

Australian Vanadium Ltd

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Australian Vanadium Ltd to update resources for PFS metrics as it targets 2021 production

- A DFS for The Australian Vanadium Project is expected in December 2019, targeting cost reductions from a December 2018 PFS
- The project has an initial 17-year mine life
- At a US\$13 per pound vanadium price, the project has an NPV8 value of US\$616 million (\$860 million)
- The corresponding internal rate of return is 27.2% while fully allocated C3 costs are \$6.05 a pound
- Australian Vanadium hopes to start construction in 2020-21 and be in production with the namesake project in 2021
- Start-up, commissioning and ramp-up is tipped to happen over 2021-22

What does Australian Vanadium do?

Australian Vanadium Ltd (ASX:AVL) (FRA:JT71) (OTCMKTS:ATVVF) specialises in vanadium exploration and development in Western Australia. It is run by Vincent Algar, a geologist and former investment analyst with more than 25 years of experience in the resources and mining services industries. Algar previously headed up a manganese exploration company spun out of the Hancock Prospecting Pty Ltd buy-up Atlas Iron Limited (**ASX:AGO**).

What does Australian Vanadium own?

The company's key asset is The Australian Vanadium Project about 43 kilometres south of the mining town of Meekatharra and 740 kilometres northeast of Perth.

Australian Vanadium holds vanadium, uranium, cobalt, chromium, titanium, lithium, tantalum, manganese and iron ore rights to its now 260 square kilometre project.

AVL's maiden ore reserve was 18.24 million tonnes at 1.04% vanadium pentoxide (V₂O₅), comprising a proved reserve of 9.82 million tonnes at 1.07% and a probable reserve of 8.42 million tonnes at 1.01%.

The resource is 183.6 million tonnes grading 0.76% V₂O₅, the company **confirmed in March 2019 in a corporate presentation**, with a high-grade segment of 96.7 million tonnes at 1% V₂O₅.

Australian Vanadium expects to be able to produce a high-purity V₂O₅ powder for superalloys and energy storage.

The company controls an 11-kilometre resource strike length of the Bushveld-type vanadium titanomagnetite (VTM) deposit, with the mine plan based on 2.5 of those kilometres.

AVL said in the corporate update "significant potential to improve project

Price: A\$0.02

Market Cap: A\$41.08M

1 Year Share Price Graph



Share Information

Code: AVL

Listing: ASX

52 week High Low
A\$0.07 A\$0.02

Sector: Mining

Website: www.australianvanadium.com.au

Company Synopsis:

Australian Vanadium Ltd (ASX:AVL) is focussed on vanadium at its flagship Gabanintha project in Western Australia.

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economics" had been identified and was being investigated actively for a "well-defined ore body (with a) well-understood processing route".

Managing director Vincent Algar spoke to Proactive Investors about the corporate update in a video interview **published on March 21, 2019**.

Algar noted the presentation highlighted "some of the uniqueness of what we're doing out there" and provided more detail on the project's capital cost, which the company is targeting to reduce during ongoing definitive feasibility study (DFS) work expected to be finalised in December 2019.

The US\$354 million (\$494 million) capital cost was broken down into a processing plant capital cost US\$260 million, which could come in at \$195 million given the potential for the costing to be 25% greater or lower.

The production rate would be 22.5 million pounds V₂O₅, or 5,650 tonnes of vanadium (MTV).

A 2017 estimate put the size of the global MTV shortage as 8,000 MTV, or 10% of the global market.

The March 2019 update confirmed the company's commitment to fast-tracking its "significant global resource" and highlighted the vanadium expertise inherent in its team, saying the expertise separated it from other explorers.

That team includes geologist-MD Algar, technical director Daniel Harris and technical manager Todd Richardson who draw on a group of skilled consultants including Wood, Golder, Biologic Environmental Survey, Dempers & Seymour geotechnical & mining consultants, Clean Energy, Umwelt environmental & social consultants and Adman Resources.

The presentation also updates the company's timelines and provides a discussion around operating costs.

Operating costs (opex) for the mine with potential for expansion are \$4.23 for a pound of V₂O₅ or \$4.15 per pound of V₂O₅ equivalent.

The company is on a cost reduction drive for the project and flagged in the update its low-cost base metal recovery circuit had improved overall opex by 7 US cents a pound of V₂O₅.

Algar noted in his March 2019 video interview that vanadium price corrections were put down to a change in Chinese rebar standards for the reinforcing bar used in construction but affirmed he believed prices would be strong for many years to come.

The new rebar standard means there is an increased requirement for vanadium as an input.

Australian Vanadium's corporate update flagged that at a vanadium price of US\$13 a pound, the Australian Vanadium project would have an after-tax net present value (NPV8) of US\$616 million when calculated at an 8% discount.

The company produced a pre-feasibility study (PFS) for its Australian

Vanadium project in December 2018, valuing it at a top-end after-tax US\$1.4 billion if prices reached the US\$20 a pound mark.

AVL's concentrator plant design in the PFS included a sulphide flotation circuit that could extract a variety of minerals.

Australian Vanadium has been directing research and development (R&D) capacity towards **developing processing techniques to produce vanadium from a poly-metallic ore for vanadium redox flow batteries (VRFB) and steel applications.**

It installed a VRFB in Busselton in WA's southwest in October 2016 as part of its efforts, running and testing the battery since then to assess how it performs in a range of different temperatures and analyse other key metrics from a built-in battery management system.

The company also **completed a drilling campaign at the site earlier this month, allowing an early start to a pilot metallurgical test program.**

Large diameter diamond core was collected as test material for the pilot-scale studies.

A total of 30 tonnes of massive magnetite was collected for processing after 2,862 metres were drilled in 30 drill holes.

A pending mineral resource update will allow another update to the company's PFS financial metrics.

The Australian Vanadium project area is prospective for other minerals besides vanadium, with **sulphide concentrates produced from flotation** in May 2018 having grades of 3.8% to 6.3% base metals, including 1.54-2.02% cobalt, 1.36-2.58% nickel and 0.82-1.7% copper.

Eleven tenements are held by Australian Vanadium in pending mining lease application M51/878, making up 70% of the maiden mineral resource, while the remaining 30% of the mineral resource is found at wholly-owned exploration licence E51/843.

Australian Vanadium hopes to start construction in 2020-2021 and be in production with its namesake project in 2021.

The company's start-up, commissioning and ramp-up activities would then extend over the years 2021-2022.

Who are Australian Vanadium's neighbours?

Junior explorer **Bryah Resources Ltd (ASX:BYH)** holds rights to other minerals, such as base and precious metals, over some 200 square kilometres of the project, including the prospective minerals nickel and copper.

Bryah had picked up the Peak Hill tenement (E52/3349) from Australian Vanadium in a deal inked in January 2017.

Technology Metals Australia Ltd (ASX:TMT) (FRA:TN6) is operating in the

vicinity of Australian Vanadium with its flagship project, the Gabanintha Vanadium Project.

TMT's project is also at the DFS stage with the smaller peer hoping to **produce its study by mid-2019**.

The neighbour's PFS valued its 13-year project at \$1.28 billion using a net present value (NPV10) calculated at a 10% discount, which was based on 21 million tonnes of its 120 million tonnes resource, where 13,000 tonnes would be produced a year.

What is Australian Vanadium's capital base?

Australian Vanadium had \$9.5 million cash at the end of December quarter 2018, tipping in January it expected \$2.2 million in cash outflows in the March quarter of 2019.

The company planned to spend \$1.8 million on exploration and evaluation in the March quarter, with its quarterly reports due in late April 2019.

After the quarter was completed, **AVL collected a \$113,660 R&D rebate from the Australian Government**.

The company's next quarterly reporting is expected by the end of April 2019.

AVL's securities gained 0.1 cent, or 5%, to 2.1 cents on Friday.

Inflection points

Ongoing market assessment of financial metrics, timelines and objectives in March 2019 commercial update

Pending mineral resource update

Pending PFS financial metrics update

Successful DFS release and capital cost reductions

Final investment decision progress and financing and offtake commitment success

Successful milestones from peers near the town of Gabanintha in WA, such as Technology Metals Australia and Bryah Resources

Australian vanadium industry development

Broader global vanadium industry pricing and sentiment

Managing director Vincent Algar highlights DFS costs focus

"When we put out the capex [in the December PFS] it came out at \$360 million US and some people found it a bit hard to chew off, so what we've done is explained that this is actually quite a reasonable capex for a project of this size but what we've given is an idea of how we've actually bolstered that up," Australian Vanadium managing director Vincent Algar told Proactive Investors last month.

"We've broken it down into the actual plant and operating capex, which is a \$260 million number, and then we've shown that there's a lot of pieces in there that we can improve on and that's really what we want to emphasise in that capex breakdown.

"Through the course of our ongoing definitive feasibility study our focus is on reducing capital items in that list and effectively ... reducing them to a point where they are minimised and that means that overall our capex will reduce.

"The effect of reducing the capital cost is that it has an effect on the bottom line at the end of the day — you don't have to pay that money back and you can get into profit much, much quicker."

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