
LMG executes term sheet with RWE Power to develop new German magnesium plant

18 December 2017, Sydney Australia: Latrobe Magnesium Limited (ASX:LMG) and RWE Power AG (RWE) have signed a term sheet that details how both parties will proceed with the development of a new Germany-based magnesium plant. The up to 30,000 tonnes per annum plant is unique as the magnesium will come from the brown coal fly ash from coal mined at RWE's Hambach mine and processed through their supercritical brown coal power station near Cologne, Germany.

Latrobe Magnesium's project is a world-first in developing a magnesium production plant from brown coal fly ash in Victoria's Latrobe Valley using its patented hydromet extraction process and its own newly developed fast cycle vertical retort furnace (FCR).

The project involves four stages of development:

- Conduct the vertical retort test work using the RWE fly ash
- Completion of a feasibility study
- Completion of engineering, procurement and permitting
- Construction and commissioning.

From June to October 2017, LMG conducted a number of successful small scale tests using its unique hydromet process on the RWE fly ash producing magnesium and supplementary cementitious material (SCM). From this work, LMG was able to ascertain that the RWE fly ash delivered the best economic outcome of any of the fly ashes tested by LMG to date. This result was achieved mainly due to:

- treatment of dry precipitator ash versus ash dam material thereby requiring less energy
- elimination of dolomite as a consumable thereby reducing process costs
- lower cost of energy and labour in Germany as compared to the Latrobe Valley.

LMG has recently produced a large scale beneficiated sample of RWE fly ash to process through its FCR, currently being commissioned at CSIRO in Melbourne. The furnaces are expected to complete the processing of this RWE fly ash by February 2018.

LMG believes that with the successful completion of its FCR test work and the signing of an ash supply agreement for the Latrobe Valley, the last two hurdles will be removed so that it may proceed to develop its 3,000 tonnes per annum magnesium plant at Morwell in 2018. If for any reason a suitable ash supply is not secured in the Latrobe Valley in the near future, LMG has considered building the 3,000 tonne per annum plant in Germany.

From the FCR test work LMG will produce a SCM sample to send to Germany for testing. It will then collect the necessary German site specific information so that it can complete a feasibility study on this project. This is expected to take up to 12 months.

Europe imports over 160,000 tonnes of magnesium per annum. There is currently no producer for magnesium in the EU and magnesium metal has recently been listed among the most critical raw materials in the EU's list of 27 metals.

RWE Power AG and LMG have identified the brown coal fly ash from RWE's Hambach mine as being the most suitable to commercially extract magnesium. RWE Power mines produce about 100 million wet tonnes of brown coal per annum (from which approximately 35 to 40 million tonnes per annum are produced from its Hambach mine) compared to 45 million tonnes per annum in the two Latrobe Valley mines. It operates about 10,000 MW of lignite capacity in the Rhenish lignite area with about 10,000 employees. In addition, RWE Power has nuclear and hydro generation. RWE Power belongs to the RWE Group which is focussed on electricity generation in Germany, the Netherlands and UK as well as energy trading in its subsidiary RWE Supply & Trading.

Since 2000 RWE Power has invested more than €4 billion into the brown coal super critical power stations in Neurath and Niederaußem, with highest efficiencies for lignite fired power stations in the world (greater than 43%) to ensure stable and secure power supply for the German electricity grid.

CEO David Paterson said, "LMG and RWE have been developing this project for some time and we welcome the opportunity to advance the project to the next level with a company of RWE's standing and expertise. LMG sees this project being developed in tandem with its Latrobe Valley plant."



David Paterson
CEO

About Latrobe Magnesium

Latrobe Magnesium is developing a magnesium production plant in Victoria's Latrobe Valley using its world-first patented extraction and fast cycle retort processes. LMG intends to extract and sell magnesium metal and supplementary cementitious material from industrial fly ash, which is currently a waste stream from brown coal power generation.

LMG is currently finalising a bankable-feasibility study to validate its combined hydromet / thermal reduction process that extracts the metal. Construction is estimated to start on its initial 3,000 tonne per annum magnesium plant in July 2018 with production commencing 12 months later. The plant will then be expanded to 40,000 tonne per annum magnesium within the following 18 months. The plant will be in the heart of Victoria's coal power generation precinct, providing immediate access to feedstock, infrastructure and labour.

LMG plans to sell the refined magnesium under long-term contracts to Australian, Japanese and United States customers. Currently, Australia imports 100% of the 8,000 tonnes annually consumed.

Magnesium has the best strength-to-weight ratio of all common structural metals and is increasingly used in the manufacture of car parts, laptop computers, mobile phones and power tools.

The LMG project is at the forefront of environmental benefit – by recycling power plant waste, avoiding landfill and being a low CO₂ emitter. LMG adopts the principles of an industrial ecology system.