



**Coal**  
Association of  
New Zealand

# Coal e-Newsletter

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## COAL NEWS

### NEW ZEALAND

#### *Coal technologies' important role in addressing GHG emissions*

The NZ Herald has published an article by Coal Association Chairman Chris Baker, the key points of which are summarised here. The ongoing significance of coal and other fossil fuels as a global energy source underscores the important role for carbon capture and storage (CCS) technologies in addressing global greenhouse gas emissions.

The Coal Association recognises that carbon emissions from thermal fuels need to be addressed as the world moves to a lower carbon future. We share the view of the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) that a comprehensive portfolio of responses is required to combat emissions - being a combination of energy efficiency, renewables, CCS and other technologies.

Both the IPCC and IEA have identified CCS as one of the critical technologies needed to combat climate change. The IPCC estimated including CCS as part of a mitigation portfolio has the potential to contribute over half of the cumulative global mitigation effort while reducing costs by 30% or more. Without significant technology breakthroughs, the world is expected to rely on oil, coal and gas for 81% of its energy by 2030.

In developing countries, access to energy, particularly electricity, drives economic growth and improvements in living standards. Rapid economic growth in China and India has been underpinned by the use of coal for electricity generation and in manufacturing.

In developed countries, coal-fired power stations continue to be built. In Germany, coal plants are being constructed which have the potential to reduce carbon emissions by up to 30% compared with a standard lignite coal plant. However, the most significant advances in reducing carbon emissions from coal will require some form of CCS.

Commercial applications of CCS are feasible within the decade and could then be widely deployed with a favourable policy environment. Progress on CCS is highly promising: "Complete CCS systems can be assembled from existing technologies that are mature or economically feasible under specific conditions," says the 2005 IPCC Special Report on Carbon Capture and Storage. "Significant progress is being made in proving the commercial feasibility of CCS in projects such as the pilot scale demonstration of permanent storage of carbon underground in Victoria, Australia and commercial-scale trials of carbon capture by Sargas, Norway to remove 95% of CO<sub>2</sub> from a coal-fired power station".

The modern coal industry has successfully developed technological solutions for the near-elimination of particulate and sulphur emissions - technologies which are now commonplace in modern coal-fired power stations. The challenge is now to progress clean coal technologies to a stage where coal can be used as a near-zero emissions energy source.

In New Zealand, the Coal Association has been instrumental in establishing an industry and government partnership to explore and assess CCS solutions for this country.

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One of the partnership's activities has been to join the highly regarded Australian CCS research organisation, the Co-operative Research Centre for Greenhouse Gas Technologies (CO2CRC).

Any country serious about climate change must include CCS technologies in its suite of abatement technologies alongside renewables. NZ, given its large lignite resource and reliance on increasingly expensive imported fuel sources, has more incentive to do so than most.

### **Increased coal production for Eastern**

Eastern Corporation Ltd has increased coal sales to NZ\$1.22M in the first quarter of 2008 from its two South Island production mines.

Eastern's new Takitimu coal mine in the Ohai-Nightcaps area in western Southland has extracted 9,430 tonnes of sub-bituminous coal in the quarter as part of its target of 130,000 tonnes a year to supply coal to Fonterra's processing plant at Clandeboye in South Canterbury from September 2008.

Coal winning in Takitimu's block 1 extended beyond the end of March with better than expected recoveries from the upper Morley 3 seam. In block 2 overburden removal remains on target at 75,000 cubic metres per month to expose the next 50,000 tonnes of coal in readiness for the Fonterra supply.

The major Takitimu mine excavation work for the new product coal stockpile and load out area has now finished. Earthworks have also been completed for the haul road to the new rail load out. The weighbridge upgrade and office extension is also nearing completion.

After the end of March a contract was signed with rail operator Toll NZ to rail coal contracted to Clandeboye near Timaru.

### **Pike River tunnel on track to intersect coal**

Pike River Coal Ltd's coal mine development on the South Island West Coast has completed its eastern pit bottom in rock and is now beginning the final push across the Hawera Fault and into its coking coal target.

The tunnel is on track to intersect the fault 2.1 km from the tunnel mouth in late May and intersect coal at approximately 2.3 km in July 2008.

Work on building tunnels for the pit-bottom roadways began in December 2007. All tunnelling halted for a month from 11 April to allow undertaking of concrete works and other infrastructure activities in the pit bottom. This area will provide for water and coal sumps as well as foundations for pump and electrical installations.

Other completed works were the installation of high voltage power supply, cables for gas monitoring and communications, and transformers for the pit-bottom pumping systems.

The company forecasts extraction of 200,000 tonnes of coal during this financial year, building to one million tonnes a year for the 17 year life of the mine. An industry analyst said once through the fault there was another element of uncertainty over any water or gas but this would be just a potential delay in timing. There is no uncertainty that the resource isn't there.

### **L&M Coal Seam Gas awarded permit in South Waikato**

Christchurch based L&M Coal Seam Gas Limited has been granted an exploration permit over a large area of south Waikato.

The block covers a 3,920 sq km area south of Hamilton which includes the Kawhia, Tihiroa, Te Kuiti and Mangapehi (Benneydale) coalfields.

This will be L&M's only North Island coal seam gas permit although the company holds four South Island permits, two in Otago (Kaitangata-Benhar and Hawkdun) and two in Southland (Ohai and Winton). L&M Group's offshoot L&M Petroleum Ltd also holds acreage containing extensive coal seam gas potential in its Waiau permit in the Ohai area.

The work programme for the new south Waikato permit, calls for a series of technical and commercial studies followed by a series of exploration wells.



## INTERNATIONAL NEWS

### AUSTRALIA

#### **Tata Steel and JV partners to invest in coal**

Tata Steel, Vale, Nippon Steel Corporation, JFE Steel and JFE Shoji will undertake a large scale expansion of the Carborough Downs mine near Moranbah in Central Queensland in Australia.

Carborough Downs is an underground mine operated by Carborough Downs Coal Management Pty Ltd, owned 80% by Vale and its joint venture partners, Tata Steel, Nippon Steel Corporation, Posco (each having a share of 5%) JFE Steel and JFE Shoji (2.5% each).

Construction is under way and commissioning of the new mining equipment (Longwall), which would be one of the largest in Australia, was expected by mid-2009.

#### **Regulator okays Newcastle coal quotas**

Australia's national competition regulator approved the use of coal export quotas at Newcastle port until Dec 31 to avoid an increase in costs for mining companies from ships queuing to load the fuel. The regulator was concerned that any longer term use of coal export quotas beyond the end of the year could curb investment in the coal export transportation system.

Bottlenecks at Australian ports have helped constrain supplies of the fuel to Asian customers, contributing to record prices and increasing costs for mining companies. Newcastle has operated an export quota system since March 2004.

Xstrata Plc, Rio Tinto Group and BHP Billiton Ltd are among mining companies that ship coal through the port. Coal ships waited for 11.5 days to load coal in the week ended April 21, versus 0.6 day for general cargo vessels. The export quota system does not reduce the volume of coal exported through the port.

#### **Rio boosts state's coal output**

Rio Tinto Coal Australia believes it can double its Queensland coal production to 40M tonnes a year within seven years, thanks to booming demand and planned new rail and port capacity.

Managing director Hubie van Dalsen announced the target to mark the start of earthworks at the company's newest coal project, the A\$950M Clermont mine in the Bowen Basin.

#### **Origin interested in coal seam offer**

Origin Energy is poised to accept a sweetened A\$13 billion-plus cash takeover offer from British Gas major BG Group, in what would be the second-biggest foreign takeover of an Australian company.

BG is chasing Origin's coal seam gas resources to feed a planned A\$8 billion LNG plant near Gladstone. It is seeking to boost its presence in the Asia-Pacific region and this year signed its first Asian LNG supply deal -- for 20 years. BG, which has power retail and distribution assets in India and South America, is also keen to look at the privatisation of NSW power assets if they go on the block in a trade sale.

#### **Carbon capture crucial to coal future**

Australia has no choice but to rely heavily on carbon capture and storage to cut its greenhouse gas emissions in time to make a difference on climate change, delegates to the NSW Government's "clean coal" summit were told.

The warning came as new research by the CSIRO indicated the world was warming more quickly than predicted. The architect of Australia's climate change review, Ross Garnaut, has thrown his weight behind carbon capture technology as a way of lowering the nation's greenhouse emissions in the medium term.

"Coal is set to play a big role in future Australian prosperity, so long as we can deal effectively with an inconvenient truth," Professor Garnaut told the coal summit.

Professor Garnaut said it was "erroneous" to say that CCS would not be available in a commercially-effective form by 2020. This week, a report by the environment group Greenpeace argued CCS was a "smokescreen" to justify building more coal-fired power stations.

But coal was too valuable to contemplate using or selling much less, Professor Garnaut said, adding that price rises meant an extra A\$25 billion in Australian export earnings this year, equivalent to 2½ times the value of the nation's total merchandise exports to the US.

### **Coal prices jump**

Australian thermal coal prices at Newcastle, a benchmark for Asia, rose to US\$138/tonne in May, spurred by strong global demand amid high oil prices. There is also stronger coal demand from utilities around the world, particularly Europe.

Coal stockpiles are also below a government-set minimum level at seven days' supply in several parts of the country, the NSW State Electricity Regulatory Commission said in a statement on its website.

### **Dalrymple Terminal expansion delayed**

The Dalrymple Bay Coal Terminal, one of the corks in the long-term bottleneck in Australia's coal exports, has hit another hurdle with its expansion.

Babcock & Brown Infrastructure Group, DBCT's owner said that the torrential rain around Mackay and in its hinterland coal province early this year - which all but drowned several major coal mines - would also delay DBCT's expansion plans by up to three months.

BBI, which has just completed a port expansion taking DBCT's nominal capacity from about 58M tonnes to 65M tonnes a year, following a review it would not meet its aim of lifting capacity to 85M tonnes by December this year. BBI said it now expected only around 45% of its phase 2 and 3 expansion project to be completed as originally scheduled by December.

### **White Energy completes clean coal plant**

White Energy Co. has completed construction of its commercial scale cleaner coal production plant at Cessnock, New South Wales. The plant uses White Energy's licensed binderless coal briquetting technology to upgrade coal, increasing its energy efficiency. The plant has an installed capacity of 90,000 tonnes per year.

The Cessnock plant was completed on schedule and will soon be tested in a six week hot commissioning programme where feedstock coal is processed to ensure the plant is functioning.

The plant will upgrade sub-bituminous coal to a higher energy, more stable coal briquette that can be transported and handled like normal coal yet burn cleaner than traditional thermal coal.

The Cessnock Plant will also be used for continued development purposes and will be an important research and training facility for the company. White Energy will also be able to train its commissioning teams at the Cessnock Plant in preparation for the commissioning of plants planned to be built by the company in Indonesia, China and the USA during 2009.

### **Extra funding for clean coal**

The Rudd Government is believed to have earmarked A\$275M for 6 new clean coal projects in its first budget, alongside similar funding for renewable technologies.

A clean coal council and a taskforce to develop storage options are expected to form part of its A\$500M commitment to clean coal made during last year's election campaign.

These new funds for clean coal technology follow A\$350M committed to technology development under the previous Howard Government's Low Emissions Technology Development Fund. These projects attracted more than A\$2 billion in matching industry investment.

The Government is planning to spend A\$50M to further develop the use of ammonia to capture carbon dioxide from the emissions of the Munmorah coal-fired power station in the Hunter Valley in NSW, and A\$50M to develop gasification technology at the Centre for Low Emission Technology in Queensland.

The Government is also expected to honour its pre-election commitment to spend A\$50M on a national carbon-mapping and infrastructure plan and A\$50M more on post-combustion-capture technology for the Latrobe Valley in



Victoria. The Government is understood to have plans to offer a competitive grants programme similar to the LETDF of up to A\$140M.

## CANADA

### *Coal royalties 'different beast'*

Up to 2,000 billion tonnes of coal carpet Alberta, government earth scientists estimate. The heating value of this astronomical endowment is more than double the total energy in all of the province's conventional liquid oil, oil sands ore and natural gas, Alberta Energy calculates.

Yet coal production of 30M tonnes a year is projected to pay only \$14M in annual provincial royalties -- just 0.1% of non-renewable resource revenues -- for as long as Alberta Finance makes forecasts.

"It's a different beast entirely," said Andre Plourde, a University of Alberta economist who served on the 2007 royalty review that prompted the first increase in the public share of oil and gas production revenue since 1972.

## CHINA

### *Closure of small coal-fired power plants*

China closed 83 small coal-fired generators with an aggregate capacity of 4700MW during the first 3 months of this year according to the National Development and Reform Commission (NDRC).

NDRC said the closed capacity accounted for one third of the 13,000MW target set this year to save energy and reduce greenhouse gas emissions. The closures would help China save 7.1M tonnes of coal and reduce carbon dioxide emissions by 14.2M tonnes annually, since the closed capacity would be replaced by larger, more efficient plants.

China plans to close small, energy-intensive coal-fired units with a total capacity of 50,000MW between 2006 and 2010. The closed capacity will save 14.5M tonnes of coal and cut SO<sub>2</sub> emissions by 0.25M tonnes and CO<sub>2</sub> emissions by 29M tonnes annually.

## HONGKONG

### *Citic may bid for Macarthur Coal stake*

China's Citic Group has rebuffed initial approaches by global mining companies for its stake in Macarthur Coal. Citic was reported to be considering launching its own bid for the shares held by the company's founder. The report said Citic, which first invested in Macarthur Coal in 1997, owns 20% of the coal miner. Founder Ken Talbot has a 24% stake worth about US\$830M, which the company said he was in talks to sell.

BHP Billiton, Rio Tinto, and Brazil's Companhia Vale do Rio Doce have not only considered bidding for the founder's stake in Macarthur but also wanted Citic's stake.

## INDIA

### *Coal and Oil Group to set up coal plant*

Coastal Energen Pvt. Ltd has announced plans to set up a 2000MW power plant in Tuticorin district of Tamil Nadu.

Ahmed Buhari, CEO, Coal and Oil Group, said that the launch of phase-I of the 3 x 360MW coal-fired power plants would be expected soon. The requisite land of 1,000 acres has been already acquired. He said the plant was expected to be commissioned within 36 months from the start of work. Work on phase-II will also commence along with phase-I.

The power will be supplied to Tamil Nadu as well as private consumers, marking Coastal Energen's foray into the power generation market in India. There is an option for the Tamil Nadu government to buy 25% of power generated under the merchant power scheme.

### *ICVL to hire merchant bankers for coal reserves*

International Coal Ventures (ICVL) has decided to empanel merchant bankers to identify coal reserves in foreign countries. ICVL is a special purpose vehicle floated by SAIL, NTPC, RINL, NMDC and CIL to acquire coal blocks overseas.

Bankers in the fray include JP Morgan, HSBC Securities, Citibank, Societe Generale and Kotak Securities. A final selection will be done in the next 10 days.



The bankers will scout for coal blocks in other countries, do due diligence, explore legal angles on ICVL's behalf and do their bit for the company to acquire these blocks. They will also be responsible for valuation of the blocks and prepare the proposal for takeover. If ICVL gets information on the available blocks, it will hand over the task to these merchant bankers for taking necessary action. "There will be prefixed terms laid out by ICVL for dealing with foreign parties".

### **CIL raises coal auction amount to check prices**

Coal India Ltd will be offering 45M tonne of coal through e-auction between May and July 2008.

The public sector coal major has been directed by the Ministry of State for Coal to offload 15M tonnes during May and June 2008 through the e-auction route. In July, CIL now plans to sell 10M tonnes.

"The strategy is to flood the market with abundant supply of coal so that prices dip and it becomes affordable to all, including the small-time consumers. It will also send a signal to the market that the country has abundant supply of coal.

The coal ministry has also decided to sell about 8M tonnes of coal through state agencies, which will offer it to small and medium sized consumers as well as households at the notified price. In a parallel development, CIL may also increase coal production by about 10-12% this year against an earlier target of increasing it by 6%.

### **Company to develop abandoned mines**

Coal India Ltd (CIL) is all set to float global tenders within a month for developing 26 abandoned mines on a joint venture basis.

CIL informed that the 26 mines having expected coal reserves of around 10M tonnes were already identified.

Of these, around 10 mines are expected to be rich in coking coal, while the others will produce non-coking coal varieties.

CIL will be floating expressions of interest to invite global technology providers to develop these mines on a joint venture basis.

## **INDONESIA**

### **R-Power to buy more coal mines**

Anil Dhirubhai Ambani Group's (ADAG) flagship company Reliance Power, which recently acquired three coal assets with coal reserves of about 2 billion tonnes in the Musi Rawas region of South Sumatra in Indonesia, is close to acquiring more coal mines in the same region.

Reliance Power has identified a few targets in the same region and negotiations are in advanced stages. It is also scouting for large coal fields in Mozambique and South Africa. The company plans to buy coal mines on a risk-free production-linked benefit sharing model, which does not involve upfront payment.

Reliance Power plans to develop the assets and extract about 25M tonnes per annum of coal. It will also build a 100km railway line and a captive jetty for shipping coal to India. The privately-held assets have an exploitation license and, hence, production can start immediately.

The South Sumatra region is closer to India's east coast, which will help reduce the shipping time by two days compared with the coal fields in Kali Mandan and Bali region where companies, such as Tata Power, partly own mines.

### **Agreement to explore and develop coal project**

SouthGobi Energy Resources Ltd announced it has signed a Joint Venture Agreement (JVA) with Score Resources Ltd. to explore and develop the Mamahak coal project in Indonesia. The JVA allows for SouthGobi to earn into a 56% ownership position by spending US\$14.5M on the development of the project. Provisions are included in the agreement for SouthGobi to increase its ownership to 100%.

The Mamahak project is ideally located to target the Japanese, Korean, Indian and Chinese coastal markets and complements SouthGobi's strategic advantage in Mongolia. The company's flagship coal project, Ovoot Tolgoi, located in southern Mongolia has commenced production to supply coal to interior customers in China.



The Mamahak project site is in East Kalimantan, Indonesia, which is the primary coal-producing region in Indonesia. The Joint Venture has obtained the rights for two concessions totalling approximately 12,000 hectares and is applying for two additional nearby concessions totalling approximately 14,000 hectares. The concessions are approximately 30 kilometres from the Mahakam River, which is the primary coal-barging route in the region.

### **Domestic coal consumption to exceed exports**

The Indonesian Coal Mining Association said domestic coal consumption would exceed coal exports, some time between 2015 and 2020, if the government cap on coal exports remains in place.

Domestic coal demand would reach 170M tonnes between 2015 and 2020, with exports limited to 150M tonnes a year as stipulated by a recent regulation, which set the cap in anticipation of increased domestic demands.

The export limit was also made in anticipating the 2010 opening of new coal-fired power plants by state power company PT Perusahaan Listrik Negara.

The industry needed 60 panamax bulk carriers and 79 handy-sized vessels to ship 100M tonnes of coal overseas each year.

The massive armada would also be needed to supply the new power stations around Java with coal from mines in Kalimantan and Sumatra -- areas with the largest coal reserves.

## **JAPAN**

### **Chubu to agree to coal price hike**

Japan's Chubu Electric is expected to agree to a 94% price hike for thermal coal deliveries from China's two largest coal miners.

The miners, Shenhua Energy and China Coal, have won a deal with Chubu, Japan's No. 3 utility, to sell 5.3M tonnes of coal at US\$131.40/tonne this year. The contract is for coal with a net calorific value of 5,800 kcal/kg.

Traders said the latest contract price won by Chinese producers, which represents a premium of about US\$10/tonne compared to Xstrata Plc's benchmark settlement with Chubu last month, was not unexpected.

Xstrata, the world's largest exporter of thermal coal, settled 2008 thermal coal contracts with Chubu in April at US\$125/tonne for coal with gross heating value of 6,322 kcal/kg.

Xstrata also agreed to ship about 240,000 tonnes of coal carried over from the 2007 contract with prices unchanged.

High-grade coal sold by Chinese producers has been priced at a premium to Australian coal as producers begin to factor in the impact of lower freight rates and shorter waiting times.

## **MALAYSIA**

### **Prioritise coal mining industry**

The Malaysian Chamber of Mines is proposing to the Government to prioritise the development of the coal mining industry to help reduce the country's ever increasing energy costs.

President Datuk Dr Ajib Anuar said Malaysia's coal reserves, particularly in Sabah and Sarawak, were estimated to have an in situ value of 300M tonnes.

The Department of Mineral and Geoscience (DMG) has estimated the country's coal resources at some 1720M tonnes, of which 274M tonnes were measured, 347M tonnes indicated and the balance 1100M tonnes inferred.

Currently, about 80% of the country's coal resources are in Sarawak, 19% in Sabah and 1% in Peninsular Malaysia.

Most of Malaysia's coal requirements for power generation, cement plants as well as iron and steel plants were imported from Indonesia, Australia and China.

### **Move to convert coal to fuel**

The Federal Government has directed the Project Development Institute Enugu to explore ways of converting coal to fuel as part of measures to reduce over-reliance on petroleum products for energy.



Minister of State for Science and Technology, Dr Alhassan Bako Zaku, said the government was uncomfortable with the underutilization of the large coal deposit in the country.

He asked the institute to do everything within its reach to carry out the directive, saying Nigeria's over reliance on crude oil for the production of fuel in spite of the availability of other natural resources that could generate the product, was unacceptable.

## PHILIPPINES

### **Semirara bags extension of coal contract**

ARA Mining Corp. secured the Department of Energy nod for the extension of the company's operations in Antique.

Semirara Mining said the government has approved its request for a 15-year extension of its coal-operating contract at Semirara Island in the said province.

Semirara Mining is one of the four major subsidiaries of DMCI Holdings, the investment vehicle which consolidates the business interests of the Consunji family.

Under the company's coal operating contract with the government, Semirara Mining may seek an extension of its operations. The company is the country's largest coal producer, churning out over 3M tonnes of the commodity per year.

The company is keen on expanding its export market as coal production from its mines is expected to increase significantly this year.

The company's total coal production is projected to rise to 4.5M tonnes this year. Of the amount, about 3.9M tonnes is marketable abroad or of export quality.

### **Napocor to bid out coal fuel supply**

State-owned National Power Corp. (Napocor) will bid out another tranche of fuel supply for the country's coal-fired power plants.

In recently released bid notices, Napocor has invited potential bidders to vie for the coal supply of its three generating facilities—65,000 tonnes for 700MW Pagbilao, 130,000 tonnes for 1,200MW Sual and 65,000 tonnes for 600MW Masinloc. The coal supply will cover the power plants' fuel requirements for the coming months.

Napocor said the price for the facilities' fuel supply contract shall be based on the latest published market reference rates such as Platts, Barlow Jonker and Global Coal at a specified foreign exchange rate.

Prior to using benchmark indices at the start of the year, Napocor had set price limits on its coal supply contracts. This practice, however, failed to attract bidders because of the increasing price of coal in the world market and forced Napocor to adopt market prices.

Last March, Napocor auctioned off more than US\$200M worth of supply contracts for the fuel needs of the coal plants.

## SOUTH AFRICA

### **Richards Bay coal exports drop after rain**

South Africa's Richards Bay Coal Terminal shipped 4.6% less of the fuel in April after heavy rain cut output from BHP Billiton, Anglo American and other producers. The terminal shipped 6M tonnes of coal in April compared with 6.3M tonnes a year earlier and 4.6M tonnes in March this year.

Richards Bay Coal is owned by South Africa's biggest coal exporters, including Anglo, BHP and Xstrata Plc. While it is the world's biggest coal-export terminal, Australia's Newcastle port ships more of the fuel from two terminals.

At the current average monthly rate, Richards Bay will ship 58M tonnes of coal this year compared with export capacity of 76M tonnes. Smaller volumes of South African coal are exported from Durban as well as from Maputo in neighbouring Mozambique.



### **BHP wants re-negotiated Eskom coal contracts**

BHP Billiton's South African coal producing subsidiary is seeking to re-negotiate its coal supply contracts with South African state utility Eskom.

BHP has had fixed price supply contracts to Eskom's Hendrina and Duvha power plants which have lost substantial sums over the past several years as BHP's costs have risen but the price for coal has remained the same.

BHP's Optimum mine, which supplies about 6.5M tonnes a year of coal to Eskom's Hendrina plant recently changed hands. A Black Economic Empowerment consortium now owns and operates the Optimum mine and will be supplying coal to Eskom under more favourable terms than BHP's contract.

Eskom has found the quality of coal delivered by BHP, in terms of its calorific value, size and ash content, has deteriorated over the past few years.

Eskom has had handling problems with fine, powdered coal delivered to its Hendrina and Duvha plants because dry fines blow away from the conveyor belts and wet fines cause the system to clog and have a lower energy content.

Eskom has this year signed new term supply contracts for domestic grade coal at around US\$19/tonne, double 2007's contract prices.

BHP's export coal operations in South Africa have become extremely profitable thanks largely to the rise in international export coal prices last year, coal market sources said.

## **USA**

### **Clean-coal test is a go in Ohio**

The US Federal government will spend US\$61M for a clean-coal project in Ohio, a major step in deciding whether it is commercially feasible to burn Midwest coal without emitting CO<sub>2</sub>. The money will be provided to a demonstration project in the Mount Simon Sandstone formation in Darke County in western Ohio.

About 1M tonnes of CO<sub>2</sub> from an ethanol facility will be injected 1000m into the sandstone formation.

The money for Ohio was part of a US\$127M award by the US Department of Energy to demonstrate carbon sequestration in Ohio and California. The government says the country has more than 3 trillion tonnes of storage capacity.

### **Reward for waste-coal removers**

Gob piles, those sometimes hazardous heaps of coal and rock that dot Virginia's Appalachian landscape, could soon be increasingly mined for usable coal.

The Federal government, looking to clean up the gob piles left at abandoned mine sites, is proposing to waive certain fees for mining companies that remove the coal and clean up the land. The incentive plan: companies that now pay the government up to 31.5 ¢/tonne of mined coal would not pay the fee for coal they get from the gob piles.

The goal of the plan is to remove the piles, which can contain hundreds of thousands of tonnes of coal and occasionally leach contaminating acids into mountain streams. The coal was left in the piles decades ago when technology and economics made extracting it impossible or unprofitable.

The Virginia Department of Mines, Minerals and Energy has estimated there are more than 400 gob piles in the state, some of which are designated as dangerous. Since 1977, mining companies have been required by federal law to clean up the land after they have finished mining coal. But nationwide, thousands of mines active before 1977 were abandoned, and many of them have gob piles.

## **ZIMBABWE**

### **Country to benefit from coal production**

Zimbabwe will soon benefit from a rising world demand for coal, especially from Asia, necessitated by a sharp increase in oil prices, which touched a record high of US\$135 a barrel this week and rising gas prices.

The African Development Bank predicts that, generally, coal production in Africa will increase at an average of 3% a year to 2011 due to the predicted rising demand.



The current sharp increases in oil and gas prices, coupled with rising energy demand particularly from China and India, have boosted concerns about the security, diversity, affordability and reliability of energy supplies around the globe, according to the Bank's research division.

"Coal has recently come back into fashion due to three advantages over oil and gas: lower prices per energy unit, higher reserves-to-production ratio, and a different geopolitical distribution of reserves."

Zimbabwe, with extensive coal reserves, was predicted to spend US\$20-billion on the development of coal and power projects over the next decade.

## TECHNOLOGY & OTHER NEWS

### **WCI: Five key steps needed to implement CCS**

The World Coal Institute recently called on governments worldwide to match their climate rhetoric with action by investing more in carbon capture and storage (CCS) technology. WCI was speaking at the conclusion of a two-day workshop in New York, which brought together experts from industry, government and the finance community, to discuss how to mobilise investment and the technological development of commercial scale CCS projects.

Independent experts from the International Energy Agency and the UN's Intergovernmental Panel on Climate Change have estimated that CCS could account for 20–55% of the world's climate change effort; while lowering the cost of climate mitigation by 30%. (IEA estimates 20% by 2050; IPCC estimates 55% by 2100).

WCI stressed that a low carbon energy system - regardless of the technology - is more expensive than existing energy systems. However, early investment in CCS saves money over the long run and, even more importantly, it speeds up our ability to make a significant difference in climate change mitigation.

WCI's 'Five Key Steps Needed to Implement CCS' are:

1. Government support for early commercial-scale CCS demonstration projects
2. Regulatory and policy clarity
3. Inclusion of CCS in the Kyoto Protocol and National Emissions Trading Schemes
4. Public education around the risks and benefits of CCS
5. International cooperation on CCS

The commercial availability of CCS by 2020 will only be possible with the early deployment of multiple commercial-scale CCS demonstration plants. Public policy intervention in the form of additional financing mechanisms is required to address the higher costs associated with first-of-a-kind power plants. Benefits from CCS demonstration projects will accrue to the whole of society in the form of lower climate stabilisation costs.

### **BP Annual Statistical Review of World Energy**

BP published its annual Statistical Review of World Energy in June. BP's analysis of the production and demand for all energy sources goes back for 57 years and is the most thorough source of information on the energy market.

Oil remains the largest single source of energy, but for the past six years it has been losing ground to coal. Total energy consumption last year rose by 2.4%, with China up 7.7%, accounting for more than half that growth. North American consumption rose by 1.6%, India by 6.8% and the EU cutting energy use by 2.2%.

The balance of energy consumption highlights the extent to which the world economy is still driven by fossil fuels. Nuclear and hydro power matter, but their combined output is very small when compared with oil, coal and natural gas. Proven oil reserves were basically steady last year at 42 years' output, with the bulk of those reserves in the Middle East. Gas reserves were down a little at 60 years' output, with most split between the Middle East and Russia. Coal is more plentiful, at 133 years' output.

### **US plans two large scale CO<sub>2</sub> projects**

The US Department of Energy says it has awarded more than US\$127M for its fifth and sixth large scale carbon sequestration projects. The awards went to the West Coast Regional Carbon Sequestration Partnership, or WESTCARB, and the Midwest Regional Carbon Sequestration Partnership, MRCSP. DOE said the projects in California and Ohio will demonstrate the ability of geologic formations to safely, permanently and economically store more than 1M tonnes of CO<sub>2</sub>.

The Midwestern project, led by Battelle Memorial Laboratories, will demonstrate CO<sub>2</sub> storage in the Mount Simon Sandstone formation that stretches from Kentucky through Ohio and has the potential to store more than 100 years of CO<sub>2</sub> emissions. The MRCSP covers Ohio, Indiana, Kentucky, West Virginia, Maryland, Pennsylvania, New York and Michigan.

Officials said the western project, led by the California Energy Commission, will conduct a similar CO<sub>2</sub> storage project in the San Joaquin Basin in Central California. The WESTCARB includes California, Arizona, Nevada, Oregon, Washington, Alaska, Hawaii and British Columbia.

### **Exxon unveils plans for carbon capture plant**

ExxonMobil announced in May plans to invest US\$100M in a CCS demonstration plant. The company said it was investing the money to complete the development and testing of a natural gas treatment plant in Wyoming that could be used to make CCS "more affordable and significantly reduce greenhouse gas emissions". ExxonMobil claims that the approach represents a more cost effective means of capturing CO<sub>2</sub> from natural gas than current techniques. Construction of the Wyoming plant is expected to be completed in late 2009.

The technology, called Controlled Freeze Zone, aims to use a single-step cryogenic separation process that freezes and then melts the CO<sub>2</sub>, while also removing other components found in so-called sour gas such as hydrogen sulphide. The CO<sub>2</sub> and other components will then be discharged as a high pressure liquid stream, which can be injected into geological features for underground storage or alternatively pumped into oil fields to help bolster yields.

### **Australian laws to allow CO<sub>2</sub> storage under seabed**

The Rudd government is clearing the way for millions of tonnes of carbon dioxide to be stored under the seabed. The Resources Minister has introduced amendments to offshore petroleum law that would enable geological storage of CO<sub>2</sub> to be actively pursued by industry.

The bill focuses on access and property rights for CO<sub>2</sub> injection and storage in Commonwealth offshore water and provides a management system to ensure safe storage. A complicating factor is that the geological formations providing oil and gas are often the same as those suitable for storage. The government would balance the needs of the new storage industry with the rights of the petroleum industry when both were operating in the same area. The impact on other uses like fishing, shipping, defence and telecommunications; and indigenous rights and environment protection would also be taken into account.

The government said it was closely watching international developments in CCS. It would also wait for a report by a parliamentary committee before completing the process. "Several large scale projects have already been considering their requirements for geological storage for some years...the proponents are eager to gain access to areas so that they can commence detailed assessment of storage formations... This bill provides that access and will play a key role in accelerating the development of the carbon capture and geological storage industry. In so doing, it provides a significant opportunity to tackle climate change in a way that protects Australian jobs and maintains our economic prosperity."

### **Rio Tinto says US must spend for clean coal technologies**

Rio Tinto Group and US utilities are urging the government to spend US\$20 billion on clean coal technologies to address climate change. Environmental groups, labour unions and members of Congress from coal states say pilot projects won't begin without US support that is unlikely to come this year.

As the Senate began debating the first US curbs on greenhouse gases, coal companies said they won't provide most of the money for CCS technology. The industry has spent "tens of millions of dollars," on development, and it's too costly for companies alone to finance, according to Rio Tinto. "We can't do it without government support for the early projects. Shareholders simply won't stand for it unless there's a commercial return."

Fifteen years of tests are needed before CCS can be installed at generators, the US Energy Department has said. Worldwide, US\$4 billion a year is needed for pilot projects, quadruple the current spending, said Howard Herzog, principal research engineer at the Massachusetts Institute of Technology's Energy Initiative, who has studied carbon capture since 1989. "I don't think it's a question of the fundamental science," Herzog said. "It's a question of the commercial viability of doing this in an integrated fashion and at a large scale."



### **CCS agreement with Santos**

HTC Purenergy and EESTECH have entered into an agreement to explore business opportunities with Santos for CCS and enhanced oil recovery using CO<sub>2</sub> from its own gas fields. EESTECH operates a technical facility in Brisbane implementing the commercialisation of HTC's Carbon Management Technologies in Asia-Pacific including the CO<sub>2</sub> capture technology known as the "Purenergy CCS IOOO". It is the world's first pre-engineered, modular, 1000 tonne per day carbon capture system.

The HTC Purenergy system was developed over the past 15 years at the International Test Centre for Carbon Capture at the University of Regina, Saskatchewan, Canada. The system captures CO<sub>2</sub> from the flue gas stream of coal and gas fired power stations for subsequent storage in either underground aquifers or depleted oil and gas fields.

### **BP/RioTinto clean coal plan scrapped**

BP recently confirmed the A\$2 billion "hydrogen energy" coal-to-gas plant at Kwinana, south of Perth, would not proceed. The plant was to have been constructed by Hydrogen Energy, a joint venture between BP and Rio Tinto, and was designed to burn coal, converting it into H<sub>2</sub>O, H<sub>2</sub> and CO<sub>2</sub>.

The hydrogen was intended to be used as fuel for a 500MW power plant, while the CO<sub>2</sub> was slated to be buried in geological strata between Fremantle and Rottnest Island. The proposed onshore site was close to BP Kwinana oil refinery and Rio's HISmelt direct iron ore smelting plant. However, after more than two years of investigations and several million dollars of research, BP has now admitted that the geological formations off Perth contain gas "chimneys" that mean it is next to impossible to establish a seal in the strata that could contain the CO<sub>2</sub>.

"What we wanted with this first project in Australia was the lowest risk, biggest and simplest way of demonstrating the commercial success of the technology," according to BP. "It was just not possible to do that with the Kwinana location."

### **Coalition calls for EU action on CCS projects**

A coalition of industry and non-governmental organisations (NGOs) has called for EU action on accelerating CCS demonstration projects. The coalition called for support for companies operating CCS demonstration projects so that they can get credits which could be traded in the Emissions Trading System.

The transitional project demonstration mechanism should be 'time and volume limited, transparent, competitive, and market based and be part of a roadmap to mass CCS deployment in Europe,' it said. The mechanism for large scale CCS demonstration must build on clear rules for liability and safety of storage, as defined by the proposed directive on geological storage of CO<sub>2</sub>.

The coalition said a range of CCS technologies are available now for large-scale demonstration. It said members are keen to play their part in demonstration, provided that governments create the right economic conditions as they have done with other new technologies. The coalition complained that the EU has not yet established firm financing mechanisms in support of pledges made by government leaders to have CCS demonstration projects up and running by 2015. At the EU spring summit last year, which set climate targets, the bloc's leaders called for a mechanism to stimulate the construction and operation of up to twelve large scale demonstration plants by 2015.

### **Spectra eyes big CCS project**

Spectra Energy Corp will study building a US\$12M CCS facility at its natural gas plant in northeastern British Columbia. The provincial government has agreed to pay US\$3.4M to look at the geological feasibility of permanently storing captured CO<sub>2</sub> and hydrogen sulphide in a reservoir 2km underground.

Spectra said the facility in Fort Nelson has the potential to store about 1M tonnes of CO<sub>2</sub> annually, which would be the equivalent of taking 250,000 cars off the highway. The province is looking to carbon sequestration to help meet its goal of reducing emissions of greenhouse gases by 33% by 2020.

### **Vattenfall to build CCS plant**

Swedish state owned utility Vattenfall said in May it will build a CCS demonstration plant at a 500MW block of its Jaenschwalde lignite power plant in Germany. The demonstration plant will require an investment of about 1 billion euros and be in full operation no later than 2015. The company is due to open the world's first plant for CO<sub>2</sub> separation in Schwarze Pumpe, Germany this year after an investment of about €70M.

Vattenfall said it was cooperating with Gaz de France Production and Exploration GmbH in testing a technology for storing the captured CO<sub>2</sub> in a depleted natural gas field in the Altmark, Germany.



### **Queensgate coal plant set**

A London-based company that specializes in clean coal technology is planning to build its first US facility along the banks of the Ohio River at Queensgate.

Vertus Technologies Ltd of London has signed a 25-year contract with Cincinnati Bulk Terminals LLC, to install and operate a facility designed to remove pollutants from coal before it is burned.

The technology heats coal without oxygen to remove 99% of the sulphur, reducing sulphur dioxide emissions when the coal is burned, the company says. The removed sulphur is used to create gypsum.

Also, 99% of the mercury in the coal is removed and recycled.

### **RG Global's first CBM water treatment plant**

RG Global's Catalyx Fluid Solutions division announced that its first plant for Yates Petroleum Corp. to treat discharge water from coal bed methane (CBM) wells has begun water treatment production after successfully passing the Wyoming Department of Environmental Quality (DEQ) water quality tests. Located near Gillette, Wyoming, in the Powder River Basin, the plant employs Catalyx Fluid Solutions' innovative new proprietary ion exchange technology that cleans the water more cost efficiently and with less waste by-product than other existing methods.

The multi-million dollar plant is the first of three phases and part of a five-year, US\$20-22M gross revenue Build-Own-and-Operate contract with Yates. It currently has a capacity to treat 30,000 barrels per day (BPD) of coal bed water and can be operated continuously at 120% of capacity.

The high level of sodium and other contaminants in the water discharged from CBM production is a major environmental issue that has stymied CBM production in many areas," said RG Global. "We are extremely pleased to report that the CFS water treatment plant is producing water which is completely safe for irrigation and discharge into nearby bodies of water."

The plant uses a patent pending technology to reduce treatment costs by more than 50%. Tests are being conducted on a crystallization process from the saturated waste to completely eliminate waste discharge from the plant, and produce a usable commodity (sodium sulphate) from the treatment system waste.

The plant removes sodium, barium, iron and other inorganic contaminants present in the water that is extracted from the coal beds underground. Its automated 24/7 monitoring system enables instantaneous adjustments in water treatment in response to changes in the water content to ensure that the final discharge water meets standard requirements at all times.

Methane is the principal component of CBM production, making it an attractive fuel substitute for natural gas. Compared to other hydrocarbons, methane combustion produces less CO<sub>2</sub> per unit of heat released. As the simplest hydrocarbon, methane produces the most heat per unit mass than other more complex hydrocarbons.

## **EVENTS**

**1-3 Jul 2008**, Coal-Gen Europe 2008 Conference, Warsaw, Poland, Gil Burton, COAL-GEN Europe, PennWell Corporation, PennWell Publishing (UK), Warlies Park House, Horseshoe Hill, Upshire, Essex, EN9 3SR, UK, Tel: +44 1992 656 617, Fax: +44 1992 656 700, Email: [exhibitcge@pennwell.com](mailto:exhibitcge@pennwell.com).

**28-30 Jul 2008**, Coal Bed Methane 2008, This conference brings together global experts with case study examples and key insights on developing the CBM natural gas sector in Asia. Visit: [www.ibc-asia.com/cbm](http://www.ibc-asia.com/cbm) or email: [rita.parasurum@ibcasia.com.sg](mailto:rita.parasurum@ibcasia.com.sg) for more information

**13-15 Aug 2008**, Coal-Gen 2008 Conference, Louisville, KY, USA, Sarah Syverson, PennWell, 1421 S. Sheridan Road, Tulsa, OK 74112, USA, Tel: +1 918 832 9343, Fax: +1 918 832 9305, Email: [coal-genevent@pennwell.com](mailto:coal-genevent@pennwell.com), Internet: [www.coal-gen.com](http://www.coal-gen.com).

**11-12 Sep 2008**, 6th China International Coking Technology and Coke Market Congress, Renaissan, Tianjin TEDA Hotel & Conference Center, Tianjin, China. Contact Persons: Mr. Qiu, Guangjun E-mail: [qiu@mc-ccpit.com](mailto:qiu@mc-ccpit.com) Tel: +86-10-85110095/65132109 Fax: +86-10-85110094 Official Website: <http://www.coke-china.com>.

**29 Sep - 2 Oct 2008**, 25th Annual International Pittsburgh Coal Conference, Pittsburgh, PA, USA, International Pittsburgh Coal Conference Secretary, University of Pittsburgh, 1249 Benedum Hall, Pittsburgh, PA 15261, USA, Tel: +1 412 624 7440, Fax: +1 412 624 1480, Email: pcc@engr.pitt.edu, Internet: www.engr.pitt.edu/pcc.

**6-8 Oct 2008**, 2008 Coal Market Strategies Conference, Williamsburg, VA, USA,, Teresa Coffey, American Coal Council, 1101 Pennsylvania Ave., NW, Ste. 600, Washington, DC 20004, USA, Tel: +1 202 756 4540, Fax: +1 732 231 6581, Email: tcoffey@americancoalcouncil.org, Internet: www.clean-coal.info/drupal/cms08.

**9-10 Oct 2008**, McCloskey's China Coal Markets Conference 2008, Beijing, China, Georgina Lucey, The McCloskey Group, 2 Pages Court, St Peters Road, Petersfield GU32 3HX, UK, Tel: +44 1730 265095, Fax: +44 1730 260044, Email: georgina.lucey@mccloskeycoal.com, Internet: conf.mccloskeycoal.com.

**19-23 Oct 2008**, 12th Australian Coal Preparation Conference: Cleaning Coal to Secure our Future, Darling Harbour, NSW, Australia, Australian Coal Preparation Society National & NSW, PO Box 2315, Dangar NSW 2309, Australia, Tel: +61 02 4926 4870, Fax: +61 02 4926 4902, Email: acpsnational@acps.com.au, Internet: www.acps.com.au.

**21-23 Oct 2008**, Power-Gen Asia 2008 Conference, Kuala Lumpur, Malaysia, Samantha Malcolm, PennWell Corporation, PennWell Publishing (UK), Warlies Park House, Horseshoe Hill, Upshire, Essex EN9 3SR, UK, Tel: +44 1992 656 619, Fax: +44 1992 656 704, Email: attendingpga@pennwell.com, Internet: www.powergenasia.com.

**16-20 Nov 2008**, 9th International Conference on Greenhouse Gas Control Technologies, Washington, DC, USA, John Gale, IEA Greenhouse Gas R&D Programme, Orchard Business Centre, Stoke Orchard, Cheltenham, GL52 7RZ, UK, Tel: +44 1242 680753, Fax: +44 1242 680758, Email: johng@ieaghg.org, Internet: mit.edu/ghgt9.

**18-20 May 2009**, 4th International Conference on Clean Coal Technologies, Dresden, Germany, IEA Clean Coal Centre, 10-18 Putney Hill, London SW15 6AA, UK, Tel: +44 20 8780 2111, Fax: +44 20 8780 1746, Email: mail@iea-coal.org.uk, Internet: www.iea-coal.org.uk.

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