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COVER STORY

Cover story 1 - Coal

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Use it or lose it

Charlotte Mathews | Thursday, 3 Nov 2011

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The idea that SA's coal industry needs a co-ordinated "road map", or long- term plan, was first aired four years ago by a handful of its top executives — Eskom's Steve Lennon, Exxaro's Sipho Nkosi and Anglo American's Roger Wicks.

It has taken three years, and some energetic problem-solving, to reach a point where the first report of the SA Coal Road Map project is about to be released. The report will help the country plan what to do with its coal deposits over the next few decades.

It's a vital industry. In 2009, according to Chamber of Mines figures, coal became the country's largest mining activity, generating R65bn in revenue against R49bn from gold, the mineral that has always distinguished SA in the world's eyes.

The team, organised by the Fossil Fuel Foundation, an industry think-tank, had to overcome issues such as the coal companies' desire to keep market-sensitive data confidential, and possibly breaching the Competition Act, if they shared information.

In 2008 the department of minerals & energy was split into two , one department focusing on minerals, the other on energy. While key staff were moved around, the project had to wait.

It had a relatively modest budget of about R4m, which would have been enough if the participants had contributed their data. But that didn't happen and a lot more legwork was needed. The project will need more funds for the second phase.

"Bit by bit we had to accumulate the information we needed," says steering committee chairman Ian Hall. But as the project evolved, the levels of communication and co-operation improved.

“We attracted a number of people who wanted to be included,” Hall says. “The road map’s stakeholders now represent a big cross-section of the industry.”

The need for long-term planning in the industry was highlighted by government’s recent release of its IRP2 strategy for SA’s future electricity generation mix. The target under the IRP2’s “balanced scenario” is to have 48% of SA’s energy come from coal by 2030 compared with 93% now.

For Greenpeace SA, even that is too much. A report commissioned by the organisation entitled “The True Cost of Coal” and released last week says the externalised cost of the Kusile coal-fired power station (mainly the effect on water sources) would be about R60,6bn /year. That is equivalent to about 97c- R1,88/kWh , which means the indirect costs of the station are at least a third more than the 65c/kWh that Eskom’s customers will pay in 2012/2013.

Eskom declined to comment on the Greenpeace report but referred to its previous statements on climate change and pollution control. It has a “six-point plan” to contribute to global efforts to combat climate change, including reducing its reliance on coal over time, installing clean coal technologies at new coal-fired power stations, improving its own and its customers’ energy efficiency and researching other ways to reduce carbon emissions.

Greenpeace’s view is obviously not shared by the mining industry, or parts of government, which feel SA is not extracting as much value from its coal endowment as other countries.

Most of SA’s coal is thermal, used in power stations, and it has relatively small quantities of coking coal, which is used in steelmaking. There are also scattered deposits of anthracite, a higher-value type of energy coal.

Latest data from the department of mineral resources shows SA ranks fourth-largest in the world in its coal reserves of 30,4bn t but seventh-largest in production, at 250,6Mt in 2009. At current rates of extraction, SA has about 40-50 years of coal supplies.

Hall told last month’s SA National Energy Association (Sanea) conference that the last authoritative estimate of SA’s recoverable coal resources was carried out in 1982, suggesting the country had 59,2bnt . In 2009 the figure was adjusted for depletion to an estimate of 33,1bnt. The Council for Geosciences is updating these figures and is expected to release its report in January.

SA’s coal sales rose a modest 8,7% over the 10 years to 2009 but most of the increased output went to Eskom. Coal exports were almost flat in that period, peaking at 71,5Mt in 2003 but falling as low as 57,8Mt in 2008, the year when the average benchmark export coal price soared to R737/t from R361/t in 2007. In that year average inland prices for coal were R153/t, from R108/t in 2007. Domestic coal prices are generally below exports, mainly because Eskom, the biggest customer, uses a lower quality.

About 84% of SA’s coal comes from the Witbank, Ermelo and Highveld coal fields, which will be largely exhausted within the next 10 years. While the Waterberg has substantial resources of coal — about 40% of the country’s remaining resources — it presents geological challenges which are likely to make mining more expensive. Lack of rail infrastructure and minimal water will also have to be addressed.

The country's biggest coal producers are Anglo American Coal, Exxaro, Sasol Mining, Xstrata Coal and BHP Billiton Export Coal SA (Becsa). Other large producers include Total Coal, Optimum and Shanduka. There are also numerous smaller miners with one or two mines or projects in development. Among the five biggest producers, only three have major new projects which will supply both Eskom and export markets: Anglo American's US$512m Zibulo mine in Mpumalanga; Exxaro's R9bn Grootegeluk expansion in the Waterberg; and the Xstrata/African Rainbow Minerals R3,5bn joint-venture Goedgevonden mine near Witbank.

When Becsa, Exxaro, Anglo Coal and Rio Tinto recently put up for sale some of their undeveloped coal prospects, it was widely seen as a vote of no confidence in long-term growth prospects for the SA coal industry.

This is surprising, considering strong demand from India and China for SA coal and Eskom's heavy reliance on coal- fired power stations. The utility has even expressed a desire to protect its long- term supply. The only sector of the coal industry that is showing an appetite for new projects is the junior miners, which have more appetite for risk.

Some pressures affecting investment in coal are global: fluctuations in prices, changes in SA's target markets from Europe to Asia, and environmental pressures against burning fossil fuels. Others are shared by SA's entire mining industry: talk of nationalisation, delays and complexities in securing mining licences and, since the global economic crisis started, limited access to financing for new projects.

Exxaro chairman Len Konar says in the group's latest annual report that in the 16 years to 2009 SA's mining sector actually shrank, while the global average growth in mining was 5%. He ascribes this to outside factors like the volatile rand-dollar exchange rate and the recession. He says other issues affecting the local industry are being addressed, such as infrastructural challenges, bureaucratic delays, regulatory uncertainty, the balance between productivity and cost, and the limited pool of skills .

In his medium-term budget policy statement last week, finance minister Pravin Gordhan conceded SA had lagged behind other countries, like Brazil and Australia, in growth in mining production in the past eight years. He identified six main factors: regulatory uncertainty, logistical challenges, limited electricity generation capacity, currency volatility, the debate on nationalisation and the risks of deep-level gold mining .

To this, says Frans Barker of the Chamber of Mines, should be added the high cost of services provided by parastatals, like electricity, transport and potentially water. Xavier Prevost of XMP Consulting adds that talk of nationalisation is another big issue.

"The department of mineral resources said recently it didn't think this was deterring investment. When you talk to investors from other countries, the first question they ask is whether SA is going to nationalise the mines. Until government makes a decision on it, no-one is going to invest in mines in SA."

The logistical problem of rail and port bottlenecks is cited repeatedly by participants in the coal industry.

Prevost says SA's problems are not impossible to overcome but that the country is not tackling them properly.

"Certainly, the coal industry is responsible for some of them. Transnet's inability to provide enough rail capacity to move coal from mines to ports and local users has been one of the main issues preventing many mine projects from becoming feasible .

“Mines are prepared to invest in rail, but Transnet isn’t implementing talk into action. Transnet has been discussing expansion for a long time, but nothing happens,” he says.

Slides presented by Transnet CEO Brian Molefe at the recent Coaltrans conference in Madrid showed five coal export corridors in SA: Richards Bay Coal Terminal (RBCT) , Richards Bay Navitrade Terminal and Matola (the coal terminal at Maputo) for thermal coal, while Maputo main port and Durban Bulk Connections also handle sized coal. That gives total port capacity of 99,5Mt/year against rail capacity of 75,4Mt/year .

Molefe said Transnet’s target was to build up coal freight capacity to 81Mt/year by 2014/2015.

But why isn’t Transnet targeting at least 100Mt/year, if that’s what the ports can handle? There are two main reasons: the parastatal’s own lack of funding and, possibly more important, Transnet’s belief that the coal industry cannot produce as much as it claims it will.

With changing patterns of global economic growth, the focus of SA’s coal exports has moved from its traditional European market to Asia. Indian and Chinese buyers have been actively seeking to secure coal offtake from SA in the past couple of years.

The Financial Times reported on October 17 that the European Union’s “Energy Roadmap to 2050”, being prepared for release by the end of this year, suggests European consumers’ costs of energy would double by 2050 as wind power, requiring more infrastructure, would contribute more to the energy mix than nuclear and coal. Coal and gas currently provide about half of the EU’s electricity.

The International Energy Agency’s World Energy Outlook suggests OECD countries’ coal-fired power generation will fall up to 2035 as they move away from fossil fuels, but this will be more than offset by rising demand from developing countries. China’s 600 gigawatts (GW) of new coal-fired electricity capacity exceeds the current capacity of the US, EU and Japan.

According to statistics that Lars Schernikau of coal traders HMS Bergbau presented at the recent Coaltrans Madrid conference, India’s demand for steam coal is expected to rise to 1bn t by 2017 as domestic production cannot meet the country’s needs. He says it is difficult to predict China’s production and imports but its impact on the global thermal coal market is likely to be “huge”.

Yet the 2009/2010 department of mineral resources report forecasts that SA’s coal exports will increase only “slightly” this year. It says though demand from developed countries is expected to remain weak until clean coal technology is widely used, demand from Asia could push up prices.

Are changes in markets and fluctuating prices deterring investment in SA coal mines? Not as much as generally believed, Prevost says.

“Back in 2006/2007 SA was exporting 88% of its coal to Europe but, because it was unable to meet that demand, we lost ground, and now Colombia, which is further away, is supplying more coal to Europe than we are.

“Our main market is now Asia, but the Indians and Chinese buyers are very price-sensitive. When the price was $122/t, demand from Asia fell. Now the price is $110/t-$112/t and no-one is buying , which is why RBCT is not moving the tonnages that Transnet is delivering to the port."

But that's no reason for Transnet to slow down rail expansion, Prevost says.

"The general view in the market is that coal is the fuel of the future. Germany is replacing its nuclear power stations with coal-fired power stations using clean coal technology. Demand for coal will be good for 20 years or more. Clean coal technology will not remove all emissions but it will reduce them to negligible levels."

Greenpeace SA doesn't agree. "The assessments made by the Business Enterprises unit at the University of Pretoria show that 'clean coal' simply does not exist," Greenpeace says in its report.

Hall told the Sanea conference that coal accounted for almost a third of the world's primary energy in 2010, its highest share since 1970. The main reason is rapid demand from industrialising populations in the developing economies of China and India. The populations of the world's cities will rise to 5,2bn by 2035 from 3,3bn at present, pushing up demand for energy and steel.

The SA Coal Road Map is to present 30-year scenarios for the industry, open these options for comment, and then move into its second phase, identifying a preferred scenario and ways to achieve this scenario.

The Fossil Fuel Foundation didn't want to disclose its findings ahead of the general release. But Hall's comments at the Sanea conference suggest the road map presents three scenarios.

The first assumes significant exploitation of SA's coal resources, if government's plans for 10GW from nuclear power stations and its renewable targets encounter capital constraints and delays. That would mean building more coal- fired power stations and developing the resources in the Waterberg, Soutpansberg and Limpopo basins, with associated rail infrastructure.

The second possibility is "moderate" use of SA's coal, if government achieves its targets and SA fulfils its carbon emission-reduction promises. That would still see some development of rail infrastructure in the Waterberg, but slowly. Coal exports would rise until 2020, but only gradually, if at all, after that.

The third scenario is that the country's future energy and that of the rest of the world would be sourced mainly from non fossil fuel sources, which means no new coal-fired power stations would be built and coal exports would decline.

If clean coal technology can be made to work successfully, SA should not ignore a major resource that can generate cheap electricity for economic development and continue to provide a large number of jobs.

Though there are environmental reservations about coal mining, the reality is that if SA doesn't exploit its coal reserves, its own needs and those of the coal-hungry