

# Here's why investors are loving lithium

## Batteries and electric vehicle prospects are a big power-up



*Stuart McKinnon*

It's been one of the glamour commodities for investors in recent times, but exactly why is there so much excitement around lithium?

The commodity is by no means scarce and the lightest metal has had a range of industrial and chemical applications for many years.

What's changed about the market for lithium in recent times is the expected surge in demand driven by growth in the use of mobile phones, computers, renewable energy storage systems and most importantly electric vehicles or EVs.

Lithium-ion batteries that power EVs are the main game for the future projected demand for lithium.

And it's not just cars. Motorcycles, trucks, ships and mining equipment will all be powered electrically in the future.

Following the lead of industry pioneer, Elon Musk's Tesla, the world's major auto

manufacturers, including Volkswagen, Daimler, Audi, Toyota, Nissan, Jaguar Land Rover and most recently Volvo, are now scrambling to join the EV revolution.

In fact, Volvo recently announced it would move to electric or hybrid cars exclusively within two years.

Meanwhile, governments from Asia to Europe are using a variety of carrots and sticks to drive the transition to lower emission EVs. Last week, the UK government joined France by announcing new petrol and diesel cars would be banned from 2040 in a bid to tackle air pollution.

Morgan Stanley predicts 50-60 per cent penetration of electric vehicles into the internal combustion market by 2040, an estimate many people consider conservative.

Some analysts are predicting a 50 per cent year-on-year growth in EV sales

globally for at least the next 10 years.

China, which registered 352,000 new electric vehicles last year, wants 11 per cent of all car sales to be electric by 2020.

Last month Swiss bank UBS became the latest to raise its forecast for penetration of EVs by more than 50 per cent. It now estimates electric vehicles will hit 14 per cent penetration globally by 2025, but again some consider that to be a conservative prediction.

UBS believes the cost of building an electric car could reach parity with a standard combustion vehicle as soon as next year, creating an “inflection point”, after which the global market will move more rapidly towards electric vehicles.

Cannacord Genuity analyst Reg Spencer agreed that continued reductions in battery pack costs would be a key enabler for increased EV penetration as well as there being more models on the market appealing to a broader range of consumer tastes.

So what does that mean for lithium demand? The chief executive of one of the world’s biggest suppliers of the product, Chile’s SQM, sees demand for lithium carbonate equivalent growing from 200,000 tonnes a year today to 500,000tpa in 2025.

“The use of lithium batteries in the automotive industry marks a trend that will revolutionise global demand in the coming years,” Patricio de Solminihac said this month.

So what for lithium prices? The global supply of lithium is controlled by three big players — SQM, FMC Corp and Abermarle Corporation — and pricing of the commodity is opaque.

The question is how quickly new supply can come online to meet the expected surge in demand.

Cannacord forecasts the price of lithium carbonate will remain about \$US10,000 to \$US12,000 a tonne until 2025 and spodumene about \$US650-\$US900/t.

Mr Spencer noted any significant price spike had the potential to incentivise the supply of low-grade direct shipping ore (arguably uneconomic at current prices), thus keeping a lid on prices.

“Lithium itself is abundant,” he said.

“The challenge in the past has been getting it out of the ground cheaply and in a timely fashion.”

This week, mining giant Rio Tinto announced it would expedite plans to develop its Jadar lithium/boron project in

Serbia, which it claims could supply more than 10 per cent of global lithium demand when it comes into production in 2023.

Tawana Resources managing director Mark Calderwood, who co-authored a book on lithium mining in WA more than

10 years ago, said there were two arguments on the lithium price.

“Some people are talking it up, some people are talking it down, which I think is healthy,” he said.

“When everyone is talking it up, that’s when you know the party’s over.

“There’s a healthy cynicism from some of the analysts, but overall it’s the way of the future.”

Like many others in the industry, Mr Calderwood sees an inflection point, where demand for EVs will take off as battery prices come down and car makers launch better designed cars.

“It will all be electric in 20 years time,” he said.

**S**o what’s the opportunity for Australia and more importantly, WA?

Most analysts talk about the Australian lithium market being worth \$2.5-\$5 billion a year, a far cry from the \$54 billion WA iron ore sales generated last year, but significant nevertheless.

Lithium deposits in WA are primarily the hard-rock variety, deriving from pegmatites.

Pegmatite is the ore in which lithium is found and spodumene is the mineral that carries the lithium.

Talisson Lithium’s Greenbushes operations in the South West is the biggest and longest operating lithium mine in Australia. In March, the mine’s Chinese (Tianqi Lithium) and American (Abermerle) co-owners announced a \$320 million expansion of the mine that will more than double its capacity to 1.34 million tonnes of lithium concentrate.

The upgrade coincides with a new lithium hydroxide plant Tianqi is building in Kwinana. The plant will convert lithium

concentrate from Greenbushes into a higher-value, battery-grade lithium hydroxide. The company began building the \$400 million plant in October last year, but is already eyeing a \$317 million expansion aimed at doubling its capacity to 48,000tpa.

Tianqi Lithium Australia boss Phil Thick said the company was racing to

meet an expected supply crunch in lithium hydroxide between now and 2025.

Other WA players in production include Galaxy Minerals with its Mt Cattlin mine near Ravensthorpe and Mineral Resources, which is in a joint venture with China's Gangfeng and Chris Reed's Neometals over the Mt Marion project near Kalgoorlie and independently ships a low-grade direct-shipping ore product from its Wodgina operations in the Pilbara.

Then there's a quartet of players racing to become the next WA lithium producers.

Pilbara Minerals and Altura Mining are set to become lithium miners early next year with their respective greenfields Pilgangoora projects and Tawana Resources launching a brownfields operation at its Bald Hill lithium-tantalum mine in a joint venture with the Singapore-listed Alliance Mineral Assets.

Kidman Resources, which recently signed a 50-50 joint venture arrangement with Chilean chemicals giant SQM to bring its Mt Holland project into production, is likely the next cab off the ranks. SQM is another player that is eyeing a plant in WA to convert spodumene concentrate into a higher value lithium carbonate and lithium hydroxide product.

Mr Calderwood said he expected Australia to produce about half the world's lithium by 2025.

The majority of the rest of the supply is expected to come out of the so-called lithium-triangle countries of Chile, Argentina and to a lesser extent, Bolivia.

Lithium from those countries are derived from brine projects, which are generally considered more technically challenging to bring into production and take longer to mature.

Australia is considered a more favourable investment environment than the lithium-triangle countries and brines can produce only lithium carbonate directly, whereas spodumene can produce either lithium carbonate or the premium-priced lithium hydroxide.

Mr Thick said global lithium users wanted consistency of supply and their sourcing of product from geographically diverse locations in Australia's favour.



**Tianqi Lithium general manager Phil Thick is looking to invest \$400 million in a Kwinana lithium hydroxide plant.** Picture: Mogens Johansen



**Mark Calderwood, managing director of Tawana Resources.** Picture: Sharon Smith

## LITHIUM PLAYS

### **GALAXY RESOURCES (GXY)**

**In production:** Mt Cattlin spodumene project (exploratory assets in Argentina, Canada)

**Friday close:** \$1.82

### **MINERAL RESOURCES (MIN)**

**In production:** Mt Marion lithium project (43.1pc), Wodgina DSO project

**Friday close:** \$11.98

### **NEOMETALS (NMT)**

**In production:** Mt Marion lithium project (13.8pc)

**Friday close:** 28¢

### **PILBARA MINERALS (PLS)**

**Emerging producer:** Pilgangoora lithium-tantalum project

**Friday close:** 38¢

### **ALTURA MINING (AJM)**

**Emerging producer:** Pilgangoora lithium project

**Friday close:** 16¢

### **TAWANA RESOURCES (TAW)**

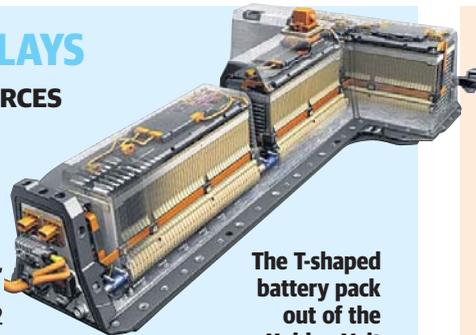
**Emerging producer:** Bald Hill lithium-tantalum project

**Friday close:** 21¢

### **KIDMAN RESOURCES (KDR)**

**Emerging producer:** Mt Holland gold-lithium project

**Friday close:** 59¢



**The T-shaped battery pack out of the Holden Volt**

## OTHER ROCKS IN POWER MIX

Lithium is not alone in the electronic vehicle revolution. Lithium-ion batteries also use cobalt and graphite, both of which have come in for their share of investor exuberance lately. Earlier this month, UBS predicted EVs could offer a renaissance for the downtrodden nickel market, lifting demand for the commodity by 10 to 40 per cent by 2025. Copper, manganese and aluminium are also used in lithium-ion batteries, but the requirements of each commodity are highly specific so not every player stands to benefit. And with the technology around EV battery production developing so rapidly, it is unclear which commodities will be part of the future mix.



**Cobalt is used in electric cars.**



**Workers at Talison Lithium's processing plant. Talison is planning an expansion of its lithium operations at Greenbushes to capitalise on demand. Picture: Talison**