

## World news

## VANADIUM

## Yellow Rock banking on green tech

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"Juicy" grades and the prospect of being part of a battery-storage revolution were what convinced Vincent Algar to leave his job at a Cape Town investment fund and join Yellow Rock Resources as managing director.

Things have just become even more interesting for Algar after eight months at the helm, with the latest drilling results from the Gabanintha vanadium project in Western Australia revealing several high-grade intersects.

Buoyed by "spectacular" individual intersections of up to 2.2% V<sub>2</sub>O<sub>5</sub>, Yellow Rock has decided to fast-track the start of a resource estimation update.

After assessing samples from eight diamond drill holes, the company found the results included up to 14m at 1.44% V<sub>2</sub>O<sub>5</sub> from 131m down-hole. Such news will be welcomed by Algar, who declared anything between 1-1.5% "an absolute winner" when *Mining Journal* caught up with him in London recently.

The existing JORC-compliant mineral resource is 60.4Mt at 0.98% V<sub>2</sub>O<sub>5</sub>, putting Yellow Rock behind Bushveld Minerals (1.48%) and Largo Resources (1.40%) and ahead of a host of other players.

Algar had come to the UK mainly to participate in a flow-battery conference in Glasgow, and he was keen to talk up the green angle.

Vanadium's primary use is as a steel additive, where the use of a 0.2% vanadium component can reportedly double strength and reduce weight by up to 30%. The potential is in energy storage: according to Yellow Rock, vanadium redox batteries (VRB) are tipped to capture 30% of this market – translating to more than US\$100 billion in opportunities by 2020.

The Glasgow forum was attended by academics and small companies, including a firm called REDT that Algar said



Vincent Algar was attracted to vanadium for its technology-market prospects

was trialling a vanadium-flow battery in managing the grid and off-grid storage requirements of some Scottish islands.

"Our timing, in terms of it being an object of public interest, is massive," Algar said of the hype around VRBs.

"There's a lot of money washing around in the research space for grid-storage technologies. Flow batteries have always been a candidate for a good grid-storage technology because of their scalability, and when you're talking about storage on a grid scale you have to be able to scale it up big."

As the supply of renewable energies increases, so will demand for storage facilities. This is where vanadium redox batteries come into the picture: VRBs claim a high capacity that is ideal for large-scale storage of applications such as wind and solar energy.

"When the sun is down and everyone wants their lights on, you still need that solar power or wind power to do something," Algar says.

"It's a potentially huge market over the next seven years. It's past possibly being one. You can tell from the noise that the Tesla announcement [on new

Powerwall batteries for storing home solar energy] created. Suddenly people understand the issue of storage."

Algar has Yellow Rock's timeline mapped out in detail. In addition to the resource update, the next few weeks will involve metallurgical test sampling. The results of that will be fed into a mining study, to "give us a basic schedule of pit design", to be followed by a scoping study by the end of this year.

"We should have a fair idea what's going on by the end of the year. From a money point of view, there's about A\$2 million (US\$1.5 million) in the kitty. And given that I've just spent a million dollars on the drilling, my biggest burn for the year is pretty much done," Algar said.

With a market cap hovering around A\$9-10 million, it is no surprise to hear that Algar divides his time between working with contractors on the geology and setting up meetings with potential investors. For Algar, Bushveld – with a market cap of a little less than £20 million (US\$31 million), equivalent to about \$40 million – is the benchmark. Given that it is "just ahead" in terms of progression, he says he would be happy with a \$30 million market cap for his own company.

"Once I can show the economics [of Gabanintha], that I can be on the lowest cost curve, I'll be ok. I've got to show that I've got a good bunch of Lego to build the box... I've got to keep convincing people that the de-risking is possible," he said.

"What puts people off in the long term for any vanadium project is the question of where are you going to get the money to build a \$250 million plant. But you just have to look at zinc, copper: if the economics make sense you will find the investors. It will be a combination of people who like the commodity, people who like the potential for other markets, and people who like the financial returns that they offer."

As its name suggests, Yellow Rock also has a position in uranium through four exploration licences in the Northern Territory and the Nowthanna Hill project in Western Australia.

Nowthanna Hill is divided between two properties, the other of which belongs to Toro Energy – whose team Algar has come to know well.

"If you stand on the hill and look down into the valley, we've got a piece of ground here and they've got a piece of ground there, but it's one deposit," he said.

Algar said he would favour an eventual joint venture with Toro, as it had the capacity to absorb the entire deposit and to turn it into a reasonably sized resource.

"The problem with uranium is the deposit's got to be a reasonable size because the capital's quite high. So finding a way of maximising that is quite important," he explained.

Investors could be forgiven for being sceptical about Australian uranium given the recent cancellation of the Ranger 3 Deeps project in the Northern Territory and the need to obtain approval from native-title holders.

But Algar is not worried. He said "the people around Ranger are a bit gun-shy", and that other uranium projects would be approved once Toro completed its native-title negotiations at the Wiluna project, also in Western Australia.

"You will soon see, like a house of cards, other people will follow, because there'll be a financial benefit. Uranium's got the potential in Western Australia and the Northern Territory – particularly in Western Australia – to be the second-biggest industry after iron ore," he said.

"Given that our iron ore industry is in the toilet, if we had the two together firing – it would be like living in Dubai. We'll have oil and gas, we'll have iron ore, and we'll have uranium, and we'll be producing them for a long time."