

Vanadium projects

With the world's focus on climate action beginning to reawaken, Atlantic Vanadium's Windimurra project in WA is poised to meet rising demand for its high-purity vanadium pentoxide flake.



Minerals producers readying for surge

This time last year the world was preoccupied with climate change and the imperative to embrace a clean-energy future. The COVID-19 pandemic has overshadowed that issue in a way that would have seemed impossible 12 months ago, but as the world takes its first tentative steps towards a post-coronavirus future attention is returning to the quest for clean energy and what it means for mineral production.

A recent World Bank report, *Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition*, forecasts that to meet the growing demand for clean-energy technologies, the production of minerals such as graphite, lithium and cobalt could increase by nearly 500 per cent by 2050.

The report estimates that 3 billion tonnes of minerals and metals will be needed to deploy the wind, solar and geothermal power – as well as energy storage systems – required to meet the carbon reduction goals of the 2015 Paris Agreement.

"[A]ny changes in clean energy technology deployments could have significant consequences on demand for certain minerals," the World Bank report says.

Vanadium is expected to be one of the beneficiaries of the transition to a clean energy future. The World Bank estimates that the global adoption of renewable energy could drive a 200 per cent rise in the annual demand for vanadium by 2050.

A medium-hard, silver-grey metal with a natural resistance to corrosion, vanadium is used

to increase the tensile strength of steel and other specialty alloys and as a high-purity chemical.

A principal driver of growth in vanadium demand is China's 2018 decision to adopt new steel rebar standards intended to reduce the use of substandard steel. The development involves the addition of alloys such as vanadium to its steel.

The increased uptake in vanadium redox flow batteries is also expected to drive growth in vanadium demand. The batteries are most commonly used for grid-level energy storage applications alongside intermittent wind and solar energy systems.

Jack Bedder, director of commodity research with London-based metals and minerals research firm Roskill, told a Mines and Money webinar in June that he is "pretty optimistic" about the future of the vanadium market.

"[W]e forecast 2.2 per cent annualised growth over the next 10 years for the vanadium market," Bedder said. "We expect China to increase its share of vanadium consumption up towards about 60 per cent by the end of the decade."

Vanadium's prospects spell good news for Western Australia's Windimurra vanadium project, located 80 kilometres east of Mount Magnet in the state's mid-west.

Perth-based Atlantic Vanadium, which owns the project, is poised to become the world's next major vanadium producer.

Part of Indonesian conglomerate the Salim Group, Atlantic acquired the Windimurra vanadium project in 2016. The acquisition

"We expect North America to be our biggest export market, particularly given Australia's free-trade agreement with the United States."

Tony Veitch

included all of the assets of the project, including mining leases, plant and equipment, and infrastructure.

The Windimurra project is currently on care and maintenance with a structured program in place to maintain the site's plant and infrastructure in operating condition.

Atlantic Vanadium executive director Tony Veitch says the Windimurra project is "shovel ready", with all development approvals in place and the benefit of \$700 million of legacy investment in plant and infrastructure.

Veitch describes the Windimurra project as "the most advanced vanadium project in the world not in production".

In April, Atlantic completed a definitive feasibility study for the project. When in production, the Windimurra project is expected to produce 7600 tonnes of high-purity vanadium pentoxide flake (V_2O_5) annually.

"We expect North America to be our biggest export market, particularly given Australia's free-trade agreement with the United States," Veitch says.

"China is self-sufficient in vanadium at the moment but the expectation is that China will become a net importer of vanadium in the future."

Veitch says the project is a "unique opportunity" that has several significant advantages:

- Existing infrastructure including one of the largest roasting kilns in the world, a 24MW power station, 290-room staff village and a dedicated third-party gas pipeline.
- Significant historic investment, making it one of the lowest capital intensity primary vanadium project developments in the world.
- Utilisation of proven open-cut mining and vanadium production processes.
- A 31-year mine life based on reserves with resources supporting mine life of 50-plus years.

Atlantic Vanadium is in advanced discussions with vanadium off-takers for the project's annual V_2O_5 production.

The company is also in discussions with prospective project financiers and expects to make a final investment decision by the end of the year.

 **ATLANTIC**

Atlantic Pty Ltd
Level 6, The Esplanade
Perth WA 6000

PO Box Z5431
St Georges Terrace WA 6831
ABN 60 009 213 763

t +61 8 6141 7100
f +61 8 6141 7101
info@atlanticptyltd.com.au

atlanticptyltd.com.au