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>Latrobe Magnesium - Extracting magnesium from Australia's brown coal waste

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Latrobe Magnesium will be the first Australian company to produce magnesium for the burgeoning aluminium markets in Japan and the US.

Company Profile

Company: Latrobe Magnesium Limited

Sector: Mineral processing

Location: Latrobe Valley

Profile: Latrobe Magnesium is working to establish a magnesium production plant in Victoria's Latrobe Valley. Using a patented extraction process, the magnesium plant will harvest magnesium metal from industrial fly ash - a waste stream from brown coal power generation.

Why R&D is needed

The global demand for magnesium is growing due to stricter vehicle emissions legislation in the US and Europe. In these markets cars are increasingly being manufactured with aluminium body parts rather than steel. Magnesium is used in aluminium alloys, providing a product that is not only lighter, but stronger than the traditional steel parts. This has a positive flow-on in terms of fuel efficiency and reduced environmental impacts.

Latrobe Magnesium CEO David Paterson says that China dominates the magnesium market, accounting for more than 85% of the global supply. However, the company's R&D has the potential to position Australia as an alternative supplier to Western markets including the US and Japan.

Latrobe Magnesium intends to harvest magnesium metal from fly ash, a waste product of brown coal power generation. With pre-feasibility studies complete, the company is currently working towards the development of a pilot plant that will cost in the order of \$40 million.

Mr Paterson says that right now there is no one else doing this R&D and, so far, the company has patented the technology in all countries containing brown coal deposits. This means in future there will be potential to licence the IP in markets across the globe including, the US, EU, China, India and Indonesia.

To assess the eligibility of R&D activities for the RDTI, Mr Paterson makes use of the Department's online guidance tools. He says the program is straight-forward to access and the supporting information is very comprehensive.

How the Research and Development Tax Incentive Helps

Latrobe Magnesium has been participating in the RDTI since 2008, with original access to the program facilitated via its tax accountant. This allowed the company to start testing its processes in Australia.

Mr Paterson says the program has been a huge help in getting projects up and running and that being part of the program builds credibility when you are trying to access new investors. He says that without the program, the company would not be able to build its pilot plant.

“The R&D tax incentive has helped us achieve our objectives, otherwise we wouldn't have been able to get there”

DAVID OLIVER PATERSON, CEO, LATROBE MAGNESIUM LIMITED

Mr Paterson says that while the RDTI has not changed the amount the company invests in R&D, it does mean that the money it invests in R&D goes a lot further. For example, the company is able to increase the number of engineers working on the project.

The extra cash flow has also been a huge help in funding lab time at CSRIO, and Curtin and Monash Universities. Since accessing the RDTI, Mr Paterson believes Latrobe Magnesium has spent about \$9 million on getting the project to where it is today. This investment would not have been possible in the absence of the RDTI.

Wider impacts of involvement in the RDTI

In addition to benefiting Latrobe's R&D partners, there are also long term benefits associated with the project. It is envisaged that the Latrobe Valley processing plant will employ around 300 people in the Latrobe Valley. Additional opportunities will be generated in aligned industries, as well as in the rail infrastructure that will be required to transport the processed magnesium and supplementary cementitious material out of the Latrobe valley.

Testing is also underway at additional sites and in future, it is hoped the Latrobe Valley plant will expand its facilities.

From an environmental perspective, the project is also a positive for the Latrobe Valley. Recycling the brown coal fly ash reduces the risk of leaching and contamination of neighbouring soils.

RDTI Impact Facts

- Increased activity for research partners, for example \$9 million spent on the project to date
- Potential to provide significant economic growth in the Latrobe Valley. Plans to build a \$40 million pilot plant that will employ approximately 50 people and an expanded plant up to 300, and rail infrastructure will be required to transport the finished product
- Recycle environmentally hazardous brown coal waste into a useable product
- Development of patented technology that can be licensed in overseas markets
- Allow Australia to break into the international magnesium market
- Shifted cutting edge R&D in this space from Canada to Australia