Metallica Minerals Ltd

Binding Scandium offtake supports viable project

- Metallica has signed a binding heads of agreement (HOA) with Bloom Energy regarding future sales of scandium oxide from MLM's SCONI project, the key hurdle to move to SCONI to DFS status. A more definitive Offtake Agreement is expected to replace the HOA within 120 days.
- Key terms include the sale of up to 30t, to 60t, of scandium oxide per annum over a five year period, with a 5 year option, rolling annually thereafter. We understand Bloom's minimum offtake commitment will be demand related, however, we anticipate strong growth in the North American fuel cell market over the next decade. As such we apply a small probability of an initial offtake of <30t per annum.

Strong growth in Bloom sales anticipated

- Bloom announced a 4-times expansion of their Sunnyvale manufacturing facility in April 2011 and broke ground on a Delaware manufacturing centre in April 2012. Recent uptake of large scale power facilities at eBay (6MW), Apple (4.8MW), and AT&T (7.5MW across 11 facilities, with plans to add 9.6MW) indicates the potential for their SOFC product. We understand the company expects to grow production by ~40% per annum over the next 4 years. Scandium oxide is one of several integral materials used the production of Bloom Energy Fuel cells.
- On the basis that Bloom Energy expand SOFC production at this rate we see the potential for Scandium oxide demand to be at/beyond the upper end of the Bloom Energy/MLM HOA.

Master alloy strategic alliance - MOU

- MLM have also announced that they have entered into an MOU for a Strategic Alliance with KBM Affilips, a leading producer of master alloys (including scandium-aluminium alloys) for the aerospace industry. Key terms of the MOU include: an 18 month term, technical, supply chain relationship and project funding assistance. In the absence of any unforseen impediments we anticipate that this MOU will lead to a long term offtake agreement further underpinning the viability of the SCONI project.

Recommendation and Valuation

- We retain a Speculative BUY and price target of $0.51 per share based on the listed/unlisted assets of the company using a base case for the SCONI project of 30tpa Sc_2O_3 production (initial).
- We view the Bloom agreement and KBM MOU as positive (both underpinning potential for a greater Sc_2O_3 base level of production) and a key catalyst to move to DFS status. We see significant upside to our valuation should a) MLM enter into further, or formalise offtake agreements b) deliver an economic DFS in DH13 or c) a project partner/funding for SCONI.

MLM.ASX Spec. BUY

Wednesday 3 October 2012

Price	A$	0.27
Price Target	A$	0.51
Valuation	A$	1.19
Valuation Method		DCF/Sum of parts
Financial Year End		June
GICS sector		Metals & Mining
Market capitalisation	A$m	35
Shares on Issue	m	132
Enterprise value#	A$m	26
Previous rating		Initiation

Includes MTE/CBX shares valued at $13.5m (2/10/12)

Directors

David Barwick	Non-Executive Chairman
Andrew Gillies	Managing Director
John Haley	Executive Director/CFO
Barry Casson	Non-Executive Director
Wu Shu	Non-Executive Director
Tao Li (Alternate to Wu Shu)	Non-Executive Director

Top 5 share holders

Jien Mining Pty Ltd	19.0%
Victorian Ferries Pty Ltd	12.2%
Golden Breed Pty Ltd	7.5%
Bondline Ltd	3.8%
Codan Trustees	1.9%
Top 20 Shareholders	55.4%

MLM Vs ASX Small Ords (XSO)

Source: IRESS

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Bloom Energy

Board of Directors

John Doerr; Kleiner Perkins Caufield & Byers

General Colin Powell; Former U.S. Secretary of State

TJ Rodgers; Chairman, SunPower

Scott Sandell; New Enterprise Associates

Jagdeep Singh Bachher, Ph.D., ICD.D; Alberta Investment Management Corporation

KR Sridhar, Ph.D; Co-Founder and Chief Executive Officer

Eddy Zervigon; Morgan Stanley

2010 Revenue*: $63M
2011 Revenue*: $234M

Expected revenue growth: 40% pa

Funds raised 2001-2011: $963M

Key Investors: **KPCB**
Mobius Venture Capital
New Enterprise Assoc

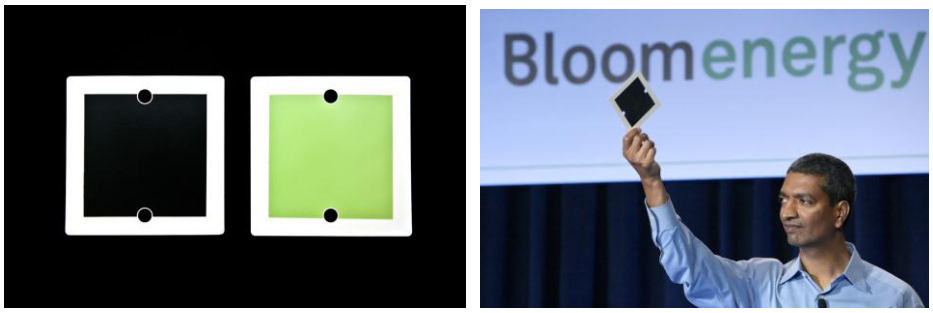
* Source: Candle Stick Advisors

Founded in 2001, Bloom Energy is headquartered in Sunnyvale, California. The company has focused on commercialisation and development of on-site energy generation units (solid oxide fuel cell) founded on technology originally derived for NASA's Mars program.

Capable of running on multiple fuel sources, including natural gas and biogas, Bloom has delivered units to many large US clients, including: Adobe, Apple, AT&T, Bank of America, BD, Caltech, The Coca-Cola Company, Cox Enterprises, eBay, Fedex, Fireman's Fund, Google, Kaiser Permanente, NTT, Safeway, Staples, Sutter Home Winery, Walmart.

The key benefits, particularly attractive to corporate customers in North America, are the ability to efficiently (and quietly) generate power using natural gas, without reliance on grid power, combined with the ability to reduce carbon footprint over conventional generation. Bloom installations range in generating capacity from <100kW to 5MW and above.

Image 1: Bloom fuel cell wafer (A zirconium based ceramic, doped with scandium), Image 2: KR Sridhar holding a Bloom fuel cell wafer



Source: Bloom Energy

Image 3: Washington Gas installation, Image 4: eBay installation

Source: Bloom Energy

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 or high performance applications.

KBM Affilips has established a reputation as an innovator and cost leader in the production of highly specialized 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 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 refer to its website www.kbmaffilips.com

Key Investment Drivers

- Scandium exposure is extremely rare. Scandium is potentially the next game-changer in the aerospace sector, as an alloying component that improves the strength, heat resistance and ability to weld alloys. There is also potential in the SOFC market, where due to scandium's high level of conductivity, scandium-doped zirconia electrolytes have been proven to be highly efficient. MLM are positioned to be the only scalable supplier of this specialty metal.
- Exposure to three development projects, of differing scale and varied capital requirements. Very little value is attributed to these projects by the market.
- Urquhart Point, a small high grade HMS project located in Weipa, QLD provides MLM with the opportunity to develop a small, low capital intensity, high margin Zircon/Rutile project with the potential for strong cash flows.
- Gippsland HMS project $8m option – large, moderate grade, long life asset. MLM are well positioned to make payment, funded by a combination of current cash, the existing debt facility, or sale of listed assets.

Company Background

Metallica Minerals Limited is an Australian resource company with development projects in Nickel-Cobalt & Scandium and Zircon-Rutile.

Since its ASX listing in November 2004, Metallica Minerals (MLM.ASX) has maintained a focus on the development of the SCONI nickel-cobalt-scandium project in north Queensland, while diversifying its business through a series of strategic resource project acquisitions, non-core asset sales and corporate alliances. MLM hold 100% of the SCONI nickel-cobalt-scandium project, previously an 80/20 JV with Straits Resources. More recently, the company has resumed their focus on heavy mineral sands through 100% ownership in the Urquhart Point (QLD) HMS project, formerly joint ventured out to Matilda Zircon, and an option (Aug-12 expiry) to acquire 100% of Rio Tinto's Gippsland HMS project.

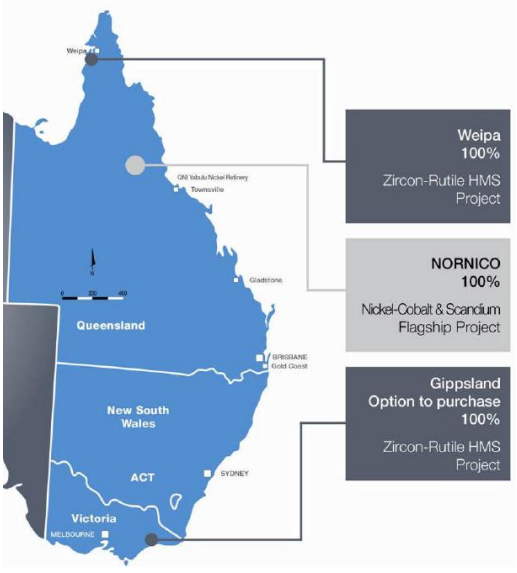


Figure 1 – Location map of MLM's mining projects

The company has been an incubator for resource projects, divesting some assets over time as well as listing others. The company currently holds significant positions in QLD coal company Metro Coal (31%) and Cape Alumina (19%) having recently exited their Planet Metals (37%) and Orion Metals (16%) holdings.

Scandium 1.0.1.

Often considered alongside yttrium, lanthanides and actinides to be a rare earth element, scandium (Sc) is a hard, rare, silvery metal. Scandium exists at grades that, with the exception of several small deposits, and a handful of tailing treatment opportunities, make it uneconomic to extract.

Historically scandium has only been produced as a bi-product of tungsten, rare earths, apatite/phosphorus, uranium and thorium through the treatment of scandium enriched tailings. Scandium was first extracted in meaningful quantities (kgs) in the 1960's, with current global consumption, estimated to be 5-10t per annum, sourced from existing tailings treatment operations and declining Soviet-era stockpiles.

While currently a small market (supply side constrained), the uses of scandium are well documented and highly applicable in a carbon conscious world continuing to strive for transportation and energy efficiency.

Scandium is used as an alloying agent in aluminium, where up to 2% by weight addition (typically 0.2% - 0.5% and often in combination with other alloying agents) results in improvements in strength and hardness (via its ability to reduce crystal size (Al_3Sc nucleation) and control the lattice structure of the alloy). The addition of scandium also results in significant improvements in the ability to withstand heat/welding by improving the re-crystallisation properties of, and maintaining the mechanical properties of the alloy. Current applications, restricted by a lack of supply include high-tech aerospace (Russian MIG fighters and the Russian space station) and sporting products (golf clubs, mountain bikes, gun frames, tent poles and baseball bats), while a less restrictive supply could pave the way for Sc-Al alloy applications in commercial airliners and automotive travel.

Solid oxide fuel cell (SOFC) technology involving the use of scandia stabilised zirconia electrolytes has been shown to significantly increase operating efficiency (of up to 85%) with a reduction in operating temperature. Combined with the growth in unconventional natural gas and subsequent declines in natural gas pricing, the opportunity to generate electricity on a home, business or community scale using SOFC technology has never been greater.

Scandium (a far more common element in the sun compared to the earth's crust) is also used in lighting applications for sporting grounds and in television/movie sets providing a light source that more closely matches natural sun light.

The market for scandium is at present very small and extremely opaque. Current public pricing of scandium metal is $6,000-$10,000/kg, while scandium oxide or scandia (99.9%) is $1,500-$3,500/kg (source: www.stanfordmaterials.com), although a direct enquiry resulted in a quote of ~$5,800/kg.

Historically, a lack of supply has constrained the use of scandium. The development of a high grade project that can provide reliable, secure, stable long term production should drive the development of a scandium/scandia market.

Fuel Cell Technology

Features of a modern SOFC

Low cost materials – SOFCs use a common sand-like powder instead of precious metals like platinum or corrosive materials like acids.

High electrical efficiency – SOFCs can convert fuel into electricity at nearly twice the rate of some legacy technologies.

Fuel flexibility – SOFCs are capable of using either renewable or fossil fuels.

Benefits of Fuel Cells

Carbon Sequestration: The electrochemical reaction occurring within SOFCs generates electricity, heat, some H2O, and pure CO2. The pure CO2 emission could allow for easy and cost-effective carbon sequestration.

Reverse Backup: Businesses often purchase generators, uninterruptible power supplies and other expensive backup applications that sit idle 99% of the time, purchasing electricity from the grid as their primary source. SOFCs allow customers to reverse this model, by using a SOFC system as their primary power, only purchasing electricity from the grid to supplement the output when necessary. Increased asset utilization leads to dramatically improved ROI.

Time to Power: SOFC systems can be installed quickly. Fast installation simply requires a concrete pad and a fuel source. The small environmental footprint reduces permitting requirements, streamlining the approval process.

Companies that use this technology include: Walmart, Apple, eBay, Google, Adobe, FedEx, Coke, and Safeway .

Fuel cells were invented over a century ago and have been used in practically every NASA mission since the 1960's, but until now, they have not gained widespread adoption because of their inherently high costs, use of expensive or hard to contain molten materials and energy efficiency only marginally better than alternatives. In the absence of applications that required specific combined heat and power (CHP) requirements fuel cells have not been able to deliver a strong enough economic value proposition to overcome the status quo.

The development of SOFCs has shown that this technology can deliver attractive economics without relying on CHP. Until now, there were significant technical challenges inhibiting the commercialization of this technology. SOFCs operate at extremely high temperature (typically above 800°C). This high temperature gives them extremely high electrical efficiencies, and fuel flexibility, both of which contribute to better economics, but also creates engineering challenges.

The development of low cost ceramic materials (Zirconium based), and extremely high electrical efficiencies has resulted in the development of fuel cells that are clean, reliable, and economically attractive.

How does a fuel cell work?

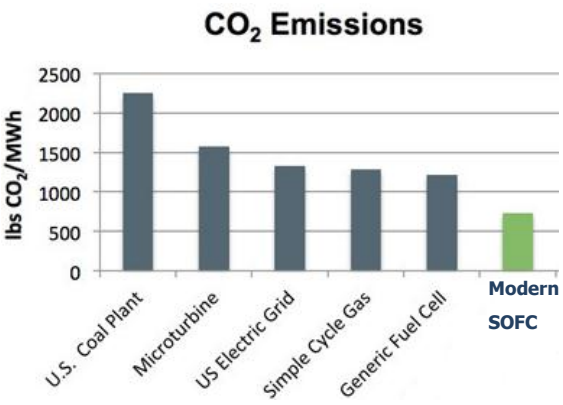
A fuel cell is like a battery that always remains charged. It consists of three parts: an electrolyte, an anode, and a cathode. It operates by passing natural gas (combined with steam) and air over the cells anode and cathode respectively. Oxygen (in the form of ions) from the air pass across the electrolyte reacting with the fuel to convert the hydrocarbon molecules to CO_2 and water, releasing electrons and thermal energy.

The electrolyte in a SOFC is a solid ceramic material. The anode and cathode are made from special materials that coat either side of the electrolyte. No precious metals, corrosive acids, or molten materials are required.

SOFCs operate at a high temperature (~800°C), sustained by the exothermic chemical reaction and recycled by pre-heating the air and steam/gas inputs.

As long as there is fuel, air, and heat, the process continues.

Environmental benefits



Source: Veritas Securities, Bloom Energy

SOFCs have been proven to be highly efficient converters of chemical energy (>60%), significantly higher than base load coal fired generation and some gas fired generators. When transmission losses are considered, SOFC technology provides the most efficient and scalable (e.g. 500kW – 30MW) hydrocarbon based electricity supply alternative in North America. This also makes them one of the most efficient on a CO_2/MWh basis.

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RATING

BUY – anticipated stock return is greater than 10%
SELL – anticipated stock return is less than -10%
HOLD – anticipated stock return is between -10% and +10%
SPECULATIVE – High risk with stock price likely to fluctuate by 50% or more

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