

HD LMG: MAGNESIUM + CEMENT FROM BROWN COAL FLY ASH FROM GERMAN UTILITY RWE'S MINE + LATROBE VALLEY PRODUCTION FROM DEC 2015 - MINIMAL CO2 EMISSION + SUBSTANTIALLY CHEAPER THAN CURRENT MAGNESIUM PRODUCTION PROCESSES/IMPORTS

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Latrobe Magnesium, headed by expert and tenacious management, after a hard slog for more than a dozen years as a listed company has, on March 11, announced that German utility RWE has accepted LMG's concept study for magnesium and cementitious material extraction from fly ash from its Hambach brown coal mine in Germany - and plans to move forward towards production, with a meeting scheduled for June.

LMG's achieving recognition of its technology by one of the world's biggest utilities is a vindication of management's determination in progressing and patenting its technology.

LMG, barely known in Australia, trades at a half cent.

Meanwhile, magnesium production at LMG's own project in the Latrobe Valley is slated to begin by December 2015.

While there is no magnesium production in either modern Germany or in Australia (mostly imported from China) - use is steadily increasing for both automotive and aeroplane components.

In Australia, there is also the possibility to create new production lines for magnesium components for the car manufacturing industry - replacing in some part the withdrawal of car manufacturers in 2016.

The Victorian State Government is supportive of LMG's project.

LMG is in close touch with offtake partners ready to take supply - and certain China banks have signified their willingness to support the Australian venture once production is underway.

Magnesium

UBS in a report on magnesium metal dated March 14 said, "magnesium is among the lightest of all the commonly used structural metals, 1/4th the weight of steel and 2/3rds the weight of aluminium. Magnesium is primarily used in structural applications due to its lightness and ability to die cast.

Magnesium does not naturally occur in its native state but is produced from magnesite or magnesium chloride, using different production processes. Magnesite itself is produced mainly from magnesite.

Global magnesium consumption is estimated to grow at an annual rate of 6.6% from 2012 to 2016 and at 7.1% between 2017 and 2026. Regionally, consumption in China is forecast to increase at a CAGR of 12% between 2012 and 2016.

Production by current methods:

UBS reports the "Electrolytic Process" is used by US Magnesium Utah, Dead Sea Magnesium in Israel and several Russian/Ukrainian operations.

Electrolysis of molten magnesium chloride is performed in an electrolytic cell following the removal of water from hydrous magnesium chloride.

The magnesium chloride cell feed for the electrolytic process is obtained from the ocean, brines rich in magnesium chloride, residual bitterns from the processing of potash, dolomite or magnesium oxide ores. The electrolytic process is generally located in areas with abundant low cost hydroelectric power since it is very capital intensive and requires significant amounts of electrical **energy**.

The 'Silico-thermic/Pidgeon Process' involves the use of a reducing agent such as ferrosilicon or aluminium, which is mixed with Mg at high temperatures and low pressures to produce magnesium metal vapour. The process is most commonly used in **China**. It requires about 1/10th the capital cost of the electrolytic process but uses more **energy**, typically in the form of **coal** and is significantly more labor intensive.

Latrobe Magnesium's proprietary hydromet technology:

Latrobe has now proven technology to extracting magnesium from its patented (in conjunction with EcoEngineers Pty Ltd) hydromet technology - Australian patent granted in October 2013.

*Manufacture costs far less than other methods of extraction and is extracted from an otherwise waste material, fly ash from brown **coal** used in electricity generation.

*CO₂ is sequestered in the LMG manufacturing process rather than emitted.

*Residual ash after magnesium oxide is extracted is cementitious material that added to cement saves up to 5 tonnes of CO₂ emission for every 6 tonnes of cement it replaces.

Magnesium use is extensive, and growing particularly for **m**/vs and aircraft.

*In the EU ruling (imposition now from 2017 rather than 2016) cars have to emit no more than 95 kg of CO₂ per car kilometer, with around a 10% penalty if they don't achieve this. Achieving this target will add some Euro 3/4000 to the cost of a car - and the penalties for non compliance are heavy.

*Airplane makers are faced with similar potential imposts, with the hunt for lighter but just as strong materials to replace steel of great importance.

(The lighter the vehicle, the less the fuel consumption and CO₂ it emits).

*Germany imports over 150,000 tonnes of magnesium annually.

Magnesium is also used in the manufacture of laptop computers, mobile phones and power tools.

* * *

While not all brown **coal** is suitable for the extraction of magnesium, one of RWE's five brown **coal** mines (the only one of 5 brown **coal** mines in the Ruhr) has proven suitable - and since it has a higher **iron** content, plans are afoot to simultaneously also extract **iron**.

In Victoria, the **company** expects to progress its Latrobe Valley fly ash to magnesium and cement production by December 2015.

LMG also expects to receive both a partnering fee and royalty from the RWE agreement - and with several countries globally with large brown **coal** deposits and Nil or expensive magnesium production, significant royalties are also a future possibility.

Latrobe Magnesium is managed by dedicated executives who together hold some 25% of the **company** and have more than 25 years expertise in the industry. Cash strapped, and despite an investor public's disbelief in their technology, their hard work has been vindicated and the future is dazzling.

With the shares trading at just a half cent, they offer a huge opportunity to the patient investor.

LATROBE MAGNESIUM LTD - A SNAPSHOT

Rambora Technologies Ltd (previously Money **Mining**) acquired Magnesium Investments Pty Ltd in 2001 and then changed its name to Latrobe Magnesium.

The technology, patent granted in Australia, applied for in several countries

Magnesium Investments Pty Ltd, 100% owned by LMG and Ecoengineers Pty Ltd are 50/50 owners of a granted Australian patent for its hydromet process.

The process involves the treatment of spent fly ash from brown **coal** powered electricity generation using chemicals to reduce sulphur, **iron** and silicon to acceptable levels so that the beneficiated material can be used as feedstock in the thermal reduction process.

The **company**'s process to recover magnesium from brown **coal** fly ash, a by product of power production is far less costly than **mining** magnesium in the form of magnesium carbonate or magnesite - and also dramatically less environmentally damaging. Also CO2 is sequestered in the LMG hydromet manufacturing process rather than being emitted as with MgCO3 feedstock.

The residual ash after magnesium oxide is removed is cementitious - adding it to cement saves up to 5 tonnes of CO2 emissions for every 6 tonnes of cement.

The result is an efficient and novel means of magnesium production extracted from tailings of industrial fly ash from some of the world's brown **coal** electricity generators. The patent is owned 50/50 by EcoEngineers and Magnesium Investments, with LMG holding exclusive worldwide marketing rights.

Patent applications have been lodged with the countries of the EU, US, **China**, India and Indonesia all of whom are known to have large lignite/brown **coal** deposits.

(The recent Morwell fire disaster has no bearing on current **mining** or power production - LMG can also process the ash dam fly ash if it requires to - which would also be a bonus to the owners in that the dams need to be rehabilitated).

The projects

1) Latrobe Valley magnesium and cementitious material production.

Progress to date:

*The biggest sample of magnesium is being produced next week for **China** - a 500 kg sample of beneficiated material intended for processing through an operating smelter to verify the production of magnesium in a **commercial** environment.

*In May the biggest cement test will be undertaken, with the **company** going to the next level of **commercial** test work.

(In April 2013 the **company** received results of the "run of plant" cementitious properties from contracted expert Engineered Material Solutions.

The results were better than expected, indicating that the residue appears to be an effective pozzolan in the presence of Portland cement, with its reactivity superior to that of black **coal** fly ash. Engineered Material Solutions also found that a unique characteristic of the **company**'s material is its very fine particle size, a positive in the cement industry, reducing water demand due to increased packing density.

*A great **site** for the plant has been secured - not quite 1km from the fly ash stockpiles and power station and 500 **m** from the gas line with water less than 500m from the **site**.

As the fly ash from the power stations is in the form of a very fine powder, there is no need to crush and grind - it will be transported from the power station in the form of a slurry, dramatically cutting costs vs normal production methods.

For initial production only about half of the 14,000 sq **m** structure is likely to be used. It has a 10 **m** ceiling - the steel fabrication shed was earlier leased by Thiess for its 80 tonne pylons when it was building EastLink.

LMG has secured a call option for 12 months with the Di Fabrizio family over the **site** at 320 Tramway road Morwell, to enter into a three year lease over the **site** at fixed rentals and a right to **buy** the **property** at a fixed price during this period. The 12 month option period should be sufficient to complete the BFS for the magnesium project.

Timetable to move Latrobe Valley project to implementation

(i) The Bankable Feasibility Study (BFS) is expected to be completed this year with the assistance of Clark & Marron Pty Ltd and funding has been sourced.

(ii) EPA application is yet to be made, but since LMG mitigates the CO2 pollution of fly ash rather than adding to it, the **company** does not expect this to be difficult.

(iii) Negotiations with suppliers:

LMG has commenced negotiations with all its major suppliers, the providers of fly ash, dolomite, soda ash, ferrosilicon, burnt lime and natural gas, which comprise some 72% of LMG's expected operating costs. The only other main cost is labour, representing some 23% of expected operating costs.

LMG expects production of 40,000 tonnes will involve a work force of around 150 people - hopefully, including the Alcoa workers being laid off in Altona - people who are familiar with operating smelters.

(iv) Offtake agreements are expected to be completed by the end of the June quarter with potential customers of both magnesium and cementitious material following receipt of results from the processing of Latrobe Valley material in an operating magnesium smelter.

The **company** has a list of some 12 offtake partners for a total of 80,000 tons of magnesium in Europe, the US and **China**.

(v) Funding: LMG estimates initial funding required is \$45 **million**. It hopes to receive half of this from the Victorian government, which remains supportive of the venture and also believes it will qualify for the Emissions Reduction Fund projected to be launched by the Federal Government on July 1.

The bigger **Chinese** trading banks have signified they will be interested once LMG produces the first 5,000 tonnes per annum, and tables the actual operating costs for its production.

2) RWE's Hambach mine in the Ruhr Valley, Germany

On March 11 Latrobe Magnesium Ltd announced it has completed the RWE Concept Study which has concluded the German magnesium extraction project to be economically viable and worthy of further development.

The project was defined in the study as a magnesium plant producing 40,000 tonnes of magnesium per annum and some 320,000 tonnes of cementitious material.

RWE Power AG is part of the RWE **Group** in Germany and has signed a confidentiality agreement with LMG to examine the feasibility of extracting magnesium metal from its Hambach mine based on LMG's technology.

Currently Europe imports most of its 150,000 tonne annual magnesium requirement from **China**.

LMG director Kevin Torpey said in the report as the Hambach brown **coal** fly ash contains a higher **iron** element than some of the Latrobe Valley fly ash, so that LMG's hydromet process was expanded to include a magnetic separation step. Recent test work showed that this step combined with a conditioning step removed approximately 80% of the **iron** in the fly ash. The precipitate produced contained up to 84% **iron** oxide. This precipitate will be further investigated to determine whether a magnetite product can be developed for **sale**.

The financial model for the Hambach mine indicated both operating and capital costs are slightly lower than an equivalent 40,000 tpa plant in Australia. The higher German tax rate means the NPV of this project is similar to the Latrobe Valley project.

Expects to bring Hambach into production in 2017

LMG expects to start work concurrently with development of the Latrobe project on the Hambach mine fly ash, readying the project for production in about two years - it will take one year to install the infrastructure to produce 40,000 tonnes.

Hambach production is expected to follow LMG's production of the first 5000 tonnes. Following a 12 month build, production in Germany could begin in early 2017.

*LMG expects to receive both a royalty for its technology as well as becoming a partner in the RWE project.

LATROBE MAGNESIUM LTD FINANCIALS

Last Traded price 0.6cents

Shares Issued 813m.

Market Cap \$4.88m.

1/ In November 2013 LMG raised \$400,000, funded through a rollover of an existing loan, to be repaid from the proceeds of its R&D rebate for the year ended June 30 2014. Interest rate is 15% p.a.

Directors:

David Oliver Paterson – Executive Chairman Age 59, appointed a director in 2002

Mr Paterson is a qualified non-practising Chartered Accountant and a graduate from the University of Queensland. He is the Director of Europacific Corporate Advisory Pty Ltd and has held an Investment Dealers Licence since 1990. Prior to forming Europacific in 1990, he was a **Group** Manager of the Corporate Services Division of Tricontinental Corporation Limited responsible for NSW and Queensland. He also worked for Coopers & Lybrand in Brisbane and Sydney in their Corporate Services Division. He has been involved in a wide range of corporate advisory assignments and underwritings of both debt and **equity** for a number of public and private companies.

Kevin Anthony Torpey – Non Executive Director Age 74, appointed in 2002

Mr Torpey is a Chartered Professional Engineer and a graduate from Sydney University. Over the last 40 years he has been involved in the development of many diverse major projects involving **oil**, **iron ore**, aluminium, nickel, **lead/zinc**, **uranium**, magnesite, **coal** and **gold**, located locally, in Ireland and Indonesia. Generally these projects have been associated with major companies such as Consolidated Goldfields, EZ Industries, Alcan, International Nickel, Tara Minerals Limited (Ireland), Noranda, Denison Mines (Canada), Toyota, Mitsubishi and Iwatani. For the last 20 years his association has mainly been as a corporate officer initially as Managing Director of Denison Mines (Australia) and then Managing Director of Devex Limited. He has also acted as a consultant to a number of companies.

Philip Francis Bruce – Non Executive Director Age 61, appointed 2003

Mr Bruce is a director of P F Bruce & Associates, which provides corporate and project management services. He is a **mining** engineer with over thirty years resource industry experience in Australia, South Africa and Indonesia in **operations**, project development and corporate management. He was the CEO of PT BHP Indonesia, Managing Director of Triako Resources Limited and was the General Manager – Development for Plutonic Resources Limited, where he was technically responsible for **acquisition** and development of resource projects during the **Company**'s period of growth from \$35mIn to over \$1bln in market capitalisation. He is currently Managing Director of Hill End **Gold** Limited

John Robert Lee – Non Executive Director Age 66, appointed 2010

Mr Lee has a broad range of **commercial** skills and experiences in both the public and private sectors. He has held senior management roles in the Federal Department of Employment and Industrial Relations. He was also senior private secretary and principal adviser to Tony Street, a senior federal cabinet minister. In the private sector, Mr Lee has held a number of senior management positions with a number of major corporations including Henry Jones IXL, Elders Building Supplies and Woolworths Limited. He is the founder of Stockholder Relations, a management consultancy specialising in corporate advisory, investor relations and corporate governance.

Major shareholders:

Famallon Pty Ltd (Kevin Torpey) has 11.21%

David Paterson and Rimotran 10.33%

Jonathan Wolfe, Gillian Care Wolfe and JJ Wolfe Holdings Pty Ltd 5.14%

This is our third Week's Special on LMG, previous Week's Special dated September 23 2011 and July 13, 2012 when LMG was trading at 1.8c

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