



# GALAXY HAS POWER TO BURN

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**G**ALAXY RESOURCES IS entering the low-emission energy fray with a proposal to supply lithium carbonate to the world's battery manufacturers for the production of highly efficient Lithium ion batteries (Li-ion).

Li-ion batteries are the efficient little packs found in your mobile phone and laptop computers.

This rapidly developing area of battery technology looks set to provide a near-term solution to low-emission transport via battery and hybrid vehicles, and also an effective storage solution for other, intermittent renewable energy sources.

A switch by auto makers to expand production of battery powered, electric and hybrid vehicles sees strong growth in demand for lithium minerals, used in the manufacture of lithium ion/polymer batteries.

Galaxy's Mount Cattlin deposit is conveniently located 4 kilometres north of Ravensthorpe in Western Australia's South West, where there is

plenty of accommodation and a ready supply of local workers, following the shutdown of BHP Billiton's nickel mine.

Favourable findings from a preliminary feasibility study last year led the company to embark on a bankable feasibility study and it has recently received strong expressions of interest from buyers willing to take more than its planned 17,000 tonnes per annum of lithium carbonate output.

At Mount Cattlin, flat-lying pegmatite mineralisation contains a complex lithium silicate called spodumene, along with smaller amounts of tantalum. When applying a cut-off grade of 0.4% Li<sub>2</sub>O or 5.9% spodumene, a high-grade resource of 12.3 million tonnes, containing 1.8Mt of spodumene and 3.7 million pounds of tantalite is estimated, but the region holds promise for a much larger resource, which can be defined once funds are available.

The company plans to produce a



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concentrate of lithium minerals onsite and a lithium carbonate product from its own refinery, to be constructed in China.

Global lithium carbonate/chloride production, arising largely from processing of continental brines in places such as Chile, the United States and Argentina, is estimated at 70,000-80,000tpa. A further 12,000tpa of lithium carbonate equivalent is contained in spodumene, which is used directly in the manufacture of ceramics and high-temperature glass.

WA's Greenbushes mine is the world's largest supplier of spodumene. Bolivia has large lithium brine deposits, but the Bolivian government is placing unrealistic conditions on foreign miners to keep all profits in the country and also to process lithium all the way to batteries in that country.

Recently, Chinese and Scandinavian processors have developed a refinery process for spodumene, using roasting and leaching, either with sulfuric acid or using an alkali leach solution of sodium carbonate. Lithium carbonate is then precipitated from the resulting leach solution. As a rule, 1.4kg of lithium carbonate is required for each kilowatt hour of battery capacity. Each Toyota Prius has a 1.5kWh battery and there are currently 17 million of these vehicles. Totally electric vehicles, such as General Motor's proposed Volt, will need a 16kWh battery containing 22.4kg of lithium carbonate. The energy density of Li-ion batteries is twice that of competing Ni/Cd batteries, but they are fragile, requiring protection circuits that limit peak voltage. The industry is seeing rapid technological advancement, with new chemistries and circuitry introduced about every six months. Latest advances involve lithium/polymer/gel technologies.

Galaxy, led by experienced industry veteran Iggy Tan, has a market capitalisation of about SA30 million. StockAnalysis estimates its lithium carbonate



Drilling at Mount Cattlin

project has a net present value of about \$160 million and the ability to generate an after-tax profit of around \$35 million per annum from 2012.

Capitalising estimated earnings generates a value of more than \$250 million in today's terms. Galaxy could fund this project independently, or reduce its interest by bringing in an industry partner to fund its estimated \$120 million capital cost.

Either way, the project looks good for Galaxy and the Ravensthorpe region with Galaxy having legs to \$1 per share.

**RS**