



Rowan Karstel.

Buffalo Coal looks to achieve sustainability

*Although it is currently trading profitably, Buffalo Coal, which operates the Aviemore and Magdalena mines near Dundee in KwaZulu-Natal, is faced with several challenges, some technical and some financial, which have largely been inherited by the current management and which need to be overcome if the company is to ensure its long-term future as a small- to mid-tier coal producer. Interim CEO Rowan Karstel, appointed in October last year, has been charged with the task of putting the company's mining operations on a sustainable footing and – as he recently related to **Modern Mining's** Arthur Tassell – believes that excellent progress is being made towards achieving this goal.*

A continuous miner (CM) at Magdalena. The mine has four CM sections.

The mines were originally established by the Slater brothers but were acquired by Buffalo Coal (then known as Forbes & Manhattan (Coal) Inc) in 2010 when it bought out Slater Coal. The two properties are situated in the Kliprivier coalfield near

Dundee, with Aviemore, an anthracite mine, and Magdalena, a bituminous producer, being located respectively 10 km and 27 km north of the town. Both mines are underground bord-and-pillar operations (exploiting the Gus and Alfred seams) although Magdalena did operate an open-pit section until early 2015. Aviemore



has two conventional drill-and-blast sections while Magdalena operates four continuous miner (CM) sections.

Magdalena has its own beneficiation plant but the coal from Aviemore is processed in a wash plant at Buffalo's Coalfields site on the outskirts of Dundee. The Coalfields wash plant was commissioned by Slater Coal in 1992 (at that stage it was a toll treatment facility as Aviemore had not yet started up) while the Magdalena plant was built in 2007. Between them, the plants – which have identical capacities – can treat 3 Mt/a, which is in excess of Buffalo's present requirements. The Coalfields site is also home to a calcine plant which is owned by a third party but which is fully integrated into Buffalo's operations. Essentially a rotary kiln, the plant is used to drive off 'volatiles' in the anthracite to increase the fixed carbon content.

Since the 2010 deal, ROM production at the mines has roughly doubled from 822 000 tonnes to the 1,56 Mt (892 591 tonnes saleable) recorded in 2016, with Magdalena – which commissioned its first CM in 2011 – accounting for roughly two thirds of this figure. While this increase is impressive, much of this period was

characterised by declining prices for thermal coal and reduced demand for anthracite with the result that Buffalo Coal's operations had to be substantially restructured in 2014/15 to increase efficiencies and reduce costs.

Karstel, a mining and civil engineer who has enjoyed a long career in the coal industry (he was formerly with Beacon Hill Resources, Keaton Energy, BHP Billiton Energy Coal and Xstrata Coal), is building on this restructuring. "The measures taken were a big step in the right direction but we still need to do a great deal

The Aviemore adit. Buffalo Coal has plans to put in a second adit at the Aviemore mine to allow production to be increased and mine life extended.

One of Aviemore's scoops. Buffalo Coal undertakes its own mining at Aviemore.





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The anthracite from Aviemore is washed in this plant at the Coalfields site.

of work to ensure the continuing viability of Buffalo's operations," he says. "In particular, we need to get the correct infrastructure into place to ensure that we can continue to exploit our considerable reserves and we also need to reduce our debt, which includes a R200 million loan from Investec Bank. Community relations and safety are also top priorities and, in fact, a great deal has already been achieved in these two areas."

Buffalo Coal is listed on the TSX-V and the JSE's AltX with its top shareholder (86,2 %) being Resource Capital Funds (RCF), a US-based, mining-focused private equity fund. Buffalo operates in South Africa through Buffalo Coal Dundee (Pty) Ltd, which in turn holds a 70 % stake in Zinoju Coal (Pty) Ltd, holder of all the mineral rights in respect of the Aviemore and Magdalena properties. The remaining 30 % interest in Zinoju is in the hands of Nulane Investments, a BEE company.

Apart from Karstel, key management figures at Buffalo are Chief Financial Officer Graham du Preez, appointed on an interim basis at the same time as Karstel, Sales and Marketing Manager Bill Lamont, and General Manager Kevern Mattison, who is based in Dundee and is responsible for the mining operations. Mattison has been with Buffalo Coal since 2011, joining the company after holding senior positions with Anglo Thermal Coal. He has 24 years of coal mining experience and earlier this year

was elected as President of the South African Colliery Managers Association (SACMA).

Karstel reports to a strong international board, which is chaired by Craig Wiggill, who served as CEO of Coal Americas at Anglo American and as MD of Anglo Coal Marketing. Among the board members is Eddie Scholtz, who held GM positions on BHP's largest mines and was later MD of BHP's coal mining operations.

While Buffalo undertakes its own mining at Aviemore, the mining function has been outsourced at Magdalena. "STA Coal Mining was introduced as the mining contractor in 2015 and is now mining four sections on a fixed rand-per-tonne basis utilising continuous miners," says Karstel. "The company is very experienced and works for other coal producers such as Sudor Coal and Kangra Coal." When the contract was signed, it was agreed that a portion of STA's contract mining fees could be settled in shares up to a maximum of 9,9 % of Buffalo's equity and, as a result, STA now has a 5,9 % stake in the company, making it the second biggest shareholder after RCF.

Magdalena, which has a total mineable tonnes in-situ (MTIS) resource of 61,69 Mt, is accessed by a decline shaft (known as the Thubelisha shaft) from the opencast highwall. A key current project – the Panel 417 project – will see additional reserves in the south-western portion of the mine being brought into play.

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The calcine plant at the Coalfields site.

This has involved negotiating a 22-m thick dyke with a 13,5 m downthrow and the work is now completed. Another priority at Magdalena is to reduce contamination of coal mined in the four underground sections and Buffalo is working closely with STA to achieve this objective.

According to Karstel, about 80 % of production at Magdalena is derived from the Alfred seam. “The problem with the Alfred is that it has a very weak roof and the potential for fall-of-ground incidents is high,” he says. “To prevent fall of ground, the weak roof needs to be cut with the CMs and this causes contamination which reduces the saleable product yield at the end of the day.”

Magdalena is a typical KwaZulu-Natal underground reserve with lots of dykes and faults. Karstel also mentions that Buffalo is working on a new reserve statement for Magdalena, as well as a process to re-engineer the operation and evaluate it at a combination of CM and drill-and-blast operations

At Avimore, as mentioned, mining is undertaken by conventional drill-and-blast methods with battery-operated scoops (rather than loaders and shuttle cars) being used to transport coal to the various conveyor locations. The Gus seam is mined (the average seam thickness is 1,6 m) and the roof conditions are much more competent than at Magdalena.

Potentially, Avimore – which has a 42 MTIS

resource – has a remaining life of at least 12 years but to realise this a significant investment will have to be made in a new adit. Says Karstel: “This new adit – the North adit – will access new mining blocks that cannot be easily reached through the existing infrastructure. In any event, the distances involved would be too great. In our current mining areas, ventilation is already reaching the legal limits, power dips are becoming a problem and travel times to working areas are becoming an issue – although there are various interim measures we can take to alleviate these problems.

“We have completed a concept study on the North adit project and we now have an independent consultant, cPod, working on a pre-feasibility. If this is positive, we’ll proceed to a feasibility later this year. Assuming we get all the requisite regulatory approvals, construction could start in the second half of 2018. The project would take roughly 18 months to complete, so first production would be in early 2020. We will have to await the outcome of the various studies for accurate capex figures but initial estimates suggest that the project would cost in the region of R200 million.”

Karstel adds that Avimore would become a four-section operation once the North adit is commissioned, allowing ROM production to be more than doubled (to almost 1,3 Mt/a) by 2022. This level of production would also

“The problem with the Alfred is that it has a very weak roof and the potential for fall-of-ground incidents is high.”

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see most of the Coalfields washing capacity being utilised.

On the subject of safety, Karstel says that this has been a particular focus for him since taking over as CEO, with results already starting to flow through. "There has been a significant improvement in safety performance in recent months, due to key safety drivers like Visible Felt Leadership (VFL) being introduced and focusing on high potential incidents. We have also appointed Altus Cloete as Health & Safety Manager to have a re-look at processes and systems and this has also made a huge difference. He has massive experience in this field, having previously worked in similar roles with mining groups such as Glencore and BHP Billiton," he states.

"In 2016, our Lost Time Injury Frequency Rate (LTIFR) per 200 000 man hours worked rose to 0,97 from 0,35 in 2015. I'm happy to say that the statistics are now moving in the right direction. As regards fatalities, the last one was in 2014 at Aviemore. As at the end of the first quarter of this year, we had achieved more than 6 000 fatality-free production shifts at Magdalena and the Coalfields site and just over 1 300 at Aviemore."

In all, Buffalo employs 1 134 people (including just over 500 contractors) at its operations in the Dundee area. Completion of the North adit project at Aviemore will see Buffalo directly employing a further 120 people. Karstel takes pride in the fact that around 60 % of the Zinoju Coal board positions are occupied by Historically Disadvantaged South Africans.

Of the total thermal product produced by

Buffalo Coal, roughly half is sold into domestic markets with the other half being exported through Richards Bay. Anthracite exports are somewhat higher, with approximately 71 % of anthracite production being exported in the first quarter of this year. Buffalo keeps its logistics to a minimum by selling to traders on a Rand per ton basis, who then transport it from the Coalfields site – where all product is stockpiled – via either road or rail. In the case of thermal coal for export, it is mostly purchased by Glencore. Buffalo has its own small Quattro allocation (204 500 tons) but this is likely to be withdrawn within the next few months, although the company does not expect this to result in any reduction in exports.

Giving his views on the year ahead, Karstel says that the outlook for Buffalo is positive. "The price of thermal coal has rebounded quite nicely from the levels seen in the first half of 2016 while anthracite demand is very robust, so we envisage good sales and revenues," he states. "Moreover, we're one of the few suppliers of anthracite left in the country, given that two other anthracite mines in KZN – Springlake and Vaalkrantz – are no longer producing. I've been encouraged by our first quarter results this year, which indicated net revenues of R163,9 million compared with the R138,3 million of the first quarter of 2016. Most importantly, operating profit was R18,2 million compared to R10,6 million in Q1 2016. We're definitely moving in the right direction and I'm very optimistic that we will have a good 2017 provided the contractor at Magdalena can overcome the geological challenges."

Photos courtesy of Buffalo Coal

Buffalo Coal staff (including Karstel at centre) and community members in a team-building exercise. Isandlwana, the hill where the famous Anglo-Zulu War battle took place in 1879, is visible in the background.

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