# Lithium in Australia – the Tortoise Takes Flight

For decades, Chile ruled the roost as the world's largest producer of lithium with a few scattered mines in other places augmenting the supply. When the **Lithium Boom** broke out at the end of the last decade, it looked like Latin America's leading position would be cemented with Argentina (and Bolivia) added to the supply mix. The *salares*, or saline lakes (which in some cases are dry anyway), looked like the easiest sources of lithium from the processing point of view and also from the capex angle.

Australia in contrast had a few projects, but they were all hard-rock lithium and the capex bills were eye-watering. With only a few projects, globally, needed to satisfy expected demand the Australian projects looked like they were destined to remain in the slow lane until global demand had absorbed the onset of the production from *salares*.

As is so often the case the best-founded assumptions in the mining world frequently fall victim to circumstances. In the case of lithium the first off the rank was the Talison Greenbushes deposit in Australia which rapidly attracted a bidder and was taken out by a Chinese group with half later on-sold to a member of the Lithium "club". Then, less fortuitously the Galaxy Resources mine in Western Australia also kicked off. A plan that we didn't like in the first place of processing in China and mining in Australia ran into problems and Galaxy went from first mover to stuck, figuratively speaking, in quicksand. The more it struggled the more it went down. Recently we have seen a major corporate action at Neometals and progress is being made by Lithium Australia (formerly Cobre Montana).

In this piece shall look at how the Australian tortoise has managed to overhaul the Latin American hare in the race to Lithium production.

**Talison – First Mover Advantage**

The key thing to note with this property is that when Talison Lithium picked it up it was already a mothballed lithium mine with a history of past production. As we have often said there is nothing like a past producer to give a wannabe miner a jump on the competition. And so this property did, with a Chinese group, Chengdu Tianqi making a successful bid of CAD$848mn for Talison (with 49% later on-sold to Rockwood) in late 2012.

**Galaxy Resources – First to Stumble**

Galaxy Resources wholly owns the Mt Cattlin spodumene project in Western Australia. At full capacity, ore could be processed at a rate of one million tpa with lithium oxide concentrate production of 137,000 tpa and 56,000 lbs per annum of contained tantalum ($TA_2O_5$).

Galaxy was mining ore at Mt Cattlin which was processed on site to produce a spodumene concentrate and a tantalum by-product which was then sent on to China. However, in July 2012, Galaxy advised that it would halt its operations at Mt Cattlin to focus on production at the Jiangsu Lithium Carbonate plant. Then in mid-2014 the company agreed to sell the Chinese plant to a Chinese company and this closed in April of this year. Now perversely it is focusing on a *salar* in Argentina.

When we first wrote on this company in 2010, it had a market cap of AUD$200mn and now it’s down to $33mn. Meanwhile the mine Mt Cattlin mine sits there unused and its lithium and tantalum unmined.

**Neometals**

I have followed the fortunes of Mt Marion since late last decade. The company (then known as Reed Resources) took a more studied approach to getting its project into position to tempt a potential partner than Galaxy did.  The slow and steady approach paid off recently with another Chinese buyer, Jiangxi Ganfeng Lithium, coming down with a case of “resource envy” and making an attractive offer to Neometals to get into the driving seat at Mt Marion.

The Mount Marion lithium project was originally added to the Neometals portfolio in September 2009. It is one of Australia’s largest high-grade lithium spodumene occurrences and is located some 40km south of Kalgoorlie in the Goldfields region of Western Australia. The resource totals 14.8 million tonnes @1.3% $Li_2O$. The resource is open along strike and down dip.

In July,  Neometals and its partner, Mineral Resources Limited (ASX: MIN) entered into a conditional Memorandum of Understanding with the aforementioned Ganfeng group with regard to Neometal’s 70% held subsidiary, RIM (the other 30% being held by Mineral Resources).

Ganfeng is acquiring an initial 25% shareholding in RIM by way of share sale and equity subscription leaving Neometals with 45% of RIM, and MIN with 30% of RIM. MinRes and Ganfeng will be granted options by Neometals which allows them to increase their respective shareholdings in RIM to 43.1% by around Q4 of 2016 by way of share purchase from Neometals. If these options are fully exercised, Neometals will be left holding 13.8% of RIM.

Ganfeng will have a long-term offtake for 100% of the spodumene produced from the Mt Marion at benchmarked market prices subject to an agreed price floor. Under the agreement, from Year 4 onwards RIM reserves the right to take 51% of the total production if greater commercial benefit can be derived from such product

Ganfeng is paying out US$25mn for 25% putting a valuation of US$100mn on the project at that point in time. This is rather impressive considering that ground has not even been broken. The valuation metric for the exercise of the options Ganfeng holds to acquire further shares in RIM from  is US$1.5mn per 1%, putting a valuation of US$150mn on the project.

Neometals can rightly be pleased with this outcome as it gets to have its cake and eat it too. The cash coming in now potentially enables its other (Titanium/Vanadium) project at Barrambie.

**Lithium Australia (LIT.ax) – Novel Mineralogy**

I have written on this stock before (under its old name) but only as it pertains to its Czech Lithium/Tin deposit, which it owns through a complicated arrangement with European Metals (ASX:EMH). I had not had cause though to look at its Australian lithium efforts. These are much more early stage than the other names mentioned here  but are worth mentioning because they involve the extraction of lithium from mica.

This project is part of what is known as the Coolgardie Rare Metals Venture which is 80% held by Lithium Australia and with Focus Minerals Limited holding the residual 20%. It focuses on areas of pegmatites 15 km south of the long-established mining town of Coolgardie. The mian effort thus far has been on a site known as Lepidolite Hill. Waste dumps from prior mining at Lepidolite Hill comprise around 400,000 tonnes of lepidolite-rich material. Recent proof-of-concept processing by LIT, under the aegis of its alliance with Strategic Metallurgy, has produced battery-grade Lithium carbonate from that material. It’s too early as yet to add this to the tortoise-turned-hare category but history has shown not to underestimate the speed at which Australian lithium wannabes can move. Certainly having such large waste dumps at its disposal potentially speeds things up.

**Some Comparisons**

The comparative cross-sections below are illuminating. Talison has the most problematical property logistically but is compensated with a good grade. Mt Marion has the advantage of a minimal strip ratio and a grade that is double Galaxy's. Strip ratios for the Mt Marion deposits range from 1:1 to 2:1.

Other differences of note are:

**Conclusion**

With Western Australia leaping ahead of Latin America in the lithium race one should not forget that there is progress in the high Andes. Most particularly the Olaroz "mine" of Orocobre (ORE.ax) and the Rincon development of the resources hedge fund Sentient are both moving forward and will make their contribution to global lithium output. While there has not been any actual "Argentine" factor (regulatory-wise) to the delays in the *salares* moving forward the fact that the country has been seen as a poor-risk mining wise has not helped lesser players with their financing efforts. Therefore if the Kirchner regime had not had such a bad press over the last decade then the lesser players might be up there with Orocobre in the ranks of ready-to-go rather than just cooling their heels waiting for the political planets to align.

If there is a theme to all this it's that Chinese companies are going for the "devil they know" in Western Australia while having shown little to no interest whatsoever in the "easier" *salares* deposits in South America.

# Neometals square in middle of lithium hotspot

Australia is on each side of the lithium barricades: it is the world's largest producer of lithium feedstocks and it is now in the thick of the lithium-ion battery storage wars.

And battery wars are important for lithium. Just look at the projected growth: batteries account for 38% of the consumption of lithium carbonate at present, in a world market of about 200,000 tonnes. By 2025 batteries will be using 63% of all lithium produced – but, by then, the global market will be consuming 500,000 tonnes.

Probably more. As Chris Reed, managing director at **Neometals Ltd. (ASX:NMT)** says, estimates of lithium demand for batteries has always been wrong on the low side. With Tesla and other players, battery use is moving in (very large) leaps and bounds, and the cost of battery storage continues to plunge. As Reed says, Mercedes will soon have 10 plug-in automobile models on sale. The German automaker recently confirmed it is also to enter the home electricity storage market.

But Australia is the place to watch. On the production side, the country in 2014 produced 68,000 tonnes of lithium feedstocks, thanks to the huge Greenbushes mine in Western Australia, 51% owned by a Chinese company, the rest by Germany's Rockwood Lithium. Then there's Neometals, which has the largest fully-funded hard rock project in the world. Also powering ahead is **Cobre Montana NL (ASX:CXB)** which recently reported a breakthrough in producing lithium carbonate from lithium micas. Then there are also **Altura Mining Ltd. (ASX:AJM)** and **Pilbara Mining Ltd. (ASX:PLS)** with advanced projects in Western Australia. In fact that state, already the iron ore capital of the world and with the world's largest lithium mine, looks like to become a lithium powerhouse with

Neometals and the others on track to production.

Neometals emerged out of Reed Resources, which was listed initially as a gold play in 2002 on the ASX by father and son team, David and Chris Reed. David Reed had been a prospector and then a well-known West Australian stockbroker. The company still has iron ore and nickel interests, but the replacement name of Neometals reflects the new focus: lithium and titanium.

The company has expanded the footprint at its Mt Marion lithium project with acquisition of additional ground. It has a semi-pilot plant at Buffalo, NY, as it moves to position itself as a high purity lithium hydroxide supplier.

Chris Reed is encouraged by each development in the lithium-ion battery market: the pincer movement of falling battery production costs and the (consequent) surge in demand.

And he can see that change taking place on his own doorstep. One of the reasons battery makers are targeting the island continent is because of the spread of solar power: in Queensland alone (the “sunshine state” as it’s known) more than a third of houses have photovoltaic systems. Overall the proportion of solar-equipped homes in the country is far higher than in the U.S., hence the interest of the industry to capture the storage market. Reed believes the home storage batteries will become such a cost saving that they will give a real push to renewable energy systems at the expense of coal and nuclear generation.

Australian utilities are powering into the market gap. Sydney-based AGL Energy, which has nearly four million customers, has recently launched a six kilowatt home battery. Origin Energy, another of the big players, will be in this market by December. Queensland’s Ergon Energy, along with an arm of Snowy Hydro (the publicly owned corporation that runs the 3,950 MW hydro network in the Snowy Mountains of New South

Wales but which has also spread into gas generation and power retailing) are going to sell the Panasonic 8kW lithium-ion battery; Snowy Hydro sees the business of providing storage for those with solar arrays as complementing its hydro storage capability across the renewable energy spectrum.

As one technical news site notes, the battery systems are manufactured in Japan, but the company is Tesla's manufacturing partner for battery packs at its Gigafactory in Nevada.

For Neometals and Cobre Montana, the trend is certainly their friend.

***Footnote:*** Panasonic will no doubt gain useful experience from its involvement in battery storage sales in Australia. This is going to become big business in its home market as Japan gets prepared for energy market deregulation.