



Resources Stocks Down Under

🗨️ *Batteries are the most dramatic object. Other things stop working or they break, but batteries... they die.* 🗨️

- Demetri Martin (b.1973), Comedian

— AUSTRALIAN VANADIUM

Good times for Element 23

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Stocks Down Under rating: ★★★★★

ASX: AVL
Market cap: A\$191.5M

52-week range: A\$0.018 / A\$0.06
Share price: A\$0.059

Vanadium, Element No. 23 on the periodic table, is a metal you're going to be hearing more about in the years ahead, because without it we don't get the redox flow batteries that will allow large-scale storage of renewable energy. We also think you're likely to be hearing a lot more about Australian Vanadium, ASX: AVL, as it moves forward with its Australian Vanadium Project in Western Australia, one of the most advanced vanadium projects in the world.

Share price chart



Source: Tradingview

Just to make it easy on investors, Australian Vanadium's flagship project now has the same name as the company. The Australian Vanadium Project, also called the Gabanintha Vanadium Project, covers a deposit of vanadium, titanium and iron around 43 km south of Meekatharra in WA's Murchison Region. Australian Vanadium started working on Gabanintha since 2014, before the 2016-2018 bull market in vanadium.

Under its aegis Gabanintha has turned into a sizeable deposit, the resource estimate as of November 2021 being 239 million tonnes at 0.73% vanadium pentoxide (V₂O₅). Australian Vanadium's Pre-Feasibility work has suggested that this could be the making of a billion-dollar company.

The other really serious battery metal

Time was when vanadium was just part of 'ferrovanadium', an additive in steel manufacturing. Add a little bit of vanadium in the mix and you get steel with significant shock- and corrosion-resistant properties. Steel alloy makers are where most of the demand still comes from. That spanner in your garage has vanadium in it to make it more resilient and if you have a circular saw, it probably has vanadium-based moving parts, because vanadium retains hardness at high temperatures. However, there's now a big new use for vanadium that looms large as the green economy evolves: redox flow batteries.

Redox what? Okay, stick with us. Redox is short for 'reduction/oxidation'. A redox flow battery involves liquid electrolyte solutions flowing through a series of electrochemical cells during charge and discharge. Reduction and oxidation are simply the chemical reactions that charge or discharge the electrons that give us electricity. Make a battery with vanadium in the electrolytes and it can be recharged at least 20,000 times without loss of performance, which beats lithium hands down.

And unlike lithium, that same battery can scale up to whatever size you want simply by adding bigger electrolyte tanks. It can then release the power at whatever pace you need, unlike conventional batteries, where greater storage generally means greater power. If we're going to recapture all that solar energy when the sun is shining and send it to the grid when it's not, we're likely going to need a lot of vanadium redox flow.

A would-be billion-dollar project

Australian Vanadium's goal is to mine and concentrate the V2O5 at Gabanintha over a 25-year period and process it into vanadium electrolyte and other products at Tenindewa, a small town near Geraldton, where gas prices are cheaper and there's a major port not far away.

The upside is potentially enormous. A 2018 Pre-Feasibility Study showed that Gabanintha was worth US\$1.1bn, after capital costs of US\$360m, so long as V2O5 averaged US\$13 a pound. That may have sounded optimistic, but even a December 2020 PFS update, which raised the total capital cost to US\$399m, gave the project A\$909 in pre-tax NPV (at an 8% discount rate). The key was low operating costs for the 24 million pounds of V2O5 to be produced. The December 2020 update estimated these operating costs at US\$3.66 a pound, helped by the titanium and iron credits.

Now, the first V2O5 concentrates from Gabanintha are still some years away, because Australian Vanadium has yet to complete the Bankable Feasibility Study (BFS). And while the project was awarded a \$49m Federal government grant in March 2022, there's a lot of project finance still to raise. The reason to consider the stock now, however, has to do with the nature of the commodity. Most of the world's vanadium output comes from Russia, China and South Africa. Given the critical nature of Element 23, it benefits from moves by Western countries to encourage projects where the supply chains are more reliable, like Australia. This criticality was one likely reason why the Australian government gave Gabanintha Major Project Status in September 2019.

The V2O5 bulls are back

We expect 2022 will be a year of progress for Australian Vanadium. As well as the BFS, the company will be nailing down offtake agreements for the vanadium output – as of March 2022 it already has two Chinese offtake partners for the iron and titanium. Environmental approvals are pending for Gabanintha. And, importantly, Australian Vanadium will be working on burnishing its ESG credentials, with a particular focus on making the energy sources for Gabanintha and Tenindewa as renewable as possible. We might even see some exploration upside – Bryah Resources (ASX: BYH) is exploring on the Gabanintha leases for gold, copper, nickel and cobalt, and it's reasonable to expect that company to ultimately piggyback off vanadium-related infrastructure if the right finds emerge.

An important reason to look at Australian Vanadium right now is the price of the commodity. Back in early 2016 V2O5 was changing hands at between US\$2 and US\$3 a pound. By late 2018 it was over US\$28 a pound. The Corona Crash took V2O5 down to US\$6 a pound, but right now it's showing every sign of repeating the 2016-2018 bull market, propelled most recently by a recent dearth of Russian product. The current price of around US\$12 a pound makes the Gabanintha economics look very good indeed. Four stars.

Pitt Street Research Pty Ltd

3 Spring Street, Sydney, NSW 2000, Australia

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