Fluidised Bed Combustion and Gasification Workshop

The Fossil Fuel Foundation is hosting a workshop 'Fluidised Bed Combustion and Gasification' on Tuesday 16 July at the Glen Hove Conference Centre in Melrose Johannesburg.

Technology and climate change are shaping the world's economy. This conference examines which combustion and power generating technologies are the most cost effective and environmentally efficient. Are South African mining majors investing in FBC? Can this technology be used on a smaller scale to offer electricity to our rural areas? Could FBC play a serious role in reducing South Africa's carbon emissions?

The generic technology of Fluidised Bed Conversion (FBC) is a vital element in our search for a wider range of fuels with lower emissions.

Efficiency of electricity generation is essential in tackling climate change. A one percentage point improvement in the efficiency of a power station results in a 2-3% reduction in CO_2 emissions. Modern highly efficient coal-fired power stations emit almost 40% less CO_2 than the traditional power stations.

The popularity of fluidized bed combustion is due largely to the technology's fuel flexibility - almost any combustible material; from poor quality coal to municipal waste can be used to produce synthetic fuels (synfuels), steam, hot gas, electricity etc. Another advantage is that the ratio of biomass to fossil fuel in the FBC boiler can be varied considerably depending on availability of biomasses.

In fluidised bed combustion, coal is burned in a reactor comprised of a bed of inert material such as sand through which gas is fed to keep the fuel in a turbulent state. This improves combustion, heat transfer and recovery of waste products.

Integrated Gasification Combined Cycle (IGCC) technology with Carbon Capture and Storage (CCS) is one of the promising options which need to be considered for future power generation.

Even scrap tyres could be a valuable source of synthetic fuels as they have a high content of volatile material. Europe's tyre waste production is 3 million tonnes per year. Currently over 60% of used tyres end up in landfills.

On 17th March 2011, South Africa approved its Integrated Resource Plan (IRP) for the energy sector. About 77% of South Africa's primary energy needs are provided by coal and although the IRP sees renewable energy making up 42% of all new electricity generated in South Africa, coal will continue to be a dominant source of electricity.

However low grade coal reserves including low rank and high ash coal, remain underutilised as energy sources - despite being available in abundance. New technology can now convert low quality coal into electricity, hydrogen for refining, and synthesis gas for ammonia, methanol and production of coal to liquid fuels.

New pulverised coal combustion (PCC) systems – utilising supercritical (SC) and ultra-supercritical (USC) technology – operate at increasingly higher temperatures and pressures. The result is higher efficiencies than conventional PCC units and significant CO_2 reductions. With the commissioning of the Lagisza 460 MW supercritical CFBC (Circulating Fluidised Bed Combustion) in Poland in 2009, FBC power stations are now competitive to PCC in terms of efficiency. The Lagisza plant has efficient fuel usage and low emissions, fully meeting the requirements of the EU's new large combustion plant (LCP) directive. Similar plants have been installed at chemical plants, steel plants and other industrial facilities around the world.

These developments are expected to result in a dramatic increase in the number of SC plants and USC units installed over coming years. (World Coal Association)

Issued by: The Fossil Fuel Foundation

Tel: +27 11 487 2260/3819

Fax: 086 653 7108

All wishing to attend this conference should contact the conference secretariat:

RCA Conference Organisers: robbie@rca.co.za

events@rca.co.za