Home > Cleantech Intel > **Lithium-ion battery demand to soar: Good news for lithium, great news for graphite**
Previous Next

Posted on **January 3, 2014** by **Robin Bromby**

Lithium-ion battery demand to soar: Good news for lithium, great news for graphite

Sales of the lithium-ion batteries are projected to triple in value between 2012 and 2019, according to Albany, NY-based Technology Market Research. Two years ago, the world consumed $11.7 billion worth of the batteries but the 2019 projection is for sales of $33.11 billion (an compound average growth rate of 14.4%). This is good news for lithium which has seen its ups and downs over recent years with contradictory predictions of demand-supply balances.

(It is also great news for graphite given that this material makes up between 10 and 20 times the amount of lithium in these batteries. An electric vehicle can use up to 40lb of graphite in the batteries required. Some estimates project that these batteries will eventually consume more graphite than all the other known uses combined. By 2020 demand for batteries might hit 2.5 million tonnes a year, against the 1.1 million tonnes mined in 2012.)

The report says the lithium-ion battery market is primarily driven by improving efficiencies of batteries and increasing application in electric vehicles, as well as energy, medical and military uses. Stringent government regulations related to carbon emissions in Europe, North America and China is supporting growth. TMR says that, at the same time, L-I batteries' higher life-cycle as compared to lead nickel, nickel cadmium and nickel metal hydride batteries is expected to help boost demand for the lithium product. Look, too, for a surge in hybrid electric vehicle demand in China.

Growing adoption of these batteries in consumer electronics products such as digital cameras, cellphones and tablet PCs is also expected to fuel growth.

The factors inhibiting lithium-ion battery growth is their high price compared to other batteries and the risk of overheating — think Boeing's 787 Dreamliner.

Asia (mainly China and Japan) accounts for 49% of lithium-ion battery demand, with Japan now the global leader in their manufacture. The big players are Automotive Energy Supply Corp, A123 Systems, GA Yuasa Corp, Hitachi Chemical, Johnson Controls Inc., LG Chem Power, Panasonic, Samsung and Toshiba. In an interesting development in recent days, Reuters has reported Sony Corp backing away from plans to sell its lithium-ion battery business to Nissan Motor and NEC Corp, Sony having been battered by cheaper batteries coming out of South Korea. Reuters says Sony is now hoping that a weaker yen and growing demand for smart phone batteries can help turn around the division in the coming years.

Attention is coming back to focus on lithium production. A new source is due this year from Argentina where Orocobre (ASX:ORE) is in the final stages of development at its Olaroz lithium project (which has potash as a by-product). Next door, of course, is small, impoverished Bolivia, the potential Saudi Arabia of lithium. It's home to 73 million tonnes of lithium carbonate, more than half the world's supply. The largest single deposit is the Salar de Uyuni, a vast, 6,575 square kilometre salt desert in the southern Potosi region.

China does have some lithium-bearing brines (about 70% of the world's lithium comes from brines, the remainder from hard rock) but not enough. They are looking at finding technology that will recover lithium from seawater. The problem for China is that it is already the world's largest consumer of lithium but its own deposits amount to just 9% of known world resources of the mineral. China's largest lithium deposit is lithium-bearing pegmatite at Jiajika in the eastern portion of the Tibet plateau. Lithium-bearing brines are found in the Qinghai-Tibet plateau. There is a zone of lakes containing 30 separate brine resources. Yet it is obvious that Beijing can see that China's demand is going to become even greater and they will need more and more lithium — which would explain why an advance of $5 million was given by a Chinese off-take partner to Canadian Lithium. Tianjin Products & Energy Resources Development is clearly anxious to get its hands as soon as possible on the lithium to come from the Val d'Or project in Quebec.

It will also explain why Chinese technicians from Linyi Gelon New Battery Materials Co in mid-2013 arrived in Bolivia to help set up a lithium battery plant (the Dutch have similar plans). Last year Xinhua reported that the plant should be in operation by April 2014.

Lithium was first discovered and defined in 1817 but was not produced commercially until 1923 by a company called Metallgesellschaft AG. Until now, lithium has been a minor commodity used in small quantities by manufacturers of glass, grease and mood-stabilizing drugs. In recent years demand has skyrocketed due to the increase in mobile phone, laptops and assorted electronic devices popular with consumers.

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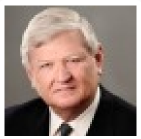

About Robin Bromby

Robin Bromby is a journalist, author and sometime publisher who has had titles issued by mainstream publishers, including Doubleday, Simon & Schuster and Lothian Books. Robin began as a cadet

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journalist in 1962 with The Dominion, the morning paper in Wellington, New Zealand. He also worked for the NZ Broadcasting Corporation, TV1, the South China Morning Post, The Herald (Melbourne), the Sunday Times (Wellington), The National Times (Sydney) and, since 1988, he has been first a staff reporter and now columnist for The Australian and has been a Senior Editor for InvestorIntel since the onset.

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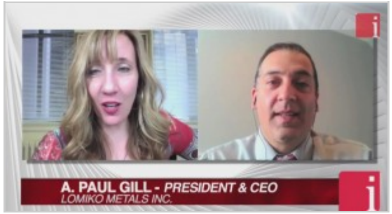

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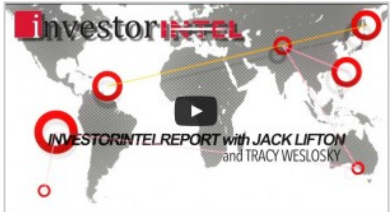

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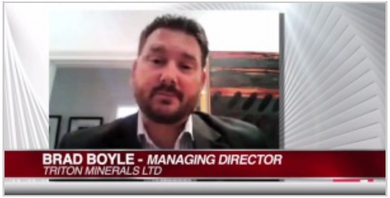

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