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A REVIEW OF SOUTH AFRICA'S COAL SECTOR

The material contained in this report was compiled by Martin Zhuwakinyu and the Research Unit of Creamer Media (Pty) Ltd, based in Johannesburg.

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Report edited by Sheila Barradas, David Shepherd and Ria Theron.

Ordering information

To subscribe to *Research Channel Africa* or purchase this report contact:

Creamer Media (Pty) Ltd

Tel +27 11 622 3744

Email subscriptions@creamermmedia.co.za

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Picture by Creamer Media Chief Photographer Dylan Slater

LIST OF ABBREVIATIONS AND ACRONYMS

AACSA	Anglo American Coal South Africa
AAIC	Anglo American Inyosi Coal
AEMFC	African Exploration, Mining & Finance Corporation
AMD	acid mine drainage
AMSA	ArcelorMittal South Africa
ANC	African National Congress
BIP	Belfast implementation project
CBIPPPP	Coal Baseload Independent Power Producer Procurement Programme
CCS	carbon capture and storage
CEF	Central Energy Fund
CER	Centre for Environmental Rights
CPD	chronic pulmonary disease
CSIR	Council for Scientific and Industrial Research
CTL	coal-to-liquids
CWP	coal workers' pneumoconiosis
DMRE	Department of Mineral Resources and Energy
EIA	Energy Information Administration
GSP	Greater Soutpansberg
HCC	hard coking coal
IDC	Industrial Development Corporation
IEA	International Energy Agency



List of abbreviations and acronyms

IEEFA	Institute for Energy Economics and Financial Analysis
IPP	independent power producer
IRP	Integrated Resource Plan
Jorc	Joint Ore Reserves Committee
JV	joint venture
LoM	life-of-mine
mtoe	million tonnes of oil equivalent
NBC	North Block Complex
OECD	Organisation for Economic Cooperation and Development
PPA	power purchase agreement
PCF	post-commencement funding
RBCT	Richards Bay Coal Terminal
Resgen	Resource Generation
RoM	run-of-mine
SAEC	South African Energy Coal
TCFD	Taskforce on Climate Financial Disclosures
TFR	Transnet Freight Rail
USC	ultrasupercritical



Openpit coal mine





KEY DEVELOPMENTS

September 2018: Standard Bank advises the then Department of Energy – which is merging with the Department of Mineral Resources to become the Department of Mineral Resources and Energy – that it will no longer finance planned coal-fired power stations in the country that do not feature the ultrasupercritical steam-generation technology prescribed by the Organisation for Economic Cooperation and Development to lessen their impact on the environment.

October 2018: Junior coal miner and coal project developer MC Mining signs the first offtake agreement for the Makhado project, in Limpopo, in terms of which it will supply a minimum of 400 000 t/y to Chinese State-owned enterprise Huadong Coal Trading Centre and China Forestry Group.

November 2018: Coal junior MC Mining announces that it has secured a R20-million facility from Absa Bank to fund a project to extend the life-of-mine of its 91%-owned Uitkomst coal mine, in KwaZulu-Natal, by 16 years.

November 2018: Production ceases at thermal and metallurgical coal producer Buffalo Coal's Magdalena underground bituminous coal mine, in KwaZulu-Natal, owing to lower production levels and safety concerns.

December 2018: Coal exploration and mining company Canyon Coal completes its \$40-million acquisition of Kangra Coal, which produces two-million tonnes of coal a year at an underground mine and opencast operations near Piet Retief, in Mpumalanga.

January 2019: South Africa's State-owned power utility Eskom COO Jan Oberholzer says the State-owned electricity utility will invest R10-billion to R12-billion in cost-plus coal mines in the next five years to secure coal supply for its power stations and ensure that the coal that is delivered is of the appropriate quality.

January 2019: Nedbank becomes the second South African bank to withdraw from financing the planned Thabametsi coal-fired power station, in Limpopo, and the Khanyisa coal-fired power station, in Limpopo, stating that it will instead seek to finance renewable-energy projects.

February 2019: South Africa's State-owned transport logistics group Transnet resuscitates negotiations with Botswana State-owned rail services provider Botswana Railways concerning the construction of a rail link between the two countries that could unlock Botswana's estimated 212-billion tonnes of coal reserves.

March 2019: Startup Sibambene Coal is launched to search for investment opportunities in the South African thermal coal mining sector.

March 2019: The board of coal junior MC Mining approves Phase 1 of the company's 69%-owned Makhado project, in Limpopo, paving the way for the start of project implementation in the third quarter of 2019. At full production, the project will produce three-million tonnes of run-of-mine coal a year.

March 2019: Coal junior Wescoal announces that it will acquire a 50% stake in coal and heavy minerals mining company Exxaro Resources' Arnot coal mine, in Mpumalanga, while the other 50% will be acquired by Innovators Resources, owned by former employees of the mine, which closed in 2015, after failing to negotiate a new coal supply agreement with Eskom.

April 2019: The second and final phase of Sasol subsidiary Sasol Mining's 8.50-million- to 10.50-million-tonne Impumelelo mine, in Mpumalanga, is officially opened. Impumelelo was built to replace the company's old Brandspruit mine.

May 2019: Coal and heavy minerals mining company Exxaro Resources' Belfast coal mine, in Mpumalanga, where construction started in early 2019, sells its first coal. When it reaches full production



in 2020, the mine will produce 2.70-million tonnes a year. It will be operational for an estimated 17 years.

June 2019: Environmental activist law group the Centre for Environmental Rights states in a report that it has uncovered evidence of gross violations by eight large coal mines in Mpumalanga of their water-use licences, leading to massive water pollution in the Upper Olifants catchment, South Africa's most stressed catchment area in terms of water quantity and quality.

June 2019: Junior coal miner and coal project developer MC Mining signs an offtake agreement committing it to supplying at least 350 000 t/y of hard coking coal to steelmaker ArcelorMittal South Africa, with an option to increase the tonnage to 100 000 t/y for ten years or for the life-of-mine (LoM) of Phase 1 of the Makhado project, in Limpopo, should the LoM be shorter than ten years.

July 2019: Coal junior Wescoal announces it has concluded a coal supply agreement with State-owned electricity utility Eskom for coal from the company's Moabsvelden project, in Mpumalanga, which is scheduled to start production in the first half of 2020.

July 2019: Implementation of the life-of-mine extension project at coal exploration and mining company Canyon Coal's Phalanndwa

colliery, near Delmas, in Mpumalanga, starts. The project will extend the operational life to 2027 and will produce 110 000 t to 125 000 t of run-of-mine coal a month once it reaches steady-state production.

July 2019: Industrial minerals company Afrimat withdraws its bid for junior mining company Universal Coal, citing the complexity of the proposed transaction.

August 2019: Diversified mining company South32 announces that it has entered into exclusive negotiations with coal startup Seriti Resources for the acquisition of South32's 92%-owned South African Energy Coal (SAEC). South32 has been managing SAEC as a standalone business since 2018 in readiness for its disposal.

August 2019: XMP Consulting senior coal analyst Xavier Prevost calls for the continued support of coal in South Africa, especially considering that the commodity is what keeps the country, and its mining industry, "alive".

October 2019: State-owned power utility Eskom chair and acting CEO Jabu Mabuza calls on coal suppliers to put South Africa ahead of their own interests, saying the embattled power utility should not have to count high coal prices among its many problems.



Picture by Creamer Media





BUSINESS ENVIRONMENT

South Africa's coal endowment of about 30-billion tonnes is equivalent to 3.50% of the world's resources. Mining industry body Minerals Council South Africa estimates mineable reserves at 16-billion. This is enough to support mining for about 118 years at current production rates, according to junior coal miner Canyon Coal chairperson Vuslat Bayoglu.

Mining mostly takes place in the fast-depleting coalfields of Mpumalanga, with smaller quantities of the fossil fuel produced in the burgeoning Waterberg coal mining region, in Limpopo, as well as in KwaZulu-Natal, the Free State and Gauteng.

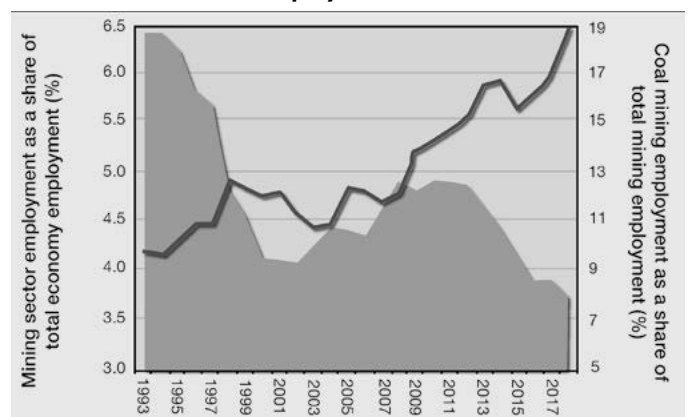
As South Africa's coal deposits are generally shallow – averaging about 60 m below the surface – 53% of production is from opencast mines that use draglines or truck-and-shovel methods to extract the coal. The balance of 47% emanates from underground mines, some of which are as deep as 300 m.

South African coal has a medium ash-content, which can be reduced by washing before delivery to customers. Higher grades are exported, with the lower-grade product sold mostly to State-owned power utility Eskom's coal-fired power stations, which generate the bulk of the country's electricity.

South Africa's more than 30 operational coal mines are an important contributor to the country's economy. In 2018, they earned R146-billion in sales revenue, contributed R1.64-billion to the fiscus in royalties and employed more than 89 647 people, equivalent to about 19% of the country's mining workforce.

However, several factors might hinder the South African coal mining sector's sustainability and long-term growth. These

Coal-sector employment in South Africa



Source: Statistics South Africa

include a significant decline in coal use in the world's major economies as stricter environmental laws are introduced to curb global warming. In its Mining for Schools 2018 booklet, industry body Minerals Council South Africa notes that the long-delayed Carbon Tax, which is intended to enable South Africa to meet its emission-reduction commitments under the Paris Agreement and came into effect on June 1, 2019, will affect all coal users and diminish the competitiveness of local producers of the fossil fuel.

The Minerals Council cites increasing unwillingness by international lenders, such as the World Bank and the International Monetary Fund, to extend credit for the construction of coal-fired power stations as a further constraint facing local coal miners. Owing to this stance, net fixed investment in the sector declined at 10% a year between 2009 and 2017 – from R7.30-billion to R3.80-billion.



South African banks have followed the lead of their international and multilateral counterparts. In September 2018, Standard Bank advised the then Department of Energy – which is merging with the Department of Mineral Resources to become the Department of Mineral Resources and Energy (DMRE) – that it would no longer finance planned coal-fired power stations in the country that do not feature the ultrasupercritical (USC) steam generation technology prescribed by the Organisation for Economic Cooperation and Development (OECD) to lessen their impact on the environment.

The planned projects are the 557 MW Thabametsi project, near Lephalale, in Limpopo, which is majority-owned by Japan's Marubeni Corporation and South Korea's Kepco, and the 306 MW Khanyisa project, near eMalahleni, in Mpumalanga, of which Saudi company ACWA is the biggest shareholder.

In January 2019, Nedbank became the second South African bank to withdraw from financing the two coal-fired power station projects, stating that its initial financing proposal had lapsed and would not be renewed. Instead, it would seek to finance energy efficiency and renewable-energy projects, including landfill gas, solar, hydropower and wind projects.

FirstRand Bank has adopted a similar stance, announcing in a media statement released in February 2019 that it would no longer be involved in financing the Thabametsi project as currently proposed – a reference to its planned use of circulating fluidised-bed boiler technology, which releases greater quantities of carbon dioxide than USC steam generation technology.

Although no public statements have been forthcoming from Absa and the Development Bank of Southern Africa, it is likely that the two financial institutions will emulate their peers and withdraw from the two coal-fired power station projects.

The South African financial institutions' new position prompted the governing African National Congress's (ANC's) head of economic transformation, Enoch Godongwana, to suggest in May 2019 that they be compelled to invest in coal projects. The ANC is also investigating whether pension schemes should be required to allocate some of their funds to certain developmental projects, which, commentators have pointed out, could include coal-related projects. Mineral Resources and Energy Minister Gwede Mantashe has on numerous occasions during 2019 urged coal mining companies to invest in clean coal technology to lessen the impact on the environment.

Funding is not the only environment-related hurdle that the developers of the Thabametsi and Khanyisa coal-fired power plants will have to surmount. The two projects, which have yet to



Environmental lobby groups are challenging the construction of new coal-fired power plants

reach financial close – about two years after being announced as the successful bidders by the DMRE's Independent Power Producer Office – are being challenged in court by several environmental lobby groups, including Earthlife Africa and Life After Coal.

Environmental lobby groups have also targeted coal mining projects. In 2016, eight of them, represented by the Centre for Environmental Rights, successfully petitioned the High Court to nullify decisions taken by former Mineral Resources Minister Mosebenzi Zwane and the late former Environmental Affairs Minister, Edna Molewa, which permitted the development by Indian-owned mining company Atha-Africa of a coal mine in the Mabowa Protected Environment, near Wakerkström, in Mpumalanga. Atha-Africa's appeal against that judgment failed three times – once at the High Court, in January 2019, and twice at the Supreme Court of Appeal, in April and July 2019.

Minerals Council South Africa contends in its Mining for Schools 2018 document that, while South Africa's remaining coal reserves are generally of a lower quality and contain higher levels of ash content than the coal that has been previously mined, clean coal technologies could be used to mitigate the impact on the environment. One such technology is carbon capture and storage (CCS), which entails capturing the carbon dioxide that is released from large industries and storing it underground.

Meanwhile, while commending the gazetting of Mining Charter III, in September 2018, the South African mining industry is concerned about some clauses in the document. Speaking to reporters in March 2019, when Minerals Council South Africa filed a court application to have the Charter reviewed and set aside, CEO Roger Baxter explained that the industry was



unhappy about its failure to fully recognise the continuing consequence of previous empowerment transactions, particularly those concerning mining right renewals and the transfer of the rights. The Minerals Council views this provision as having a dampening effect on the attractiveness of the local coal mining industry to investors and as contravening a declaratory order on the matter that was issued by the North Gauteng High Court in April 2018.

While the local mining industry has been unhappy about how government has handled the Mining Charter, it lauded the withdrawal, in September 2018, of the Mineral and Petroleum Resources Development Act Amendment Bill. Mining companies were particularly concerned about a provision in the Amendment Bill that would have empowered government to declare certain minerals – including coal – as strategic. This would have meant that exports of the designated minerals would be restricted to ensure that domestic needs were met first, with miners receiving prices determined by government.

INFRASTRUCTURE AND INVESTMENT

Besides unhappiness about legislative issues, Minerals Council South Africa is also concerned about the inadequate rail infrastructure in the greater Waterberg area of Limpopo, which hosts a significant percentage of South Africa's known coal reserves. However, State-owned freight logistics parastatal Transnet has responded to this challenge by initiating the multistage Waterberg Existing Line project, which has increased export coal capacity from Lephalale to more than six-million tonnes a year by lengthening loops, strengthening bridges, upgrading level-crossings and doubling sections, as well as electrification.

Another disincentive to coal mine investment in recent years, particularly in the Waterberg, has been a shortage of water, which is required throughout the coal value chain. The area is extremely dry, and large quantities of water are piped from the Vaal river system to the Crocodile river catchment, which incorporates the Waterberg area, supplementing the water obtained from local sources, such as the Mokolo dam, the Mogalakwena river basin and the Olifants river. However, the existing water infrastructure is not sufficient to cope with increased demand from new coal mining operations.

Coal mine development also stalled in recent years as a result of State-owned power utility Eskom's decision in 2015, during the tenure of former CEO Brian Molefe, to stop investing in cost-plus mines – privately owned operations whose development and resource renewal are funded by the utility in return for guaranteed quantities of competitively priced coal of a specified quality. A major casualty of Eskom's new stance was black-owned mining

major Exxaro Resources' Matla coal mine, in Mpumalanga, which was contracted to supply ten-million tonnes of coal a year to the nearby Matla power station. As Eskom balked at spending R1.80-billion to sink a new shaft at the mine to replace an existing shaft that had become unsafe, Exxaro closed that shaft, forcing it to drastically reduce deliveries to the Matla power station. Similarly, Exxaro closed its Arnot coal mine when Eskom declined to fund its expansion.

The decision to discontinue investment in cost-plus coal mines, however, was reversed under former Eskom CEO Phakamani Hadebe in early 2018. In January 2019, COO Jan Oberholzer said the utility would invest R10-billion to R12-billion in such mines to not only secure coal supply to its power stations, but also ensure that the coal that was delivered was of the appropriate quality. Eskom is engaged in negotiations with mining houses for the proposed development of a cost-plus mine that will exclusively supply the Kusile power plant, which is expected to account for 14% of the utility's envisaged 474-million-tonne coal shortfall until 2030. From 2030 to 2050, Eskom's coal shortfall is forecast to increase to 859-million tonnes, with Kusile accounting for 31%.

Meanwhile, the intensifying anticoal sentiment has resulted in major multinationals reviewing their coal strategies, including in South Africa. Anglo American Coal South Africa, previously the country's largest producer of the fossil fuel, completed the sale of its three Eskom-tied mines and a large undeveloped resource to black-owned startup Seriti Resources in early 2018. However, the company retained its coal mines that target the export market, leading some commentators to suggest that the divestment could have been prompted by Eskom's insistence on entering into new coal supply agreements only with companies that have a black shareholding of at least 51%.

Similarly, Australian-owned South32 is disposing of its South African Energy Coal (SAEC) subsidiary, which it has been managing as a standalone business since April 2018 in readiness for the planned divestment. While diversified mining and commodities multinational Glencore – which has a presence in the South African coal sector – has not announced its plans concerning its local coal assets, CEO Ivan Glasenberg said in February 2019 that it had capped its global coal production at 150-million, a figure it was close to, and that it would not make any coal-related investments beyond maintaining this capacity.

In view of the declining investment in new coal mines in South Africa, analyst Xavier Prevost told *Mining Weekly* in December 2018 that the country risked reaching a coal cliff – a slump in production that results in the coal industry failing to meet the country's energy requirements – with serious economic ramifications.



Against this background, he said at a conference in September 2019 that the coal mining sector should be given continued support, arguing that it kept South Africa and its mining industry “alive”. The sector generates the highest sales revenue in the mining industry and is also a significant employer.

Speaking at the Coaltrans Africa conference, in Johannesburg, in September 2018, junior coal miner Canyon Coal chairperson Vuslat Bayoglu argued that the coal mining industry had a future, given the world’s increasing demand for energy. He said this increasing demand would be supported by the 1 160 coal-fired power plants planned or under construction in 62 countries, which would expand global coal-fired power generation capacity by 43%.

Citing research undertaken by energy and sustainability consultancy Ecofys, Bayoglu said that while coal had been maligned by environmentalists, it accounted for only 2.70% of greenhouse-gas emissions, compared with industry’s 29.20%, energy’s 14.50%, land’s 23.30%, transport’s 14.50% and building’s 18.20%. He called for increased use of clean coal technologies, such as CCS, as well as high-efficiency, low-emission coal technology.

South African coal mines produced 253-million tonnes in 2018, a 0.16% year-on-year increase. This output level ranks the country among the world’s top ten coal producers.

GLOBAL COAL PRODUCTION AND CONSUMPTION

Global coal production increased by 4.30% year-on-year in 2018 – significantly above the ten-year average of 1.30% – to 3 916.80-million tonnes of oil equivalent (mtoe), according to the latest edition of the BP Statistical Review of World Energy, published in June 2019. The increase was concentrated in the

Asia-Pacific region, with China accounting for more than half of the growth with 82 mtoe. Indonesian production for the year increased by 51 mtoe.

Meanwhile, according to BP’s review, global coal consumption totalled 3 772.10 mtoe in 2018, up 1.40% on the previous year. This was the second consecutive year of consumption growth, following three years of declines. The increase, led by India and China, was mostly accounted for by increasing coal use in electricity generation, despite strong renewables growth in the two countries.

Although a reduction in coal consumption is a key part of China’s energy, environment and climate goals, new coal mine approvals in the country during the first half of 2019 increased fivefold, suggesting that there is room for short-term coal consumption growth. The Chinese government believes it can continue to increase coal production and consumption, while significantly reducing emissions through the use of ultralow-emissions technology. An official was cited by news agency Reuters in July 2019 as saying that, by the end of 2018, plants with a combined 80% of the country’s coal-fired power station capacity had installed this technology.

India also has significant renewables ambitions. However, the World Coal Association stated in February 2019 that coal would continue to be a significant part of the country’s energy mix for decades.

It estimated that coal-fired generation would need to almost double by 2040 to keep pace with yearly energy demand growth of 4.60%, the fastest in the world’s major economies.

BP notes in its review that the fuel mix in the global power generation system remains flat, with the shares of nonfossil fuels (36%) and coal (38%) in 2018 unchanged from their levels 20 years ago.



Global coal production increased to almost four-billion tonnes in 2018





MAIN PARTICIPANTS

An estimated 87% of South Africa's coal reserves are owned by three major producers, namely Exxaro Resources, with 38%, South32 (32%) and Glencore (17%), according to Sibambene Coal, a startup launched in March 2019 to invest in the South African thermal coal sector. Together with Anglo American Coal South Africa (AACSA), these companies have a combined 75% entitlement at the Richards Bay Coal Terminal (RBCT), in KwaZulu-Natal, the second-largest such facility in the world, after Australia's Newcastle port. The other major miners include petrochemicals group Sasol Holdings' Sasol Mining subsidiary, whose mines mostly supply feedstock to the group's coal-to-liquids complex, in the Secunda area of Mpumalanga, and Seriti Resources, which, in 2018, acquired the assets that AACSA had put up for sale.

Besides the large producers, dozens of junior miners have entered the coal sector over the years and currently account for about 32% of total production, according to independent coal analyst Xavier Prevost.

MAIN PRODUCERS

Anglo American Coal South Africa

A subsidiary of diversified multinational Anglo American, AACSA was South Africa's largest coal producer until its divestiture in 2018 from three mines that supply State-owned utility Eskom's power stations, as well as a huge undeveloped coal project in Mpumalanga. The group's remaining coal assets in the country, all located in Mpumalanga, include four wholly owned and operated assets – the Goedehoop underground

mine, the Greenside underground mine, the Khwezela opencast mine and the Zibulo multiproduct underground and opencast mine – as well as the Mafube opencast mine, a 50:50 joint venture (JV) with diversified black-empowered miner Exxaro Resources. Through its 73% interest in Anglo American Inyosi Coal, a broad-based black economic-empowerment entity, it is also the majority shareholder in the Zibulo colliery, in Mpumalanga. All these mines export their product through the RBCT.

AACSA's other South African coal assets are the Isibonelo mine, which produces coal for Sasol Synthetic Fuels under a long-term supply contract; a 50% interest in the double-stage Phola coal processing plant, with the balance of the equity held by South32; and a majority position in the Elders and Heidelberg greenfield projects, in Mpumalanga.

At the end of 2018, the Goedehoop mine had 40-million tonnes of proved and probable reserves, Greenside 36.90-million tonnes, Kleinkopje and Landau (which have merged to become Khweza) a combined 80.40-million tonnes, Isibonelo 39.80-million tonnes, Zibulo 72.80-million underground tonnes and 5.80-million opencast-mineable tonnes, and Mafube 62-million tonnes.

Anglo previously hinted that it would sell off its remaining South African coal mines, however, in May 2019 AACSA CEO July Ndlovu told an interviewer that the group intended to retain the assets. With the sale of the Eskom-tied mines, as well as some mines in Australia, the Anglo group has halved its global thermal coal production since 2012. The divestment was prompted by a desire to align with the global trend whereby major miners are



increasingly moving away from coal as the world transitions to a low-carbon economy.

Explaining the reversal of the reported intention to divest from the South African coal sector, Ndlovu said Anglo regarded itself as a responsible operator that could facilitate an accountable transition out of coal. However, in line with the Anglo group's sustainable mining plan, which includes a commitment to reduce greenhouse-gas emissions by 30% before 2030, Ndlovu said there was no intention to acquire additional thermal coal assets in South Africa or elsewhere.

According to Ndlovu, Anglo's South African thermal coal mines have remaining economic lives extending to 2030, at the current rate of production of about 18-million tonnes a year, which will be maintained through various life-extension projects. However, Anglo American group CEO Mark Cutifani said during the same month that it was unlikely that further investments would be allocated to the South African coal mines beyond 2030.

AACSA produced 18.40-million tonnes of export coal in 2018, a 1% decline on the previous year's 18.60-million tonnes, attributable to operations transitioning between mining areas. Revenue for the year totalled \$2.72-billion (2017: \$2.75-billion). During the first six months of 2019, AACSA produced nine-million tonnes (2018: 8.80-million tonnes), with revenue for the period totalling \$1.05-billion (2017: \$1.37-billion).

Exxaro Resources

A black-empowered diversified mining group, Exxaro Resources has five managed coal mines, as well as a 50:50 JV with AACSA. With an output of about 40-million tonnes a year – which it aims to increase to about 60-million tonnes a year from 2023 – it is the largest coal producer in South Africa, the largest supplier of thermal coal to Eskom and the country's fourth-largest exporter of the product.

Exxaro's operations include the 26.95-million-tonne-a-year-capacity Grootegeluk coal mine, near Lephalale, in the Waterberg region of Limpopo, which produces thermal and metallurgical coal for the domestic and export markets. The mine, which has an estimated life-of-mine (LoM) of more than 22 years, is the largest opencast coal mine in the southern hemisphere operated from a single footprint.

The group's operational coal mines in Mpumalanga are the 50%-owned Mafube colliery and the wholly owned Leeuwpan and Matla mines, as well as the Exxaro Coal Central (ECC) complex, which comprises mines acquired from Total Coal South Africa in 2015. Leeuwpan, with a remaining LoM of about 12 years, has a nameplate capacity of 3.80-million tonnes a year, while

Climate risk lifting insurance premiums for Exxaro

Diversified mining company Exxaro Resources CEO Mxolisi Mgojo told *Mining Weekly* in August 2019 that the company was being asked to pay higher premiums when it renewed its insurance policies, owing to the association between climate change and coal, of which it is South Africa's largest producer.

Mgojo added that Exxaro had also witnessed an increase in enquiries from shareholders concerning its climate change response strategy.

The climate change response strategy, he explained, would include incorporating the recommendations of the Taskforce on Climate Financial Disclosures (TCFD). The TCFD makes recommendations on the physical, liability and transition risks associated with climate change and what constitutes effective financial disclosures across industries.



Source: *Mining Weekly*

Matla could be operational for at least another six years, producing about ten-million tonnes a year. The ECC complex, which includes the Dorstfontein, Forzando and Tumelo operations, produces 4.70-million tonnes a year and has a remaining LoM estimated at about 21 years. All these operations produce for the domestic and export markets.

Another Mpumalanga-based coal mine, Arnot, ceased operations in December 2015, following Eskom's arbitrary cancellation of a contract under which the mine was obliged to deliver 4.02-million tonnes of coal a year to the utility's Arnot power station. This mine has been acquired by an entity owned by former employees and coal junior Wescoal, with plans to resume production soon.

At the end of 2018, Exxaro declared 45.70-million tonnes of proved reserves at Belfast, in Mpumalanga, which is under construction; 54.30-million tonnes of proved reserves and 40.50-million tonnes of probable reserves at Dorstfontein; 38.60-million tonnes of proved reserves and 15.90-million tonnes of probable reserves at Forzando; 2.58-billion tonnes of proved reserves and 645-million tonnes of probable reserves at Grootegeluk; 53.70-million tonnes of proved reserves and



6.20-million tonnes of probable reserves at Leeuwpan; 62-million tonnes of probable reserves at Mafube; and 171.60-million tonnes of proved reserves and 16.30-million tonnes of probable reserves at Matla. The group reported 8.70-million tonnes of resources in all categories at Tumelo and noted that no reserve estimate for the mine had been declared.

Exxaro has a robust project pipeline comprising greenfield and expansion projects that it is implementing in Mpumalanga and Limpopo at a cost of more than R20-billion. The programme is scheduled for completion in 2023.

Meanwhile, mining news website miningmx.com reported in June 2019 that Exxaro was optimising the capital expenditure for the Matla Mine 1 relocation project, following confirmation from Eskom that a significant portion of the funding for the project was available. As a cost-plus mine, the power utility is liable for its capital and development costs, but has not done so since the closure of the shaft in 2015, owing to safety concerns. The project, near the Mpumalanga town of Kriel, will cost R1.80-billion to develop, and construction is expected to start in the second half of 2019. First coal will be produced in early 2022.

Exxaro's coal mines produced 44.42-million tonnes of thermal coal in the 12 months to December 31, 2018, compared with the previous year's 42.84-million tonnes. Metallurgical coal production increased from 2.13-million tonnes in 2017 to 2.32-million tonnes in 2018. Sales of 43.97-million tonnes, compared with 43.26-million tonnes in 2017, generated revenue of R25.30-billion, a 12% increase year-on-year. Coal revenue for the six months to the end of June 2019 totalled R11.93-billion, a decline from R12.24-billion for the corresponding period in 2017.

Glencore

Metals mining and trading multinational Glencore owns and operates four thermal coal mining complexes in Mpumalanga that supply the domestic and export markets. These are the wholly owned iMpunzi and Tweefontein complexes, as well as the Goedgevonden complex, an opencast operation that is jointly owned with black-empowered group African Rainbow Minerals, and the Izimbiwa JV with Shanduka Resources. As at the end of 2018, the iMpunzi complex had opencast-mineable proved and probable reserves of 135-million tonnes and six-million tonnes respectively, while the Tweefontein complex's proved reserves totalled 194-million tonnes and its probable reserves 11-million tonnes.

The proved and probable reserves at Goedgevonden were estimated at 280-million and ten-million tonnes respectively, and

those at Izimbiwa at 25-million tonnes and 26-million tonnes respectively.

Glencore's South African coal mines produced 27.30-million tonnes in 2018, down 5% on 2017. Of the total output, 17.30-million tonnes was exported, while ten-million tonnes was sold in the domestic market. The mines' revenue for the year totalled \$1.63-billion, up from \$1.50-billion in 2017. Meanwhile, during the first six months of 2019, production totalled 14.10-million tonnes, with 6.70-million tonnes exported and 7.40-million tonnes sold locally, generating revenue of \$683-million, down from \$829-million in 2017.

Sasol Mining

Sasol Mining operates one of the world's largest underground coal mining complexes, comprising six mines, five of which are in the vicinity of Secunda, in Mpumalanga, with the sixth at Sigma, near Sasolburg, in the Vaal Triangle. Coal from these mines is used as feedstock for the group's coal-to-liquids (CTL) plant in Secunda, with additional volumes delivered to the Sasolburg operation, where they are used to generate electricity and steam, and to customers in Europe and Asia. In September 2019, news agency Bloomberg reported that the Sasol group was considering selling Sasol Mining, stating that the formal sale process was due to be initiated in weeks. Bloomberg stated that Sasol planned to sign a coal purchase agreement with the successful bidder for the coal mining business.



Coal stockpile



Over the past decade, Sasol invested R14-billion in a mine replacement programme in the Secunda area to ensure uninterrupted coal supply to the Secunda CTL operations to support Sasol's strategy to operate its Southern Africa facilities until 2050.

The programme entailed the construction of the 10.50-million-tonne-a-year Thubelisha mine, which was inaugurated in 2012 and will extend the operating life of the old Twisdraai mine beyond 2040; the 2.50-million-tonne-a-year Tweedraai project, which replaced part of the Syferfontein mine as an opencast operation; the 20-year-LoM, 9.20-million-tonne-a-year Shondoni mine, which was officially inaugurated in 2018, replacing the old Middelbult operation; and the 8.50-million-tonne- to 10.50-million-tonne-a-year Impumelelo mine, which replaced the old Brandspruit mine and whose second and final phase was officially opened in April 2019.

As at March 31, 2018, the recoverable reserves of Sasol Mining's Secunda mines totalled 1.37-billion tonnes. Of the total amount, 203-million tonnes and 19-million tonnes were at the Middelbult mine's Number 4 and Number 2 seams respectively; 103-million tonnes at the Bosjesspruit mine; 276-million tonnes at the Syferfontein mine; 300 000 t at the Brandspruit mine; 270-million tonnes at the Twisdraai Thubelisha shaft; and 269-million tonnes at Impumelelo. Sasol states that it has sufficient coal reserves to supply Secunda until 2050.

Sasol Mining produced 37.20-million tonnes of saleable coal in 2018, up from 36-million tonnes in the preceding year.

Output for the six months to the end of December 2018, however, was 3% lower year-on-year, at 18.90-million tonnes.

At time of publication, Sasol's 2019 annual report was yet to be published.

Seriti Resources

A 91%-black-owned and -controlled mining company, Seriti Resources has as its anchor shareholders Masimong Group, Thebe Investments, Zungu Investments and Community Investment Holdings. In 2018, it completed its R2.70-billion acquisition of three AACSA coal mines that supply 24-million tonnes of thermal coal to three Eskom power stations, which generate about 23% of South Africa's electricity.

Of Seriti's three mines, two – Kriel and New Denmark – are located in Mpumalanga, while the third, New Vaal, is located in the Free State. The Kriel mine, near eMalahleni, was opened in 1975 and comprises underground and opencast operations and has enough reserves to sustain mining until 2029 at the

current production rate of five-million tonnes a year. All the mine's output is delivered to the Kriel power station. The New Denmark mine, which is located 30 km north of Standerton, is one of the deepest coal mines in South Africa. Starting operations in 1982, it currently supplies five-million tonnes to the Tutuka power station. Its remaining LoM extends to 2039. The New Vaal mine, located on the banks of the Vaal river, immediately south of Vereeniging, has been in operation since 1983 and uses the opencast strip mining method to extract remnant coal pillars from underground mining in the area during the 1960s. It produces 17-million tonnes a year, all of which it supplies to the Lethabo power station. Its remaining LoM is estimated at 20 years.

Seriti Resources has not published reserve estimates for the former AACSA mines since it acquired them in 2018. As at December 31, 2017, the Kriel mine had 20.80-million run-of-mine (RoM) tonnes of underground proved and probable reserves and 1.70-million RoM tonnes of opencast-mineable proved and probable reserves, while the New Denmark mine had 95.70-million RoM tonnes of underground proved and probable results. New Vaal had 203.80-million tonnes of opencast-mineable RoM reserves, all in the proved category.

Seriti is also part of the New Largo Coal consortium, which completed the acquisition of AACSA's 73%-owned Anglo American Inyosi Coal (AAIC) in July 2018 for R850-million. AAIC's assets include the closed Old New Largo mine and the greenfield New Largo project, which boasts an estimated 585-million-tonne resource and is well positioned to supply Eskom's new Kusile power station, whose construction has not been completed. When all its units are operational, Kusile will generate 4 800 MW of electricity.

While Seriti delivers all the coal it mines to Eskom's power stations, it aims to diversify into the seaborne market. According to the company, one of the benefits of producing domestic and export coal is that export revenue helps to enhance the business case for domestic supply, which, if it is to Eskom, is often on a cost-plus basis, involving a set margin. Conversely, favourable domestic prices may offset any significant declines in export prices.

A strategy that Seriti seems to have adopted for breaking into the seaborne market is the acquisition of export-focused mines. The company has confirmed it is interested in buying the Optimum coal mine, in Mpumalanga, which has a 6.50-million-tonne-a-year export entitlement at the RBCT. Optimum has been in business rescue since February 2018, along with Koornfontein, which is also located in Mpumalanga and is Optimum's sister mine in the Oakbay Resources group, which is linked to the controversial Gupta family. Koornfontein has a much smaller



RBCT export entitlement of 1.50-million tonnes a year. The mines' business rescue practitioners announced in May 2019 that they would accept bids from interested buyers by June 18, 2019. The mines each have enough reserves to sustain operations beyond 2030.

Seriti is currently engaged in exclusive negotiations to acquire Australia-based South32's South Africa Energy Coal (SAEC) subsidiary, which supplies thermal coal to Eskom power stations and export customers. In the next few months, Seriti will have to conclude and finance the acquisition of SAEC, which involves not only paying an upfront fee that has not yet been determined but also securing the approval of Eskom, the Department of Mineral Resources and Energy and the competition authorities. Meanwhile, Seriti CEO Mike Teke said in a media interview in September 2019 that a lossmaking contract in terms of which the Wolvekrans colliery, the largest in the Witbank area, had to supply coal to Eskom's Duvha power station represented a significant hurdle and had to be resolved for the sale agreement to be finalised.

Meanwhile, Bloomberg reported in August 2019 that, as financiers are shunning coal projects because of the fossil fuel's environmental impact, Seriti might seek funding from equipment suppliers instead of listing on the stock exchange. Its CFO, Doug Cain, told the news agency that Seriti – which intends to develop the New Largo project near Eskom's 4 800 MW Kusile power station – had been approached by earthmoving equipment suppliers interested in providing funding in exchange for contracts to supply the trucks and other equipment needed for the project.

South32

A diversified miner that was previously part of Anglo-Australian group BHP, South32 has a 92% interest in SAEC, with the balance held by empowered shareholder Phembani Holdings. SAEC's three operating mines are all located in Mpumalanga. These are the Khutala colliery, a bord-and-pillar underground operation; the single-dragline, multiseam Klipspruit opencut mine that is combined with a truck-and-shovel openpit; and the Wolvekrans Middelburg Complex (WMC), which comprises the Ifaletu and Wolvekrans collieries, both opencut mines with several active pits that are mined using draglines, combined with truck-and-shovel methods.

As at June 30, 2019, the Khutala colliery boasted 46-million tonnes of total underground reserves and 1.20-million tonnes of total opencast-mineable reserves, enough to sustain operations for another eight years. Klipspruit had a total of 247-million opencast-mineable reserves and the WMC 422.10-million tonnes.

During the year to June 30, 2019, SAEC's saleable output decreased by 8% year-on-year to 25-million tonnes, owing to extended dragline downtime at Klipspruit in August 2018, which impacted on exports. South32 stated in August 2019, when it released its results for 2018/19, that a R4.30-billion project to extend the LoM of the Klipspruit mine by 20 years, was 72% complete and was on schedule for completion in 2021. Klipspruit was due to cease production in 2020, owing to resource depletion.

South32, which has been managing SAEC as a standalone business since 2018 in readiness for its eventual disposal, announced in August 2019 that it had entered into exclusive negotiations with Seriti Resources, one of the several initial bidders. Seriti's bid comprises what South32 described as a modest upfront cash payment, a deferred payment and an arrangement whereby both companies will share commodity price upside for an agreed period.

The company expects to produce 26-million to 28-million tonnes of saleable coal during 2019/20. Revenue totalled \$1.04-billion in 2018/19, down from \$1.37-billion in the previous year.

SMALLER PRODUCERS

African Exploration, Mining & Finance Corporation (AEMFC) is a subsidiary of the State-owned Central Energy Fund (CEF) and was established in 2007 to secure South Africa's energy supply, primarily through the mining of coal for electricity generation.

AEMFC's Vlakfontein opencast colliery, near Ogies, in Mpumalanga, started operations in 2011, supplying all its production to Eskom's Kendal power station under a coal supply agreement that expires in 2020. According to a report published in September 2018 by the National Assembly's Portfolio Committee on Mineral Resources, the mine has been profitable since its inception. The mine's Bunker Block boasts 48-million tonnes of run-of-mine coal, enough to sustain operations for another 19 years. According to the committee, AEMFC requires capital expenditure of R121-million to develop the North Block resource at the mine.

Besides the Vlakfontein mine, AEMFC has a 26% shareholding in the Mzimkhulu mine, near Ogies, which produces three-million tonnes of coal a year for Eskom's Kusile power station, and a 40% shareholding in the Chilwavhusiku coal mine, near Bronkhorstspuit, in Gauteng, which also supplies its entire yearly production of 900 000 t to Kusile.

AEMFC plans to develop two coal mining projects. One of these, Klippoortje, is located about 40 km from the Vlakfontein



mine and has been granted environmental authorisation. However, the outcome of a water-use licence application lodged in June 2018 has not been published yet. The other initiative, called T-Projects, is located about 12 km from Kinross, in Mpumalanga. According to the Portfolio Committee on Mineral Resources' September 2018 report, AEMFC is finalising an offtake agreement for the envisaged project with Eskom. However, raising the R3.70-billion capital required for the project could be a challenge. The report also states that petrochemicals group Sasol is interested in acquiring the project, as its coal is of a quality suitable for CTL production.

Meanwhile, AEMFC announced in February 2019 that it had been awarded an option to bid for Optimum Coal Mines, after the beleaguered company's business rescue practitioners had accepted post-commencement funding (PCF) of about R1-billion, provided by 50:50 JV partners AEMFC and local coal mining junior Lurco Group. Responding to a Parliamentary question in March 2019, Mineral Resources and Energy Minister Gwede Mantashe said AEMFC would source funds from the CEF for its R500-million contribution to the PCF. Lurco Group's share will be financed by UK-based fund Sycamore Capital. The final ownership of Optimum, however, will be subject to a competitive process, for which the submission of bids closed in June 2019. Final results are not available for this company.

Buffalo Coal is a TSX-V- and AltX-listed company with coal assets in the Klipriver coalfield, near Dundee, in KwaZulu-Natal. Owing to the closure of its Magdalena underground bituminous thermal coal mine at the end of October 2018, on the back of lower production levels and safety concerns, the company's business case and cashflow currently rely primarily on the Aviemore underground anthracite mine. Buffalo Coal states on its website that the Magdalena mine has a measured resource of 50.29-million tonnes of *in situ* coal, while the Aviemore mine has an estimated measured and indicated resource of 35.35-million tonnes of *in situ* coal.

The company said in April 2019 that management had identified several opportunities for the Magdalena mine, including leasing the mine's wash plant and adit to third parties and selling slurry from the mine's 700 000 t slurry pond over the next 15 months, potentially generating R900 000 to R1.60-million a month. The company added that it had been approached by a neighbouring mine with a proposal for the neighbouring mine to access its coal reserves using the adjacent Magdalena adit. The neighbouring mine reportedly has enough reserves to sustain mining for four years at 25 000 t of RoM coal a month.

Following the cessation of operations at Magdalena, Buffalo Coal revised the Aviemore mining plan to include pillar extraction,



Magdalena coal mine

extending the mine's life to June 2021, compared with the previously anticipated closure date of February 2020.

The company is also assessing the viability of developing the old Balgray mine, for which a concept study was completed during the fourth quarter of 2018, indicating that there was a business case for the project. Should it go ahead, the project would require about R120-million in capital and construction costs, which would be funded from revenue generated by the Aviemore mine.

Buffalo Coal estimates that the Balgray mine project would add about six years to the company's LoM, subject to anthracite quality. This additional operating life would enable Buffalo Coal to build the Aviemore North adit – which would extend the Aviemore mine's LoM by 13 to 15 years – during this time. The Aviemore North project would require about R335-million in capital and construction expenditure, with its commissioning expected to take about 18 months.

Meanwhile, the Aviemore mine produced 487 398 t of anthracite in 2018, about the same as in 2017, but the mine had to buy in 70 455 t – compared with 23 111 t in the preceding year – to meet customer demand. The Magdalena mine, on the other hand, produced about 462 013 t of bituminous coal, representing a 41% year-on-year decline. It had to buy in 28 680 t, about 34% less than in 2017.

Anthracite sales during 2018, at 307 089 t, were 3% lower year-on-year, while bituminous sales totalled 325 611 t compared with 440 431 t in 2017. Calcine sales of 50 665 t and anthracite high-ash sales of 103 983 t were 36% and 16% lower respectively, compared with 2017 production.



Main participants

Buffalo Coal's revenue for the year ended December 31, 2018, at R758.50-million, was marginally higher than the 2017 figure, buoyed by higher sales. Its loss before tax decreased by 45% year-on-year to R68.38-million.

However, despite these improvements, the company's ability to continue (as a going concern) depends on its ability to realise the short-term opportunities it has identified and to secure funding for these and medium- and long-term projects.

During 2018, Buffalo Coal continued to use its export allocation of 51 125 t at the RBCT, through the Quattro scheme. It announced in April 2019 that the Department of Mineral Resources and Energy (DMRE) intended to restrict access to companies producing standard RB1- and RB3-quality products. Consequently, Buffalo Coal said it expected its use of the Quattro allocation to cease when the new allocations came into effect.

However, it added that it did not expect any overall impact on its export tonnages, whether or not it had an allocation under the Quattro scheme.

Canyon Coal is a coal exploration and mining company with mines and projects in Mpumalanga and Gauteng.

The Mpumalanga coal mines are Hakhano, located about 20 km east of Middelburg, which came on stream in December 2009 and has consistently produced 50 000 t of RoM coal a month; the almost depleted Shingani mine, which is located about 30 km east of Middelburg; and Phalanndwa, near Delmas, which came on stream in 2010, becoming fully operational in 2013, complete with a wash plant. Implementation of an extension project at the mine – which is expected to extend the LoM to 2027 – started in July 2019. Once it reaches steady-state production, the project will produce 110 000 t/y to 125 000 t/y of RoM coal.

In Gauteng, Canyon Coal operates the Khanye coal mine, near Bronkhorstspuit. The mine, which started opencast mining operations in December 2017, produces about 200 000 t of RoM coal a month, predominantly for the export market, and its remaining LoM is estimated at 16 years. Production has also started at the seven-year-LoM Phase 1 of the Ukufisa mine near Springs. A Phase 2 expansion, which will increase the LoM to 30 years at a planned mining rate of 400 000 t of RoM coal a month, has been granted a mining right by the DMRE.

Canyon Coal, a subsidiary of investment holding group Menar, aims to achieve yearly coal production of 20-million tonnes a year from 2020. Besides the five existing mines,



Hakhano mine

some of the tonnages will come from the De Wittekrans greenfield project, near Hendrina, in Mpumalanga, where first production is expected in the second half of 2019. Using underground and opencast mining methods, De Wittekrans has an estimated 24-year LoM, based on RoM production of about 300 000 t a month. Also in Mpumalanga, Canyon Coal is developing the Witfontein greenfield project, near Bethal, which it expects to start production in 2020 using opencast and underground methods to extract 100 000 t a month over a ten-year LoM.

In Gauteng, the company is developing the R1-billion Springfield project, in Vereeniging, for which applications for the mining right and the environmental authorisation were submitted to the DMRE in August 2019. The company has started engaging bulk service providers such as Eskom and Transnet. Springfield will produce 500 000 t of RoM coal a month over 30 years, starting in 2021.

Canyon Coal does not supply Eskom's power stations currently, but executive chairperson Vuslat Bayoglu told *Mining Weekly* in March 2019 that the company was prepared to offer the utility coal from Ukufisa Phase 1 and the Springfield project under a transparent spot pricing regime that would minimise corruption.

Financial results are not available for this company.



MC Mining, previously Coal of Africa Limited, is an emerging developer of coking and thermal coal projects in South Africa. Its sole operational colliery, Uitkomst, in KwaZulu-Natal, was acquired from Pan African Resources in June 2017 and produces export-quality thermal coal with metallurgical applications. A previously operational semisoft and thermal coal mine, Vele, located about 48 km west of Musina, in Limpopo, has been on care and maintenance since 2013 and its reopening has been opposed by environmental lobby groups.

The Uitkomst colliery, in which MC Mining has a 91% shareholding, with the balance held by black-empowerment shareholders, is an underground operation that boasts 25.40-million tonnes of *in situ* mineable coal reserves, enough to sustain mining – including a planned extension – for the next 16 years. ASX-, Aim- and JSE-listed MC Mining announced in November 2018 that it had secured a R20-million facility from Absa Bank to fund the LoM extension project at Uitkomst. This was in addition to the five-year, R15-million asset finance facility that the banking group extended for the acquisition of underground mining equipment for the mine.

MC Mining's 69%-owned Makhado project, with 344.80-million tonnes of mineable coal reserves *in situ*, is located south of the Soutpansberg mountains, in Limpopo. The project will be developed in two phases, the first of which is scheduled to start operations in the third quarter of 2019, producing three-million tonnes of RoM coal a year. The second phase, whose approval by MC Mining's board was announced in April 2019, has an expected development start date of 2022 and will be implemented in accordance with the 2017 Makhado 'Lite' project plan, which entails yearly production of four-million tonnes of RoM coal.



Makhado coal project

Also in Limpopo, MC Mining has a 74% stake in the longer-term Greater Soutpansberg (GSP) project, boasts 1.60-billion-tonnes of mineable coal *in situ*, comprising hard coking coal (HCC), semisoft coking coal and thermal coal. The GSP project comprises the Mopane, Generaal and Chapudi projects, for which mining right applications were submitted in 2013. MC Mining announced in January 2019 that the mining right application for the Chapudi project had been approved by the DMRE, adding that the applications for the other two projects were at an advanced stage. Chapudi hosts 6.30-million gross tonnes of *in situ* inferred coal resources.

The total *in situ* Joint Ore Reserves Committee- (Jorc-) compliant measured, indicated and inferred resource base at Uitkomst, Mkhado and GSP was estimated at 2.33-billion tonnes as at December 31, 2018.

Production at Uitkomst, MC Mining's sole producing asset, totalled 505 130 t for the 12 months to June 30, 2018, with revenue for the year being \$32.69-million. During the six months to June 30, 2019, the colliery produced 237 715 t, compared with 265 609 t for the corresponding period in the previous year. Revenue for the half-year was \$15.20-million, while the cost of sales totalled \$12.31-million, resulting in a gross profit of \$2.89-million.

Petmin, which delisted from the JSE in June 2017, produces metallurgical anthracite at its 80%-owned Somkhele mine, about 85 km north-west of Richards Bay, in KwaZulu-Natal. The local community and employees own the balance of the shareholding.

According to the company's website, the metallurgical coal produced at Somkhele is exported to iron-ore pelletising and sintering plants, with the balance sold to the South African ferroalloy industry.

The mine also produces low-volatile, high-ash energy coal, which is exported, primarily to cement producers and low-volatile power stations.

Universal Coal, which is listed on the ASX, has a portfolio of producing mines and development and exploration projects in South Africa. The producing mines include the 70.50%-owned Kangala mine, the 49%-owned New Clydesdale colliery and the 51%-owned North Block Complex (NBC), all in Mpumalanga. As at December 31, 2018, these mines had mineral resources and reserves of 98.69-million tonnes, 136.67-million tonnes and 108.71-million tonnes respectively.

Kangala is a truck-and-shovel opencast mine with a nameplate capacity of 3.70-million tonnes of RoM thermal coal a year. Eskom





Picture by Creamer Media

Kangala colliery

receives two-million tonnes of the mine’s saleable production under an offtake agreement that expires in 2023, while about 400 000 t/y is destined for the export market. After buying into the contiguous Eloff project, which boasts a 528-million-tonne resource, Universal Coal believes that the Kangala mine’s LoM can be extended from four years to an estimated 20 years, while maintaining saleable coal production at 2.40-million tonnes a year. During the financial year to the end of June 2019, the mine sold 2.40-million tonnes of coal, compared with 2.61-million tonnes in the preceding year.

New Clydesdale, which amalgamated with the adjoining Roodekop mine and has been in operation since September 2016, is a multiproduct operation producing RB1-grade export thermal coal, thermal coal for Eskom power stations and low-phosphorus metallurgical coal. Its sales for the year ended June 30, 2019, totalled 2.54-million tonnes, up from 2.14-million tonnes in the previous financial year.

The NBC, whose acquisition from Exxaro Resources was completed in November 2018 and which is co-owned with black-empowered entity Ndalamo Resources, with a 51% stake, is an openpit mine with capacity to produce 3.40-million tonnes of RoM thermal coal a year, but the JV partners plan to increase this to four-million tonnes a year from 2020. Short-term production from the NBC will be supplied mainly to the domestic market, with export-quality product to be included once the mining right for the nearby Paardeplaats deposit has been granted.

Meanwhile, Universal Coal is developing the Brakfontein ‘Ubuntu’ thermal coal project, in Mpumalanga, as a truck-and-shovel openpit colliery. The project, whose reserves were estimated at 9.10-million tonnes as at June 30, 2018, is fully permitted and expected to supply 1.20-million tonnes to the domestic market over six years, starting in the second half of the 2019 calendar year.

Universal Coal stated in July 2019, when it released its financial results for the 2018/19 financial year, that it was engaged in positive offtake negotiations with Eskom.

Universal Coal’s project pipeline also includes the 50%-owned Arnot South thermal coal project, in Mpumalanga, which boasts a 206.60-million-tonne Jorc-compliant resource.

Universal Coal also has a 50% interest in the Berenice/Cygnus coal project, in Limpopo’s Soutpansberg coalfield, with an option to increase the shareholding to 74%. A concept study on this 1.35-billion-gross-tonne resource has confirmed the viability of an opencut operation producing ten-million RoM tonnes of blend coking coal and thermal coal a year.

Universal Coal has been the target of two takeover bids during the past few months. The first was launched in September 2018 by a consortium that includes private-equity firm Ata Resources and coal junior Wescoal, while the second was tabled by construction materials company Afrimat, but was withdrawn in July 2019.

In the year to June 30, 2019, Universal Coal reported revenue of A\$434.79-million, compared with A\$316.35-million the previous year.

Wescoal Holdings is a junior company involved in coal mining, processing and trading. Following the disposal of the Intibane 1 and 2 opencast collieries, in Mpumalanga, in 2018, and of the Leeuw Braakfontein advanced-stage exploration project, in KwaZulu-Natal, in August 2018, the company’s current assets, all of which are in Mpumalanga, comprise the Elandspruit, Kanyisa and Vanggatfontein collieries, as well



as the closed Arnot colliery – which was previously owned by Exxaro Resources – four processing facilities and the Moabsfontein exploration project. As at March 31, 2019, Wescoal had an inclusive managed coal reserve of 76.13-million tonnes, of which 68.59-million tonnes was attributable to the group.

Located near Middelburg, Elandspruit, which is wholly owned by Wescoal, had a total run-of-mine (RoM) reserve of 16.41-million tonnes, enough to sustain operations for the next six years. The mine produced 2.70-million tonnes of RoM coal during the year to March 31, 2019, a decline from 3.10-million tonnes in the previous year. Much of this output emanated from the 240 000 t a month capacity opencast operations, as the contractor at the 25 000 t capacity underground section ceased operations in October 2018. However, plans are under way to reopen the underground section.

The Khanyisa complex, located about 10 km west of Ogies and comprising the Catwalk and Triangle mining areas, had a remaining RoM reserve totalling 3.48-million tonnes as at March 31, 2019, which was expected to be depleted in about four years, assuming that mining continues at current rates. However, this could be extended, should current efforts to access resources that are under pipelines come to fruition. During the year to March 31, 2019, Khanyisa produced 395 000 t of RoM coal, down from 468 000 t in the prior year.

The Vanggatfontein opencast mine, which boasted a 27.23-million-tonne RoM coal reserve as at March 31, 2019, and is located south-east of Delmas, has a remaining LoM of nine years. However, plans are under way to prolong the operating life through the development of a new boxcut, which will ensure that the current production profile is maintained. To facilitate this, Wescoal announced in June 2019 that it had acquired the surface rights to adjoining land and that it had entered into a common boxcut and boundary pillar mining arrangement with a neighbouring mining company, thus liberating 400 000 t of coal that would have been sterilised.

Feasibility studies on future underground mining operations are also under way. During the year ended March 31, 2019, the Vanggatfontein mine produced 2.70-million tonnes of RoM coal, up from 2.40-million tonnes in the preceding year.

In February 2019, Wescoal acquired 50% of the two-million-tonne-a-year RoM production Arnot mine, which was closed in 2015. The acquisition will be finalised once regulatory approvals have been granted and Eskom has transferred the mine's coal supply agreement to the new owners, who, besides Wescoal, include former employees. The mine will bring an additional coal reserve of 13-million tonnes to the company. Coal from the

mine will be supplied to the Arnot power station by conveyor belt, resulting in a cost-competitive advantage.

Operations are expected to restart during the first half of 2020 and continue for seven years, with Wescoal's share of yearly RoM production being 1.20-million tonnes.

Meanwhile, Wescoal is developing the 29-million-tonne-reserve Moabsveld opencast project, 11 km south-east of Delmas, with first coal production, at 2.40-million tonnes to three-million tonnes a year, expected to start during the first half of 2020 and continue over an estimated ten-year period. Wescoal announced in July 2019 that it had reached a coal supply agreement for the new mine's production with Eskom.

Wescoal also owns the Sterkfontein project, near Bethal, for which a mining right application has been lodged with the DMRE and where it plans to develop a fully mechanised operation that will produce primary thermal export coal and middlings suitable for power stations. The project's declared resource comprises 50.29-million tonnes in the indicated category and 40.64-million tonnes in the inferred category.

During the year to March 31, 2019, Wescoal produced 5.90-million tonnes, a 13% year-on-year decline, while its sales, at 4.90-million tonnes, represented a decline from 5.40-million tonnes in the 2017/18 financial year. Revenue, however, increased 12% year-on-year to R3.97-billion. Operating profit declined from R344-million in 2017/18 to R224-million in 2018/19.

CORPORATE ACTIVITY

Ata Resources, Wescoal and Universal Coal

Wescoal, part of a transaction led by Ata Resources that is bidding to acquire Universal Coal, announced in March 2019 that negotiations to conclude the transaction were ongoing. In 2018, the consortium made an indicative offer of A\$0.35 apiece for all the shares of Universal Coal. South Africa-based industrial minerals company Afrimat made an offer of A\$0.40 per share for Universal Coal, valuing the company at R2.15-billion, but withdrew its bid in July 2019, citing the size and complexity of the proposed transaction.

Canyon Coal and Kangra Coal

Canyon Coal announced in December 2018 that it had completed its \$40-million acquisition of Kangra Coal, which produces two-million tonnes of coal a year at an underground mine and opencast operations near Piet Retief, in Mpumalanga.



The purchase agreement with Kangra Coal's previous owners, Spain-listed energy company Gas Natural Fenosa and South Africa-based Izimbiwa Coal Investments, was concluded in June 2018, with Competition Commission approval granted in November 2018 and the DMRE consenting to the transfer of the mining right a month later.

The acquisition provides Canyon Coal with a 2.30% interest in the Richards Bay Coal Terminal, from which it is now entitled to export 1.60-million tonnes of coal a year.

Exxaro Resources, Wescoal and Innovators Resources

Wescoal announced in March 2019 that it would acquire a 50% stake in Exxaro Resources' Arnot coal mine, in Mpumalanga, while the other 50% would be acquired by Innovators Resources, owned by former employees of the mine, which closed in 2015, after failing to negotiate a new coal supply agreement with Eskom. At the time, the State-owned utility was pursuing a policy of not reinvesting in cost-plus mines.

The transaction awaits regulatory approvals, including Section 11 ownership transfer approval from the DMRE, as well as the transfer by Eskom of the coal supply agreement to the mine's new owners.

The mine will start delivering coal to the nearby Arnot power station during the 2020 financial year. This will be done by conveyor belt, resulting in a cost-competitive advantage, with minimal Carbon Tax impact.

South32 and Seriti Resources

South32 announced in August 2019 that it had started exclusive negotiations with Seriti Resources for the acquisition of South32's 92%-owned SAEC, which owns coal assets in Mpumalanga, including the Khutala and Klipspruit collieries, as well as the Wolvekrans Middelburg Complex. South32, which spun out of diversified resources group BHP in 2015, separated SAEC from the rest of the business in 2018 with a view to selling it.

SELECTED COAL MINING PROJECTS

Belfast – Exxaro Resources

Exxaro Resources broke ground on the greenfield Belfast implementation project (BIP), about 10 km south-west of Belfast, in Mpumalanga, in July 2018. Boasting a 45.70-million-tonne reserve, the R3.30-billion project comprises an openpit and a coal handling and preparation plant, as well as supporting

infrastructure and services. The BIP, which produced its first coal in the first half of 2019, ahead of schedule, will be operational for about 17 years, with its output estimated at 2.70-million tonnes of A-grade thermal coal a year. The Belfast mine will be the first in South Africa to have a digital twin that will make it possible for management and the contracted company to be connected to it from anywhere in the world. Maintenance teams will be connected to certain machinery, enabling them to analyse and detect problems early, thus improving safety and reducing downtime.

Boikarabelo – Resource Generation

Initial construction work on the 995-million-tonne-resource Boikarabelo project, being developed in the Waterberg region of Limpopo by Resource Generation (Resgen) subsidiary Ledjadja Coal, started in April 2013 and was scheduled for completion in September 2018. However, the expected date of first coal production has been delayed, owing to funding issues, and it is now expected to be 2021.

The mine, which had total probable reserves of 267.1-million tonnes as at January 27, 2017, will use selective mining and in-pit dumping, and is being developed in a phased approach to limit upfront capital expenditure. Stage 1 will deliver about 15-million tonnes of RoM coal a year, equating to about six-million tonnes of product coal, of which 3.60-million tonnes will be exported and the balance sold in the local market. Stage 2, on which construction is not expected to start before 2025, will involve ramping up to 12-million tonnes of product thermal coal.

The project will include a 44 km rail link to the existing rail network. Further, to expand the project's economic base, a bankable feasibility study on a potential 300 MW independent mine-mouth power station will be completed once Boikarabelo has been commissioned.

Meanwhile, Resgen has announced that the third and final member of the proposed syndicate for the construction of the R4.20-billion project has confirmed its participation.

The company is negotiating a funding package of R750-million for the rail link to the mine. In the lead-up to mine commissioning, a further R500-million in working capital will be required.

Grootegeluk Phase 6 – Exxaro Resources

The R4.80-billion Grootegeluk 6 expansion project, being implemented at the Grootegeluk mine, in Limpopo, is the largest in Exxaro Resources' R20-billion-plus capital expenditure programme, which is under way. It involves the expansion of



the existing Grootegeluk 2 plant to enable the production of 1.70-billion tonnes to 2.70-billion tonnes a year of semisoft coking coal. First production is expected in the second half of 2019, with full production by the end of 2020.

Grootegeluk rapid load-out station – Exxaro Resources

Owing to forecast export volume increases at Grootegeluk over the next five years, Exxaro Resources is upgrading the rail siding loading facilities and associated infrastructure at the mine in a R1.33-billion project that began in November 2016 and is scheduled for completion in the second half of 2019. The project will allow for the loading of an additional 19-million tonnes of coal a year and aligns with State-owned logistics company Transnet Freight Rail's strategy to accommodate 200-wagon trains.



Picture by Exxaro Resources

New rapid load-out station project

Impumelelo – Sasol Mining

The Impumelelo project, in Mpumalanga, is the last of three mines to be developed by Sasol Mining as part of its R14-billion mine replacement programme.

Involving the construction of a new 8.50-million-tonne-a-year underground mine, upgradable to 10.50-million tonnes, Impumelelo replaces the old Brandspruit mine, thus ensuring uninterrupted coal supply to Secunda Synfuels to support Sasol's strategy to operate its Southern Africa operations until 2050. Sasol invested R5.60-billion in the project, the first phase of which was completed in June 2016. The second was completed in April 2019.

Coal will be delivered from the mine, which has been designed to operate for at least 35 years, to the Sasol Synfuels complex by a conveyor system that is the longest of its kind in the southern hemisphere.

Makhado – MC Mining

MC Mining's 69%-owned Makhado project, with 344.80-million tonnes of mineable coal reserves *in situ*, is situated south of the Soutpansberg mountains, in Limpopo. Following the approval of Phase 1 of the project by the company's board of directors in March 2019, mining operations are due to start during the third quarter of 2019, producing three-million tonnes of RoM coal a year, two-million tonnes of which will be trucked to the mothballed Vele colliery's enhanced plant for final processing. The plant will be modified to enable it to produce 540 000 t/y of hard coking coal (HCC) and 570 000 t/y of thermal coal, which will be trucked to the Musina siding, from where it will be railed to domestic customers or to the coast for shipment to overseas markets.

South Africa's State-owned Industrial Development Corporation (IDC), which owns 5% of Makhado, has approved a R245-million credit facility to fund the construction of Phase 1 of the project and the modification of the Vele colliery coal processing plant. Other shareholders in the Makhado project are seven local communities, with a 20% interest, and a black industrialist, with 6%. The IDC credit facility approval, announced in July 2019, followed the signing of the project's first offtake agreement in October 2018 in terms of which an HCC will be supplied to Chinese State-owned enterprise Huadong Coal Trading Centre and China Forestry Group.

In June 2019, MC Mining signed an offtake agreement committing it to supply at least 350 000 t/y of HCC to steelmaker ArcelorMittal South Africa (AMSA), with an option to increase the tonnage to 100 000 t/y for ten years or for the Phase 1 LoM, should this be less than ten years. Owing to a shortage of high-quality metallurgical coal, AMSA and other South African coke producers have to import HCC for the manufacture of metallurgical coke, a key ingredient in the steelmaking process.

Phase 2 of the Makhado project, with an expected development start date of 2022, will be implemented in accordance with the 2017 Makhado 'Lite' project plan, which entails yearly production of four-million tonnes of RoM coal.

Development of the project was previously delayed by a lack of access to the Lukin and Salaita farms, required to complete geotechnical drilling to confirm, besides other aspects, the positioning of the processing plant infrastructure. The owners of the two farms eventually agreed to sell them to MC Mining for R70-million. The first tranche of R35.50-million has been paid, with the balance due within three years. The properties were transferred to MC Mining subsidiary Baobab Mining & Exploration in January 2019.



Springfield – Canyon Coal

The Springfield opencast mine is being developed in the Vereeniging-Sasolburg coalfield, in Gauteng, by Canyon Coal, with first production, at 600 000 t of RoM coal, expected during the first quarter of 2020.

Based on a 307.86-million-tonne deposit, it has an estimated LoM of 40 years. Current planning allows for the conventional truck-and-shovel, roll-over mining method.

The project will comprise the construction of a 1 000 t/h coal beneficiation plant. Other infrastructure will include a railway siding, weighbridges, a substation for power supply, stormwater infrastructure and civil infrastructure such as roads.

Thabametsi – Exxaro Resources

Should it go ahead, the R3.20-billion Phase 1 of Exxaro Resources' Thabametsi project, in Limpopo, will involve the development of a greenfield opencast mine that will produce about 3.90-million tonnes of coal a year, which will be delivered to the proposed 600 MW Thabametsi independent power producer (IPP) coal-fired power plant. The IPP is a preferred bidder under the DMRE's Coal Baseload IPP Procurement Programme (CBIPPPP).

The development of the 30-year LoM Thabametsi mine depends on the CBIPPPP and the DMRE's Integrated Resource Plan 2019, which was released in October 2019, and the IPP reaching financial close.





LOCAL SALES

The domestic market accounts for more than half the coal produced in South Africa – a state of affairs that is forecast to continue, given the changing and uncertain export environment, exemplified by plans by India, the destination of 46% of South African coal exports, to increasingly turn to renewable-energy sources.

Further, domestic prices – which, in 2018, averaged R349/t for deliveries to State-owned electricity utility Eskom, R831/t for coal bought by steelmakers, R513/t for coal used in the chemicals sector and R608/t for coal delivered to cement manufacturers – are currently not significantly different from export prices.

Coal consumption in South Africa is dominated by Eskom, the world's eighth-largest electricity utility.

During the financial year to March 31, 2019, its 15 coal-fired power stations burned 113.76-million tonnes of the fossil fuel to generate more than 80% of the country's electricity.

Eskom's coal demand is expected to increase to 139-million tonnes a year by 2023, before declining to about 120-million tonnes by 2033 and to 90-million tonnes a year by 2050.

Eskom mostly uses two types of coal supply contracts: long-term cost-plus contracts and fixed-price contracts whose duration may be short or long term.

Under the former, Eskom assumes responsibility for the initial and working capital requirements of privately owned coal mines located near its power stations in return for guaranteed

Eskom's top ten coal suppliers	
Supplier	Contract type
Exxaro Resources	Cost-plus and fixed-price
Seriti Coal	Cost-plus
South32	Cost-plus and fixed-price
African Exploration Mining	Fixed-price
Universal Coal	Fixed-price
Inyanga Mining	Fixed-price
Keaton Mining	Fixed-price
Shanduka Coal: Graspan colliery	Fixed-price
Umsimbithi Mining	Fixed-price
Tshedza Mining Resources	Fixed-price

Source: Eskom integrated report 2018/19

coal supplies delivered at prices that cover the mines' costs and include an agreed profit margin. However, under former CEO Brian Molefe, the utility stopped investing in cost-plus coal mines in 2015, a policy that has since been reversed.

The decision to desist from investing in cost-plus mines, coupled with a new requirement that new contracts be entered into only with suppliers that are at least 51%-black-owned and the placing of mines owned by the controversial Gupta family into business rescue, resulted in severe shortages of coal at some of Eskom's power stations.

To address the situation, the utility signed 27 new coal supply contracts in 2018 to procure 73-million over the next few years, but former CEO Phakamani Hadebe said in November 2018 that Eskom needed to sign up 116-million tonnes.



In a departure from the new black economic-empowerment policy, some of the contracts signed in 2018 were entered into with suppliers whose black ownership falls below the stipulated 51%. Eskom COO Jan Oberholzer said in January 2019 that, besides starting negotiations on long-term contracts of eight to ten years, the utility planned to invest R10-billion

Government to seek to renegotiate coal, IPP contracts

Concerned about State-owned electricity utility Eskom’s mounting debt, which stands at about R450-billion, the South African government intends initiating discussions with coal miners and renewable-energy independent power producers (IPPs) to lower the contracted prices that Eskom pays.

Mineral Resources and Energy Minister Gwede Mantashe said in September 2019 that his department was proposing ‘indexing’ the price of coal supplied to Eskom to bring the utility’s rampant primary energy costs under control. He clarified that the index would not be imposed on the miners, but would be the outcome of negotiations. He added that it would be ideal if the coal miners could propose the indexing formula.

Separately, government intends raising the prospect of negotiating power purchase agreements (PPAs) for renewable-energy IPP projects procured in 2011 and 2012 under the first three bid windows of the Renewable Energy Independent Power Producer Procurement Programme. However, observers have noted that this move would be highly controversial, as the 20-year PPAs were the outcome of a competitive bidding process.

Meanwhile, Eskom chairperson and acting CEO Jabu Mabuza called on coal suppliers in October 2019 to put South Africa ahead of their own interests. According to BusinessLive, Mabuza said that the embattled power utility should not have to count high coal prices among its many problems. The utility’s purchases of coal constitute its single-largest expense.

Eskom has said that to ameliorate rising coal and transport costs, it is in the process of implementing its long-term coal strategy, which reverts back to dedicated long-term coal contracts. The long-term strategy is expected to underpin the security of coal supply, as well as a predictable price path.



Eskom needs to procure up to 1.32-billion tonnes of coal in the long term

Source: Engineering News

to R12-billion in cost-plus mines over the next five years. He explained that this investment was intended to not only secure coal supply but also ensure that the power stations received coal of the correct quality.

Meanwhile, at a public hearing convened by the National Energy Regulator of South Africa in January 2019, Eskom said it needed to procure up to 1.32-billion tonnes of coal in the long term, assuming that planned investments in cost-plus mines were not implemented. However, should the investments materialise, it would need to procure a reduced amount of 1.10-billion tonnes. It added that, besides revitalising and continuing investment in cost-plus mines, it would continue to procure coal through long-term, large-volume requests to the market to induce investments in the South African coal mining sector. However, to cater for demand flexibility, Eskom would continue to procure coal at market-related prices under medium-term contracts.

More coal for power generation purposes would be required should two planned coal-fired power station projects go ahead. The projects, which form part of the Department of Mineral Resources and Energy’s 2 500 MW Coal Baseload Independent Power Producer Procurement Programme, are Thabametsi, in Limpopo, and Khanyisa, in Mpumalanga.

The developer of the 630 MW Thabametsi project is a consortium led by Japan’s Marubeni Corporation and South Korea’s Kepco, while the consortium behind the 306 MW Khanyisa project includes Saudi Arabia’s ACWA Power, renewable independent power producer Pele Green Energy, Paris Group, Masi Capital and the State-owned Industrial Development Corporation.

Environmental lobby groups are petitioning the courts to halt the projects’ implementation. The projects also suffered setbacks in recent months when South African banks that were the projects’ financiers – Standard Bank, First National Bank and Nedbank – announced that they would be withdrawing their support, citing their commitment to new Organisation for Economic Cooperation and Development environmental protocols, which prohibit the construction of new coal-fired power plants other than those that use the latest ultrasupercritical steam generation technology. Absa, another local financier, has not issued a public statement, but commentators expect it to adopt a similar stance to its peers.

Besides coal-fired power stations, other major coal users in South Africa are the steelmaking sector, whose demand is estimated at 20% of total consumption by Minerals Council South Africa, followed by Sasol, which uses coal to manufacture synthetic fuels and chemicals.





Picture by Creamer Media

COAL EXPORTS

South Africa is the world’s fifth-largest thermal coal exporter, accounting for about 7% of the seaborne market. Exports in 2018 totalled 73.47-million tonnes, according to the private-sector-owned Richards Bay Coal Terminal (RBCT), in KwaZulu-Natal. The terminal projects an increase to 77-million tonnes in 2019 – more than the 76.47-million-tonne record set in 2017 – while Australia’s Department of Industry, Innovation and Science forecasts that the tally will average 80-million tonnes a year to 2021.

While South Africa is one of the five largest exporters of the commodity, the volumes it shipped to overseas customers in 2018 – the same as Colombia’s – were overshadowed by top producers Indonesia’s 428-million tonnes, Australia’s 208-million tonnes and Russia’s 172-million tonnes.

South Africa’s thermal coal producers export their product mostly through the RBCT, with small quantities dispatched through the Richards Bay and Durban harbours, also in KwaZulu-Natal, as well as through the Maputo harbour, in neighbouring Mozambique.

Coal exports earned South Africa revenue of R73-billion in 2018, compared with revenue from domestic sales of R72-billion.

The 73.47-million tonnes dispatched from the 91-million-tonne-a-year-capacity RBCT during 2018 represented a 4.10% decline on 2017.

Besides the halting of operations at the terminal for a cumulative 36 days, owing to inclement weather, the decline was attributable to waning global demand and high prices in

The world’s largest thermal coal exporters (in million tonnes)				
	2018	2019 (f)	2020 (f)	2021(f)
Indonesia	428	430	425	420
Australia	208	204	214	225
Russia	172	176	179	182
Colombia	80	80	78	76
South Africa	80	80	80	80
US	51	46	44	43

Source: Australian Department of Industry, Innovation and Science
(f) – forecast

India, the main destination, which received 35.29-million tonnes of the total figure.

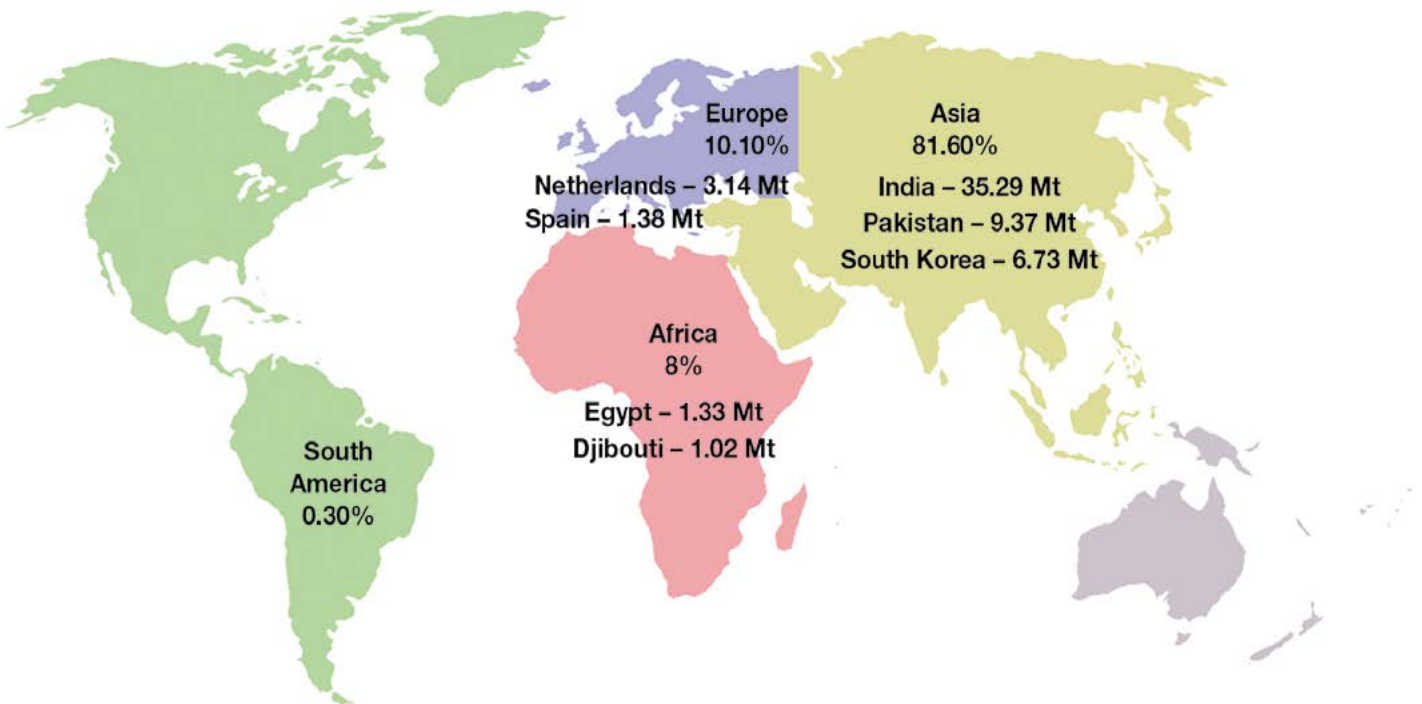
Other major recipients of South African thermal coal in 2018 were Pakistan (9.37-million tonnes), South Korea (6.73-million tonnes), the Netherlands (3.14-million tonnes), Spain (1.38-million tonnes) and Egypt (1.33-million tonnes).

Some commentators believe that South African thermal coal exports – which have not increased significantly since 2008 – will likely continue to average about 75-million tonnes a year in the foreseeable future.

The Institute for Energy Economics and Financial Analysis (IEEFA), for example, notes that, since just under half of South Africa’s thermal coal exports are currently destined for India, future prospects are inextricably linked to the future of the Indian power generation market, where government has announced that renewables will account for the bulk



South African coal exports by destination – 2018



Source: Richards Bay Coal Terminal
Mt – million tonnes

of new additions to the country's electricity generation capacity until 2027. In the nine months to December 2018, India installed 40 times more renewable-energy capacity than thermal power capacity, the IEEFA points out.

Further, while a surge in electricity demand has resulted in an increase in coal plant capacity use rates in the Asian country, the Indian government has decreed that, in the long term, any increased coal demand be met by locally produced coal. This decision was taken in light of the financial plight of Indian thermal plants that rely on imported coal.

The unexpectedly high cost of imported coal has left about 10 GW of coal-fired plants on India's west coast unavailable and in need of a financial bail-out that will lead to higher tariffs for consumers and bad debt write-offs for major lenders. As a result, according to the IEEFA, India's Coal Ministry is preparing a plan to cut coal imports by one-third, or about 85-million tonnes, by 2024.

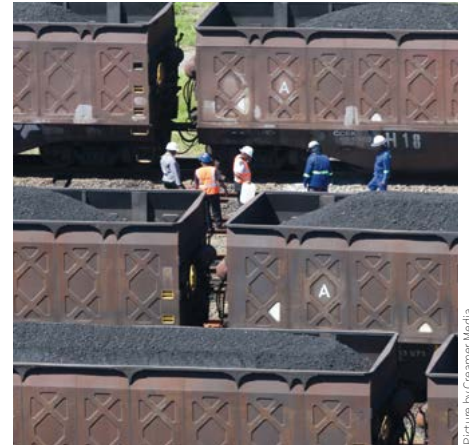
While Pakistan, the second-largest importer of South African thermal coal, has been the beneficiary of Chinese financing of coal-fired power stations, resulting in the country being regarded as a growth market for seaborne coal, modelling undertaken by the IEEFA indicates that, by 2030, about 30% of the country's electricity will be derived from wind and solar. Further, there have been concerns about the burden of coal imports on

Pakistan's fragile economy, which led to the announcement, in December 2018, of the Punjab Energy Department's intention to convert the newly built Sahiwal power station from imported coal to domestic coal. This was followed by the cancellation in January 2019 of the 1 320 MW Rahim Yar Khan power station project, which was to rely on imported coal and was included in 2016 as one of the projects comprising the China-Pakistan Economic Corridor. The Pakistan government also plans to increase renewables' share of the country's energy mix from 4% currently to 30% by 2030.

South Korea, the third-largest importer of South African thermal coal, also has ambitious long-term plans to progress from nuclear and coal to liquefied natural gas and renewables. News agency Reuters reported in April 2019 that the South Korean government intended to increase the proportion of its energy generated from renewables to as much as 35% by 2040, about four times the current figure. The latest target follows a 2017 plan to increase the proportion of renewables in the energy mix to 20% by 2030.

According to the IEEFA, while South-East Asia is regarded as a growth area for the thermal coal industry, South African exporters are likely to face stiff competition in that market from their Australian and Indonesian counterparts, especially as producers in these two countries begin to experience a decline in import demand from North Asia.





Picture by Creamer Media

COAL LOGISTICS

The current logistics system for the delivery of coal to State-owned electricity utility Eskom and for export has been identified as one of the weaknesses of South Africa's coal value chain. Many commentators believe that the best way of dealing with this challenge should include addressing the overuse of road transport, which is the second-most-used mode of transport for the delivery of coal to Eskom's power stations after conveyor belts. Rail is a distant third, accounting for only about 10% of deliveries in 2015.

Eskom primary energy GM Dan Mashigo told *Engineering News* in December 2018 that, when it signed new coal supply contracts that involved the transport of the coal, it would actively encourage rail over road haul. He added that, over the next three to five years, Eskom aimed to divert half the 40-million tonnes currently transported by road to rail.

The utility had also started working on various solutions with Transnet, premised on the freight logistics parastatal providing new rail solutions developed on a 'build, operate and own' basis.

Meanwhile, Mashigo said Eskom was finalising a rail solution to redirect coal from the Medupi power station, in Limpopo – where a 15-million-tonne surplus has arisen as a result of construction delays – to the Kendal power station, in Mpumalanga. Eskom envisaged railing 1.40-million tonnes of Medupi coal to Kendal a year, and Mashigo explained that this option was deemed to be competitive, relative to Kendal's next best alternatives, owing to the surplus coal at Medupi being a sunk cost. However, the stocks at Medupi were not regarded as a primary or long-term source of coal for Kendal.

EXPORT CHANNEL

Transnet owns and operates the country's rail network, including the 81-million-tonne-a-year dedicated line that links the coalfields of Limpopo and Mpumalanga to the Richards Bay Coal Terminal (RBCT), in KwaZulu-Natal.

Transnet's Transnet Freight Rail (TFR) division intends to implement major infrastructure projects over the coming decade to boost capacity on the coal export channel. In 2018, 72.90-million tonnes of coal was railed, compared with 75.60-million tonnes in 2017, 72.59-million tonnes in 2016 and 73.93-million tonnes in 2015.

The envisaged infrastructure projects include the doubling of the Overvaal tunnel, south of Ermelo, in Mpumalanga, which has been a significant constraint to increasing coal exports. Currently, there is only a single line at the tunnel, and there is no alternative route that can be used in the event of a failure inside the tunnel, which has deteriorated significantly in recent years. TFR coal business unit GM Mandisa Mondli told delegates at the IHS Markit Southern African Coal Conference, in Cape Town, in February 2019, that the parastatal had decided to implement the project, which will involve the construction of an additional tunnel with two lines. She added that the design works and the specifications to go out to tender had been completed and that the tender would be floated once final approval had been granted. She said TFR expected the project to be completed by 2025.

It was previously estimated that the Overvaal project would increase coal export capacity from 81-million tonnes to



132-million tonnes. While Mondi did not provide an updated estimate, she stated that TFR was intent on creating increased capacity on the coal line, provided there was demand from the coal mining sector.

Also planned is a joint venture with eSwatini’s rail parastatal, which will entail the construction of a 150 km link from Lothair, in South Africa, to Sidvokodvoko, in eSwatini, that will relieve the coal line of almost all its general freight. This will enable the coal line to align with the coal handling capacity at the RBCT, initially from Mpumalanga, but progressively from the Waterberg and eventually from Botswana as well.

The project, for which a feasibility study has been completed and environmental permits and water-use licences secured, is expected to cost between R20-billion and R30-billion. TFR announced in January 2018 that a memorandum of understanding had been signed with the African Development Bank and South Africa’s State-owned Industrial Development Bank. A TFR spokesperson said in March 2019 that significant progress had been made on the project, with about 500 graves having been relocated from the planned line’s route on either side of the border.

Meanwhile, Transnet announced in February 2019 that it had resuscitated discussions with State-owned Botswana Railways concerning the construction of a rail link between the two countries that could unlock Botswana’s estimated 212-billion tonnes of coal reserves. Several TFR expansion projects that will feed into the construction of the Botswana link are at the execution stage. These include the upgrade of the existing line from Lephalele, in Limpopo, to Pyramid South, near Pretoria.

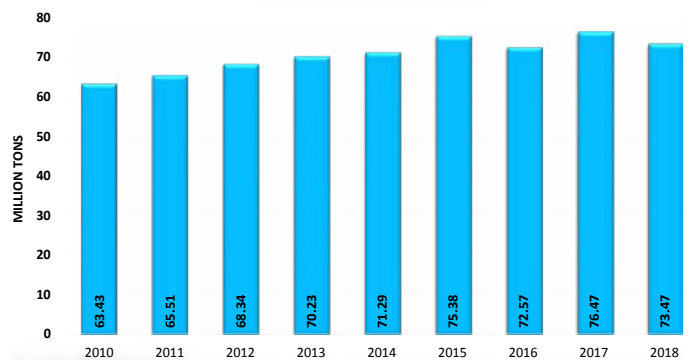
EXPORT TERMINALS

The RBCT, located in the deep-water port of Richards Bay, is 29.54%-black-owned and 5.62%-black-women-owned. It started operations in 1976. Following several expansion projects, its design capacity currently stands at 91-million tonnes a year, making it the second-largest coal export terminal in the world, after Australia’s Newcastle port.

While possible further expansion to 110-million tonnes has been investigated, no bankable feasibility study has been undertaken and there are no immediate plans to approve the project, which the RBCT says will be justified by demand and adequate rail capacity on the export coal channel.

The RBCT’s shareholders include African Rainbow Minerals Coal, Anglo Operations, Exxaro Coal, Glencore Operations South Africa, Ilima, Kangra Coal, Koorfontein Mines, Mbokodo,

Coal exports from the Richards Bay Coal Terminal



Source: Richards Bay Coal Terminal

Optimal Coal, Sasol Mining, South African Energy Coal (SAEC), South African Coal Mine Holdings, South Dune Mines, Tumelo Coal Mines and Umcebo Mining, as well as junior miners.

Three-quarters of the export allocation at the RBCT is controlled by Anglo Operations and Glencore (22% each), SAEC (20%) and Exxaro (11%). Although junior miners are entitled to four-million tonnes of capacity under the Quattro scheme, only about 2.50-million tonnes of this capacity was used in 2018, slightly more than in 2017, according to RBCT CEO Alan Waller. The Department of Mineral Resources and Energy is leading a process with TFR and Transnet National Ports Authority to include new junior participants and appoint a new administrator for the Quattro scheme.

While the RBCT has not undertaken any capacity expansion projects in recent years, it has invested significant sums in machinery upgrades, including the replacement of stacker reclaimers and shiploaders to achieve faster loading times. The R1.34-billion first phase of the initiative was completed in 2018. It included the installation of two new stacker reclaimers, which replaced 42-year-old machines, and two new shiploaders boasting rates of 98% to 99%. The rail-mounted stacker reclaimers operate at 6 000 t/h, while the shiploaders, also rail mounted, operate at 10 000 t/h.

Coal from South Africa is also exported from Richards Bay through Transnet Port Terminals’ Richards Bay multiproduct terminal and the Navitrade terminal, a joint venture between black-owned RBT Resources and JSE-listed logistics and shipping group Grindrod that caters for smaller coal companies.

Grindrod also owns and operates the Matola coal terminal, in the Mozambican capital city of Maputo, which exported 5.19-million tonnes in 2018, marginally lower than 5.20-million tonnes in 2017. The terminal’s existing capacity is 7.30-million tonnes.





Picture by MineRG

LABOUR

According to Minerals Council South Africa, South African coal mines directly employed 89 647 people in 2018, about 19% of all mining jobs in the country.

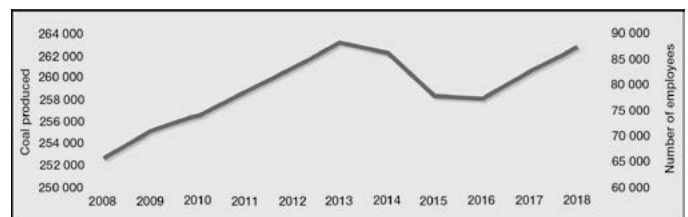
Independent coal-sector analyst Xavier Prevost estimates that the tally had increased to 92 933 by the end of March 2019. According to the Minerals Council estimates, two to three additional jobs are created for every coal mining job.

As mechanisation is quite advanced on South Africa's coal mines, workers in the sector tend to be more highly skilled than their counterparts in the deep-level platinum and gold mining sectors, with 70% having at least a matric certificate. They are, therefore, generally better remunerated, receiving a cumulative R24.70-billion in salaries and wages in 2018. The South African mining sector's employee profile has changed significantly since the transition from apartheid to democracy in 1994, with women's overall representation, for example, having reached 10.50% by 2014.

The decommissioning of coal plants (28 GW by 2040 and 35 GW by 2050), together with emission constraints imposed, imply coal will contribute less than 30% of the energy supplied by 2040 and less than 20% by 2050 the Integrated Resources Plan (IRP2019) states. Mineral Resources and Energy Minister Gwede Mantashe has noted, however, that "while coal's installed capacity will be lower than current installed base, it will remain the dominant energy supply contributing 59% of the energy volumes required to meet demand.

As coal-generated electricity's share of South Africa's energy mix is set to decline, many coal jobs are expected to be lost.

Coal production and employment



Source: Minerals Council South Africa

On average, 14 000 t of coal is required to generate 4 000 MW, and about 14 000 people – working for coal mines directly or occupying indirect jobs – are required to produce this amount of coal, according to Jeffrey consulting firm SRK Consulting principal geologist Lesley Jeffrey. The impact on jobs in the coal sector will thus be significant.

Nonetheless, early indications from a project initiated by the Council for Scientific and Industrial Research (CSIR) to model the socioeconomic risks and opportunities associated with the transition from a coal-dominated electricity industry to one that is increasingly based on renewables are that jobs across the coal value chain – from mining to manufacturing, operations and maintenance – will decline from about 287 000 in 2020 to about 183 000 in 2030, as a result of the decommissioning of some of State-owned electricity utility Eskom's power stations.

During the same ten-year period, it is envisaged that up to 246 000 solar photovoltaic and 344 000 wind energy direct, indirect and induced jobs will be created in construction, operation and maintenance.





Mechanisation is quite advanced on South Africa's coal mines

CSIR research group leader for the energy industry Ntombifuthi Ntuli told *Engineering News* in July 2019 that the modelling indicated that there would be a net employment gain of nearly 30 000 jobs in the electricity sector by 2030. However, should there be no policy interventions directing solar and wind energy project developers to build their plants in coal mining provinces, such as Mpumalanga, most of the new jobs would be created in provinces with superior solar and wind resources such as the Northern Cape. The implications for Mpumalanga, in particular, would be devastating, and could be akin to what happened to some municipalities in the Free State when gold mines started closing and mining jobs declined from 120 000 in 1993 to 38 000 in 2017.

In view of this potential eventuality, the CSIR intends to produce a national just transition action plan that adds spatial and socioeconomic dimensions to the IRP and provide an indication of what the integration of these components would mean for the wholesale electricity tariff. The science council explained that, for instance, the tariff sensitivity analysis might show that, while a project built in Mpumalanga would be more expensive, owing to the inferior solar and wind resources, compared with a site in the Northern Cape, the additional cost could be mitigated or entirely offset by the project's close proximity to established electricity grid infrastructure.

Meanwhile, South African coal mines are reportedly among the safest in the world, with the number of fatalities reported each year having decreased by 89% from 1933 to 2016. However, the fatality rate has been trending upwards in the past three years, increasing from four in 2016 to eight in 2017 and nine in 2018. On the contrary, there has been a decrease in the number of medical deaths reported by the coal mining sector to the Department of Mineral Resources and Energy (DMRE), with chief inspector of mines David Msiza announcing in May 2019 that only one such death was reported in 2017, down from two in 2016.

While there has been a decline in the incidence of occupational disease in the broader South African mining industry, the coal mining sector is facing a class action lawsuit, lodged in 2018 by former workers who claim they contracted coal workers' pneumoconiosis (CWP) – a chronic lung disease – while working on the coal mines. The workers, represented by human rights lawyer Richard Spoor, are assisted by the South African Catholic Bishops Council.

Spoor is also representing 22 former Sasol Coal underground mineworkers, who are seeking more than R80-million from the company in compensation for serious medical conditions – including CWP and chronic pulmonary disease – which they claim resulted from years of inhaling coal dust in the company's coal mines. The two diseases can eventually develop into progressive massive fibrosis, which reduces life expectancy.

The former mineworkers contend that, through dust sampling and measurement, Sasol Coal must have been aware of the quantities of coal dust to which they were exposed. They add that routine medical surveillance, had it been undertaken, would have established whether the mineworkers were at risk from the dust levels in the underground mines. They further state that, even if it was not negligent, the company should bear liability for their ill health and loss of income as a result of being unable to work.

In its defence, Sasol argues that the matter has prescribed, which means it is too late to bring it before a court of law, as a summons was served on the company in April 2015, more than three years after most of the workers had left the company. Sasol also states in its court papers that several of the former workers were dismissed after engaging in illegal strike action, that some received compensation once their condition was diagnosed, that the condition of some of them was not serious enough to warrant compensation and that, in some cases, the workers had previously worked at other mines, which may have aggravated their condition.

INDUSTRIAL RELATIONS

To avert strikes over remuneration – which are commonplace in South Africa – mechanisms that facilitate salary and wage bargaining are in place in many sectors. In the coal sector, bargaining takes place centrally, with Minerals Council South Africa representing mining companies and trade unions representing mineworkers. The latest round of bargaining was concluded by the Minerals Council with trade unions Solidarity and the National Union of Mineworkers in October 2017 and November 2017 respectively, ushering in three-year agreements.





ENVIRONMENTAL CONSIDERATIONS

Coal mining impacts on the physical environment in various ways. These include altering landscapes; the emission of dust, suspended particles and poisonous gases into the atmosphere; the decant of dirty water into surface water resources; and the degradation of soil fertility. Further, as the bulk of South Africa's coal resources occur below the water table, water must be pumped out on a constant basis, leading to acid mine drainage (AMD). Coal mines also use a lot of water – of which South Africa has limited resources – as the coal has to be washed after it has been mined.

In a report released in June 2019, environmental activist law group the Centre for Environmental Rights (CER) stated that it had evidence of gross violations by eight large coal mines in Mpumalanga of their water-use licences (WULs), leading to massive water pollution.

The mines are owned by Anglo American Coal South Africa, Glencore, South32, Exxaro Resources and Wescoal. Some of the companies insisted when approached by journalists for comment that they complied with their WULs, while others said they were still studying the report, which was undertaken on behalf of several environmental lobby groups.

The eight implicated mines – which collectively use about eight-million cubic metres of water a year – are located in the Upper Olifants catchment, which has been identified as one of South Africa's most stressed catchment areas in terms of water quantity and quality. The catchment hosts many operational and disused coal mines, as well as coal-fired power stations and AMD discharge sites, which contributes to the deterioration of the water quality in the area.

The CER stated in its report that the eight mines were able to continue violating their WULs because the Department of Human Settlements, Water and Sanitation lacked the capacity to effectively enforce compliance. It added that independent environmental auditors had failed to assess the mines' compliance with the licence conditions in an impartial manner.

Coal mines in South Africa and elsewhere, however, have been taking measures to mitigate their impact on the environment. These have included minimising waste production, preventing pollution at mine sites, lessening land-use impacts by reducing the overall footprint of a mining area and ensuring successful reclamation activities and mine closure.

These measures, however, have been deemed insufficient by environmental lobbyists, who have become more robust in their opposition to the development of coal mines in the country. For example, eight communities and civil rights organisations represented by the CER have been thwarting, through legal action, Indian company Atha-Africa Ventures' efforts to develop the Yzermyn coal mine, in Mpumalanga. Although the planned mine obtained approvals from various government departments, the High Court reversed those approvals, and its judgment was upheld by the Supreme Court of Appeal in July 2019. Atha-Africa has said it will lodge an appeal at the Constitutional Court.

Other coal mining projects that have been opposed by environmental campaigners include MC Mining's Makhado project, in Limpopo, which the campaigners successfully interdicted in 2014. The interdict, however, was reversed in June 2018. When the national Department of Mineral Resources



and the Limpopo Department of Economic Development, Environment and Tourism approved an application in September 2018 to amend the project's environmental authorisation to allow for the transport of coal to Musina by road rather than rail, the environmentalists immediately lodged an appeal, thus suspending the authorisation. The appeal was, however, dismissed in April 2019.

Environmental lobbyists are also opposing the planned Thabametsi and Khanyisa coal-fired independent power producer projects, to be located in Limpopo and Mpumalanga respectively. South African financial institutions that were among the power stations' initial financiers have indicated that they will be withdrawing from the projects, owing to the projects' expected impact on the environment.

Mineral Resources and Energy Minister Gwede Mantashe urged coal mining companies, in April 2019, to invest in clean coal technologies to lessen the impact of coal mining on the environment. These technologies include underground coal gasification and carbon capture and storage (CCS), which Minerals Council South Africa believes can be introduced in a way and within a timeframe that can enhance the competitiveness of the South African economy.

Progress is already being made with regard to the introduction of CCS in South Africa, with the South African National Energy

Research Institute having established the Centre for Carbon Capture and Storage, which is working towards having the country's first CCS plant operational by 2020. Further, Mantashe said at the Southern African Coal Conference, held in January 2019, that the Council for Geoscience had identified five basins in the country that could be ideal CCS sites.

Meanwhile, financial institutions, including those in South Africa, are becoming increasingly averse to lending to coal mining operations and coal-fired power stations.

South African financial institutions Standard Bank, Nedbank and First National Bank have all withdrawn from financing two planned coal-fired power stations in the country. At its annual general meeting in August 2019, Standard Bank adopted a policy requiring it to disclose lending to coal-related projects, thus enabling its shareholders to assess if the bank's position is sufficiently transparent and whether it adequately addresses the severe climate and financial risks posed by the financing of new coal-fired power infrastructure.

Standard Bank's new policy has, however, been criticised by responsible investment organisation Just Share, which argues that it does not express support for the goals of the Paris Agreement on Climate Change and does not acknowledge the role that banks have to play in facilitating the transition to a low-carbon future.





OUTLOOK

As the introduction of measures to curb the emission of climate-warming gases is increasingly becoming a major policy objective for governments, many countries are moving away from coal as a source of energy. However, there are indications of sizeable growth in coal-sector investments in Asia in the foreseeable future, thus offsetting divestments in other regions. The International Energy Agency (IEA) thus forecasts that demand for coal – which accounts for close to 40% of the world’s energy generation – will remain stable over the next five years.

According to the IEA, the most significant increases in coal use in Asia to 2040 will occur in India, Indonesia, Vietnam, Malaysia, Pakistan and the Philippines, which want to secure energy supply and underpin economic development.

However, in China, where coal accounts for 14% of primary energy generation, stricter environmental regulations and clean-air measures are expected to constrain coal demand.

The IEA predicts that consumption of the fossil fuel in the country will decline by about 3% over the next two decades.

Other regions where coal demand is forecast to decline significantly over the same period are Australia, where major producers, including BHP, have announced their intention to eventually divest from coal; Europe; and North America. Many European countries, which have been importing progressively smaller volumes of coal in recent years, have coal exit strategies, with Belgium having been the first to become coal free when it closed its last coal-fired power station in 2016.

The UK, Italy, Denmark, Austria, Ireland, Sweden, Finland, the Netherlands, Portugal and Germany are targeting phase-outs between 2021 and 2030.

Meanwhile, despite US President Donald Trump’s efforts to revive the country’s coal industry, statistics from the US Energy Information Administration (EIA) show that 23 400 MW of coal generation capacity was closed down in 2017 and 2018 – the first two years of Trump’s Presidency.

The EIA predicts that coal production in the US will decline by 21% over the next two decades. Canada, the US’s North American neighbour, has a coal phase-out target of 2030.

Russia is the only major economy with no intention to transition from coal to low-carbon energy sources, owing to concerns about the socioeconomic consequences of such a move, as some of the country’s regions are heavily dependent on the coal mining industry for employment and power generation.

According to the Ministry of Energy, the country’s government plans to spend about \$123-billion on the coal sector from 2012 to 2030.

In South Africa, President Cyril Ramaphosa said in his address to the United Nations Secretary-General’s Climate Summit in September 2019 that the mitigation challenge posed to South Africa was considerable, with about 80% of the country’s emissions coming from its energy sector, considering its heavy reliance on coal. He noted that while the country recognised the urgency with which it must reduce its dependence on fossil fuels and progress towards a carbon-



neutral future, the climate crisis could not be solved “outside of a development context”.

He noted that: “As part of ensuring a just transition we will need to put measures in place that plan for workforce reskilling and job absorption, social protection and livelihood creation, incentivising new green sectors, diversifying coal dependent regional economies, and developing labour and social plans as and when ageing coal-fired power plants are decommissioned.”

Meanwhile, the African Development Bank (AfDB) has launched a \$500-million initiative to assist African nations to shutter coal-fired power plants in favour of renewable energy.

The “green baseload scheme” will help African countries transition from coal and fossil fuel to renewable energy. It will be rolled out in 2020 and is expected to yield \$5-billion in investment.

The Integrated Resources Plan (IRP2019) and coal

The Integrated Resources Plan (IRP2019), which was released in October 2019, has stated that South Africa’s extensive coal deposits “cannot be sterilised because we have not explored technological innovations that could be deployed to use this resource in an environmentally sensitive manner”.

It further notes that in the foreseeable future, and beyond the Medupi and Kusile coal-fired power stations, coal will continue to play a significant role in South Africa’s electricity generation, as it is the biggest base of the installed generation capacity and it comprises the biggest share of energy generated.

As a result of the design life of the existing coal-fired power plants, and the abundance of coal resources, new investments will need to be made in more efficient coal technologies – such as high-efficiency low-emission (HELE) technology, including supercritical and ultra-supercritical power plants with carbon capture utilisation and storage (CCUS) – to comply with climate and environmental requirements.

According to the IRP2019, the position adopted by the Organization for Economic Cooperation and Development and financial institutions with regard to financing coal-fired power plants, is a consideration upon which the support of HELE technology is predicated. This will ensure that South African coal still plays an integral part of the energy mix.

The IRP2019 advocates that more funding should be targeted at long-term research into clean coal technologies, such as CCUS and UCG, as these will be essential in ensuring that South Africa continues to exploit its vast, indigenous minerals responsibly and sustainably.

Source: Integrated Resources Plan (IRP2019)

“Coal is the past, and renewable energy is the future,” AfDB president Akinwumi Adesina told delegates at the United Nations Climate Action Summit in September 2019. “For us at the African Development Bank, we’re getting out of coal,” he said.

Owing to the planned coal phase-outs, the IEA forecasts that the fossil fuel’s share of energy generation will decline from 40% currently to about 25% by 2040.

Owing to renewables expansion, consulting firm FocusEconomics stated in July 2019 that it expected Pacific basin benchmark coal prices to average \$85.70/t in 2019, 4.20% lower than its previous forecast. FocusEconomics, which based its assessment on an average of projections by 12 economic forecasters, says it expects prices to average \$81.60/t in 2020.

Meanwhile, market data firm Refinitiv expects the seaborne thermal coal market to be well supplied in 2019, with no significant changes in production across the major exporting countries.

Moreover, despite a new tax that favours gas-fired generation in South Korea, the restart of nuclear reactors in Japan – following the Fukushima disaster – and uncertainty concerning Chinese demand for imported coal, Refinitiv projects that the seaborne trade in 2019 will be at similar levels to those of 2018. This is due to strong demand growth in India and South-East Asia, where additional coal-fired generation capacity is being installed.

Nonetheless, the economic benefits of renewable energy are also increasingly influencing Asian energy policies, and South Africa’s coal export levels will in the long-term be decided by markets that reflect energy policies across Asia, and not those of South Africa as Institute for Energy Economics and Financial Analysis energy finance analyst Simone Nicholas argues.

This is particularly significant for South Africa as it is so dependent on India as a coal export destination. In 2018, 46% of all South Africa’s coal exports out of the Richards Bay Coal Terminal (RBCT) went to India, which has a clearly stated policy aim of reducing its reliance on coal imports. The Indian government’s latest proposal is to cut coal imports by 85-million tonnes by 2024.

South Africa can also not expect other markets to rescue its coal exports either. Export growth to Pakistan is constrained, with most of the power plants that operate on imported coal already built and a significantly stepped-up renewable-energy policy having been drafted. South Korea has also clearly stated its goal to reduce its reliance on coal.





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COAL 2019

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