

REAL ECONOMY INSIGHT: COAL

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Coal market

The past few years have been challenging for the global coal industry. It has shown significant financial underperformance since 2011, with the dramatic decline in prices for thermal and metallurgical coal the most arresting aspect.

Thermal coal

For several years, the aim of coal producers was to expand production. New capacity was continuously

being added, with demand led by China, which consumed every surplus tonne.

However, since 2011, an oversupply of coal and low prices have dominated.

Coal prices have halved over the past few years as a result of rising output from exporters, including Australia, Indonesia, South Africa, Colombia and the US, and sluggish demand from industrialised and emerging markets.

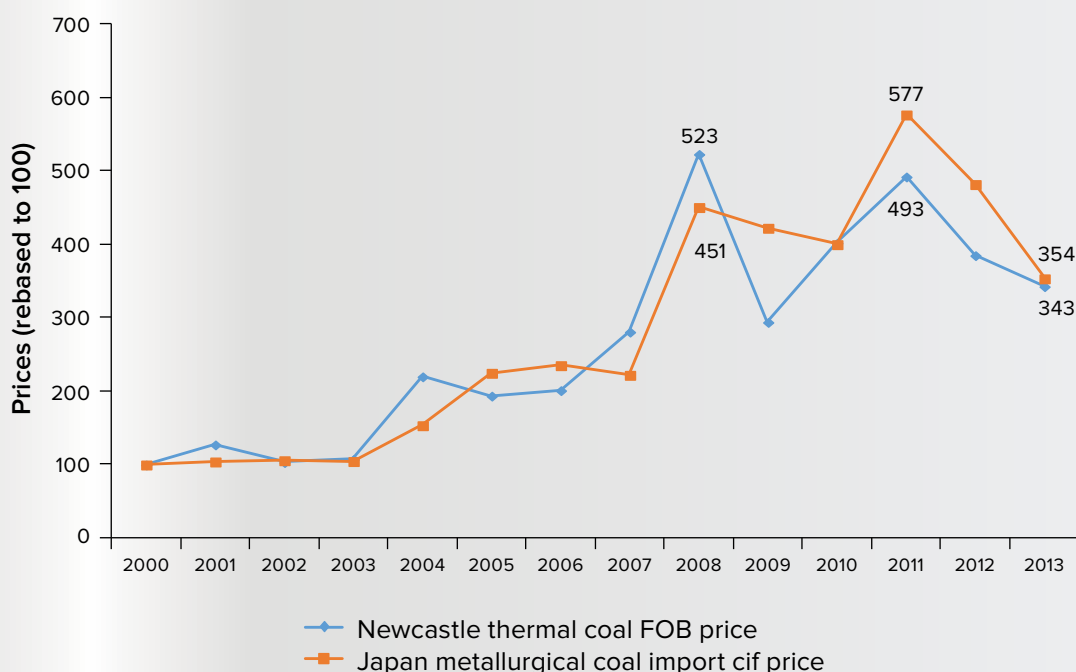
Why thermal coal prices are under pressure

Although many bulk commodity prices are under pressure, the specific causes vary by market. Thermal coal prices are under pressure owing to:

- growth in coal demand slowing because of more efficient energy use;
- competition from other energy sources, such as gas;
- regulations to limit air pollution from coal; and
- robust supply growth, as projects undertaken in response to high prices of a few years are beginning to produce.

The reasons cited above also apply to metallurgical coal prices, where prices have also dropped more than 40% since 2011.

Comparing trajectories of thermal and metallurgical coal prices (prices rebased to 100)



Source: BP, Bloomberg LP, CTI/ETA analysis 2014

The global market for seaborne thermal coal, or hard coal, which is used mainly to generate power, was expected to be oversupplied by an estimated ten-million tonnes in 2014, keeping prices below profitable levels for most coal producers and forcing some mines to close. Some producers locked into infrastructure supply services have increased production to lower unit costs, which might have deferred the decision to reduce capacity or close down operations.

While exact numbers are difficult to obtain, analysts agree that surplus coal will remain a problem in 2015 and 2016. French bank Société Générale, however, expects surplus production to drop to about seven-million tonnes in 2015 and to five-million in 2016, as Chinese and Indian demand strengthens. Bank of America Merrill Lynch forecasts that the surplus will continue to trouble the market until producers curtail output further, probably in 2016.

The Australian Bureau of Resources and Energy Economics (BREE) contends that the delayed closure of unprofitable capacity is expected to prolong the supply overhang into 2016/17 and to continue placing downward pressure on prices. Lower prices will diminish the incentive to invest in new capacity and ultimately force less competitive operations to close. Beyond 2017, thermal coal prices are projected to increase as demand increases, supply growth eases and the market balance tightens.

In line with higher consumption, world trade in thermal coal is expected to increase at an average yearly rate of 2.8% to 1.24-billion tonnes in 2020.

Metallurgical coal

Metallurgical coal prices were relatively stable in 2014, in contrast to other bulk commodities, indicating that the market was closer to equilibrium during the year. Nonetheless, many metallurgical coal operations were operating at a loss at the prevailing prices, which forced several mine closures, particularly in the US and Australia.

BREE estimates that world production has decreased by 25-million tonnes, or about 2%, in 2014. Those producers that continued to operate implemented initiatives to reduce costs and improve profit margins. The appreciation of the US dollar, compared with the currencies of large producers and declining fuel prices, however, has eased some of the financial pressures. This promoted price competition among some suppliers and played a role in declining spot prices in early 2015.

BREE contends that from 2016, however, the market balance will tighten as growth in steel production in China and India increases and the protracted period of oversupply comes to an end.

World trade of metallurgical coal is forecast to increase by 2.3% to 316-million tonnes in 2015, with China projected to represent the bulk of the growth in import demand and Australia in export supply. With world steel production expected to increase, world trade in metallurgical coal is forecast to increase at an average yearly rate of 1.1% to 334-million tonnes.

The role of coal in the generation of electricity

The advancement of electricity generation capacity in developing economies is crucial for economic growth and development. While all existing technologies are being considered to meet the demand for electricity, new capacity under construction, or that has been approved for development, shows that coal-fired generation is likely to continue to be a primary source of electricity generation in future. This is because the technology is established and reliable, with coal being low-cost and, for the most part, readily available in most regions.

Although coal-fired generation is expected to increase over the medium term, many of the new projects being developed are based on modern supercritical or ultrasupercritical technologies. These plants emit less carbon dioxide and other pollutants in comparison with other technologies.

As a result of South Africa's abundant coal reserves, including those in the Waterberg basin, in Limpopo, and the existing capital invested along the coal value chain, South Africa is likely to continue to include coal as part of its energy mix.

The role of coal in South Africa's economy

Coal plays a significant role in the South African economy and is the principal energy source for electricity production. It is also the raw material for the production of a large percentage of the country's liquid fuels, and offers a considerable source of foreign revenue from exports.

Coal accounts for about 72% of South Africa's primary energy consumption. Most of the country's electricity supply is sourced from coal-fired power plants, with two such large-scale plants – Medupi, in Limpopo, and Kusile, in Mpumalanga – currently under construction, and a third coal-fired power plant under consideration.

Exxaro's Grooteegeluk Medupi expansion project (GMEP) will supply 14.6-million tonnes of coal a year to the Medupi power station.

In January 2014, Eskom formally informed Exxaro that it would not be able to begin offtake from February 1, 2014, as initially agreed, owing to construction delays at the Medupi power station. An agreement was subsequently reached and approved by both parties' respective boards in the third quarter of 2014, resulting in the ninth addendum to the original coal supply and offtake agreement. First coal was delivered to Medupi power station in July 2014. GMEP delivered 3.1-million tonnes of coal to Eskom in 2014, as per the coal supply and offtake agreement.

Meanwhile, Eskom signed a memorandum of understanding (MoU) with Anglo American Inyosi Coal – a black economic-empowerment (BEE) company held by Anglo American (73%) and the Inyosi Consortium (27%) – in November 2014, to supply coal from the New Largo mine, in Mpumalanga, to the Kusile power station.

The deal was signed to re-instate the process of concluding a coal supply agreement, following a breakdown that required a high-level intervention from both companies to salvage the deal. It is believed that

Eskom's 51% BEE ownership stipulation for the project was central to negotiations stalling.

The New Largo contract has been under discussion between Anglo and Eskom for at least seven years. Eskom's former CEO Brian Dames said more than a year ago that the issue was Eskom's insistence that Inyosi Coal be restructured as a black-controlled company.

It is 27% black-owned by a consortium including Pamodzi Holdings and Lithemba Investments.

Eskom said the MoU paved the way for the two companies to "negotiate and conclude the commercial and technical aspects of the project . . . while . . . engaging further on the strategic empowerment imperatives and objectives to achieve the Public Finance Management Act conditions, which were part of the approval process from the Department of Public Enterprises".

It is understood that the technical issues relate to the finalisation of the mine plan, which will inform the cost of the project and, in turn, the commercial terms of the eventual supply agreement.

Although Eskom can source smaller amounts of coal on short-term agreements, the conclusion of a substantial



Picture by Duane Daws

The Carbon Tax Bill

The South African government is proposing the implementation of a carbon tax of R120/t of carbon equivalent as from January 2016. The tax had initially been scheduled for implementation in January 2015, but was postponed by a year to allow for further consultation.

Many countries that have introduced a carbon tax or are intending to introduce a carbon tax are far less carbon intensive than South Africa. South Africa's dependence on coal causes the electricity sector to be responsible for an estimated 48% of South Africa's carbon emissions.

While South Africa's economy is relatively carbon intensive, it is not exceptional in terms of energy intensity because coal emits far more carbon than other fossil fuels. As a result, a carbon tax would have a much greater economic impact in South Africa than in other countries.

A draft Carbon Tax Bill is expected to be published for public comment later this year. This will be a culmination of discussion papers released by the National Treasury for comments in 2010, 2013 and 2014.

Source: *Engineering News* and PwC – The case against introducing a carbon tax in South Africa

long-term coal supply agreement for the power station has become a matter of increasing urgency.

Anglo American Inyosi Coal has secured all the necessary permits for New Largo, but construction has not yet begun. Reports have indicated that Eskom is not expected to receive its first coal from New Largo until 2017. The first synchronisation of Kusile Unit 1 is scheduled for the first half of 2017.

At full capacity, the three power plants will add more than 10 000 MW of additional coal-fired power to the grid.

State-owned power utility Eskom is the largest consumer of coal in South Africa, buying about 125-million tons a year of the estimated 250-million tons of coal produced locally.

For several years, coal industry players have increasingly referred to Eskom's projected 'coal supply cliff', which could result in yearly shortfalls of between 40-million tons and 60-million tons of coal after 2018. It is estimated that between five and ten new mines, costing between

R60-billion and R90-billion, will be required to offset the shortfall in demand.

Despite advancements to diversify its energy mix, coal is set to remain an integral source of Eskom's power-generating capabilities in the coming decades. Eskom believes that 120-million tons a year of new mine capacity needs to be available in the next five years.

The utility reported in mid-2014 that it had contracted 1.37-billion tons of the coal it would need over the next 35 years, and that another 2.1-billion tons remained uncontracted.

Most of the coal is sourced from the coalfields around Emalahleni and Middelburg, in Mpumalanga, where the majority of the power stations are located. However, after more than a century of mining, production is expected to drop sharply over the next 10 to 20 years. Eskom also estimates that about one-billion tons of coal cannot be sourced from Mpumalanga, owing to its coal-quality requirements.

In May this year Public Enterprises Minister Lynne Brown indicated that Eskom faced a 17-million-tonne coal shortfall by 2017 at its coal-fired power plants. The shortfall is expected in 2015, at the Matla, Tutuka and Hendrina power stations, in Mpumalanga. The Kriel and Arnot power stations also located in Mpumalanga are expected to be affected in 2016. The focus is thus increasingly turning to the coalfields of the Waterberg area, in Limpopo.

A yet-to-be released report by the Council for Geoscience on South Africa's coal reserves and resources, which BDLive quoted in April 2014, states that the Waterberg accounts for 48.3-billion tonnes, or 72%, of the country's total estimated coal reserves and resources of 66.6-billion tonnes as of November 2011.

This, according to the news article, compares with 15.5-billion tonnes, or 28%, of the total estimate of 55.3-billion tonnes estimated in 1987 when the last assessment was done.

The Witbank/Ermelo/Highveld coalfields are estimated to contain 12.4-billion tonnes of coal, compared with the 7.5-billion tonnes that has been mined since 1987.

Although the report does not comply with the South African Mineral Resource Committee reporting standards, it does, however, raise the question of whether the focus on power station coal should not rather be on the coal closer to Eskom's power stations.

Owing to coal qualities in the Waterberg differing from those in Mpumalanga, Eskom is conducting tests to determine what impact the use of Waterberg coal will have on its power stations.

It is unclear how much coal will be allocated to domestic electricity generation in future, rather than exported.

Using coal in other applications

Coal is used in South Africa in thermal applications, such as industrial boilers and households, by the cement industry, and in metallurgical applications.

Based on past trends, it is unlikely that thermal coal use in these markets will change significantly, but demand for energy in such applications might grow. This is likely largely to be met by other energy sources such as gas.

Further, South Africa's proposed carbon tax will make it more cost effective for industries to source alternative fuels, which could possibly result in a gradual decline in coal use in some industries. This does, however, represent a relatively small component of the overall demand for coal in South Africa.

Using thermal coal in applications other than in local non-Eskom use is currently about one-quarter the size of thermal exports, so a decline in local thermal coal could result in increased exports. Coal in metallurgical applications, meanwhile, is dominated by iron, steel and ferroalloy production; the coal in these applications is not as easily replaced as in thermal uses, as it is part of the refining process, acting as a reductant. The potential future of coal in these industries is, therefore, closely connected to commodity growth trajectories.

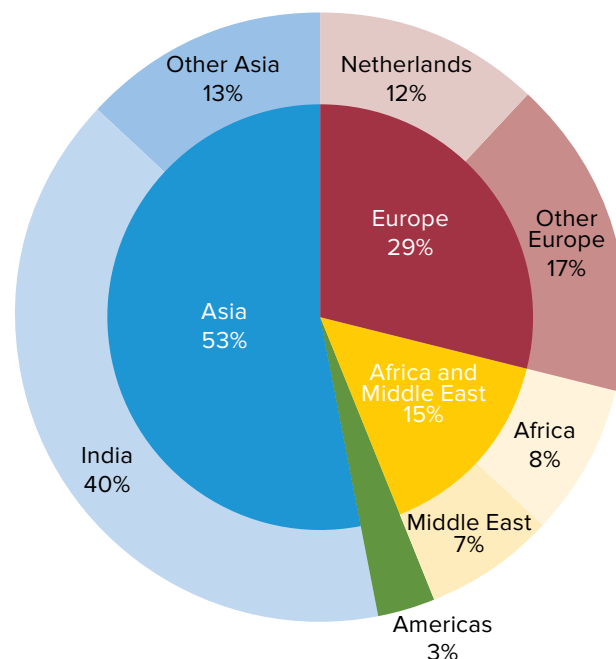
South African exports

South Africa currently exports 25% of its coal production. According to the US Energy Information Administration, the country exported 78-million tonnes of coal in 2014, with Asia receiving more than half of the exports. India was the main destination, which accounted for 40% of South Africa's coal exports.

Europe was the second-largest regional importer of South Africa's coal, followed by Africa, the Middle East and the Americas.

The lack of railway infrastructure to transport coal from the mines to the ports is significantly hampering South Africa's ability to increase its coal exports

**South Africa's coal exports
by destination 2014**



Source: US EIA

The bulk of South Africa's coal exports are undertaken through the Richards Bay Coal Terminal (RBCT), located at one of the world's deepest seaports, on the north coast of KwaZulu-Natal. Officially opened in 1976, with a capacity of 12-million tonnes a year, the RBCT has developed into one of the world's largest coal export terminals, with a capacity of 91-million tonnes year. It is a 24-hour operation boasting a 2.2-km-long quay with six berths, four shiploaders and a stockyard capacity of 8.2-million tonnes.

The terminal's current export capacity was the result of the Phase V expansion, completed in 2010. The coal terminal is expected to undergo a further 19-million-tonne-a-year expansion to increase its capacity to 110-million tonnes a year to accommodate junior miners.

The country's major coal mining companies dominated the exports through the terminal for years, as it was built by shareholders for their exclusive use. However, in 2004, the RBCT started the Quattro programme, making an initial one-million tonnes a year of capacity available to junior black economic-empowerment coal producers to facilitate access to the coal export market.

This capacity was ultimately escalated to four-million tonnes a year and allocated to 23 junior miners through the programme. The four-million-tonne allocation was in addition to the 15-million tonnes a year allocated

to emerging black export miners, including the three-million tonnes a year allocated to State-owned power utility Eskom.

The RBCT's expansion plans are a response to government's granting of large numbers of prospecting rights to prospective junior start-ups and the call for more capacity allocation for junior miners, which follows State freight and logistics group Transnet's criticism in 2013 of the RBCT not providing access for small, black-owned coal miners. "They are refusing to allow the small guys to take coal through the port. It's a problem that confronts us as a nation. Their [RBCT's] defence is they have already allowed enough [coal] . . . through Quattro, and have done BEE deals. All we know is there are a lot of small guys who are asking Transnet to fight for them," then acting Transnet CEO Brian Molefe said at the time. It was for this reason that Transnet subsequently suggested that it was likely to proceed with building its own coal export terminal, also to be situated in Richards Bay, to serve "the small guys".

Transnet shelved these plans in 2014, after an industry agreement was struck with the major players for the coal export capacity of Quattro to be doubled from four-million tonnes to eight-million tonnes to benefit small black junior miners.

RBCT CEO Nosipho Siwisa-Damasane pointed out at the time that there were various advantages associated with RBCT's expansion as opposed to the construction of a completely new terminal, such as the availability of existing berths and infrastructure that would lead to lower costs. She explained that RBCT had two existing berths available that no greenfield developer would have, stating that it was the "heaviest" investment associated with the creation of an export terminal.

However, the parties have agreed that key to any new development would be Transnet's agreeing to increase its rail capacity to ensure that it matches port expansion.

The RBCT exported 71.3-million tonnes of coal in 2014 – the highest volume ever. While representing an improvement on the previous year's 70.2-million tonnes, this is far below the terminal's current export capacity of 91-million. The gap between actual exports and the terminal's nameplate capacity has been attributed to inadequate capacity on the coal rail line. The planned capacity increase on this line is expected to go a long way towards addressing this issue.

Besides the RBCT, South African coal producers also export small quantities of coal through the Richards Bay dry bulk multipurpose terminal and the Durban port.



Picture by Duane Daws

Transnet has spent R80-million to develop coal export capacity at the Port of East London, catering for product from the now beleaguered Eastern Cape coal mining company Elitheni Coal.

Transnet reported in June 2014 that the facilities installed to handle coal exports at the Port of East London would be used to handle other commodities and that it would move the coal terminal to the Port of Ngqura, near Port Elizabeth, in five years.

South African coal is also exported through the Maputo cargo terminal and the Matola coal terminal, in neighbouring Mozambique. The coal that is exported through Maputo is from companies that cannot secure an export allocation at the RBCT.

Some commentators believe that regulatory uncertainty is a key factor holding back investment in the coal sector, especially the proposal from government that coal be declared a strategic mineral, which could result in the commodity being subjected to price or export

restrictions. This proposal, along with many others, is contained in the Mineral and Petroleum Resources Development Act Amendment Bill, which President Jacob Zuma sent back to Parliament for further review in January 2015. The issue remains contentious, with commentators warning that the proposal has added a layer of uncertainty that could lead to much-needed investment in the local coal mining industry being delayed or withheld.

Eskom has been advocating for government to declare coal a strategic mineral, having raised concern about growing competition from countries, such as India, for the low-grade coal produced in South Africa that is mostly used at its power stations. Declaring coal a strategic mineral will enable Eskom to shore up domestic supply ahead of export.

In supporting its argument to have coal declared a strategic resource, Eskom says the cost of producing electricity is unnecessarily exposed to international coal market prices.



Picture by Duane Daws

The power utility believes that the price of domestic coal should be based on efficient production costs and a risk-adjusted return, instead of being based on export parity prices, a market price or a global coal price.

Outlook

According to the International Energy Agency's annual 'Medium-Term Coal Market Report', released in December 2014, global demand for coal in the next five years will continue to increase, breaking the nine-billion-tonne level by 2019, driven largely by Asia. The supply overhang, however, is forecast to persist and contribute to lower prices.

XMP Consulting senior coal analyst Xavier Prevost has warned that quick action is needed to prevent the collapse of the global coal sector. While coal prices in South Africa are very good and getting better, Prevost has indicated that export coal is barely managing to fetch \$60/t, down from as much as \$200/t in the past.

Shava Mining Enterprise MD Andrew Kinghorn told the Fossil Fuel Foundation conference in May this year that the export price of coal falling below the domestic price was indicative of State utility Eskom having to pay a lot more for coal than in the past.

Nonetheless, coal is expected to remain South Africa's primary energy source for some time.

MinGeoMet International mining engineer Grant Pitt, who chaired the first round of the Fossil Fuel Foundation conference, has called for a task team to be created to ensure that the junior coal mining sector can be developed locally. He contends that the mere granting of large numbers of prospecting rights to prospective junior start-ups has not succeeded in developing junior coal mining companies, despite coal being assured of a strong place in South Africa's energy mix for the next half century to a century.

Prevost has indicated that a negligible volume of the 333.6-million tons of run-of-mine coal that South Africa produced last year was generated by junior coal miners. Meanwhile, the reality is that a developing country like South Africa needs the low-cost energy that coal provides, but investors are fighting shy of coal, which is slowing growth to 2% a year until 2019.

Production from existing mines is limited and there is expected to be an imbalance between supply and demand over the next ten years.

The Waterberg coalfield, however, contains an estimated 40% of South Africa's remaining coal resource and is considered to be the main source of coal in the future.



Picture by Duane Daws

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