and Cape Alumina (ASX:CBX, 19.7% interest), which have a combined market valuation of approximately \$13M as at 30 September 2012.

## The Metallica Name

**Metallica** was named after the definitive classic 16th century mining and metallurgy textbook, De Re Metallica ('On the Nature of Metals' or 'All about Metals'). First published in 1556, it was the best known work of the German scientist and "father of mineralogy", Georgius Agricola, and remained the authoritative text on mining for 250 years after its publication. De Re Metallica was translated into English in 1912 by one Herbert C. Hoover, a mining engineer who worked in Western Australia for many years and went on to become the 31st President of the United States of America.

### MISSION

- Deliver high returns for shareholders
- Achieve high social, environmental and safety standards
- Provide a major, reliable and long term supply of scandium oxide to facilitate growth of the global scandium market demand and increase the level of application of scandium for a more efficient society
- Complete SCONI Definitive Feasibility Study mid-late 2013 and gain scandium off-take agreements to underwrite scandium production
- Develop and commission the SCONI project late 2015 to produce scandium, cobalt and nickel
- Target zircon-rutile production at Weipa late 2013
- Exercise option to acquire Gippsland and advance project through feasibility studies

### VISION

- Become a highly profitable mineral resource developer and producer
- Become the world's first major, long-term, reliable supplier of scandium oxide with significant production of co-products nickel and cobalt
- Become a long term producer of zircon and titanium minerals sands

### STRATEGIC OBJECTIVES

- Generate strong cashflow businesses (SCONI, zircon – titanium mineral sands, limestone)
- Become the world's first major producer of scandium
- Maximise the value of our interests in MetroCoal and Cape Alumina
- Advance mineral assets whilst minimising shareholder dilution
- Maintain adequate funding and high quality staff

## WHAT IS NICKEL?

Nickel (Ni) is element 28 in the periodic table, a high in demand element that when processed, emerges as a hard, silver-white metal with a high melting point (1452°C). It is primarily used in steel alloys in the chemical and aerospace industries. About 60% of the world's nickel production is used in nickel-steels (particularly stainless steel). Other common alloys, as well as some new super alloys and use in batteries, make up the remainder of the world nickel use, with chemical uses around 3% of production. The bulk of the nickel mined comes from two types of ore deposits. The first type are laterites (shallow weathered and oxidized ultramafic rock) where the principle host minerals are nickeliferous limonite, saprolite and garnierite. The second type are magmatic sulphide deposits where the typical ore mineral is pentlandite. Currently, all of Australia's nickel mine production is from Western Australia and sourced from both sulphide and laterite ores. Nickel is commonly associated with cobalt, platinum and copper. World production is around 1.6Mtpa and the price is around US\$8.40/lb (or US\$18,600/t).

## WHAT IS COBALT?

Cobalt (Co) is element 27 in the periodic table, a metal that is hard, lustrous, silver-gray, and normally associated in nature with copper and nickel. Cobalt is used in the preparation of magnetic, wear-resistant and high-strength alloys such as for turbine blades in power stations and jet engines. It is also used as a colouring in ceramics, glasses and inks, has medical applications as a radioisotope and for orthopaedic implants, and increasingly, a key component in lithium batteries, as well as for industrial catalysts and electroplating.

The main sources of cobalt are the Democratic Republic of Congo (DRC) and Zambia. World cobalt production is around 60,000 tonnes per annum and the price around US\$12.50/lb (or US\$27,500/t).

## WHAT IS SCANDIUM?

Scandium (Sc) is element 21 in the periodic table, a silvery-white metallic transition metal, often classified as a rare earth element (REE), together with yttrium and the 15 lanthanides. The positive effects on aluminium alloys were discovered in the 1970's and its use in such alloys remains its main application. Low levels (5-15g/t) of Sc are not uncommon in soils and ores but it rarely occurs above 30g/t. Mineable deposits averaging 200g/t Sc are scarce. Only four such known resources have been defined globally, two of which are within Metallica's SCONI project. Sc is a key ingredient in high performance aluminium alloys (i.e. aerospace), the new solid oxide fuel cell market and in applications in lighting.

The main application of scandium by weight is in aluminium-scandium alloys for select aerospace industry components. These alloys contain between 0.1% and 1.0% of scandium. They were used in the Soviet military aircraft, specifically the MiG-21 and MiG-29 and missiles.

Global usage is small, at around 10tpa. There has been an absence of reliable, secure, stable and long term production which has severely constrained major commercial applications of scandium. Despite this low level of use, scandium offers significant benefits. Particularly promising is the strengthening of aluminium alloys and welded frames with as little as 0.2 -0.5% scandium. Scandium-stabilized zirconia (SSZ) enjoys a growing market demand for use as a high efficiency electrolyte in solid oxide fuel cells (SOFC).

Some items of sports equipment, which rely on high performance materials, have been made with scandium-aluminium alloys, including baseball bats and bicycle frames and components. Lacrosse sticks are also made with scandium-titanium alloys to take advantage of the strength of titanium. The American gun making company Smith & Wesson produces revolvers with frames composed of scandium alloy and cylinders of titanium or carbon steel.

Scandium iodide along with sodium iodide, when added to a modified form of mercury-vapor lamp, produces a form of metal halide lamp. This lamp is a white light source with high colour rendering index that sufficiently resembles sunlight.

Current prices for scandium oxide range between \$3,000-\$8,000/kg depending on quality and purity.

## WHAT IS ZIRCON?

Zircon is a mineral belonging to the group of nesosilicates. Its chemical name is zirconium (Zr) silicate and its corresponding chemical formula is  $ZrSiO_4$ . Zircon is mainly consumed as an opacifier in the decorative ceramics industry and in refractory brick linings of blast furnaces. It is also the principal precursor to metallic zirconium, although this application is small, and all compounds of zirconium including zirconium oxide ( $ZrO_2$ ), one of the most refractory materials known. Zircon is a common accessory to trace mineral constituent of most granite and felsic igneous rocks. Due to its hardness, durability and chemical inertness, zircon persists in sedimentary deposits and is a common constituent of most sands. Zircon forms economic concentrations within heavy mineral sands (HMS) ore deposits, within certain pegmatites, and within some rare alkaline volcanic rocks. In 2010 world production of Zircon was approximately 1.3Mt.

Zircon prices are currently around US\$2,000/t.

## WHAT IS RUTILE?

Rutile is a mineral composed primarily of titanium dioxide,  $TiO_2$ . Rutile, when present in large enough quantities in beach sands, forms an important constituent of heavy mineral sands ore deposits. Miners extract and separate the valuable minerals (typically rutile, zircon, and ilmenite). The main uses for rutile are the manufacture of refractory ceramic, as a pigment, and for the production of titanium metal. In 2010 world production of rutile was approximately 6.4Mt.

Rutile prices are currently around US\$2,000/t.

# Project Highlights

## SCONI – SCANDIUM, COBALT & NICKEL MLM 100%

- |  |  |
|--|--|
| <p>AUGUST 2011 Increased project ownership to 100% by acquiring scandium interests (20%) from Straits Resources</p> <p>FEBRUARY 2012 Completed resource upgrade for Lucknow high grade scandium deposit</p> <p>MARCH 2012 Completed Stage 1 of metallurgical test work which involved the processing of 4.4 tonnes of representative high grade scandium resources through a High Pressure Acid Leach (HPAL) plant at SGS Lakefield Orestest in Perth WA, to produce 15,000L of a pregnant leach solution (PLS) containing scandium, nickel and cobalt</p> <p>JULY 2012 Completed Stage 2 of metallurgical test work which involved recovering scandium from the Stage 1 PLS and refining into high purity (&gt;99.9%) scandium oxide (~1kg produced), confirming the efficacy of Metallica's proprietary technology</p> | <p>JULY 2012 Completed Scoping Study with positive results, confirming the technical and financial viability of SCONI</p> <p>Indigenous Land Use Agreement (ILUA) signed with Gugu Badhun People</p> <p>Effected project name change (formerly NORNICO) to SCONI, an acronym for Scandium-Cobalt-Nickel, to increase emphasis on scandium</p> <p>AUGUST 2012 Calculation and Re-tabulation of project resources considering combined contained value of scandium, nickel and cobalt resulting in increased contained scandium by 76% (5,471t scandia, up from 3,250t scandia) and contained nickel by 15%</p> <p>OCTOBER 2012 Signed scandium off-take agreement with Bloom Energy (SOFC Company in USA)</p> <p>Signed Strategic Alliance with KBM Affilips (a master alloy manufacture in Europe)</p> |
|--|--|

## WEIPA – MINERAL SANDS MLM 100%

- MAY 2012 Commenced Definitive Feasibility Study for project
- AUGUST 2012 Submission of Environmental Impact Study for public review and comment (final approval expected late 2012)

## GIPPSLAND – MINERAL SANDS MLM OPTION TO ACQUIRE 100%

- AUGUST 2011 Entered into Right to Explore and Option to Acquire Agreement with Rio Tinto Exploration Pty Ltd for 100% of the Gippsland project
- DECEMBER 2011 Commenced drilling program at Gippsland
- FEBRUARY 2012 Completed drilling program at Gippsland with positive drill assay results
- APRIL 2012 Combined results of drilling program and historical database to calculate Inferred Mineral Resource reported according to the JORC code – 1.7Bt @ 2.2% Total Heavy Mineral (THM) @ COG 1% THM
- Commenced Scoping Study as part of due diligence for project acquisition
- AUGUST 2012 Negotiated extension on Option to Acquire Agreement with Rio Tinto – option expiry deadline extended from 24 August 2012 to 14 December 2012

# Project Locations

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Figure 1:  
Metallica's Project Locations



**Weipa**  
100%

Oresome Australia  
Weipa Zircon-Rutile HMS  
Project

**SCONI**  
100%

Scandium-Cobalt-Nickel  
Flagship Project

**Gippsland**  
Option to purchase 100%

Oresome Australia  
Zircon-Rutile HMS  
Project

# Corporate Highlights

JULY 2011 Completed Rights Issue which raised \$4.9M (11.7M shares at 42c)

Metallica shareholders were offered the opportunity to purchase 1 new Metallica share and 2 Planet Metals Limited (ASX:PMQ) shares for \$0.42, which represented a 21.5% discount to the underlying share price of Metallica and Planet Metals prior to the announcement of the Rights Issue offering

DECEMBER - JANUARY 2012 Divestment of 15.7M shares in MetroCoal for approximately \$7.8M

APRIL 2012 Execution of \$5.0M short term loan facility (immediately drawn down \$1.0M as required by the agreement)

JULY 2012 Accepted takeover offer for Orion Metals, yielding approximately \$2.2M in financial accounts

Received capital return from Planet Metals shareholding, yielding approximately \$1.43M

AUGUST 2012 Divested Planet Metals shareholding, yielding approximately \$0.43M

Metallica Minerals, SGS, HRL Testing and Jacobs staff at SGS Lakefield Oretest Pilot Plant, October 2012





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L-R Gunter Gielen (KBM Affilips Managing Director), Andrew Gillies (Metallica Managing Director), Henk van der Laan (KBM Affilips Business Development), Gavin Becker (Metallica CEO) outside KBM Affilips headquarters in Holland

For personal



Andrew Gillies & Gavin Becker at Bloom Energy site in Sunnyvale, California in front of continuously operating SOFC's, September 2012

# Managing Director's Review



Our SCONI project has the potential to make available long term, reliable supply and match expected growth in world scandium oxide (scandia) demand.

We firmly believe scandium is a market waiting to happen and Metallica is well positioned to become the world's first major and reliable supplier of scandia.

Metallica is an Australian resource development company with three core asset groups:

- 1. SCONI (100%) Tri-Metal: Scandium-Cobalt-Nickel (Flagship Project)**
- 2. Zircon-Titanium Heavy Mineral Sands (HMS) Projects**
  - Weipa (100%)
  - Gippsland (Option to acquire 100%)
- 3. Cash & Listed Investments (~\$20M)**

Following on from the 2011 financial year, momentum at the SCONI project (formerly NORNICCO) remained high. The completion of a robust Scoping Study (+/- 35% accuracy), successful metallurgical test work to produce approximately 1kg of high purity (~99.99%) scandium oxide (or scandia) confirming our proprietary scandium recovery technology and the signing of an Indigenous Land Use Agreement are just some of the many achievements in the past 12 months.

We have also invested a lot of time and effort into scandium marketing, which has confirmed that the size and growth of the potential scandium market cannot be underestimated. The two key focus sectors of our scandium marketing have been Solid Oxide Fuel Cells (SOFCs) and Aluminium Alloys.

Metallica has just recently entered into a scandium off take agreement with Bloom Energy (a SOFC Company in USA) and strategic alliance with KBM Affiliips (a master alloy manufacturer in Europe).

Whilst the application of scandium in each sector is different, the key theme is the same – scandium enhances

the quality and efficiency of their products. In the case of SOFCs, scandium significantly improves operating efficiency and product life. In the case of aluminium alloys, scandium considerably improves strength to weight ratios, weldability and corrosion resistance.

The current total world supply of scandium oxide is estimated to be approximately ten tonnes per annum, and has been growing considerably in the last few years. It is sourced and processed mainly as a minor by-product of other strategic metal processing operations.

This scarcity and consequent lack of reliable supply has severely restricted scandium's commercial use. Our flagship SCONI project has the potential to make available long term, reliable supply and match expected growth in world scandium oxide (scandia) demand.

We firmly believe scandium is a market waiting to happen and Metallica is well positioned to become the world's first major and reliable supplier of scandia. Our flagship SCONI project is a highly strategic opportunity and potentially company making.

Our confidence in scandium is demonstrated by our commitment to spend millions of dollars on advancing SCONI through feasibility studies into its development

The next 12 months is another critical period for the SCONI project. We are focussed on entering into additional binding off-take agreements and / or strategic alliances with both world leaders in SOFC and aluminium alloy developers and end users (most particularly the aerospace industry).

These agreements will further crystallise the potential of the scandium market and allow us to proceed with increased

# Managing Director's Review

confidence to undertake and complete a Definitive Feasibility Study for the project (expected to commence in early 2013).

In addition to the progress at SCONI, Metallica has also significantly progressed its interests in zircon and titanium minerals.

We are progressing well through feasibility and permitting of the Weipa HMS project and are confident of achieving first zircon and rutile concentrate production late 2013. The current and forecast strong pricing environment of zircon and rutile mean that management expect Weipa, subject to feasibility completion and permitting, to be economically robust and could deliver significant cash flows.

The delineation of a maiden JORC inferred resource (1.7Bt @ 2.2% THM) on the Gippsland HMS project was also another major achievement for Metallica. This is a project with a very large HMS deposit and we hope to acquire this project 100% and attracting joint venture partners.

The achievements of the past 12 months have come in a time where economic conditions both in Australia and globally are weakening. It was pleasing that our relatively strong financial position has carried us through these difficult times and allowed us to proceed with project development without slowing momentum.

In July 2011, Metallica successfully completed a fully underwritten renounceable rights offer raising approximately \$4.9M. In the December 2011/January 2012 period, we sold approximately 15.7M of its MetroCoal shares for approximately \$7.78M gross and still retain 64.3m shares (~30.8%).

We have recently simplified our investment shareholding in four listed exploration companies down to two, with the sale of Orion and Planet Metals shareholdings for proceeds

of approximately \$4M (including recent Planet Metals capital return completed in August).

Our current financial position remains sound with net cash of \$6.4M (at 30 September 2012) and listed investments (MetroCoal and Cape Alumina) of around \$13M. In this dampened market environment, we believe that the scandium opportunity is strategic and unique, a point of difference and one that could really set Metallica apart as an Australian resource company.

We are currently adequately funded to progress SCONI in the near term and achieving success from our scandium marketing via off-take agreements (with Bloom Energy) / strategic alliances (with KBM Affilips) is expected to greatly assist in enhancing and progressing the SCONI project, delivering value to Metallica shareholders.

Since last years Annual Report, I have substantially reduced my work commitments outside of my Metallica executive position by resigning from the Board of Cape Alumina (November 2011) and more recently Orion Metals (August 2012) and Planet Metals (July 2012).

I thank you, our shareholders, for your confidence, patience and continued support. The Board and Management team remain focussed on delivering value by advancing our exciting mineral asset portfolio with growing confidence in becoming a major supplier of scandium to the emerging scandium enhanced SOFC and aluminium alloy sectors.



**Andrew Gillies**  
**MANAGING DIRECTOR**



Queensland Explorer of the Year Award (L-R Gavin Becker, Tina Moloney, Laura Wood, David Barwick, Andrew Gillies, Maddison Chaseling, John Haley) October 2011

# Chief Executive Officer's Review



**Metallica has assembled a world class project team who collectively have over 200 years of experience in the mining industry across disciplines such as metallurgy, geology, mining, engineering and environment and community.**

**This in-house team has been supported by industry recognised consultants including Jacobs, IMC Mining and Golder Associates.**

Since commencing with Metallica Minerals in July 2011, my focus has predominantly been on advancing the SCONI (formerly named NORNICO) project to deliver value for shareholders.

I have been working in the mining industry for over 35 years, much of this time has spent in Nickel – including at Kambalda, Kwinana, Windarra, Bulong, Marlborough and Yabulu. However, what sets the SCONI project apart from other projects is the complimentary and strategic high grade scandium resources contained within the project, a huge differentiating opportunity.

Scandium represents a tremendous value-creating opportunity and is the driving force behind reinvigorating the once bustling Greenvale nickel mining operation (1974-1992).

In my relatively short time at Metallica, we have assembled a world class project team who collectively have over 200 years of experience in the mining industry across disciplines such as metallurgy, geology, mining, engineering, environment and community. This in-house team has been supported by industry recognised consultants including Jacobs, IMC Mining and Golder Associates.

The 2012 financial year was one of great progress and I pass on my thanks and congratulations to all involved. Whilst the road ahead is still long, it is extremely satisfying professionally to see what we have accomplished as a relatively small team:

- Delivery of a very high standard Scoping Study in July 2012 confirming the technical and financial robustness of SCONI

- Completion of detailed metallurgical testwork that delivered excellent results and proved we will be able to extract nickel, cobalt and scandium using the High Pressure Acid Leach process
- Successful extraction of scandium and subsequent refining into high purity (>99.9%) scandium oxide using Metallica's proprietary patented technology

What has also been pleasing is that we have continued to build and maintain excellent relationships with the local community and other key stakeholders including Traditional Land Owners.

The signing of an Indigenous Land Use Agreement (ILUA) with the Gugu Badhun in June was a key project milestone and sets the foundation for the development of a long-term, mutually beneficial relationship between the Gugu Badhun People and Metallica.

During the year, Metallica also sponsored the Annual Greenvale Camp Draft, the Mt Garnett Races and provided donations to the local Greenvale School. It was my privilege to attend these events and witness the great spirit shared by all stakeholders and wishing to see SCONI developed given that its advancement is expected to deliver significant economic benefits to the region.

As I look forward, the next 12 months will continue to be busy with key work programmes including:

- In addition to recent off-take with Bloom Energy and strategic alliance with KBM Affilips, securing further offtake agreements and/or strategic relationships with scandium end users

# Chief Executive Officer's Review

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Greenvale Draft Camp sponsored by Metallica Minerals

- Commencement of a Definitive Feasibility Study at the start of 2013
- Additional metallurgical testwork to ensure our Intellectual Property remains at the cutting edge of scandium recovery and project developments
- Further resource accumulation at SCONI
- Progressing relevant regulatory environmental and mining approvals as part of the permitting process to allow the SCONI projects' development

I thank the shareholders for their continued support and believe we remain on track to meet our goal of commencing the project by late 2015 and producing

scandium, nickel and cobalt at SCONI from 2016 for over 20 years.

Our team is committed to ensuring Metallica Minerals becomes the first ever long-term, reliable supplier of scandium to the potential growth markets of Solid Oxide Fuel Cells and Aluminium Alloys.

I look forward to reporting further strong progress on SCONI in the coming months.



**Gavin Becker**  
**CHIEF EXECUTIVE OFFICER**

# MLM Board of Directors



**DAVID K BARWICK**

*Non-Executive Chairman*

In his capacity as Chairman, Managing Director and or President, Mr Barwick has played a significant role in successfully funding and bringing into production, four mining projects throughout his career in both Australia and Canada. He has considerable expertise in the restructure and financing of entities.

An accountant by profession, Mr Barwick has over 40 year's experience in the management and administration of publicly listed companies in both Australia and North America. As a director, he has managed over thirty public companies, using his strong skills in strategic planning to successfully restructure these and give them a solid financial base from which to operate.

He has experience in preparing prospectuses and ensuring companies meet the necessary compliance standards for listing on both the Australian and Canadian Securities Exchanges.

In addition to being Chairman of Metallica Minerals, David is also Chairman of Jumbo Interactive Limited and Planet Metals Limited.



**ANDREW L GILLIES**

*Managing Director*

Mr Gillies graduated from the University of Queensland in 1985 with a BSc (Geology), is a member of the AusIMM.

Mr Gillies' key strength is mineral resource management and strategic planning specialising in project generation, selection and acquisition. He has acquired a considerable database and significant knowledge of mineral deposits in Queensland.

Since 1985 he has worked continuously as a geologist in the mining and exploration industry, accruing over 24 years experience across a range of commodities. He has been a company geologist with BHP Gold Mines Ltd, Perseverance Corporation Ltd and Cracow Mining Venture and as a consulting geologist for various exploration companies until his full time role as Managing Director of Metallica in 1997.

Over the last 24 years he has gained valuable experience in the exploration, feasibility, development, open pit, underground mining, and management of mineral deposits and companies.

Mr Gillies is also a Non-Executive Director of MetroCoal Limited.

# MLM Board of Directors



**JOHN K HALEY**

*Executive Director, Company Secretary & CFO*

Mr Haley brings over thirty years of senior corporate experience from positions in Canada and Australia to the board of Metallica Minerals. He has a diverse career in a range of industries including mineral exploration and has participated as a seed capitalist in a number of mineral exploration companies.

With extensive experience in the preparation of prospectuses, he has had significant involvement in the listing of companies in Australia and Canada. He has previously worked with Coopers & Lybrand and Arthur Andersen & Co and in Australia in general management, financial reporting and company secretarial positions.

Mr Haley is also a Non-Executive Director of MetroCoal Limited and Company Secretary of both MetroCoal and Planet Metals Limited. He is also a Director of the Queensland Resources Council.



**BARRY J CASSON**

*Non-Executive Director*

Mr Casson is a Non-executive Director with more than 40 years experience in accounting, finance and general management with several listed and unlisted companies, primarily in the resources industry.

He has had extensive international experience in project financing and corporate transactions.

He is a member of the Institute of Chartered Accountants and the Australian Institute of Company Directors. Mr Casson is currently a Non-Executive Director of Global Resources Corporation Limited.

Barry acts as Independent Chairman of the company's Audit and Risk Committee, and the Remuneration Committee.

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# MLM Board of Directors



SHU WU

*Non-Executive Director*

Wu Shu is a director of Jien Mining Pty Ltd which holds 25,139,908 shares in Metallica Minerals Limited.

Mr Wu is Chairman and Director of Jien Nickel Industry Co. Ltd listed on the Shanghai Stock Exchange. Mr Wu was instrumental in Jilin Nickel's successful IPO in Shanghai stock market in 2003. His extensive experience in management and finance has enhanced Jilin Nickel's overseas strategic investment and expansion significantly.



TAO LI

*Alternate Non-Executive Director to Shu Wu*

Dr Li is a specialist in geotechnical and mining engineering and he provides commercial, technical and corporate strategic advice to Australian, Canadian and Chinese Mining companies.

He previously worked for 7 years in the Chinese mining industry and for the past 23 years he has been a trusted advisor to the Australian mining industry as an engineer, manager and group manager for organisations such as Mount Isa Mines, WMC Resources, Gold Fields and Newcrest Mining. His extensive experience with project evaluations, mergers, acquisitions, Chinese business development, corporate structuring, equity raising, EPCM and supply solutions provide a wealth of knowledge for Metallica to draw upon.

His project and operational skills range from design, evaluation, risk assessment and management, due diligence, review and audit as well as project and human resources management. He has initiated, developed and implemented a number of innovative solutions and improvements to a number of mines and projects.

Dr Tao Li represents one of our major shareholders, Jien Mining Pty Ltd a wholly owned subsidiary of Jilin Jien Nickel. He is also a Director of Orion Metals Limited and of Liberty Mines listed on the TSX.

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Access track at Lucknow Resource

# SCONI Scandium-Cobalt-Nickel Project

100% MLM



Formerly named NORNICO, several key milestones were achieved for the SCONI (Sc-Co-Ni) project in the year under review:

- Completion of successful metallurgical pilot testwork to produce 1kg of high purity (>99.9%) scandium oxide, confirming suitability of our process flowsheet and Metallica's proprietary scandium recovery technology
- Completion of Scoping Study for a 750,000tpa mining and processing operation, confirming the technical and financial viability of the project
- Entering into an Indigenous Land Use Agreement (ILUA) with Gugu Badhun People to confirm support of Traditional Land Owners
- Re-tabulation of project resources to increase contained scandium by 76% (5,741 tonnes (t) scandium oxide, up from 3,250t scandium oxide) and contained nickel by 15% (see Table 4)
- Significantly expanded our understanding of current and potential world scandium market and advanced negotiations with potential scandium offtake partners. This has so far culminated in a binding Heads of Agreement for scandium oxide offtake for a with Bloom Energy and an MOU for a Strategic Alliance with KBM Affilips.

SCONI represents a unique opportunity for Metallica to become the world's first major, reliable and long-term supplier of scandium. Scandium's application to date has been limited by its constrained supply – Metallica is confident that the market for scandium will soon grow to

many multiples of its current size when reliable supply is assured.

The next 12 months will see Metallica consolidate the environmental studies and technical work it has completed to date by undertaking a Definitive Feasibility Study (DFS). The DFS is expected to commence in early 2013 and will take approximately 9 months to complete. Metallica will also continue its market development work for scandium and remains in ongoing discussions with existing and potential end users in the Solid Oxide Fuel Cell (SOFC) and Aluminium Alloy market sectors.

## SCOPING STUDY

Metallica completed a Scoping Study based on a 750,000tpa operation, mining and processing Measured, Indicated and Inferred resources (refer to Table 4) from the Greenvale, Lucknow and Kokomo deposits (southern portion of the SCONI project) over a 20 year mine life.

The Scoping Study was successful in confirming the technical and financial viability for the proposed development of the SCONI project (see Table 3).

## PROJECT TEAM

The Scoping Study was completed by a highly experienced and competent team which included in-house Metallica technical staff and recognised external mining consultants.

Name	Technical Field	Years Exp.	Relevant Experience
Andrew Gillies	Geology and Management	25+	BHP Gold, Perseverance, Cracow Mining JV, NORNICO exploration
Gavin Becker	Metallurgy and Management	35+	Anglo, Mintek, Davy, WMC, Dominion, URS, Gladstone Pacific Nickel (GPNL), GHD
Peter Mason	Processing	40+	Anglo, Minproc, Cawse, Ramu Project, Falconbridge, Xstrata Nickel, GPNL
Tim Riley	Engineering	40+	WMC, BHP, Ramu Project, GPNL, Goro Mine
Nick Currey	Environment and Risk	30+	Placer Dome, Lihir, Newcrest
Michael Tyndall	Geology	20+	Anglo, De Beers, Xtract
Kevin Pery	Metallurgy	15+	Yabulu Nickel Refinery, Sedgman
Laura Wood	Tenements	25+	Department of Mines
Bill Stacey	Site Manager	30+	SSE, BMA, Gumigil, Marlborough Nickel

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# SCONI Scandium-Cobalt-Nickel Project

100% MLM



Figure 2:  
SCONI Project  
location

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## SCONI Scandium-Cobalt-Nickel Project

Consultant Firms	Field
Jacobs	Engineering / Process
IMC Mining Group	Mining / Mine Planning
Golder Associates	Geology / Resources
GHD, AARC & LRS Environmental	Environment & Water
Canopean	Metallurgy / Process
Logistics & Project Services	Logistics

### MINING / MINE PLANNING

IMC Mining Group (IMC) was commissioned to conduct a mining evaluation of the scandium and nickel-cobalt resources and to develop an optimised mine and stockpiling plan that would support a minimum 20 year plant operational life.

IMC's mining study concluded that mining could be undertaken using a standard truck and shovel approach with a relatively small mining fleet.

The mining study also demonstrated that resources from Greenvale, Lucknow and Kokomo could be mined as a series of open pits, with the resultant pits being very shallow and low strip ratio.

### PROCESSING | SC-CO-NI METAL RECOVERY

Jacobs was commissioned to conduct a Scoping Study (+/- 35% accuracy) on the SCONI processing flow sheet, supported by relevant experts.

The SCONI process plant has been designed to process scandium, cobalt and nickel bearing laterite ores to produce saleable scandium, cobalt, nickel products. Following crushing and grinding, the contained Sc-Co-Ni bearing laterite will be subjected to high pressure acid leach (HPAL) processing using sulphuric acid; leaching the metals to produce a scandium, nickel and cobalt rich solution.

From this solution, scandium will first be extracted and refined into scandium oxide using Metallica's in-house developed proprietary technology. For more information on this metallurgical process, please refer to the Metallurgical Testwork section below.

Post scandium extraction, the process plant will further process the solution to produce nickel and cobalt products.

## CAPITAL AND OPERATING COSTS

The Scoping Study estimated the following capital and operating costs as shown below in Tables 1 & 2.

**Table 1: Estimated Capital Expenditure**

Category	ASM
Mining	22
Leach Plant	118
Refinery	97
Major Process Packages	103
Services & Utilities	42
Process Plant Infrastructure	73
General Infrastructure	21
Total Direct Costs	476
Indirect Costs (@20%)	95
Direct + Indirect Costs	571
Owners Costs	26
Total Capex (ex Contingency)	597

**Table 2: Estimated Operating Expenditure**

Category	ASM per annum	A\$/t feed processed
Mining & Haulage	12	16
Reagents / Consumables	36	48
Sulphur (delivered)	26	35
Labour	31	41
Maintenance	18	24
General & Administration	15	20
<b>Total</b>	<b>138</b>	<b>184</b>

#### Notes to Table 1 & 2:

1. Capital and operating expenditure assume the CMN Process is adopted to produce nickel and cobalt products.

## FINANCIAL ANALYSIS

As part of the Scoping Study, a financial analysis was undertaken to assess the financial viability of the project. The results (see Table 3 below) of this analysis conclude that when using reasonable forecast long-term commodity price and exchange rate estimates, SCONI could be a financially robust project with strong annual operating margins.

Scandium production was deliberately initially constrained to match an expected scandium demand growth rate. There is considerable scope to increase scandium production earlier to match faster growth, thereby improving economies.

**Table 3: Summary of Financial Analysis**

Description	Assumption / Output
Processing Plant Throughput	750,000tpa (with a 2 year ramp up period to full capacity)
Average Feed Grade (over 20 years)	0.81% Nickel, 0.11% Cobalt, 73g/t Scandium (109g/t Scandium Oxide)
Average Metal Recoveries	90% Nickel, 90% Cobalt, 85% Scandium
Average Annual Production	5,250t Nickel, 700t Cobalt, 68,000kg Scandium Oxide
Long Term Prices	US\$10.00/lb Nickel, US\$15.00/lb Cobalt, US\$2,000/kg Scandium Oxide
Exchange Rate AUD:USD	0.90
Capital Contingency	20%
Net Present Value	A\$402 million (pre-tax, 100% equity, 10% discount rate, real terms, ~20% capital contingency)
Internal Rate of Return	16.7% (pre-tax ungeared)
Average Operating Margin	A\$179 million per annum

METALLURGICAL TESTWORK

Metallica’s metallurgical testwork was highly successful, resulting in the production of in excess of 1 kilogram of scandium oxide at a purity ~99.99% with scandium recovery of ~85%. The results confirmed the efficacy of Metallica’s proprietary technology for extraction, refining and recovery of high purity scandium (patent has subsequently been applied for).

Detailed metallurgical testwork (with emphasis on scandium extraction and recovery) was undertaken in two stages:

- **Stage 1** High Pressure Acid Leach (HPAL) testwork for scandium-cobalt-nickel extraction from the SCONI laterite ore types at SGS Lakefield Oretest (SGS) in Perth
- **Stage 2** Scandium recovery and refining into high purity scandium oxide at HRL in Brisbane

In Stage 1, a 4.4 tonne representative sample was treated at SGS’s HPAL pilot plant in Perth to produce 15,000L of pregnant liquor solution (PLS) which contained nickel, cobalt and scandium (and other element impurities).

In Stage 2, the PLS was transported to HRL in Brisbane to be treated at a purpose built scandium extraction pilot plant. This plant produced a scandium rich solution, which was then refined into high purity scandium oxide.

The results of the testwork were very important for the technical, and ultimately commercial, viability of SCONI. The testwork proved that Metallica could successfully extract scandium, cobalt and nickel from the SCONI Resources at high recovery rates and also produce high purity scandium oxide in a form suitable for end users.



HPAL Pilot Plant  
SGSLO Perth

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## SCONI Scandium-Cobalt-Nickel Project

Metallica is in the process of registering patents for its scandium extraction and refining technology. This will assist in protecting Metallica's Intellectual Property and also will enable Metallica to license the use of its technology in the future.

### NATIVE TITLE

In June 2012, Metallica entered into an ILUA with the Gugu Badhun People, the native title holders for Greenvale and the surrounding region. The agreement is a milestone event and an essential step in the development of the SCONI project. The ILUA provides Metallica with a clear native title process for the grant of all exploration and mining tenure within the ILUA area. This will facilitate the permitting, development and mining of the SCONI project.

### PROJECT RESOURCES

In July 2012, Metallica completed the re-tabulation of the SCONI project resources. This was undertaken by Golder Associates.



**Table 4: SCONI Project Resources - Southern Deposits**

Southern Deposits (Focus of Scoping Study) – COG NiEq > 0.7%									
Description	Tonnes (Mt)	Ni (%)	Co (%)	Sc (g/t)	Ni Metal (kt)	Co Metal (kt)	Sc Metal (t)	Equivalent Sc Oxide (t)	
<b>Kokomo</b>									
Measured	2.2	0.57	0.11	80	12.2	2.5	173	260	
Indicated	17.2	0.56	0.09	49	95.8	15.5	843	1,264	
Inferred	10.2	0.36	0.04	59	36.7	4.5	603	905	
<b>Totals</b>	<b>29.5</b>	<b>0.49</b>	<b>0.08</b>	<b>55</b>	<b>144.7</b>	<b>22.5</b>	<b>1,619</b>	<b>2,429</b>	
<b>Greenvale</b>									
Measured	4.8	0.78	0.06	38	37.8	3.0	186	279	
Indicated	9.5	0.71	0.05	38	67.0	4.9	360	541	
Inferred	1.9	0.71	0.05	34	13.3	0.9	65	97	
<b>Totals</b>	<b>16.2</b>	<b>0.73</b>	<b>0.05</b>	<b>38</b>	<b>118.1</b>	<b>8.8</b>	<b>611</b>	<b>917</b>	
<b>Lucknow</b>									
Measured	1.7	0.45	0.10	103	7.9	1.8	180	271	
Indicated	10.6	0.27	0.07	128	28.5	7.2	1,357	2,035	
Inferred	1.5	0.40	0.07	41	5.8	1.0	60	90	
<b>Totals</b>	<b>13.8</b>	<b>0.31</b>	<b>0.07</b>	<b>116</b>	<b>42.2</b>	<b>10.0</b>	<b>1,597</b>	<b>2,396</b>	
<b>Combined Southern Deposits (COG 0.7%)</b>									
<b>Measured</b>	<b>8.7</b>	<b>0.66</b>	<b>0.08</b>	<b>62</b>	<b>57.9</b>	<b>7.2</b>	<b>539</b>	<b>809</b>	
<b>Indicated</b>	<b>37.3</b>	<b>0.51</b>	<b>0.07</b>	<b>69</b>	<b>191.3</b>	<b>27.6</b>	<b>2,560</b>	<b>3,840</b>	
<b>Inferred</b>	<b>13.5</b>	<b>0.41</b>	<b>0.05</b>	<b>54</b>	<b>55.9</b>	<b>6.4</b>	<b>728</b>	<b>1,092</b>	
<b>Totals</b>	<b>59.5</b>	<b>0.51</b>	<b>0.07</b>	<b>64</b>	<b>305.1</b>	<b>41.1</b>	<b>3,827</b>	<b>5,741</b>	

Table 5: SCONI Project Resources - Northern Deposits

Northern Deposits – COG NiEq > 0.7%					
Description	Tonnes(Mt)	Ni(%)	Co(%)	Ni Metal(kt)	Co Metal (kt)
<b>Bell Creek South</b>					
Measured	7.8	0.96	0.07	75.5	5.1
Indicated	0.1	0.81	0.05	1.2	0.1
<b>Totals</b>	<b>8.0</b>	<b>0.96</b>	<b>0.07</b>	<b>76.7</b>	<b>5.2</b>
<b>Bell Creek North</b>					
Indicated	2.0	0.86	0.03	16.8	0.5
<b>Totals</b>	<b>2.0</b>	<b>0.86</b>	<b>0.03</b>	<b>16.8</b>	<b>0.5</b>
<b>Bell Creek Northwest</b>					
Indicated	2.5	0.81	0.05	20.1	1.2
<b>Totals</b>	<b>2.5</b>	<b>0.81</b>	<b>0.05</b>	<b>20.1</b>	<b>1.2</b>
<b>The Neck</b>					
Indicated	0.4	0.84	0.03	3.5	0.1
<b>Totals</b>	<b>0.4</b>	<b>0.84</b>	<b>0.03</b>	<b>3.5</b>	<b>0.1</b>
<b>Minnamoolka</b>					
Indicated	4.7	0.82	0.05	38.3	2.1
Inferred	0.9	0.78	0.04	6.7	0.3
<b>Totals</b>	<b>5.5</b>	<b>0.82</b>	<b>0.04</b>	<b>45.0</b>	<b>2.4</b>
<b>Combined Northern Deposits</b>					
<b>Measured</b>	<b>7.8</b>	<b>0.96</b>	<b>0.07</b>	<b>75.5</b>	<b>5.1</b>
<b>Indicated</b>	<b>9.7</b>	<b>0.83</b>	<b>0.04</b>	<b>79.9</b>	<b>4.0</b>
<b>Inferred</b>	<b>0.9</b>	<b>0.78</b>	<b>0.04</b>	<b>6.7</b>	<b>0.3</b>
<b>Totals</b>	<b>18.4</b>	<b>0.88</b>	<b>0.05</b>	<b>162.1</b>	<b>9.4</b>

**Notes to Resource Statements**

- Scandium is typically sold as an oxide product. Hence the equivalent scandium oxide has been calculated at 1.5 times contained scandium.
- The resources for the Southern Deposits of Lucknow, Greenvale and Kokomo are reported at a cut-off grade (COG) of NiEq 0.7% (Ni + 1.5Co + 0.01Sc). This NiEq COG formula has been calculated using commodity prices of US\$10/lb nickel, US\$15/lb cobalt and US\$1,500/kg scandium oxide, and recoveries of 90% for all three metals.  
The resources for the Northern Deposits of Bell Creek South, Bell Creek North, Bell Creek Northwest, Minnamoolka and The Neck are reported at a COG of NiEq 0.7% (Ni + 1.5Co). This NiEq COG formula has been calculated using commodity prices of US\$10/lb nickel and US\$15/lb cobalt, and recoveries of 90% for both nickel and cobalt. The change to the current NiEq COG is to account for current metal prices and ensure that all significant nickel, cobalt and scandium mineralisation is included in the resource estimate. Metallica indicates that the metallurgical testwork to date provides reasonable potential for the nickel, cobalt and scandium to be recovered at similar recoveries to those achieved in the testwork.
- Variations in total may be present due to rounding factors.
- No scandium content was estimated in the Northern deposits as Sc assays are generally not available. Limited data indicate the Northern deposits are relatively low in Sc (generally <30ppm Sc).

**Competent Person's Statement**

The SCONI Scandium-Cobalt-Nickel project Mineral Resource estimate(s) is based upon & accurately reflects data compiled, validated or supervised by Mr John Horton, Principal Geologist FAusIMM (CP) and is a full time employee of Golder Associates Pty Ltd. Mr Horton has sufficient experience that is relevant to the style of mineralisation and the type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 edition of the 'Australasian Code for the Reporting of Exploration Results, Mineral Resources & Ore Reserves'. Mr. Horton consents to the inclusion of this information in the form and context in which it appears in this document.

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# Scandium Marketing

Metallica believes there is great potential for the scandium market to be many multiples of the current size of approximately 10,000kg of supply per annum. The two key sectors which Metallica is targeting for scandium demand growth are Solid Oxide Fuel Cells (SOFCs) and Aluminium Alloys.

To date, Metallica has achieved great success in both sectors. In the SOFC sector, Metallica has entered into a binding Heads of Agreement (HOA) with Bloom Energy that governs the sale of up to 30,000kg to 60,000kg of scandium oxide per annum.

In the Aluminium Alloy sector, Metallica has entered into a Strategic Alliance with KBM Affilips, a leading supplier of aluminium master alloys to a number of customers including major Aerospace companies.

## SOLID OXIDE FUEL CELLS – BLOOM ENERGY

Metallica has entered into a binding HOA with Bloom Energy regarding future sales of scandium oxide to be produced from the SCONI project. This is the maiden agreement regarding Scandium Offtake for the SCONI project – Bloom Energy is Metallica's first base load customer.

The HOA was executed in October 2012. Under the terms of the HOA, Metallica will supply Bloom Energy with up to 30,000kg scandium oxide per annum (based on production output and Bloom Energy's global usage) with provision to increase supply up to 60,000kg scandium oxide per annum (at Bloom's election) over the term of the HOA (5 years with a 5 year option for Bloom to extend). Key commercial terms are binding and remain commercial in confidence.

The HOA is conditional upon Metallica meeting certain development milestones for SCONI – management believe these milestones to be reasonable and achievable and are broadly in line with Metallica's published development schedule for SCONI with some allowance for delays.

Whilst all key commercial terms are binding, Metallica and Bloom Energy have agreed to replace the HOA with a more detailed Offtake agreement within 120 days. If this is not achieved, the HOA will continue to govern the relationship.

The execution of this HOA was a key milestone for the SCONI project. The agreement with Bloom Energy calls for the sale of scandium oxide at a price and quantum which underpins the commercial rationale to develop the SCONI project. This has given management confidence to proceed throughout Feasibility Studies.

## ABOUT BLOOM ENERGY

Bloom Energy is an emerging fuel cell company based at Sunnyvale, California. Bloom Energy is focussed on delivering clean, reliable and affordable energy to customers around the world.

Bloom Energy manufactures unique on-site power generation systems called Energy Servers which utilise an innovative new fuel cell technology with roots to NASA's Mars program. The Energy Servers are among the most efficient energy generators on the planet, providing for significantly reduced electricity costs and dramatically lower greenhouse gas emissions.

Bloom Energy's customers include Google, ebay, Apple, and Walmart.

The logo for Bloom Energy, featuring the word "Bloom" in a dark blue, sans-serif font and "energy" in a green, lowercase, sans-serif font. A registered trademark symbol (®) is located at the top right of the word "energy".

For more information on Bloom Energy, please visit its website at [www.bloomenergy.com](http://www.bloomenergy.com).

## ALUMINIUM ALLOYS – KBM AFFILIPS

Metallica has entered into a non-binding Memorandum of Understanding (MOU) with KBM Affilips regarding a strategic alliance for future scandium supply.

KBM Affilips is Europe's leading supplier of master alloys, including Aluminium-Scandium alloys. They are the first link in key supply chains that provide highly-specialised metal products to a number of customers, including major Aerospace end users.

Metallica and KBM Affilips agreed that it would be mutually beneficial to form a Strategic Alliance. KBM Affilips manufactures Aluminium-Scandium master alloys, and from its existing relationships, understands there would be significant demand for Aluminium-Scandium alloys in the Aerospace industry, as well as other transport sectors, when sufficient supply was available for commercialisation.

KBM Affilips has recognised Metallica as a leading scandium development company with the potential to supply it with enough scandium oxide to meet the potential demand for its Aluminium-Scandium master alloys (typically 2% contained scandium).



# Scandium Marketing

## THE KEY TERMS OF THE MOU ARE DETAILED BELOW:

- The intention of the parties is that the collaboration will assist Metallica to develop its SCONI scandium project and provide KBM Affilips with a secure a strategic, long-term and reliable major supply of scandium oxide – a “win-win” opportunity
- 18 month period;
- KBM Affilips will assist Metallica in its ongoing feasibility studies by providing indicative forecasts of its scandium oxide requirements and required scandium oxide product specifications (eg purity);
- KBM Affilips will assist Metallica in developing relationships with key Aerospace and component manufacturing companies, which allow Metallica to educate these companies on the SCONI project and the potential scandium supply it could deliver;
- KBM Affilips will assist Metallica in procuring funding for the development of the SCONI project;
- Metallica and KBM Affilips will, in good faith, enter into commercial negotiations with respect to an offtake agreement governing the sale of scandium from the SCONI project;
- Metallica is currently undertaking feasibility studies in to the world's first commercial large scale production of scandium oxide from the development of its SCONI scandium-cobalt-nickel resources at a processing rate of 750,000 tonnes of resource feed per annum, producing at least 40,000kg of scandium oxide, with the potential to increase to 100,000kg, per annum (Refer to Scoping Study details released to ASX on 4 July 2012); and
- The Strategic Alliance does not preclude Metallica from entering into commercial arrangements with other potential offtake partners.

## ABOUT KBM AFFILIPS

KBM Affilips is the marketing and sales organisation for a wide range of specialised master alloys manufactured by its production companies KBM Master Alloys in The Netherlands and Affilips in Belgium, both founded in the early sixties of the last century.

KBM was originally named as Kawecki-Billiton formerly owned by Shell/Billiton.

KBM Affilips is the world's largest manufacturer of non-ferrous master alloys delivering well over 40,000 tonnes of products to 80 different countries.

KBM Affilips has built an excellent reputation in the field of Aluminium-, Copper-, Nickel-, Cobalt- and Zinc-based master alloys. These master alloys are used in the manufacture of a wide range of metal products, including aluminium aircraft sheet, special steels and super alloys for aircraft engines, products for aerospace applications, nuclear reactors and other demanding applications.

KBM Affilips has established a reputation as an innovator and cost leader in the production of highly specialised Aluminium based master alloys such as the full range of Aluminium-Titanium-Boron grain refiners, Aluminium-Boron, Aluminium-Strontium and Aluminium-Scandium master alloys.

In 1989 KBM Affilips became the first master alloy being certified with ISO9001 and it is the oldest European producer of Aluminium Titanium Boron grain refiner rod products.

With more than 50 years of experience KBM Affilips presents itself as a financially solid as well as global partner for a wide range of industries.

Today KBM Affilips and its affiliates are part of the ROBA Group of companies, which has been active in the metal industry for over 75 years and is based in The Netherlands.



For more information on KBM Affilips, please visit its website [www.kbmaffilips.com](http://www.kbmaffilips.com).



Scandium is a potent aluminium grain refiner, allowing for smaller equigranular crystallisation which enhances strength and weldability

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Kevin Pery and  
Bill Stacey at the  
Greenvale Minesite

# Lucky Break Nickel Project

MFC EARNING UP TO A 50% INTEREST

The Lucky Break nickel project is located 140km west of Townsville in North Queensland (see Figure 3). Metals Finance Corporation (ASX:MFC) can earn up to a 50% interest in the project.

Under the terms of the JV, Metals Finance is responsible for funding, developing and managing the project.

During the year, Metals Finance obtained environmental and operating permits for the project. These are in the name of the leaseholder, NORNICO Pty Ltd (wholly owned subsidiary of Metallica Minerals). Subject to funding, the project is now ready to commence development.

In April 2012, Metals Finance entered into an initial agreement with the Dow Chemical Company (NYSE:DOW) to provide both technical and financial support for the Lucky Break project.

It is intended that the project will be used as the basis for identifying process improvements which may be applicable to the treatment of nickel laterite deposits on a global basis.

As part of the agreement, Dow will provide technical and process engineering support for the use of its Ion Exchange Resin PLS separations technology.

Metallica is not required to contribute any cash to the joint venture. Metals Finance will loan the JV the funds required to develop the project. Any surplus cashflow will be directed to the repayment of this loan.

Once repaid, surplus cash flow will then be distributed equally to Metals Finance and Metallica.

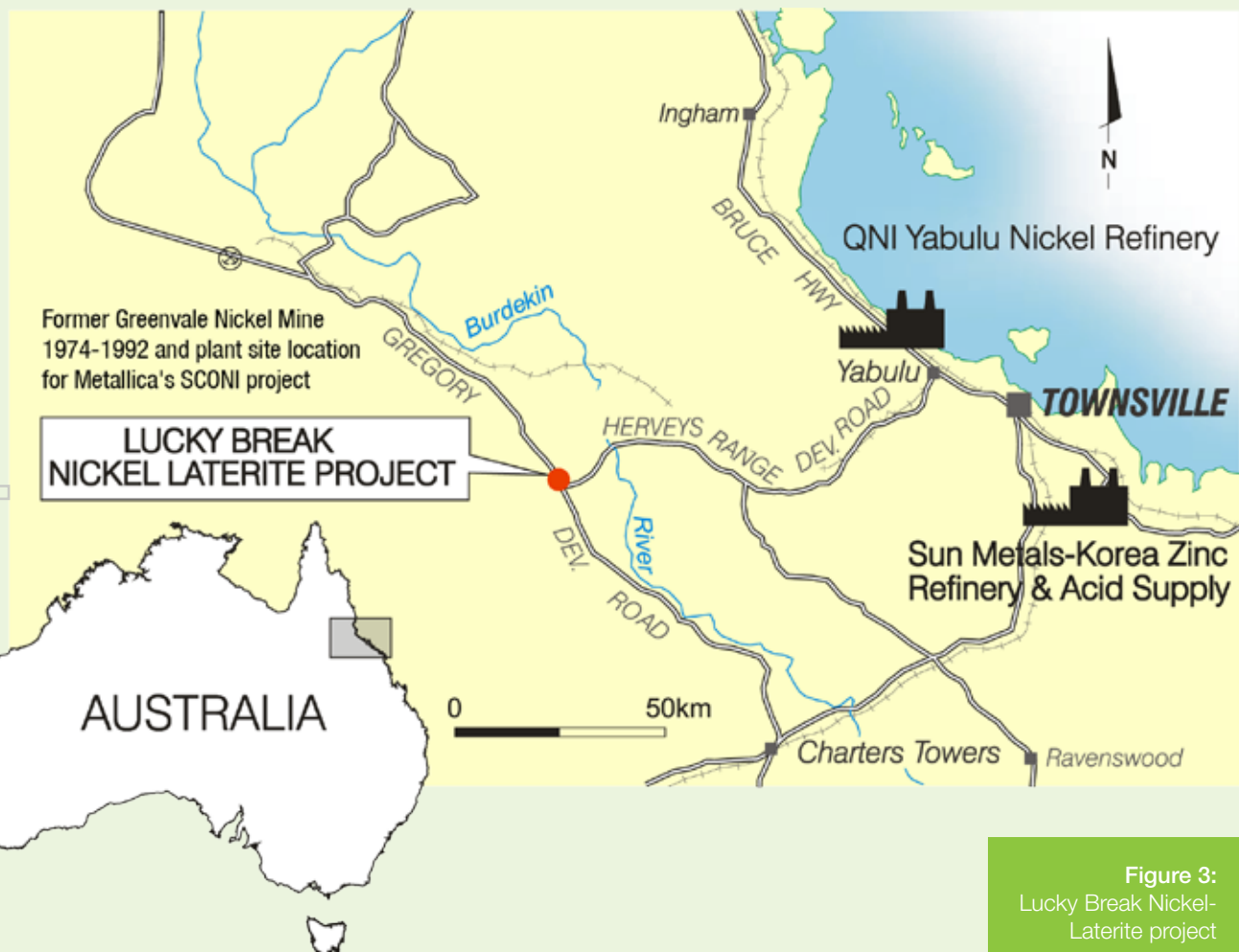


Figure 3:  
Lucky Break Nickel-  
Laterite project

# Weipa Zircon-Rutile HMS Project

MLM 100%

Through its wholly owned subsidiary, Oresome Australia Pty Ltd (Oresome), Metallica holds a 100% interest in a ~2,000km<sup>2</sup> tenement package in Cape York, Queensland. The tenement package comprises seven granted Exploration Permits for Minerals (EPM), seven EPM applications and one Mining Lease Application (Urquhart Point) for the Weipa project.

## WEIPA

The Weipa project is focussed on the Urquhart Point HMS deposit (3km west of Weipa) and contains an Indicated Resource of 2.8Mt @ 7% THM. The mineral assemblage within the resource consists approximately of half zircon and rutile. The resource extends to a maximum depth of 3m, and slimes are less than 1%. Overburden is also minimal, paving the way for expected low cost mining.

Oresome has commissioned Brisbane-based Calder Maloney Engineering to undertake a Definitive Feasibility Study for Weipa. The DFS contemplates a four year mining operation that will produce approximately 20,000tpa of a zircon-rutile rich concentrate. This potentially high value concentrate will then be sold for further downstream processing which will separate the zircon and rutile.

Oresome commissioned VDM Group to complete an Environmental Impact Study (EIS) for Weipa, which has been submitted for public review and comment. The EIS is expected to be approved late 2012, and will allow for the subsequent granting of a Mining Lease,

Oresome also remains in discussions the traditional land owners (Wik and Wik Way People) over compensation agreements. Oresome has developed a strong relationship with the Wik and Wik Way people and is focussed on finalising these agreements.

Pending the results of the DFS and obtaining relevant approvals and funding, the Weipa project could commence zircon and rutile concentrate production late 2013.

## EXPLORATION

Across the granted EPMs and EPM applications, Oresome has identified 23 high priority targets where potential HMS mineralisation may occur. These targets include sand dunes and strand lines along the coast near Weipa, through to the north towards the tip of Cape York Peninsula.

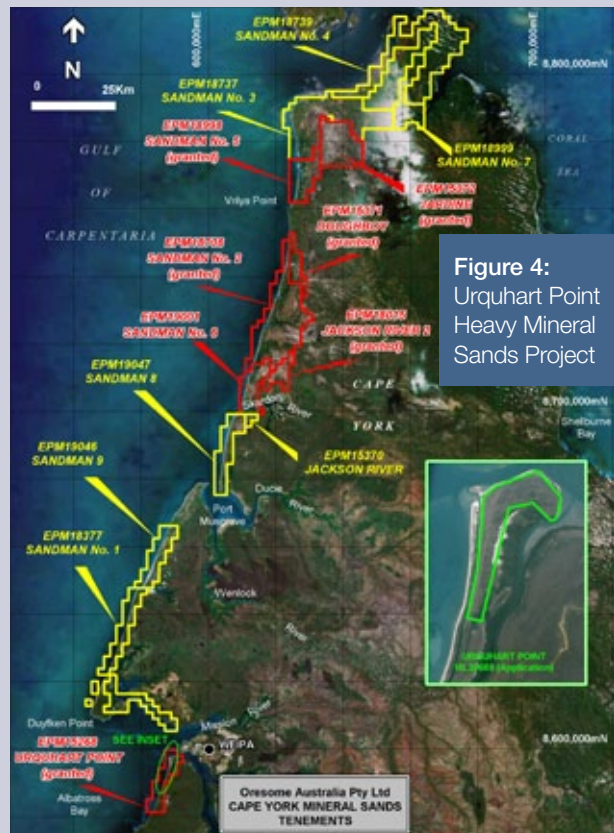


Figure 4: Urquhart Point Heavy Mineral Sands Project

### Competent Person Statement

The Urquhart Point resource estimate has been prepared by Mr Roger Hobbs B. App. Sc. (Geophysics & Geol), MAusIMM, who was previously a Director of Matilda Minerals Ltd (Oresome's former joint venture partner), who has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is to be undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Hobbs consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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HMS at  
Urquhart Point

# Gippsland Zircon-Titanium Minerals HMS Project

OPTION TO ACQUIRE 100%

Through its wholly owned subsidiary, Oresome Australia Pty Ltd (Oresome), Metallica entered into a Right to Explore and Option to Purchase Agreement with Rio Tinto Exploration Pty Ltd (Rio Tinto) under which Oresome has the exclusive right to explore and evaluate certain exploration licenses which comprise the Gippsland project in Victoria's South East.

## GIPPSLAND

The Gippsland project consists of nine granted exploration licenses which cover a total area of approximately 620km<sup>2</sup>. The tenements cover fossil strandlines of the Miocene-Pliocene shallow marine sand units of the Borisdale formation which on lap the Palaeozoic basement at the southern margin of the eastern Australian highlands.

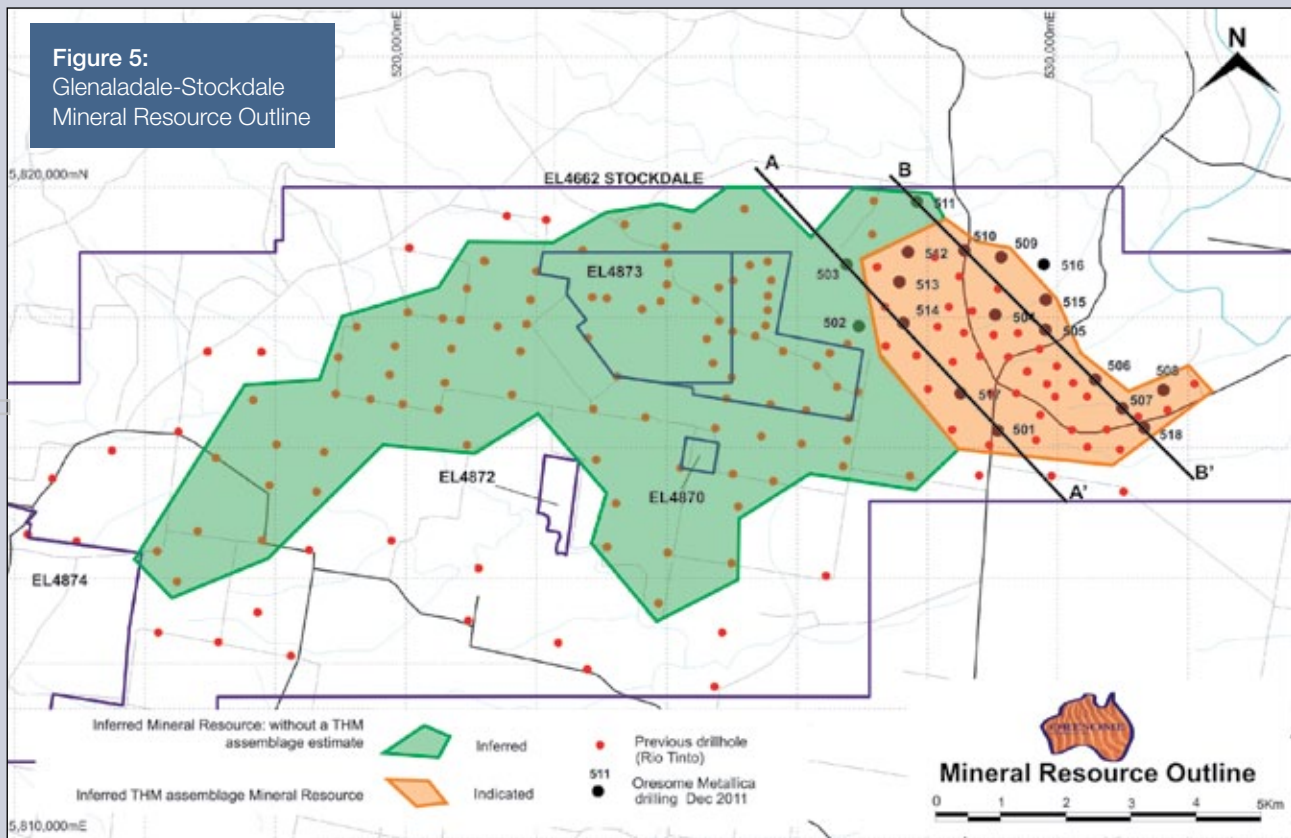
Rio Tinto completed an extensive exploration program including surface sampling, significant drilling (12,697m over 232 RC drill holes) and metallurgical testwork. An understanding of the characterisation of zircon, rutile and ilmenite components of the Gippsland project was developed from this work.

## EXPLORATION PROGRAM & MAIDEN JORC RESOURCE

Metallica completed a 43 drill hole program across 18 sites between December 2011 to January 2012. Working closely with AMC Consultants Pty Ltd (AMC), the drill program was designed to target areas that required more drilling in order to allow the calculation a maiden JORC Resource.

The results of the assays from the drill program were combined with the historical Rio Tinto workings and provided to AMC. AMC calculated a maiden JORC Inferred Resource for the project of 1.7Bt @ 2.2% THM using a 1.0% THM cut off grade (see Table 6).

The entire resource spanned an area of approximately 50 square kilometres. Within the resource, was an area of closer spaced drilling which provided sufficient data to calculate the Mineral Assemblage in this area in accordance with the JORC code (see Table 7).



## FURTHER WORK PROGRAM

Post the delineation of the maiden JORC Resource, Metallica commenced a work program as part its due diligence in potentially exercising the option to acquire the Gippsland project. This work program included a Scoping Study which would cover off on a number of key topics including:

- Processing and metallurgy studies
- Mineable resources and mining studies
- Environmental
- Financial and project risk assessment
- Transport and logistics

## RIGHT TO EXPLORE AND OPTION TO PURCHASE AGREEMENT

Upon execution of the Agreement, Oresome paid Rio Tinto A\$40,000. Key terms of the Agreement were:

- Oresome will spend at least A\$250,000 during the Option Period (this has been exceeded).

- Oresome can purchase a 100% interest in the exploration licenses at any time during the Option Period (ending 24 August 2012) for a purchase price of A\$8.0M with Rio Tinto retaining a 2.5% Net Smelter Revenue royalty

Oresome has met the first condition of the Agreement by incurring expenditure in excess of A\$250,000 on Gippsland since the entering into the Agreement. In August 2012, Rio Tinto granted an extension of the Option Period to Oresome. Oresome now has until 14 December 2012 to exercise the option to purchase the Gippsland project.

### Competent Person Statement

Technical information and exploration results contained in this report have been compiled by Metallica Minerals Ltd full time employee Andrew Gillies B.Sc MAusIMM in the position of Managing Director. Mr Gillies has sufficient experience that is relevant to the style of mineralisation being reported on to qualify as Competent Persons as defined in the 2004 edition of the Australasian Code for Reporting of Minerals Resources & Ore Reserves. Mr Gillies consents to the inclusion in this report of the matters based on the information in the form and context in which it appears

The Gippsland Zircon-Rutile HMS Project Mineral Resource estimates have been prepared by Mr Rodney Webster of AMC Consultants. Mr Webster BappSc, who is a competent person and a member of the Australasian Institute of Mining and Metallurgy and has relevant experience in the style of mineralisation being reported on to qualify as Competent Person as defined by the Australasian Code for Reporting of Minerals Resources and Reserves. Mr Webster consents to the inclusion in this presentation of the matters based on the information in the form and context in which it appears.

**Table 6. Glenaladale-Stockdale Deposit Mineral Resource at 1.0% THM cut-off**

Resource Category	Tonnes (Mt)	THM (%)	Slimes <38 µm size (%)	Contained HM (Mt)
Inferred	1,700	2.2%	24.4%	38

Reported in accordance with the JORC Code

**Table 7. Glenaladale-Stockdale Deposit Inferred THM Assemblage Mineral Resource (contained within the THM) at a cut-off of 1% THM**

Tonnes (Mt)	THM Mineral Assemblage (Inferred)				
	THM (%)	Zircon (%)	Rutile (%)	Combined Titanium Materials (%)	Monazite (%)
360	2.7%	15%	4%	50%	0.6%

Tonnes (Mt)	Contained THM Mineral Assemblage (Inferred)				
	Contained HM (Mt)	Zircon (kt)	Rutile (kt)	Combined Titanium Materials (kt)	Monazite (kt)
360	9.7	1,420	400	4,760	60

# Limestone projects

MLM 100%

Through its wholly owned subsidiary Phoenix Lime, Metallica owns six strategically located, high quality limestone projects in Queensland (see Figure 6).

## OOTANN

The Ootann project covers an area of 240 hectares of mining leases which contain large, high grade limestone deposits suitable for calcining and underpinning SCONI's limestone requirements.

Ootann is located 275km via road from the proposed SCONI processing site considered in the Scoping Study. This site is currently operational, manufacturing crushed rock and limestone products for sale into the local region.

## BLUE ROCK

This limestone deposit is conveniently located between SCONI's Minnamoolka and Kokomo nickel deposits.

## FAIRVIEW

Fairview comprises 693 hectares and may be developed to supply limestone into the expanding industrial market of Gladstone as opportunities arise.

## BOYNE

The two Boyne mining leases contain large, high quality limestone deposits suitable for lime and limestone markets in the Gladstone region and are close to the Lucky Break nickel project.

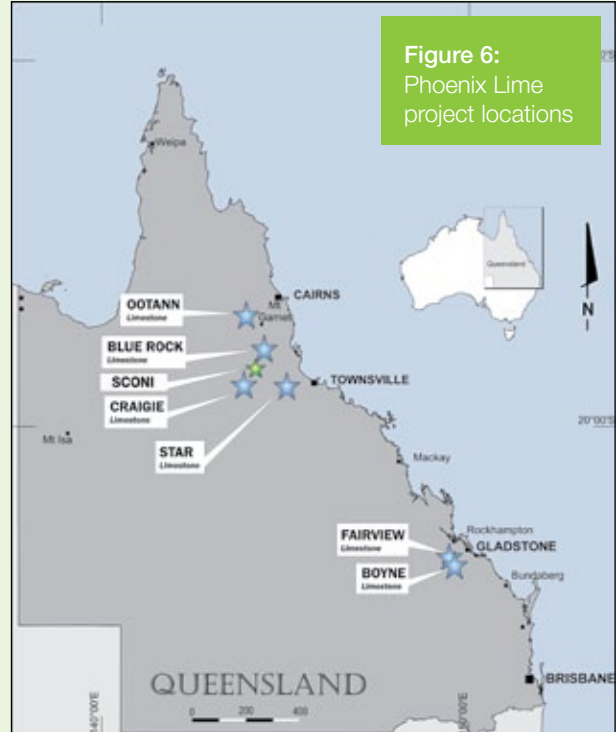


Figure 6:  
Phoenix Lime  
project locations

## STAR RIVER

The high grade limestone deposit at Star River occurs as a slightly elevated, mostly exposed limestone deposit with little or no overburden only 105km from Townsville.

## CRAIGIE

This project is located 60km southwest from SCONI's proposed processing site and represents another lime and limestone option for the project.



Ootann  
Limeworks



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Ootann  
Limeworks

# Tenement schedule

AS AT 30 JUNE 2012

## SCONI NICKEL-COBALT PROJECT – NORTH (100%)

Tenement	Project Name	Holder/Applicant	Status (Expiry date)	No. Sub Block	Commodity Targeted	Min. Annual Expenditure
ML 4187	Bell Creek North Lease	NORNICO Pty Ltd	Granted (29/2/2020)	71.35 Ha	Ni, Co	N/A
ML 4188	Bell Creek South Lease	NORNICO Pty Ltd	Granted (29/2/2020)	98.11 Ha	Ni, Co	N/A
MLA 20549	Bell Creek Consolidated	NORNICO Pty Ltd	Application	1224.4005 Ha	Ni, Co	N/A
EPM 11285	Bell Creek	NORNICO Pty Ltd	Granted (27/8/2011)*	6	Ni, Co	\$10,000
MDL 387	Minnamoolka	NORNICO Pty Ltd	Granted (30/6/2013)	654.26 Ha	Ni, Co	N/A

## SCONI SCANDIUM-COBALT-NICKEL PROJECT – SOUTH (100%)

Tenement	Project Name	Holder/Applicant	Status (Expiry date)	No. Sub Block	Commodity Targeted	Min. Annual Expenditure
EPM 10680	Lucknow North	Greenvale Operations Pty Ltd	Granted (31/12/2015)	3	Ni, Co, Sc	\$100,000
EPM 10866	Lucknow South	Greenvale Operations Pty Ltd	Granted (31/12/2015)	4	Ni, Co, Sc	\$100,000
MLA 10366	Lucknow	Greenvale Operations Pty Ltd	Application	268.94 Ha	Ni, Co, Sc	N/A
EPM 11223	Dinner Creek	Greenvale Operations Pty Ltd	Granted (31/12/2015)	7	Ni, Co	\$100,000
MLA 10368	Greenvale	Greenvale Operations Pty Ltd	Application	3357.9285 Ha	Ni, Co	N/A
MLA 10342	Kokomo	NORNICO Pty Ltd	Application	1818.91 Ha	Ni, Co, Sc	N/A
EPM 10699	Kokomo	NORNICO Pty Ltd	Granted (21/8/2013)	11	Ni, Co, Sc, Au	\$5,000
EPM 13873	Six Mile	NORNICO Pty Ltd	Granted (10/12/2013)	1	Ni, Co, Sc, Au	\$15,000
EPM 14066	Greenvale South	NORNICO Pty Ltd	Granted (22/08/2011)*	26	Ni, Co, PGE	\$10,000
EPM 14070	Greenvale North	NORNICO Pty Ltd	Granted (22/08/2011)*	20	Ni, Co, Cu, Au	\$10,000
EPM 14181	Lucky Downs	NORNICO Pty Ltd	Granted (22/08/2011)*	8	Ni, Co, Cu	\$10,000
EPM 14381	Greenvale South #2	NORNICO Pty Ltd	Granted (14/12/2011)*	8	Ni, Co, Cu	\$10,000
EPMA 17892	Lockup Well	NORNICO Pty Ltd	Application	1	Ni, Co	\$15,000
EPMA 17893	Broken River South	NORNICO Pty Ltd	Offered for grant	3	Ni, Co	\$20,000
EPM 18175	Pinnacles Consolidated	NORNICO Pty Ltd	Granted (22/2/2015)	13	Ni, Co	\$50,000

LUCKY BREAK NICKEL PROJECT (100%) – MFC EARNING UP TO A 50% INTEREST

Tenement	Project Name	Holder/Applicant	Status (Expiry date)	No. Sub Block	Commodity Targeted	Min. Annual Expenditure
ML 10324	Dingo Dam	NORNICO Pty Ltd	Granted (28/02/2026)	36.17 Ha	Ni	N/A
ML 10332	Lucky Break	NORNICO Pty Ltd	Granted (30/11/2027)	241.7 Ha	Ni	N/A

LIMESTONE PROJECTS (100%)

Tenement	Project Name	Holder/Applicant	Status (Expiry date)	No. Sub Block	Commodity Targeted	Min. Annual Expenditure
ML 10276	Star River Limestone	Metallica Minerals Ltd	Granted (30/4/2023)	18.54 Ha	Limestone	N/A
ML 80131	Boyne Limestone NE	Metallica Minerals Ltd	Granted (30/4/2027)	54.40 Ha	Limestone	N/A
ML 80132	Boyne Limestone SW	Metallica Minerals Ltd	Granted (30/9/2027)	52.70 Ha	Limestone	N/A
EPM 13423	Boyne Limestone	Metallica Minerals Ltd	Granted (1/1/2011)*	4	Limestone	\$15,000
EPM 18523	Craigie	Phoenix Lime Pty Ltd	Granted (25/7/2016)	16	Limestone	\$25,000
EPM 18761	Fairview	Metallica Minerals Ltd	Granted (21/10/2016)	6	Limestone	\$10,000
ML 80162	Fairview	Metallica Minerals Ltd	Granted (31/12/2035)	692.8 Ha	Limestone	N/A
ML 4788	Crotty 1	Phoenix Lime Pty Ltd	Granted (31/1/2026)	2.023 Ha	Limestone	N/A
ML 4789	Crotty 2	Phoenix Lime Pty Ltd	Granted (31/1/2026)	2.023 Ha	Limestone	N/A
ML 5079	Crotty	Phoenix Lime Pty Ltd	Granted (30/4/2025)	25.95 Ha	Limestone	N/A
ML 5372	Crotty 3	Phoenix Lime Pty Ltd	Granted (31/1/2013)	210 Ha	Limestone	N/A
EPMA 19319	Khartum	Phoenix Lime Pty Ltd	Application	3	Limestone	\$20,000
EPM 14518	Mt Garnet South #2	NORNICO Pty Ltd	Granted (7/3/2012)*	10	Limestone	\$10,000

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## Tenement schedule

### MINERAL SANDS: ZIRCON-RUTILE (100%) - WEIPA HMS PROJECT

Tenement	Project Name	Holder/Applicant	Status (Expiry date)	No. Sub Block	Commodity Targeted	Min. Annual Expenditure
MLA 20669	Urquhart Point	Oresome Australia Pty Ltd	Application	366.07 Ha	Rutile, Zircon, HMA	N/A
EPM 15268	Urquhart Point	Oresome Australia Pty Ltd	Granted (24/10/2012)*	23	Rutile, Zircon, HMS	\$40,000
EPMA 15370	Jackson River	Oresome Australia Pty Ltd	Offered for grant	3	Rutile, Zircon, HMS	\$15,000
EPM 15371	Doughboy	Oresome Australia Pty Ltd	Granted (28/9/2014)	16	Rutile, Zircon, HMS	\$30,000
EPM 15372	Jardine	Oresome Australia Pty Ltd	Granted (28/9/2014)	45	Rutile, Zircon, HMS	\$30,000
EPM 18015	Jackson River #2	Oresome Australia Pty Ltd	Granted (18/10/2015)	14	Rutile, Zircon, HMS	\$20,000
EPM 18377	Sandman #1	Oresome Australia Pty Ltd	Offered for grant	63	Rutile, Zircon, HMS	N/A
EPMA 18737	Sandman #3	Oresome Australia Pty Ltd	Offered for grant	97	Rutile, Zircon, HMS	N/A
EPM 18738	Sandman #2	Oresome Australia Pty Ltd	Granted (03/09/2018)	96	Rutile, Zircon, HMS	\$65,000
EPMA 18739	Sandman #4	Oresome Australia Pty Ltd	Offered for grant	98	Rutile, Zircon, HMS	N/A
EPM 18998	Sandman #5	Oresome Australia Pty Ltd	Granted (03/09/2017)	31	Rutile, Zircon, HMS	\$15,000
EPMA 18999	Sandman #7	Oresome Australia Pty Ltd	Offered for grant	31	Rutile, Zircon, HMS	N/A
EPM 19001	Sandman #6	Oresome Australia Pty Ltd	Granted (12/09/2017)	28	Rutile, Zircon, HMS	\$15,000
EPMA 19046	Sandman #9	Oresome Australia Pty Ltd	Application	29	Rutile, Zircon, HMS	N/A
EPMA 19047	Sandman #8	Oresome Australia Pty Ltd	Application	32	Rutile, Zircon, HMS	N/A

**Note:**

All tenements 100% held unless expressed otherwise

(\*) Renewal pending

PGE = Platinum Group Elements

HMS = Heavy Mineral Sands

EPM = Exploration Permit for Minerals

EPMA = Application for Exploration Permit for Minerals

ML = Mining Lease

MLA = Application for Mining Lease

MDL = Mineral Development Licence

MDLA = Mineral Development Licence Application

MFC = Metals Finance Ltd

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Gippsland HMS  
Project, Glenaladale  
Air-Core Drilling  
December 2011

# Top 20 shareholders

AS AT 30 SEPTEMBER 2012

Rank	Name	Total Units	% of Issued Capital
1	JIEN MINING PTY LTD	25,139,908	18.99
2	VICTORIAN FERRIES PTY LTD	16,556,702	12.51
3	GOLDEN BREED PTY LTD	9,700,000	7.33
4	BONDLINE LIMITED	4,910,966	3.71
5	CODAN TRUSTEES <THE MOUNT COTTON ACCOUNT>	2,500,000	1.89
6	ASDEN INVESTMENTS PTY LIMITED <ASDEN P/L STAFF S/F A/C>	2,243,274	1.69
7	CHINA XINFA GROUP CORPORATION LIMITED	1,964,386	1.48
8	JP MORGAN NOMINEES AUSTRALIA LIMITED <CASH INCOME A/C>	1,811,609	1.37
9	ROBERT JOHN GILLIES	1,342,164	1.01
10	MINNELEX PTY LTD <PYPER FAMILY A/C>	1,307,434	0.99
11	ALTHEA AND RICHARD BOND SUPER PTY LTD <ALTHEA & RICHARD BOND S/F A/C>	1,200,000	0.91
12	MISS JUDITH EMILY RUWOLT	1,121,911	0.85
13	DR PAUL ROBERT MESSENGER + MS MANDALEY PERKINS <MESSEL SUPER FUND A/C>	1,060,000	0.80
14	CAROJON PTY LTD <IMBRUGLIA S/F A/C>	1,000,000	0.76
15	DOSTAL NOMINEES PTY LTD <PGJ&D DOSTAL BLOODLINE A/C>	851,025	0.64
16	RYAHED PTY LTD <RYAHED SUPER FUND A/C>	813,933	0.61
17	MR ANTONY BRUCE PERKINS	769,540	0.58
18	MR ROBERT CHARLES PYPER	747,000	0.56
19	SELECT RESOURCES PTY LTD	729,000	0.55
20	LATSOD PTY LTD <DOSTAL SUPERFUND A/C>	725,000	0.55
<b>TOTAL FOR TOP 20</b>		<b>76,507,742</b>	<b>57.80</b>

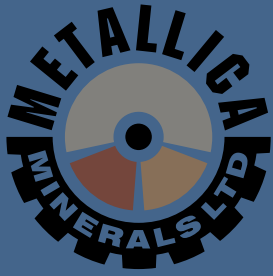
## CAPITAL STRUCTURE

Total shares on issue as at 30 September 2012 was 132,357,710, and the Company has approximately 2,046 shareholders.

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Typical Laterite exposure



# METALLICA MINERALS LTD

ABN 45 076 696 092

A clear strategy  
for major growth

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