Mood enhancer:
How lithium gave resources a lift

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The lithium craze has taken hold of the Australian resources sector, with now more than 40 companies having laid claim to making a lithium discovery, picking up lithium ground or intending to test existing projects’ lithium potential.

Investor interest has been spiked by the anticipated blossoming of the electric vehicle (EV) and home power storage markets which both rely on lithium-ion battery technology. As Tesla Motors Inc continues to set pre-sale records for its EVs and the likes of Panasonic and LG expand their investment in lithium-ion powered products, there is a feeling that the dawn of a new age is upon us with lithium playing as important a role as fossil fuels did in the last century.

However, as with any boom, sceptics are not far behind the lithium believers, claiming the run can’t last, supply is set to outstrip demand in even the near term and a lack of fundamental evidence attached to the speculation in the sector.

The entire Australian resources community – from companies to investors, analysts and media – is trying to make sure it is on the right side of the lithium boom. For now, investors are certainly voting in the affirmative. Every lithium-related announcement has sparked a share price bounce for the associated company, lifting many of them off multi-year lows.

A single commodity boom is nothing new and comparisons have already been drawn to the iron ore and uranium booms of last decade and the current lithium spike shares similarities with both.

What is surprising is that lithium is inspiring shareholder hope at a time when investors are otherwise wary of the resources sector.

We have heard for more than four years that investors were keen to get back into the sector for the right story; one that was simple to understand, had a clear path to cash flow and was based on solid fundamentals.

It is a sound argument and one reason why the Australian gold stocks have enjoyed strong support over the last six months. However, the vast majority of the lithium stories currently on display can offer none of those characteristics.

The lithium boom is being driven by something very different; money is going into lithium stocks because of the unknown they represent.

“The jury is still out on lithium because the big driver is the great, big intangible sell-story,” MineLife analyst Gavin Wendt told Paydirt. “Few people understand lithium. Most people are buying in on the excitement and even companies themselves don’t understand it well.”

Argonaut Ltd mineral resources research analyst Matthew Keane admitted to Paydirt his firm had initially misjudged the swiftness of the lithium take-up.

“Did I anticipate this? Probably not, as I didn’t think there would be this much of a spike,” Keane said. “It is obviously a growing sector, but going back to September last year [it started] and maybe we missed it and didn’t get onboard sooner and, as has been shown, it has continued.”

With the lithium craze in full swing, the challenge for investors and analysts now is to identify those companies with longevity and those who are destined to fall away.

“I think we’re pretty close to that now,” Keane said. “There is a wave behind us where there is a lot of analyst research and there are some good publications out there for people to access and make informed investment decisions on, regarding what constitutes a real stock and what is a dabbler. This is not to say the...
dabbler won’t still get spikes in terms of valuation, but who will be there for the long-haul and looking at a true 12-month outlook, I think you can sort of pick those stocks now.”

Wendt compared the current spate of lithium-related announcements to the rush to claim iron ore and uranium discoveries in the mid-2000s.

“There are apparently no barriers to entry; lithium is seemingly abundant,” Wendt said. “It is like background uranium or iron ore in WA; it is everywhere.”

When looking for those companies most likely to ride out the impending lithium roller-coaster, the most obvious place to start is with the existing producers.

The international lithium market is dominated by three companies producing lithium from salt lake brines in the Lithium Triangle of South America; SQM, FMC and Albemarle.

In Australia, lithium production has been dominated for more than 30 years by the Greenbushes operation – 250km south of Perth – owned by China’s Tianqi Lithium in the 51/49 Talison Lithium JV with Albemarle. Together with the South American giants, Talison accounts for 90% of global lithium demand.

Greenbushes is the world’s largest supplier of spodumene (hard rock lithium ore) for which Western Australia is known to be highly prospective and in 2011 was joined as a spodumene producer by the Mt Cattlin mine, 2km north of Ravensthorpe in the State’s south.

Owner Galaxy Resources Ltd intended Mt Cattlin to be the first step in what would eventually be a fully vertically integrated model with lithium carbonate and lithium-ion battery production facilities in China to follow.

Those ambitions faltered, however, and by mid-2013 the company was struggling under severe debt requirements, an underperforming operation and a stalled lithium conversion plant in China.

Three years on, Mt Cattlin is back running at commercial rates and the company has now turned its attention to a second development, the Sal de Vida lithium brine project in Argentina (see page 22).

Fellow ASX-listed miner Orocobre Ltd is also entrenched in the Lithium Triangle, with its Olaroz brine project currently in commissioning. Others have followed Galaxy and Orocobre’s lead into Argentina. In May, Latin Resources Ltd enjoyed a 40% share price spike on news it had secured lithium projects in Argentina and Chile and Everlight Resources Ltd announced plans to list on the ASX on the back of the Gallego project it has secured on the same salar which hosts Sal de Vida and FMC’s Fenix brine operation.

But is has been the lithium-bearing pegmatites of WA which have attracted the vast majority of newly minted “lithium juniors”.

Many will be hoping to emulate not only Talison and Galaxy, but also Neometals Ltd and JV partner Mineral Resources Ltd. Last year, the two ASX-listed companies brought a third JV partner into their Mt Marion lithium project near Kalgoorlie.

Under the deal, China’s most profitable lithium producer, Ganfeng Lithium, acquired 43.1% of Mt Marion and a life-of-mine, take-or-pay off-take agreement for all production.

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World lithium production is currently dominated by salt lake brine operations in South America

The next generation is undoubtedly led by Pilbara Minerals Ltd, which highlighted the investor appetite for lithium when it raised $100 million to advance its 80.2mt @ 1.26% Pilgangoora lithium project in the North Pilbara.

The Ken Brinsden-led company is now at the front of the queue to follow Galaxy and Neometals into production, but less advanced juniors have also found market support.

For example, Dakota Minerals Ltd, which has a project abutting Pilgangoora, netted $12 earlier this year to advance exploration at its Lynas Find project, also in the Pilbara.

Other companies have found lithium-related news can bring market relief in an otherwise torrid period for junior explorers.

“We are definitely seeing some companies using lithium just for survival purposes,” Wendt said. “It gives them a short-term price spike on which they can hopefully raise some money.”

Whatever the strategy, WA’s high spodumene endowment gives it a natural advantage in capturing the near-term lithium demand surge.

Put simply, while the South American brine operations are larger and lower cost, they are generally capital intensive and take several years to ramp up to full production. Those which have been established over the last decade have also struggled to reach their planned output levels.

“Of the 80,000 tpa production estimated in 2011 to come on-stream from brine operations by this year, only 18,000 tpa of it has, largely due to technical problems,” US-based lithium marketing expert Joe Lowry said.

The Lithium Triangle countries of Bolivia, Chile and Argentina also pose sovereign risk. Bolivia is still largely closed to foreign investors and while Argentina at last seems to be emerging from a decade of isolation, investment is yet to materialise. Even Chile, always held up as a model example of stability among mining jurisdictions, has begun making noises about the sovereignty of its lithium reserves.

“Some of the brine producers speculate 10 years ago that there would no longer be a need for spodumene by now, but it is actually the fastest growing sector because the Chinese conversion plants are already set up for it and like the material.”

Could WA become the swing producer in a diverse lithium space over the next 10-20 years?

“Because of the lag in brine production coming online, the only thing that can fill the supply gap is hard rock lithium,” Lowry said. “And aside from the WA hard rock deposits, there is only Canadian Lithium Inc’s project that could potentially come online in that timeframe.”

Lowry also dismissed the impact on the market of any ramp-up Greenbushes could achieve.

“That is all for internal consumption,” he said of the Chinese-owned operation. Neometals managing director Chris Reed agreed. Neometals and JV partner Mineral Resources halted development of Mt Marion in 2010 after a price war broke out between Greenbushes and the brine producers over the former’s expansion plans.

This time around, the supply deficit is such that an immediate reaction is required.

“There is a gap for the next two years and it can only be met by hard rock operations,” Reed told Paydirt. “How long will that need for more supply last? The world is going to need a big chunk of supply for at least the next 10 years and lithium has certainly got the strongest fundamentals of any commodity.”

Reed does, however, hold reservations about the ability of the new arrivals in the lithium space to take advantage.

“I wish them all well but any company is going to have to be in production before the brine producers ramp up and bring new projects online,” he said.

Even once supply and demand curves meet, Lowry expects to see WA mines continue to operate.

“The WA spodumene producers will be the last to go out of the market; certainly after the Chinese spodumene and Chinese brine producers which are higher cost and lower grade.”

However, Lowry was quick to point out that while WA could be home to several new spodumene mines, it wouldn’t be able to support every newcomer.

“I think the established players will get into production but once you get beyond Pilbara Minerals, you are getting into speculation and hype because they are based on very rough numbers,” he said.

“I’ve recently counted at least 40 lithium
– clay, brine and hard rock – projects currently being worked on and I believe 75% of these won’t see the light of day. The world just doesn’t need 25 new lithium operations.”

Macquarie and Citigroup analysts also expect the major brine operators to increase capacity in their undercooked operations to meet demand.

The demand side is, as Wendt explains it, “the great intangible” when it comes to lithium. There isn’t a resources company around which is using current spot prices to test the economics of their development project, but while consensus prices for base and precious metals, iron ore and even some industrial minerals can be easily found, the lithium market is so opaque it is incredibly difficult even to find a current spot price.

The problem is that much of the interest in lithium has been fuelled by the rise of the still small EV market, led by Tesla. In a relatively short amount of time, the Tesla brand has taken the EV market by storm and created a niche product with its electric cars, such as the Tesla 3. It is believed to have taken more than 250,000 pre-orders for its new Tesla 3 model, expected to be released next year at a retail price of $US36,000.

German, Japanese and Korean car manufacturers are racing to join the EV revolution, while Chinese car manufacturers are targeting EVs costing less than $20,000 by as early as next year.

Away from the transportation market, the home energy storage market is being led by Tesla and Panasonic, as homeowners look for ways to move completely “off-grid”.

The last two years have seen reports from across the financial media about new EV and power storage start-ups throughout the world with China alone forecast to have at least 20 new manufacturers establishing commercial facilities.

However, actual figures are much more difficult to come by. It was a similar situation a decade ago in uranium, with yellowcake hopefuls forecasting future demand based on planned nuclear power plants in China, India and Russia. These nuclear plants may well eventually come to fruition but the opaque nature of the BRIC economies means it is difficult to predict when with any accuracy.

The greatest intangible, however, comes from speculation about how quickly EVs and power walls will be widely adopted.

While copper, iron ore and even uranium demand comes from the largely predictable industrial sector, demand for lithium comes almost directly from the consumer sector which is traditionally far more volatile and difficult to forecast.

The main aim of Tesla and others is to drive down the cost of EVs to make them competitive with traditional models but for now, the EV market is still largely reliant on government subsidies in the US, Europe and China.

Lead-acid batteries are now subject to export taxes out of China and its major cities continue to clamp down on emissions, while Japan and Korean have also indicated a willingness to support the EV market by offering rebates, zero sales taxes and free licensing.

Initially, China will be the main consumers of battery powered technologies – already 30 million E-bikes are produced annually in the country and are converting to lithium-ion batteries – with Japan and Korea stepping up their usage, particularly in the EV space.

“As a result, there is going to be huge demand for raw material product, particularly from China,” Brinsden said.

Lowry admits forecasts among lithium analysts are wildly variable, but argues his assertion that demand will grow from 165,000t this year to 280-285,000 tpa by 2020 is “among the most conservative”.

“In the five years after 2020, electric storage will grow as large as the electric vehicle market in my opinion,” Lowry told Paydirt. “That means the market is going to need around 15,000 tpa extra capacity each year for the next five years but from 2020 to 2025 we are going to need a lot more inventory again. I don’t see an oversupply situation being even physically possible before 2022.”

The challenge for lithium hopefuls may be securing off-take contracts in a highly competitive space. China dominates lithium demand at present, accounting for 70,000 tpa of lithium concentrate consumption with Japan and Korea next at 20,000 tpa each.

All of this Chinese consumption goes into conversion plants which then convert the concentrate into lithium carbonate, which is then sold to battery-makers.

Given the intrinsic role these Chinese producers play in the lithium chain, could it be advantageous for companies to strike deals with them now? Wendt suggests the iron ore boom heeds warnings for such assumptions.

“When we had hundreds of iron ore juniors and two things had for credibility were a Chinese shareholder and a MoU with a Chinese group,” Wendt said. “But China will never be your partner because they have so much of their own. They may become a customer but they are unlikely to fund an Australian project.”

A similar trend has developed in graphite – another commodity in which speculation was fuelled by the battery charge. In graphite, ASX-listed companies are actively courting partners and customers from Japan, Korea, Europe and North America who are keen to break China’s monopoly on graphite supply.

Graphite’s rush came some 18 months before lithium’s and since petering out, the companies left standing are those who have secured strong off-take contracts.

Wendt believes lithium companies may be wise to follow this strategy.

“Go to end-users in Japan, Korea or Europe,” he said. “That is where the credible funding is.”

– Dominic Piper and Mark Andrews
The setting hasn’t changed much, but the scene has for Ken Brinsden.

After carving his name in the resources sector as managing director of Atlas Iron Ltd, which operates in Western Australia’s famed iron ore precinct the Pilbara, Brinsden is only early into his tenure as managing director of emerging lithium hopeful Pilbara Minerals Ltd, but his impact has been immediate.

The company has orchestrated one of the largest capital raisings by an ASX junior in recent times – $100 million through the placement of shares for $85 million and a SPP for $15 million at 38c/share – to progress one of the world’s premier hard rock lithium opportunities, Pilgangoora, 120km from Port Hedland.

Coming from a company on its knees – Atlas had to implement company-saving strategies and restructure its debt which totalled $US270 million ($US135 million at the time of print) not long ago – Brinsden considers himself lucky to be a part of a one of Australia’s leading developers in its most buoyant commodity.

“I am thankful that the team at Atlas and everyone involved was able to create an environment in which the company could survive and I am very happy how that’s unfolded,” Brinsden told Paydirt.

“I’m sad to not be involved given that I finished as a non-executive director almost 10 years to the day of joining, but I am equally happy the company has been able to reshape itself and survive. My involvement with Pilbara Minerals, I don’t think it was necessarily by chance, but the fact that I had experience in North Pilbara and that I could see the potential in the resource, I consider myself pretty lucky to be involved here where there is a great team and I am thoroughly enjoying myself.”

With investors throwing money at lithium companies, it is easy to see why Brinsden is in a happier place now than 12 months ago.

“I’ve got to be honest it has come as a complete surprise to me too being involved with Pilbara Minerals and lithium having a significant price response,” he said.

“What got me excited was the potential I saw in the discovery. When the conversation first started with the team there was the wow factor of a potentially really material resource and thankfully it is. Of course, we’ve also had this massive tailwind [in the lithium sector] come along as well, as people start to get excited about the mineral potential and its uses in the vast technology that is emerging downstream in transportation and power distribution.”

As he sinks his teeth deeper into the lithium business, Brinsden is becoming more and more convinced by how the emerging downstream technologies will materially change the way power is stored and distributed.

Perhaps the last crucial element in

Pilbara Minerals will upgrade its Pilgangoora resources this month. The company has made two discoveries outside the main resource

The $100 million Pilbara Minerals raised this year means it is immune to market pressures until after it has completed a DFS for Pilgangoora.
making the industry competitive is pricing as Brinsden believes concerns over safety and performance have already been met.

“The high-end batteries used in commercial applications are well tested and well understood technologies. It has been under development for 30 years, so as long as there is quality of the installation and structure is there then there is no doubt that it is a safe alternative.

Currently, there is a shortage of raw lithium material which has inspired spodumene (a source hosting lithium) prices of $US600/t.

“Because the market is quite small and any one mine can potentially influence the outcome [in pricing] then there is a sensitive balance between supply and demand. We are conscious of that because we are proposing a reasonable chunk of production, so we want to make sure that we get that balance right and don’t upset the market,” Brinsden said.

Pilbara Minerals’ impact on the market as a producer of raw lithium material could be realised by December 2017. The company expects to start construction of its flagship Pilgangoora project by the end of this year and is aiming to produce at rate of 2 mtpa for 330,000 tpa spodumene concentrates or 48,000 tpa of lithium carbonate equivalent and 274,000 tpa tantalite at life-of-mine cash costs of $US205/t.

Pilgangoora currently hosts a reserve of 29.5mt @ 1.31% lithium and 134 ppm tantalum which is sufficient for a 15-year mine life as outlined in a PFS released earlier this year.

A DFS is under way, with drilling also being conducted as Pilbara Minerals looks to increase mine life to 30 years. It has set an exploration target of 130-150mt @ 1.2-1.5% lithium and 175-225 ppm tantalum.

Brinsden said there was a lot of hard rock lithium to be found in WA and if prices stayed where they were now, there would be many players incentivised to explore potential lithium hubs.

However, being a semi-bulk material, only high-grade lithium deposits close to infrastructure and downstream industries would make compelling mining opportunities, according to Brinsden.

“If you haven’t got those criteria, then there is a reasonable chance there won’t be a mine. Ultimately, you have to have a low-cost operation. While it is great to have a tailwind we are not getting overly focused on today’s [lithium] price. We want to ensure we have an ultra-cost competitive mine because that is what will make it a success all the way through the mining cycle,” he said.

Given its location in iron ore’s heartland, Pilgangoora is ideally placed to become a mine next year at a price of about $184 million (according to PFS estimates) and with Brinsden at the helm Pilbara Minerals has the insider knowledge to tap into potential Chinese customers for off-take, while he can also access a workforce which knows how to operate efficiently in the Pilbara.

“Some very good people have been involved with Atlas over the years and where those skills make sense for Pilbara Minerals then absolutely, we’d be only too happy to get them involved. A couple of key resources have already come in who had been involved with Atlas over the years and we look forward to drawing on their expertise and we’re very lucky to have them involved,” Brinsden said.

The company has 100% of lithium oxide production from Pilgangoora under MoUs with off-take partners in China, Japan, Europe and the Americas, all of which have expansion plans in place to meet growing demand for EVs.

There is a plethora of juniors aiming to enter that market but Pilbara Minerals believes it can maintain its position at the front of the pack via the drill bit.

Drilling companies Strike Drilling and Mt Magnet Drilling have been getting the job done at Pilgangoora, with a 15,000m RC and diamond programme north of the central pegmatite this year, delivering significant new zones of mineralisation, including 47m @ 1.91% lithium from 68m, 61m @ 1.71% from 84m, 43m @ 1.72% lithium and 135 ppm tantalum from 20m and 54m @ 1.49% lithium and 125 ppm tantalum from 167m.

Following that exploration success, another 16,000m drilling programme was under way at the time of print.

“The drilling couldn’t be going any better to be honest,” Brinsden said.

“We’ve even surprised ourselves as what we have turned up and as a result of the PFS drilling we expanded the exploration target to 150mt. That is realistically only drilling the resource down to 100-150m depth, which indicates there are plenty more tonnes to be found and that is the reason behind continuing to expand the drill programme.”

It is this exploration potential which allows Brinsden to fend off questions about possible M&A synergies at Pilgangoora.

Pilgangoora is the same deposit which hosts Altura Mining Ltd’s 35.7mt @ 1.05% lithium resource and Dakota Minerals Ltd’s Lynas Find project.

“We’ve already got a lot of tonnes in the ground and there is a lot more to come,” Brinsden said.

“There is plenty of potential in Pilgangoora’s resource, and as a result we wouldn’t really suggest there’s much more than we’d need to buy. We think we have one of the most competitive hard rock lithium projects in the world in which case it would make a lot of sense that expansion capacity comes from our mine.”

Brinsden said the company’s ability to raise $100 million recently in buoyant market conditions was an indication of the high level of support from investors and shareholders.

“If you think about financing the rest of the operation, we are reasonably confident that customers will be supportive in participating in the financing,” he said.

“We are looking forward to finishing those discussions and once we have done that we will determine the balance of the fundraising – definitely in terms of scale – and then we will make some decisions about where we go next. But, the objective generally is to have that all wrapped up in the second half of this year and get construction under way by the end of the year.”

– Mark Andrews