

Non-Independent Research
A MiFID II compliant note

*SP Angel acts as Nomad & Broker to Bushveld Minerals.

10 February 2021

Stock Data

| | |
|--------------|--------|
| Ticker | BMN LN |
| Share Price: | 18.5 |
| Market Cap: | £220m |

Price Chart



Bushveld continues to grow production as it plans VRFB instillation to support solar grid

Bushveld is an integrated vanadium mining, processing and technology businesses. The South African group owns 74% of Vametco and 100% of the Vanchem. Bushveld Energy (84%) is developing vanadium redox batteries for grid use in SA.

- Bushveld raised ferro-vanadium production last year despite the South African lockdown, social distancing and covid disruption through the year.
- The company produced 24% more ferro-vanadium at 3,631mtV than in 2019 slightly lower than guidance but still showing a good effort by the Vametco and Vanchem teams.
- Sales rose by 78% to 4,264mtV, including 422mtV of intercompany sales resulting in actual sales of 3,842mtV for the year.
- **Intercompany sales** of 422mtV show vanadium produced but not yet sold. This material should have been sold in January.
- Bushveld doubled sales into rising prices and demand in China to 21% of total volumes vs 10% sold in 2019 driven by better compliance with higher vanadium content regulations in structural steel (rebar) and strong production for stimulus projects and reconstruction of property damaged by severe flooding along the Yangtze river.
- Prices are now seen rising in the US as North American steel producers ramp up production in anticipation of new rail and other construction projects from Biden's US\$1.9tn stimulus.
- **Vanadium prices:** We expect vanadium prices to rise to over our \$35/kgV est. Prices are currently at ~\$28.75kgV in Western Europe.
- Orderbooks for construction machinery are more than double last year as construction companies gear up for new work. Steel producer utilisation rates are rising globally, and we expect this to drive new demand for vanadium.

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| | (Dec year end) | 2018 | 2019 | 2020Ee | 2021e | 2022e | 2023e |
|-------------------------------|----------------|-------|-------|--------|--------|--------|--------|
| FeV price | US\$/kg | 81 | 54 | 25 | 35 | 40 | 40 |
| Vanadium Production | mtV | 2,560 | 2,833 | 3,631 | 4,255 | 5,658 | 6,484 |
| Vanadium Sales | mtV | 2,573 | 2,392 | 3,842 | 4,455 | 5,858 | 6,504 |
| Sales ⁺ | US\$m | 192.1 | 116.7 | 89.9 | 150.2 | 225.7 | 250.7 |
| Operating costs | US\$m | -65.3 | -56.2 | -77.3 | -104.7 | -121.3 | -137.6 |
| Cash Op costs C1 ⁺ | US\$/kg | 25.5 | 20.6 | 20.3 | 23.1 | 19.8 | 19.6 |
| Operating profit | US\$m | 95.2 | 22.2 | -32.3 | 9.0 | 62.7 | 68.6 |
| Pre-tax profit | US\$m | 86.6 | 83.2 | -36.2 | 6.5 | 57.6 | 63.5 |
| Tax | US\$m | -37.6 | -13.2 | 2.0 | 0.0 | -6.4 | -7.3 |
| Post-tax profit | US\$m | 49.0 | 70.1 | -34.2 | 6.5 | 51.2 | 56.2 |
| EPS | US\$/c/s | 2.90 | 5.53 | -2.26 | 0.54 | 3.40 | 3.82 |
| PE | x | 5.7 | 2.6 | - | 30.9 | 5.0 | 4.4 |
| EV/EBITDA | x | 1.3 | 4.4 | - | 10.9 | 3.5 | 3.3 |
| EBITDA | US\$m | 101.2 | 36.3 | -14.5 | 26.6 | 81.9 | 87.9 |
| Free Cash Flow (100%) | US\$m | 32.2 | -22.3 | -33.3 | 8.2 | 41.3 | 64.0 |

SP Angel forecasts: Figures based on 100% of Vametco and Vanchem. Bushveld hold an effective 74% of Vametco.

⁺Vanadium sales see a 8-12 week lag when product is delivered to final customer. This applies for all the sales

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Bushveld Continued...**• Group production fell in Q4 by 7% to 951mtV relative to Q3**

Sales rose by 35% in Q4 to 1,268mtV including 15mtV of intercompany sales reducing sales sold to customers to 1,253mtV.

- **Vametco sales price** came in at less than we forecast at \$23.4 vs our \$25/kgV forecast
- Vametco C1 cash costs exactly matched our estimate of \$18.3/kgV
- **Vanchem sales price** came in at \$21.1/kgV vs our 25/kgV forecast
- Vanchem's sales were also slower to realise due to interruptions to processing which also caused Vanchem's C1 cash costs for the quarter rose to \$25.7/kgV beyond our \$18.63/kgV estimate for the year.
- Going forward assuming the new concentrate testing has been done and the furnaces are free to operate uninterrupted.
- Francois Naude as its new operations director to oversee Vametco, Vanchem and the Bushveld Electrolyte Company 'BELCO'.
- **Guidance:**
- **Vametco guidance** was cut to 2,700-2,850mtV from 3,335mtV in our model representing a significant reduction in production due to the extended 35 day maintenance in Q1 as the group prioritises operational stability.
- Costs at Vametco are expected to rise to \$20.0-21.30/kgV as a result from our estimated \$18/kgV.
- **Vanchem guidance** has been raised to 1,400-1500mtV for the year vs the 1,108mtV in our model.
- Costs at Vanchem are expected to rise to \$26.20-26.70/kgV from our estimated \$18.6/kgV. The increase in cost is due to higher maintenance, labour and raw material costs associated with the refurbishment and commissioning of kiln-3, which is expected to be commissioned in H2 2021. The full production benefit of kiln-3 will be realised in 2022.
- **BELCO** completed its EPC process with procurement for the electrolyte plant starting this quarter.
- **Mini grid:** Vametco also received permission to build a hybrid mini-grid. Enerox is supplying a 1MW/4MWh vanadium redox flow battery to support 3.5MW of solar power.
- Vametco, Vanchem and Bushveld Energy could use >125MW of solar power and 180MWh of battery storage in time.
- **Vanadium lease-finance:** Bushveld are scaling up the vanadium rental model with a new contract to Pivot Power (EDF Renewables)
- **Cash:** Bushveld had US\$50.5m of cash and cash equivalents at end-December following the drawdown of \$65m of financing from Orion Mine Finance and ZAR125m (\$8m) of revolving credit and convertible notes.
- **2021:** Bushveld targets 4,100-4,350mtV with volumes weighted to the second half.
- **Capex:** Bushveld plans to spend around \$34m this year including:
 - \$15.7m at Vanchem,

- \$5.3m at Vametco and
- \$2.5 million Mokopane DFS
- \$9.5m at Bushveld Energy to be funded by Bushveld Energy partial asset sales.
- **FOREX:** The US dollar to South African rand averaged 16.5 though the year following a strengthening of the currency as gold and PGM prices rose significantly higher through the year.
- The stronger currency served to pull back earnings.
- **Realised prices:** Vametco US\$22.2/kgV and Vanchem achieved US\$21.3/kgV, close to the CRU RN reference vanadium price of \$23.2/kgV but slightly lower than prices quoted by LMB \$24.4/kgV and Asian Metals \$24.6kgV.
- **Vametco C1 Cash costs:** came in at \$18.30/kgV (ZAR302/kgV) for the full year and \$21.0/kgV in the fourth quarter due to lower production caused by heavy rain and grid power interruptions.
- **Vametco:** expected to produce 2,700- 2,850mtV in 2021 at a cash cost of \$20.0-21.30/kgV
- **Vanchem C1 Cash costs:** came in \$22.40/kgV. Costs were higher than originally anticipated due to optimisation work done on different vanadium concentrates in the Vanchem plant to see what works best. This should reduce costs going forward.
- **Vanchem:** expected to produce 1,400-1,500mtV in 2021 at cash costs of \$26.20-26.70/kgV
- **Invinity Energy Systems:** Bushveld sold \$4m of stock in Invinity to recover much of its \$5m investment, the proceeds from the sale will be used to fund some of Bushveld Energy's initiatives, including Vanadium Electrolyte Rental Limited ("VERL"), the partnership established with Invinity to rent vanadium electrolyte, and its right of first refusal to supply vanadium and vanadium electrolyte. Bushveld's shareholding currently exceeds five per cent.
- **Power:** Bushveld expect its power needs to rise to 50MW on completion of its expansion plans requiring >125MW of solar power and 180MWh of battery backup for the business to become independent of the grid and fully renewable.
- **Resource and reserves:** Bushveld report 2% depletion of the ore reserves over the past year to 267,200 V2O5 in magnetite grading 2.02% V2O5.
- Combined inferred and indicated resources run at 184.2mt grading 1.98% V2O5 with the magnetite grade running at 35% in whole rock giving 714,700 tonnes of contained vanadium.
- Probable reserves run at 46.4mt grading 2.02% V2O5 in magnetite and the overall resource reduced by just 0.68% through the year with no new resource exploration carried out last year.
- The statement confirms there is sufficient vanadium in the resource for Vametco to continue to run for many more than ten years at the higher target rate. The resource is also sufficient to feed Vanchem while it awaits fresh ore from the planned Mokopane vanadium mine.

Ferro-vanadium basis 78% V min, 1st grade, ddp Western Europe, \$/kg V

- **2020 Estimates:** We have adjusted our 2020 Operating profit including raised selling and distribution costs, other mine and operating costs, idle plant costs and administrative expenses. This was a challenging year for any company and resulted in an increase in our estimated operating loss beyond our original expectations.
- **2021 Estimates:** We have lowered our 2021 production forecast by 4% to 4,255mtV as a result of the longer, scheduled 35-day maintenance at Vametco this quarter.
- We have also reduced our estimated vanadium sales to 4,455mtV from 4,692mtV in 2021.
- The reduction cuts our 2021 sales to \$150m from \$157m. This combined with the resultant increase in unit costs reduces our EBITDA to \$27m from \$40m for 2021 assuming an average vanadium price of \$35/kgV.
- The vanadium price in China is currently \$29.5-30/kgV. We feel the price should move appreciably higher this year with vanadium prices already rising in the US and Europe on stimulus and other construction projects.
- Orderbooks for machinery in the construction industry have doubled from last year highlighting how construction companies are gearing up for new work in the recovery.
- **Bushveld Energy:** We are looking for Bushveld Energy to scale up its activities this year. The team will start building the vanadium electrolyte plant shortly and will also work to scale up the vanadium lease financing activity with support from lending institutions for new contracts.
- The ability to spread the cost of the vanadium in the VRFB batteries over a 20-year rental model makes a huge difference to the cost of the battery installation as the cost of the vanadium should become far more manageable and much easier to finance.
- We see this as probably the most important advance in enabling the future adoption of VRFB batteries since their invention.
- **Valuation:** Our valuation reduces to 31p from 37.7p due to lower realised vanadium prices through H2 2020 and higher costs at Vanchem.
- Reduced guidance for 2021 for Vametco combined leading to higher costs for Vametco and also higher than expected costs at Vanchem have also served to pull back our valuation.

Conclusion: Bushveld continue to grow the business despite a tough year. The team are preparing to install a solar mini grid with VRFB battery at Vametco with the dual purpose of providing power and proving the VRFB battery grid.

This could provide a template for industry installations creating better power stability for consumers across South Africa.

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Recommendations are based on a 12-month time horizon as follows:

Buy - Expected return >15%

Hold - Expected return range -15% to +15%

Sell - Expected return < 15%