

DEVELOPMENTS OF THE COAL INDUSTRY DURING 2009

In South Africa, two major projects are driving an increase in production of coal the expansion of the Richards Bay Coal Terminal (RBCT) from 72Mtpa to 91Mtpa and the growth in Eskom demand of about 70Mtpa required to meet future demand for power generation. The plan for more coal-fired power generation has already led to the approval of a new mega-mine project and is driving plans by the smaller mines to sell their non-exportable production as local steam coal. The RBCT Phase V project has resulted in the revival or birth of almost 30 coal projects. The expansion will become effective by mid-2009. The 19Mtpa coal export capacity increment will be divided into three portions; 9Mt for RBCT (Table 2), 6Mt for South Dunes Coal Terminal (SDCT) and 4Mt already allocated by RBCT to new coal exporters (Table 3), grouped as the Coal Industry Task Team (CITT). The challenge for the Alexander Forbes task team, commissioned by RBCT was to distribute of the 9Mt portion of allocated coal export tonnage between the many applicants, whose total export coal requirement was 19Mt. The oversubscription has stimulated RBCT to consider a potential Phase VI expansion, beyond the 91Mtpa. A study has been launched, to assess the need for the extra tonnage.

In 2006, the Amsterdam-Rotterdam-Antwerp (ARA) CIF price of steam coal imported by EU countries averaged \$63.92/t, an increase of 4.6% from the level of \$61.13/t in 2005. The first semester of 2007 average of \$71.77 was above the 2006 average 12.3%. The June 2007 ARA CIF price of \$77.10 was very close to the July 2004 all-time high of \$77.87 (Fig 1).

In 2006, coal continued to be world's fastest-growing fuel with a year-on-year increase of 4.5% in consumption compared with 2005.

The International Energy Agency (IEA) says: "World hard coal production continued to show strong growth in 2006 after three years of record growth. Total world hard coal production reached 5 369.8Mt, an 8.8% increase (or 435.8Mt) over the 2005 level of 4 934Mt, which follows three years of strong annual growth averaging 8.3%, driven by growth in production from the non-OECD (Organisation for Economic Co-operation and Development) countries with a 12% growth in 2006, following three years of annual growth averaging 12%. Among the major producing countries, production increased in China, Russia, India, Indonesia, Kazakhstan, Vietnam and Colombia. During the last three years, the OECD's hard coal production steadily increased and reached a new production peak of 1 510.1Mt in 2006. The United States and Australia are the main drivers of this increase, together with Turkey, Norway, Mexico and New Zealand where much smaller increases in production took place. It is to be noted that most of the other OECD countries experienced declining production, especially Germany, the United Kingdom, Poland and Canada."

In 2006, South Africa's production decreased by 0.2 Mt (0.1%) and exports by 2.7Mt (3.8%) but due to very high international prices, revenue increased by 590 million Rand or 2.8%.

The international coal price hit its highest level of \$77.87 in July 2004; prices have remained high although subject to seasonal fluctuations (Fig.1). RBCT's FOB prices have been maintained at levels above \$50/t. The latest trading price for June 2007 was \$58.55/t (Fig.3). This has prompted more local coal miners to be exporters.

According to the IEA, the European region only had seven producers. Total European coal production was 130.2Mt, a decrease of 7,3 percent compared with 2005. The European production has been declining since 1995. Annual South African imports to the region continued to increase in 2006 to more than 88 percent of the total country exports (Fig. 2).

The 4 Mtpa of export allocation for the CITT (period 2007 to 2008) was given to 16 BEE companies (Table 2). Some of these companies were also selected for RBCT's Phase V expansion (Table 3). It is expected that portions of CITT's 4Mt released by the BEEs moving to RBCT's Phase V, from 2009, can now be used for new entrants into the coal export industry.

Since their introduction into the coal mining industry in 1997, the importance of BEE companies in coal production and exports has increased. With the creation of Exxaro, the largest of these companies, they now control more than 40% of the country's coal production and Exxaro, with a potential production of 70 Mt/a, promises to become the largest South African producer (Table 2.). In future, the RBCT Phase V expansion will allow more producers to export through the terminal.

In 2006, South Africa's run-of-mine (ROM) coal production was 312.5Mt, 6.5Mt more than 2005. Some 245Mt of this production were of saleable quality. ROM output by coalfield, was; Witbank 174Mt, Highveld 70Mt, Waterberg 36Mt, Free State 19 Mt, Ermelo 11 Mt, Kliprivier 1.5 Mt, Nongoma 0.7 Mt, Vryheid 0.6Mt, Soutpansberg 0.3Mt and Kangwane 0.01Mt. (Fig. 4).

The Witbank Coalfield remains the largest producer followed by the Highveld Coalfield, both in the Central Basin. They produced more than 80% of the total country's output for 2006.

In 2006, almost 90% of the saleable coal production was supplied by mines controlled by the five largest mining groups, viz. Anglo Coal BHP Billiton, Sasol, Exxaro and Xstrata (Fig 5.). Coal mines discarded 70 Mt of waste or unsaleable coal.

As a result of the establishment of larger BEE mining companies, such as Exxaro, Shanduka and African Rainbow Minerals (ARM), a greater shift to BEE ownership is expected (see Projects 2006 – 2007 on p. 6).

In 2006, Mpumalanga's total coal production (50 mines) represented more than 84% of the total ROM coal; while Limpopo Province's two mines produced 8%, the Free State's two mines 7% and KwaZulu-Natal's six remaining mines only 0,8%.

During 2006, opencast mines provided 53% of the total ROM production. The remaining 47% was produced by bord-and-pillar (38%), stooping (5%) and longwall (3%). The 10 largest collieries, with an output of more than 12 Mt/a each, produced 204 Mt; 22 middle-sized mines (more than 2 Mt/a), produced 87 Mt; and 28 small mines (with less than 2 Mt/a) produced 21 Mt. The five anthracite collieries produced 2,3 Mt (Table 5). The coal-mining industry's labour force increased in 2006, from January to December, from 53 000 to 55 000 workers.

In 2006 South African coal was exported to 28 countries of which 88% went to the European Community, where Great Britain, Spain, France, the Netherlands, Italy, Germany, Denmark and Belgium were the largest customers. South Africa's coal exports to Europe increased by 1% and exports to the Middle and the Far East remained at 7% of total exports. There are prospects that South African steam coal exports to Asia might further increase as demand for South African coal is growing in from India.

In 2006, 66.5 Mt of coal were exported through the RBCT. The export throughputs of Durban and Maputo terminals, were 1,3 Mt and 1,0 Mt respectively.

During 2006, 245 Mt of saleable coal were produced (Table 4), of which approximately 28%, valued at R21,5billion, was exported at an average price of R314/t (3,4 times higher than the average inland price). The remaining 72% sold inland (177Mt) was worth R16,2billion. The electricity sector consumed 108.7Mt and the synthetic fuels sector used 43.7Mt (Fig 60). The industrial sector, including mining, consumed 10.4Mt, the metallurgical industry used 5.7Mt and merchants bought 8,4 Mt.

The summary of the book, "*The Future of Coal*" produced by the Massachusetts Institute of Technology's (MIT) Coal Energy Study Committee says: "We believe that coal use will increase under any foreseeable scenario because it is cheap and abundant. Coal can provide usable energy at a cost of between \$1 and \$2 per MMBtu compared to \$6 to \$12 per MMBtu for oil and natural gas. Moreover, coal resources are distributed in regions of the world other than the Persian Gulf, the unstable region that contains the largest reserves of oil and gas. In particular the United States, China and India have immense coal reserves. For them, as well as for importers of coal in Europe and East Asia, economics and security of supply are significant incentives for the continuing use of coal. Carbon-free technologies, chiefly nuclear and renewable energy for electricity, will also play an important role in a carbon-constrained world, but absent a technological breakthrough that we do not foresee, coal, in significant quantities, will remain indispensable. However, coal also can have significant adverse environmental impacts in its production and use. Over the past two decades major progress has been made in reducing the emissions of so-called 'criteria' air pollutants: sulfur oxides, nitrogen oxides, and particulates from coal combustion plants, and regulations have recently been put into place to reduce mercury emissions. Our focus in this study is on approaches for controlling CO₂ emissions. These emissions are relatively large per Btu of heat energy produced by coal because of its high carbon content."

"We conclude that CO₂ capture and sequestration (CCS) is the critical enabling technology that would reduce CO₂ emissions significantly while also allowing coal to meet the world's pressing energy needs."

The main industry issues in South Africa in 2007 and 2008 ought to be:

- Finding and prospecting new blocks of coal reserves, to replace the existing collieries, due to close soon or before the year 2020. The bulk of the existing reserves (Fig 7) is still, within the coalfields of the Central Basin (Highveld, Witbank and Ermelo coalfields). The need for new

reserves and mines is to supply more coal exports to the RBCT and more coal to the inland industry, mainly for power generation and other local users in South Africa;

- Implementation of new coal-combustion technologies, to suppress emissions and comply with the new, more stringent environmental laws;
- Search, within the non-productive South African coalfields, for technology to allow the recovery of carbon contained in the coal seams;
- Co-operation with neighbouring countries to utilise their coal resources, either for power generation, or for the metallurgical industry.

Exports to our main customer market, Europe, will continue to be the main source of revenue for the South African mines. It is expected that environmental laws, in the country and elsewhere, will not become an obstacle for the industry to achieve its goals in the future.

Far and Middle East markets are potential areas for growth, and SA producers are expected to increase exports to these regions. A number of Indian companies are presently searching for partnerships or to invest in South Africa's coal industry, to supplement existing supplies.

Eskom's new power generation plants, equipped with the latest combustion technologies, will be much more expensive to run. However, it is expected that the planned electricity price hike, will not be so high that it will affect the standing of the country as the cheapest energy producer in the world.