

Non-Independent Research

A MiFID II compliant note

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

29 September 2022

Stock Data

Ticker	BMN LN
Share Price:	4.13p
Market Cap:	£53m



Interims highlight solid production at Vametco

Bushveld is an integrated vanadium mining, processing and technology business. The South African group owns 74% of Vametco and 100% of the Vanchem. Bushveld Energy (84%) is developing solar powered, Vanadium Redox Flow Battery mining grid.

- Bushveld's interim results show a marked recover from 2021 due to higher ferrovandium prices, improving production, a weakening SA rand and tighter cost control.
- Sales rose to \$76.2m vs \$47.0m a year earlier
- Cost of sales rose slightly to \$44.7m vs \$43.4m yoy marking a creditable performance on containing unit costs.
- Other operating and administrative costs rose slightly to \$15.9m vs \$14.4m yoy.
- EBITDA rose to \$15.6m vs a loss of \$10.8m yoy.
- Operating profits rose to \$6.1m vs \$19.7m yoy.
- Net finance expenses rose to \$5.2m vs 2.9m yoy.
- Post tax loss fell to \$3m vs \$19m.
- Cash balance fell to \$7.0m vs \$15.4m at end December largely due to the Kiln 3 refurbishment at \$3.6m, \$2.8m repayment of Nedbank RCF and \$1.2m equity investment into the Vametco mini grid.
- Free cash flow of \$7.1m vs -\$19.8m yoy.
- Total borrowings reduced to \$76.73m vs \$80.9m at end December
- Vametco mini-grid project: financial close enables site clearance and progress with many project activities.

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(Dec year end)	US\$	2019	2020	2021	2022E	2023E	2024E
Vanadium price	\$/kg	55	25	37.6	40	38	40
Vanadium Production	mtV	1,859	2,685	3,592	3,942	5,082	5,194
Vanadium Sales	mtV	2,392	3,842	3,314	3,942	5,260	5,194
Sales⁺	\$m	116.5	90.0	106.9	161.0	204.1	212.1
Cost of Sales	\$m	-45.8	-73.4	-83.4	-108.5	-129.2	-131.6
Admin costs	\$m	-38.1	-31.5	-20.9	-18.4	-17.7	-17.8
Other costs	\$m	-4.2	-5.5	-12.5	-15.7	-20.6	-20.8
Depreciation	\$m	-10.4	-17.9	-19.4	-18.5	-20.0	-20.0
Operating profit	\$m	22.3	-32.8	-29.3	15.5	37.2	42.7
Finance & other	\$m	1.9	-4.7	-11.3	-10.7	-9.9	-5.4
Pre-tax profit	\$m	83.3	-37.5	-46.8	4.7	27.3	37.3
Tax	\$m	-14.0	0.5	4.7	-1.9	-1.9	-4.7
Post-tax profit	\$m	69.2	-37.0	-42.1	2.9	25.4	32.6
EPS	\$/s	5.51	-	-4.22	-0.66	0.55	1.10
PE	x	6.4	-	-	-	8.4	4.2
EV/EBITDA	x	13.6	-	-	4.4	2.6	2.3
EBITDA	\$m	28.4	-20.4	-7.5	18.3	36.6	42.0

Source: SP Angel, Bushveld, Vametco & Vanchem

Bushveld Continued...

- **Guidance:** Management expect positive EBITDA and free cash flow to continue into H2 which will be used to meet the remaining capital requirements and debt repayments.
 - **Vametco:** guidance 2,550- 2,650 mtV. Guidance increased due to strong operational performance.
 - **Cash cost:** \$22.7-23.5/kgV
 - **Vanchem:** guidance 1,350-1,450 mtV for 2022 from 1,750-1,850 mtV
 - **Cash costs** \$34.9- \$35.5/kgV from \$27.7-28.4/kgV
 - **Vanchem Kiln 3:** Vanchem's production was lower than anticipated due to lower recoveries associated with the Kiln 1 wind-down, load shedding and a slower than anticipated commissioning of Kiln 3. Eskom load shedding remains a significant issue for Vanchem though Kiln 3 has seen improved performance with 151 mtV reported for August, from 61mtV in July.
 - Group production guidance adjusted to 3,900-4,100mtV for 2022 (previously between 4,200 mtV and 4,400 mtV).
 - Management continue to expect Bushveld to achieve a production run rate of 5,000-5,400 mtV by the end of 2022.
 - *“The Group retains the optionality to expand its production to 8,000 mtVp.a. through a phased expansion plan, subject to securing the necessary funding and meeting its short-term performance targets at 5,000 - 5,400 mtVpa”*

Bushveld route to 8,000mtVpa in four stage plan

- The combination and optimisation of the work indicates a route to the production of 8,000meVpa for a total capex of US\$151m (ZAR2.3bn)
 - **Stage 1** involves the instillation of a new semi-autogenous mill for permanent and reliable feedstock to Vametco and Vanchem to enable further expansion to 6,800mtV.
 - **Stage 2** requires refurbishment of Kiln 2 to take Vanchem production to 3,600-3,700mtVpa and group production to 6,000-6,500mtVpa.
 - **Stage 3** refurbishes Kiln 1 at Vanchem to increase Vanchem production to 4,600-4,700mtVpa and group production to 7,000-7,500mtVpa
 - **Stage 4** increases kiln capacity to 3,400mtVpa at Vametco taking group production to 7,600-8,000mtVpa.
- The development of the above plans depends on management delivering sustainable cash generating production at a rate of 5,000-5,400mtVpa.
- The staged expansion program is also subject to sufficient funding and third-party validation of the project economics.

- Bushveld estimate C1 costs should fall by >20% at Vametco and Vanchem at a run rate of 8,000mtVtpa.
- We have adjusted our forecasts for a significant ramp-up in production pending further information on the financing and timing of the various stages of expansion.

2022 Capex

- Capex: \$22.1m for 2022 \$9.0m already spent as at end-May including
 - Vametco US\$5.5m
 - Vanchem US\$8.5m
 - Bushveld Energy (BELCO) US\$8.1m

Assumptions:

Vametco:

- We have increased our production forecast by 21t to 2,571mtV for 2022 and marginally to 2,626mtV for 2023.
- We assume sales are the same as production this year due to international logistics issues and that Vametco catches up on unsold material sales in 2023, hence our higher sales figure at 2794 mtV.
- Cost guidance is \$22.7-23.5/kgV for 2022 vs our modelled \$23.25/kgV estimate

Vanchem:

- We have revised our production estimate higher to 1,371mtV vs new guidance at 1,350 – 1,450mtV.
- Vanchem costs remain high with cash cost guidance for the full year to \$34.9-35.5/kgV vs our \$35.55/kgV forecast. Fortunately, this highish cost is partially offset by the production of value-added products at the facility so it should not be compared directly with Vametco. Unit costs are expected to fall and to normalise as production volumes increase and we forecast unit cash costs of \$27.07/kgV for 2023, also helped by our expected fall in the SA Rand to 18/USD.
- **Kiln 3** performance is improving production of 61mtV in July, increasing to 151 mtV in August.

Group:

- 2022 - Our group production guidance goes to 3,942 for 2022 vs guidance of 3,900-4,100mtV.
- 2023 – Our model now assumes group production of 5,082mtV as in the above table. Note, sales are forecast to be higher due to an expected catchup. Group production guidance is for 5,000-5,400mtV in 2023.
- While we are impressed by the work done at Vametco and the commissioning at Vanchem Kiln 3 we are wary of ongoing disruption from Eskom at Vanchem.
- Fortunately, Vametco is directly connected to the Eskom grid giving it preferential treatment when compared with municipalities and other connections.
- Vametco worked to reduce its electricity consumption and is able to better manage and compensate for the disruption than Vanchem at this point in time

- Sadly, severe Eskom load shedding is likely to continue till the South African government takes charge of the group.

Ferrovandium prices:

- Prices were significantly higher than our forecast in the US for the first half enabling an average realised price of US\$46.4/kgV on 1,644t of ferrovandium.
- Prices held up well in the US in the first half with US Ryan's notes price at 58.5/kgV ahead of the LMB price at \$45.0/kgV vs \$33.4 a year earlier and the Asian Metals price at \$37.2/kgV. Bushveld's traders directed just under half their metal, at 45% to the US capturing higher prices
- We have increased our ferrovandium price forecast to \$42/kgV for the full year from \$38/kgV and to \$44/kgV for 2023 onward.
- **Inflation:** Bushveld continue to target savings under their Cost Savings Programme in order to counter and contain inflationary pressures
- Bushveld use pulverised coal to generate heat at Vametco. While this has been beneficial in the past higher coal and energy prices will add to inflationary pressures.

FOREX:

- The weakening rand / dollar exchange rate added \$3.5m to EBITDA by reducing costs by \$2.6m
- **Cash:** \$7.0m vs \$15.4m at end December due to refurbishment of Kiln 3, BELCO plant construction, equity for the new Vametco mini-grid and partial repayment of the Nedbank RCF.
- **Debt:** fell to \$76.7m from \$80.9m at the year end.
- **Capital expenditure:** Bushveld has spent some \$8.5m of its budgeted \$22.1m for the year with most of the expenditure rand denominated.
- Management expect *"reduced capital expenditure rate from 2023 onwards, limited mainly to sustaining capital, which is expected to support positive cash conversion of EBITDA"*
- **Vanadium:** LMB ferrovandium prices averaged \$45.0/kgV in H1 vs \$33.4/kgV yoy. Asian Metals prices averaged \$37.2/kgV in H1 vs \$31.8/kgV yoy. US Ryan's Note prices averaged US\$58.5/kgV in H1 vs \$34.1/kgV
- While prices have stabilised in China, some softening has been seen in the West, though management expect *"medium to long-term market fundamentals continue to support vanadium prices going forward."*
- **BELCO:** Construction of the 8m ltr pa VRFB Electrolyte manufacturing facility is reported to be 80% complete with first production expected in H1 2023.
- **Bushveld Energy:** to be carved out as a stand-alone company focused on the VRFB business with Bushveld retaining a substantial share of the entity.
- Bushveld Energy holds an indirect 25.25% in CellCube which announced multiple projects and milestones over the past year.
- **VRFBs:** South Africa, Europe and California really need utility scale storage batteries. While Li-ion batteries have filled the need for rapid response energy storage they fall back on longer term storage issues.
- VRFB battery technology is evolving into a viable alternative with a number of VRFB battery installations being tested and built. We are

hopeful that this technology will prove capable of supporting wind and solar farms around the world to better balance grid networks and ensure the availability of low-cost electrical power 24/7 to industry and consumers.

- **Vametco hybrid mini grid** – funding for the EPC secured for 3.5MW solar PV and 1MW/4MWh VRFB ‘Vanadium Redox Flow Battery’ hybrid mini-grid project for Vametco.
- The mini-grid’s total capital cost is ZAR113m (US\$7.1m) and will operate as an IPP ‘independent power producer’. ABSA bank has approved a ZAR64m (US\$4.1m) loan to part fund construction.
- The 1MW/4MWh VRFB will be supplied by CellCube where Bushveld holds an indirect 25.25% interest.
- Bushveld has sold 26t of vanadium for the production of the electrolyte for the VRFB, though this is being converted into electrolyte overseas as Bushveld Energy’s electrolyte plant is not yet ready for production.

Bushveld Energy is to be carved out as a standalone company focussing on the VRFB value chain

- BELCO electrolyte plant expected completion H1 2023
- Vametco hybrid mini-grid, completion expected in H1 2023.

Valuation:

We value Bushveld on the Net Present Value of the free cash flow from the Vametco and Vanchem vanadium mines and plants.

We also value the potential cash flow stream from the Bushveld Energy electrolyte plant which currently accounts for around a third of our valuation.

Our valuation for the Bushveld Group has adjusted to 23p from 31p based on modifications to expected production. We are cautiously at the lower end of production guidance and at the higher end of unit cost guidance.

We have also amended our valuation for Bushveld’s 84% owned electrolyte plant being built in South Africa to around 10p/s due to a slower than originally anticipated rollout of VRFB technology and installations around Southern Africa.

Having said that, the precarious state of power generation at Eskom makes private instillation of wind and solar ever more attractive along with VRFB storage as will be demonstrated with Vametco’s solar mini grid.

Conclusion:

Bushveld earnings are hugely sensitive to ferrovandium prices and to the South African rand. A relatively strong rand in recent years, buoyed by high gold, PGM and iron ore prices has held back earnings.

Ferrovandium prices in the US saw a relatively strong first half as the economy recovered from Covid and on government stimulus for new infrastructure.

Looking forward, while the world slows into potential recession vanadium prices may be supported by a raft of new VRFB battery projects. VRFB batteries offer a workable solution to the shortcomings of wind and solar power through their ability to provide longer term power output with virtually no risk of fire or overheating.

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Buy - Expected return >15%

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

Sell - Expected return < 15%