

## Report Back

### "The Role of Southern Africa's coal in a future carbon-constrained world economy" 17 November 2009

Almost 90% of the world's primary energy is provided by the burning of fossil fuels – coal, oil and gas. However the era of using these cheap fossil fuels is coming to an end. At current rates of consumption reserves will last around 80 years, but with the projected increases in demand they will run out much sooner. History will show that fossil fuel use was just a 300 year blip starting around 1800.

Unfortunately the emissions from this burning of fossil fuels is releasing carbon dioxide into the atmosphere and causing greenhouse warming of the planet. If this is not constrained, temperature rises of up to 6 degrees Celsius can be expected by 2100, taking the planet into a situation not experienced for more than 30 million years, long before man arrived on the scene 100,000 years ago. This will cause major damage and disruption to the patterns of human settlement.

The combination of these two factors - the ultimate exhaustion of fossil fuel reserves and their contribution to global warming - is driving the world towards a carbon-constrained economy.

This was the background to a conference held on 17<sup>th</sup> November in Johannesburg, under the auspices of the **Fossil Fuel Foundation**, to discuss the role of Southern African coal in the future carbon-constrained world economy.

It was noted that decisions made at the global climate change conference in **Copenhagen** in December could ultimately impact on South Africa's ability to export coal; developed nations could impose a carbon tax on items that are carbon intensive. Within South Africa regulations are being developed for mandatory emissions accounting.

All South African companies face a wide range of risks from climate change, ranging through workforce health, damage to property from extreme weather events, reputation risks and market risks.

The overall solution to the problems will probably lie in a set of measures, including using new technology to burn coal more cleanly, and **nuclear** energy. However these will be temporary measures; **the world has to develop renewable sources such as solar, wind and biomass** for the longer term. Most importantly, society has to radically change its materialism and demand for energy.

The reserves of Southern African coal will probably be adequate for the region's demands for several decades, and will allow the current levels of export of around 60 million tons per year to continue and even increase; the major demand will continue to be from Sasol and Eskom. However all this will depend on the successful implementation of both clean coal technologies to burn coal more effectively, and of carbon capture and storage to sequester carbon dioxide underground.

**These developments will come at a cost.** Coupled with likely carbon taxes, this will have the effect of pushing up the cost of electricity generated from coal, to the point where alternatives such as nuclear, solar and wind sources will be competitive. South Africa's future energy mix for electricity is at present not totally clear, but it seems likely that coal will continue to play a

dominant role for the next few decades. However, as existing coal mines become exhausted and generation plant is retired, and as emissions regulations become more onerous, renewable sources such as solar, wind and biomass will gain prominence. Many energy forecasts are predicting an increased role for nuclear energy in the future, as it offers carbon-emission free energy; nuclear does have problems such as waste disposal and security, but industry feels that these can be managed. **All this is true not just for South Africa but for the world.**

One of the most critical issues facing the South African coal industry is the lack of a clear integrated strategy, which would optimise the balance between the demands for export, power generation, coal-to-liquids (Sasol) and domestic industry, hence ensuring that the resource is used most appropriately for the benefit of the nation.

**A follow-up conference will be held on 17<sup>th</sup> February 2010** to hold more detailed discussions around specific issues identified during the first conference, and to provide a forum for discussion of the outcomes of the United Nations Convention on Climate Change in Copenhagen in December 2009, which will have important implications for the coal industry. The latest national & regional regulatory & policy development will be presented and the impacts on Southern Africa and its coal sector will be discussed.

Dave Collins  
Conference chairman

Dear Dave

I just wanted to say how well I thought the conference went yesterday. It must have taken a lot of time and effort to put together such a wide range of excellent speakers and sort all the topics into a logical order, whilst maintaining the overall thrust of where coal and a low carbon future is heading.

Although I filled in a comments sheet I just wanted to say how well I thought such innovative ideas (at least to me) as having very short presentations from a panel with Tim Neary as a facilitator worked, as well as the normal format of longer papers. I've never come across a format like this in a conference and I thought it's a great way of keeping up the interest instead of having the usual equal length sessions and papers.

As far as I was concerned as an engineer working most of the time in the coal preparation area, the whole day was very informative of where we're likely to be heading. The entire topic of a low carbon future is obviously going to remain a huge subject in the future and at the same time provide a stream of interesting careers for engineers to work in. I wish you well in your endeavours to keep this topic in the forefront of public concern.

Regards

**Mark Cresswell**  
*Minerals Processing Consulting Engineer*  
Pr Eng, MSc