

## PILBARA MAGNESIUM PROJECT OFFERS +\$149 MILLION IN BENEFITS TO AUSTRALIAN PUBLIC

Deloitte Access Economics has undertaken an economic analysis of EcoMag's proposed magnesium recovery plant in Karratha, Western Australia, estimating that the project would create direct benefits for the Australian public over the first 20 years of operation valued at over \$149 million. These are primarily driven by company taxes for the Commonwealth, and payroll taxes and royalties for WA, in addition to infrastructure improvements for the Pilbara and environmental benefits.

EcoMag's proposed \$150 million facility is initially planned to produce around 80,000t of hydrated magnesium carbonate annually, mostly for export, worth around \$130 million a year at current prices. It would also generate over 100 jobs in construction, and require a substantial locally resident operational workforce.

"EcoMag's hydrometallurgy process is capable of recovering magnesium from a range of sources," the company's C.E.O. Tony Crimmins said. "But it is ideally suited to precipitating magnesium carbonate from hypersaline brines, a by-product of sea-salt production which, for decades, has been discarded and discharged into the ocean.

"That gives EcoMag management and shareholders an opportunity to grow an environmentally and socially conscious business from the ground up, which is easier to achieve than trying to retrofit social ethics to a massive, long established corporate entity. These sorts of opportunities have traditionally been rare but the world is changing. Environmental and social concerns are fast becoming a dominant driver of consumer and investor choices. It's one of the emerging mega-trends of our times. Investors are no longer satisfied with the old two-dimensional focus on risk and return. Increasingly they are demanding that business leaders broaden their focus to the third dimension: impact - social and environmental."

EcoMag's proposed facility would generate income by treating the wastewater stream from existing salt production, extracting the magnesium and then diluting and rebalancing its composition. The result is a waste stream that is closer to seawater, reducing saline toxicity threats to the local marine ecosystem.

Highlighting EcoMag's environmental credentials, an independent life cycle analysis by the German Aerospace Centre has also confirmed that EcoMag would produce lower CO<sub>2</sub> emissions than comparable techniques for producing magnesium chemicals of similar purity levels.

Mr Crimmins noted that Deloitte's calculations do not include any economic multipliers relating to plant construction jobs, or full-time employment, or the supply chain opportunities that his new Karratha based manufacturing operation would offer. Nor do they assess the potential impact of future opportunities to produce downstream specialty chemicals and applications from EcoMag's base product.

"The direct economic impact is just the tip of the iceberg," Mr Crimmins said. "With each new industry, additional opportunities are created for other entrepreneurs to launch and grow businesses, but it requires new industries rather than simple expansion of existing business activities."



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EcoMag's proposal also incorporates funding and constructing infrastructure, including a new road, electricity, gas, fresh (desalinated) water, and wastewater treatment, that could benefit other businesses.

Initial users of this new infrastructure are likely to include businesses that establish in Karratha's proposed EcoHub Innovation and Industry Precinct (EcoHub), for which the City of Karratha envisages securing and releasing 131 hectares of land close to Karratha.

The EcoHub concept envisages a cluster of collaborative businesses based on new technologies and/or new industries, driving regional economic diversification and sustainability, and generating export revenues.

Several businesses have already expressed interest in the EcoHub concept to offer a range of innovative products and services, including hygroscopic dust control, algae-based health supplements, solar powered greenhouses for desert-based food production, and renewable hydrogen production.

Mr Crimmins said EcoMag was also in discussions to potentially assist an indigenous-owned oyster farming trial currently underway, and was keen to explore possibilities for co-operation with the Pilbara Universities Centre which is looking to establish a Karratha campus.

"We have a long history of research collaborations with UNSW and CSIRO and Korean universities, and our Chief Technology Officer is a Professorial Fellow at UNSW so we're great believers in working with educational institutions," he said.

EcoMag is an advocate of the Circular Economy which aims to eradicate waste – not just from manufacturing processes, but systematically, throughout the life cycles and uses of products and their components.

As an example, Mr Crimmins said waste CO<sub>2</sub> from EcoMag's plant could potentially be used to boost the yields of the solar greenhouse project. Similarly, there may also be potential to further improve salt production yields by recycling EcoMag's waste water.

Mr Crimmins said EcoMag's likely need to import around 100,000 tonnes per annum of soda ash could also support upgrading the Dampier port general cargo wharf and its associated infrastructure.

Mr Crimmins noted a recent report produced for the Pilbara Development Commission estimated that establishing a direct maritime freight service to the Pilbara that replaced 20% of the current overland freight task would increase the region's annual gross regional product by approximately \$120 million per year.

"That's why I say new business activities offer so much more to a region than expanding old businesses," Mr Crimmins said. "And really that's the most important part of my job. I'm employing project managers and engineers to design, build and operate the plant. My job is to relentlessly explore possibilities to expand the business and work with other organisations to make the most of every resource and every situation.

"There is so much potential in the Pilbara, opportunities for businesses and government and the education sector to collaborate to achieve successes unavailable to them independently. Even the largest corporations should be constantly on the lookout for these opportunities so they can keep challenging themselves with fresh ideas. We're presenting some of our ideas for this vision at the Developing Northern Australia conference in Karratha in July, a fabulous initiative that anyone interested in doing business in northern Australia should attend. Investors want businesses to balance, risk, return and impact. And we intend to deliver."

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