



Resources Stocks Down Under

🗨️ *It's not whether you're right or wrong that's important, but how much money you make when you're right and how much you lose when you're wrong.* 🗨️

- George Soros (b. 1930), Hungarian-born American billionaire investor

**LITHIUM POWER
INTERNATIONAL**

Maricunga magic

**MACARTHUR
MINERALS**

A new kind of Esperance

BIG RIVER GOLD

Looking behind to move
ahead

LITHIUM POWER INTERNATIONAL

Maricunga magic

Stocks Down Under rating: ★★★★★

ASX: LPI
Market cap: A\$105M

52-week range: A\$0.175 / A\$0.388
Share price: A\$0.28

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MACARTHUR MINERALS

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Market cap: A\$62.8M

52-week range: A\$0.39 / A\$0.75
Share price: A\$0.43

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Share price chart



Source: Tradingview

If there's one part of the world where it's relatively inexpensive to source the lithium we'll need to power the 21st century economy, it's got to be the Lithium Triangle in South America that encompasses Chile, Bolivia and Argentina. Up in this arid part of the Andes you find a lot of dry salt lakes, called salars, and underneath those salars, lithium-rich brines. All lithium miners need to do is pump the brines to the surface. And after some processing to create the lithium carbonates or hydroxides the battery factories can use, the lithium is theirs for the taking.

A shovel-ready project

LPI's potential-company maker, called Maricunga, is in the Chilean part of the Triangle. LPI owns 51% of the project and is the operator. If you consult a map of Chile, go to the fourth Region from the top – the one which used to be called 'Region III' and is now called 'Atacama'. Then flick your eye 170 km northeast of the regional capital of Copiapo and you're looking at the Maricunga salar. This is Chile, universally acknowledged as a well-governed country rapidly moving into middle income status, so all the infrastructure for a project like LPI's is on hand.

And there's a heck of a lot of lithium on hand as well. In January 2019, LPI estimated 2.07 million tonnes of Lithium Carbonate Equivalent (LCE) for just the Measured and Inferred categories only estimated from surface to 200 metres depth. That left room to expand this down to 400 metres.

You can read all about Maricunga in an issuer-sponsored equity research report from Pitt Street Research published in early 2020. In some ways it's surprising that Maricunga has yet to be developed. Not only is the resource sizeable, but it's very high grade. The 2019 resource estimate put that grade at 1,167 mg of lithium for every litre of brine, making it one of only about five salars in the world with grades above 1,000 mg/L.

Maricunga has been 'shovel ready' for some time. In February 2020 the project's Environmental Impact Assessment was approved by the Chilean government and almost a year earlier, in January 2019, LPI published a Definitive Feasibility Study, which evaluated a 20-year mine life producing 20,000 tons per annum (tpa) of Lithium Carbonate Equivalent (LCE). That valued Maricunga at US\$1.3bn pre-tax after capital costs of US\$563m. And no wonder the project was so valuable – the estimated operating cost was only US\$3,772 per tonne.

Something Old, Something New

So what's the hold up? Well, 2020 was not a great year to be developing new lithium projects given how Covid-19 put a dampener on the lithium market. And half a billion US dollars in capital costs was a lot of project finance to raise for a small company like LPI. That said, Chile's state-owned copper miner Codelco did seriously look at this project under a non-binding Memorandum of Understanding signed in August 2019.

In late 2021 we think LPI is getting much closer to a payday for Maricunga. The reason is because of LPI's December 2020 decision to develop the project in stages, thereby lowering the capital costs. The company will now start with only the 'Old Code' concessions. In 1979 Chile declared lithium a 'strategic' mineral and therefore subject to state control because of its nuclear applications. If you hold 'New Code' concessions in Chile related to lithium granted after 1979 you need a lot of approvals. By contrast 'Old Code' concessions from before 1979 are available for immediate exploitation.

An updated DFS coming soon

In late 2020 LPI and its partners at Maricunga believed they had enough lithium in their Old Code concessions to get started with a 15,000 tpa LCE operation, so long as the brines stayed rich down to 400 metres. Proving that, however, meant a new DFS and some drilling work on the resource. The establishment of a strategic alliance with Japan's Mitsui in May 2021 gave this approach some legs, as did the September 2021 announcement that Stage 1 of Maricunga could now call on 1.905 million tonnes of LCE in Measured and Indicated Resources from the Old Code concessions, which was a 90% increase. And there's more where that came from because the resource was open at depth beyond the 400 metre mark.

We think the completion of the updated DFS for Stage One, expected late this year or early next year, can help markedly re-rate LPI in an environment where Element Number 3 is very much back in favour. LPI is well-funded for the time being, having raised \$12.4m via a placement at \$0.26 per share in August 2021 to augment the \$6.3m it held at the end of June 2021. Whatever valuation number the updated DFS comes up with, it's important to remember that Stage 2 can expand the project a lot further in an environment where the world is going to need a heck of a lot more lithium by 2031 – maybe five times more than will be consumed in 2021. And lithium's end users are going to want it from stable countries like Chile. All of which makes LPI four stars right now.

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Source: Tradingview

Back on 8 February 2021, 63.5% iron ore fines (iron ore fines are produced through mining, crushing and screening natural raw iron ore) were landing in Tianjin at US\$155 a tonne and investors Down Under could talk of little except iron ore. Macarthur Minerals stock changed hands that day at \$0.74. Iron ore went a lot higher between February and July before the inevitable bear market set in, but \$0.74 was as good as it got for Macarthur Minerals. We still think this one deserves another look once all the red dust settles from the current iron ore rout. To understand why, let's talk about a place called Koolyanobbing.

The demise of a minor iron ore legend

Yes, there are producing iron ore mines in WA that are not in the Pilbara and Koolyanobbing, near Southern Cross in the Wheat Belt, is one of them. The iron ore deposits here have been worked since the 1950s - for a long time by BHP Group (ASX: BHP | [see 17 May 2021 report](#)), then by the American major Cleveland-Cliffs (NYSE: CLF). And, after Cliffs left in 2018, by Mineral Resources (ASX: MIN | [see 10 September 2020 report](#)). Koolyanobbing is, however, not long for this world. It will only produce another 6 Mtpa until depletion in 2025.

Mineral Resources has been touting a ten year plan for the iron ore riches of the Yilgarn, but Koolyanobbing's end of life is still potentially important for Macarthur Minerals. That's because its Lake Giles Iron Project is only about 100 km further north. Lake Giles hosts a hematite deposit called Ularring and a magnetite deposit called Moonshine. Ularring is small at only 80 million tonnes or so, but already has the majority of its approvals in place, while Moonshine, which also has fully granted mining leases, is a potential magnetite monster, at 1.3 billion tonnes.

Moonshine is bright

Lake Giles and Macarthur have a long history. There was a Preliminary Economic Assessment (PEA) on Moonshine in 2011 and a Prefeasibility Study on Ularring in 2012, while in June 2019 another PEA incorporated a combined hematite/magnetite operation. It was a 'PEA' because Macarthur stock was solely Canadian-traded until December 2019. That PEA from 2011 had a slightly different project scope to Macarthur's current study, which is focusing on a 100% magnetite concentrate. However, if you track it down – it's a public domain document – there are some impressive metrics in there. But, get this: it can't be disclosed in Australia since it's an NI-43-101 document.

One thing we can say without the killjoys at ASX getting annoyed is this: for Lake Giles the only ex-mine infrastructure really needed is a 90 km haul road to plug into the existing rail infrastructure that would get the ore to the Port of Esperance and a rail unloading solution at the other end. Not bad given that in WA you usually spend billions on ports and railways just to get to iron ore's first base.

In 2019 Macarthur secured Glencore as a Life-of-Mine offtake partner with a binding agreement. By 2020 it was working on a Feasibility Study that focused on the Moonshine magnetite, where Davis Tube Recovery work had shown Macarthur could easily produce a 65% Fe concentrate. Macarthur reasoned that steel makers would like magnetite because, being 'exothermic' (i.e. releasing heat during the steel making process), it would require less coal to make the steel, which would mean less carbon emissions.

Progress for both kinds of iron ore

Esperance is French for 'hope'. The town of Esperance is important for Macarthur's hopes because the town needs what the company's got. Esperance is set up to export 11.5 million tonnes of iron ore a year. After 2025 the Port may more or less lie idle unless new long-term customers like Macarthur can step in. Therefore, it was not a great surprise when Macarthur announced in February 2021 that it had signed an MoU with the Southern Ports Authority for the relevant access. Tentative track access had been negotiated with Brookfield's Arc Infrastructure the previous July.

So, Macarthur is getting closer to a serious payday for Lake Giles. The big money will come from the magnetite, but Macarthur is also cooking up a Direct Shipping Ore solution for Ularring hematite, which also involves taking some ore from the Wiluna West Iron Ore Project of GWR Group (ASX: GWR | [see 24 June 2021 report](#)) and exporting the combined product from Kwinana. That side hustle doesn't have port access yet, but it does have Aurizon (ASX: AZJ | [see 30 March 2020 report](#)) to ship the ore.

A low cost survivor

Macarthur is so confident of Lake Giles' future that it is currently preparing to spin out its other projects, which includes Pilbara iron ore and copper projects and a gold play near Leonora into the optimistically named Infinity Mining.

We believe the upcoming publication of the Lake Giles Feasibility Study – a Feasibility Study the ASX will be happy for investors Down Under to read – could be a catalyst for a re-rating. By that stage, the iron ore bust will likely have passed and investors will be able to get a clearer picture of who has the infrastructure support to get things done and who can produce at a reasonable cost. We believe Lake Giles will likely pass both these tests and if you sneak a peek at that forbidden 2019 PEA you'll see why. Obviously, iron ore stocks are out of favour right now, but we think this one is sitting at a very strong support level and looks set to move up from here. Four stars.

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Share price chart



Source: Tradingview

Big River Gold is so-called because the Borborema Project is in the state of Rio Grande do Norte in north-eastern Brazil. 'Grande' is also an apt way to describe Borborema. An initial Definitive Feasibility Study (DFS) completed in December 2019 and updated in July 2020 defined a Stage 1 open-pit operation producing 730,000 ounces of gold at an AISC of only US\$713 per ounce for the first ten years. That would use up only a fraction of the 2.4-million-ounce resource, but on a gold price of just US\$1,550, the study returned a Net Present Value of US\$342m (at an 8% discount rate) and an Internal Rate of Return of 64.7%.

Grande ou Realmente Grande?

Following the updated DFS, the company also completed an Options Study with the aim of expanding Borborema's 2 Mtpa process plant to 4 Mtpa or more as the project progresses, with some extra cost benefits to cover expected expenditure. While Big River waits on a full assessment, it's already speculating on long-term Stage 2 production improvements. Given the project's location, Borborema is another gold project with mining community support while Big River has the advantage of Brazil's pro-mining, pro-market approach and a dual Australian-Brazilian team.

In late 2020, Big River raised \$20m at \$0.05 per share in a transaction that introduced several major gold funds and gold investors onto the register. This notably included the Canadian resource investor Dundee Goodman Merchant Partners. The raise allowed BRV to continue its efforts in detailed engineering and ensuring process water security earlier than it would otherwise have.

As part of those studies, a review was undertaken to ensure the effective use of capital and, if the project was expanded, that there would be no wastage of capital, interruptions to production or other issues with operation layout and equipment choice.

Solving Big River's liquidity problem

Big River Gold had always felt 4 Mtpa was supportable and earlier feasibility work had looked into that option, for which the project is currently permitted. The drawback of that was always Big River's ability to secure sufficient process water to support a large production rate given that Borborema is located in a semi-arid area of Brazil.

As water studies have continued and options presented to increase both volume and security from multiple sources, there is increasing confidence that Borborema could operate at significantly higher throughputs than 2 Mtpa, which will still comprise the basis for Stage 1. Expansions will require relocation of a nearby highway and regional powerlines, which may be possible in the third or fourth year of Stage 1.

Big River, big plans

Work is currently underway to finalise the 2 Mtpa engineering cost update within the context of subsequent expansion. Detailed review has resulted in several aspects of the engineering and layout to be upgraded or modified and some components to be added for cost benefits. Costs are being updated to reflect changes in equipment selection and the Brazilian mining conditions in 2021.

At the end of the June quarter, the company had a cash balance of \$19.3m and no debt. Financing will be sought over the next few months, but the current cash balance means BRV doesn't have to rush things, advancing its engineering confidence to a standard that would not otherwise be achieved. The equipment and processing changes outlined in the Options Study meet the requirements not just for 2 Mtpa but maybe even 6 Mtpa. That's possible because Borborema's 3.5 km orebody remains open at depth in all directions.

BRG has commenced the construction of a fines dyke for water collection and other power/pipeline design measures. Although time on the ground in Brazil is limited because of COVID-19, much of the ongoing engineering and cost studies can be done in Perth while the company prepares for near-mine exploration drilling. After the previous 104,500 metre drilling campaign, the main deposit contains several mine extension opportunities, including a possible high-grade plunge to the south. There is also a number of unexplored concessions along the 75 km trend adjacent to Borborema.

Not just Big River Gold, but Big River mica

The 2020 DFS work strengthened BRG's share price to \$0.59. The price is now down to \$0.26 on small volumes, but the company's efforts to jump seamlessly to 4 Mtpa can, in our view, improve its chances of funding support.

And it's worth remembering that expansion to 4 or 6 Mtpa isn't the only upside for Borborema. Future active programs could concentrate on enhancing mill feed and grade for better throughput and the potential for commercial mica production – a silicate mineral often found in gold production. Mica's uses in the industrial and plastics sector, in particular, could also make it a potential by-product.

Either way, the company has a high level of confidence in the resource base with Stage 1 production only representing half the 1.61-million-ounce reserve. And the resource is likely to grow through exploration or even through lowering the cut off grades with higher mill throughputs. With Borborema largely construction-ready, funding news will be the next step to production. Four stars from us.



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Pitt Street Research Pty Ltd provides issuer-sponsored research for Small & Mid Cap companies and is founded on more than 40 years of combined experience researching companies in a range of different sectors.

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