



**Coal**  
Association of  
New Zealand

# Coal e-Newsletter

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## COAL NEWS

### New Zealand

#### **Genesis Energy take 50% Stake in CRL Energy**

CRL Energy recently announced the purchase of a 50% stake in its company by Genesis Energy. All parties see the transaction as a significant boost for research and development of low emission coal technologies in New Zealand. These technologies which include high efficiency coal gasification, carbon capture and storage, and hydrogen manufacture, will provide New Zealand with the option to make sustainable, low emission power and vehicle fuel from the country's vast coal reserves.

CRL Energy Chairman Alan Broome said that the investment was a vote of confidence in the organisation led by Chief Executive Rob Whitney and reflected the world class calibre of its researchers and research programme. "The involvement of Genesis Energy means we can advance our coal research programmes along the pathway to eventual commercial application."

Genesis Energy Chief Executive Murray Jackson said the investment in CRL Energy is part of his company's commitment to developing sustainable energy solutions for tomorrow. "As the largest thermal generator of electricity in the country, we need to be able to address the effects our operations have on the environment. That's why we are



investing in CRL Energy - to promote the development of new thermal power technologies with fewer emissions and greater efficiency. We are looking at opportunities to work with CRL Energy to scale up this technology so it can be used with carbon capture and storage in future low emission power generation from thermal sources."

Chris Baker, Executive Chairman of the Coal Association of New Zealand, which is the other 50% shareholder of CRL Energy, welcomed Genesis Energy's investment. "Genesis Energy's decision to invest is recognition of the long term potential for New Zealand's coal resources to provide a sustainable, low emissions energy source."

Genesis Energy has purchased the 50% shareholding in CRL Energy from the National Institute of Water & Atmospheric Research (NIWA). On sale of the shares, NIWA commented that its two year involvement with CRL Energy has forged strong links between the two research institutes. "NIWA and CRL Energy have a combined expertise right across New Zealand's energy resource portfolio and will continue to work together closely through our collaboration in the National Centre for Climate and Energy Solutions, and the 'EnergyScape' future energy pathways research for the Foundation for Research Science and Technology."

### **Thermal fuels underpin NZ's electricity supply**

The latest energy figures demonstrate the fundamental importance of thermal fuels in achieving a secure electricity supply in NZ said Chris Baker in a Coal Association media release. "NZ is fortunate in being able to access a wide range of energy resources to generate electricity. Thermal energy sources are an essential component for security of this country's electricity supply, supporting the use of those renewable energy sources that are dependent on weather.

"In particular, dry conditions put pressure on NZ's hydroelectricity generation. Currently, increased thermal generation, cutbacks in industrial production and power saving measures by NZ consumers are keeping the lights on," he said.

In the March 2008 quarter, a total of 10,130 GWh of electricity was generated, up 3% from last year. Thermal generation accounted for 35% of the total (nearly one third of that from coal and most of the remainder from gas generation).

Mr Baker said: "The Coal Association sees the full range of energy sources and technologies – including renewable energy, thermal energy and energy efficiency as key to energy security and maintaining economic prosperity. As the country builds new sources of electricity generation, we need to achieve a balance between renewable generation such as hydro and wind which is weather dependent and thermal and geothermal generation which provide reliable, always-available generation capable of being scaled up to meet fluctuations in demand and in renewable generation.

"The government's proposed moratorium on thermal fuels for electricity generation overlooks the vital role of thermal generation in meeting rising energy demand and providing the back-up required for new renewables. The policy approach should recognise the role of thermal generation in underpinning electricity security and encourage investment in high efficiency, low emission thermal generation sufficient to maintain NZ's energy security at acceptable levels," he said.

### **Pike River recruits staff for West Coast mine**

Having recruited more than 70 staff, Pike River Coal said it now has a workforce sufficient for the start of production for the mine it is developing near Greymouth.

Recruiting would continue to support the scheduled production ramp-up to 200,000 tonnes for the year to the end of next June. The company said it would eventually employ 150 staff when full production started in mid-2009, with estimated downstream employment for at least another 450 locals providing support services. That would make Pike River the fifth largest employer on the West Coast. Within a year the company would be spending \$30M annually on labour, transport, power and support services sourced from the West Coast.

The coal preparation plant was expected to be completed this month, a slurry pipeline was essentially complete and the first continuous miner was due for delivery in late August. Work has started on the train load out facilities at Ikamatua.

### **More permits for coal seam gas prospecting in three regions**

L&M Petroleum Ltd has identified coal seam gas (CSG) potential within the company's onshore Western Southland Basin permit areas containing up to 300 billion cubic feet of resource near the Ohai coalfield. L&M said they have already had expressions of interest from significant parties who are prepared to purchase gas from any future production output. The company has identified three potential coal seam gas fairways running over some 85 km in

three of its western Southland permits. These are in known occurrences of Eocene age Beaumont coals which are highly prospective for economic coal seam gas reserves.

A programme of well drilling and new seismic costing about \$2M has recently started. The exploration programme will focus initially on the Takitimu South fairway west of Ohai coalfield. Over 40 core holes drilled previously within the Ohai coalfield area have tested gas, with desorption testing showing Morley coals in this area containing up to 10 cubic metres of gas per tonne of coal. The company plans to acquire 15 km of new 2D seismic within each of its three permits to confirm additional CSG targets; and drill up to five additional CSG targets — depending on the outcome of seismic survey.

The Macdonald-Chartwell CSG joint venture was awarded two exploration permits in June in the Waikato-Thames Valley area and in the Buller area of the West Coast. The joint venture was formed by Macdonald Investments Ltd a private Wellington-based investment company and Chartwell Energy Pty Ltd, an Australian private CSG exploration company.

The partners say their objective is to become the largest CSG company in New Zealand. The Buller permit covers 8,722 sq km area while the Waikato permit contains 3,667 sq km. Chartwell's NZ subsidiary has raised \$12.5M from investors and says in its website that it is primarily focused on development in New Zealand. Chartwell says that in the Greymouth area mining permit. Initial studies suggest a gas in place resource of over 300 billion cubic feet in the central area of the permit alone.

### **Rail line sets record**

May was a record month for the rail link between West Coast mines and the Lyttelton export terminal, with 257,000 tonnes of coal transported.

Capacity improvements on the Midland Line are the result of a coordinated approach by all parties, including On Track's investment since 2004 in track maintenance and improvement. Toll Rail (now Kiwi Rail) has added more bulk coal wagons and is trialling the use of longer trains, and material handling advances have been made by Lyttelton Port of Christchurch.

Confidence in the rail link's future ability to carry up to 4 million tonnes a year was a factor in Solid Energy securing an 18-year contract to transport Pike River Coal Ltd's export production. The agreement guarantees Pike River up to 1.3 million tonnes a year of capacity on the line from late this year.

Pike River is now developing a new load out facility at Ikamatua and further investment is under way in the line, rolling stock and locomotives, and increased capacity at the port. It is expected that the longer 45-wagon trains will begin operating early in 2009.

Other freight on the line has also increased significantly, including dairy products, cement and gold concentrate.

## **INTERNATIONAL NEWS**

### **Australia**

#### **Coal Seam Gas developments**

In June, BG, a British energy firm, offered to buy Origin Energy, Australia's largest coal-bed methane firm, for A\$ 13.8 billion. That represents a premium of some 50% over Origin's stock market value when BG first registered its interest in late April.

At the same time Origin announced that it was increasing its estimate of its "proved" reserves of gas by 20% and its "probable" reserves by 91%, on the basis of an independent assessment. It cited those revisions, along with another recent deal that seemed to value coal-bed methane reserves more highly, as reasons to demand more, prompting BG to go hostile and make its case directly to shareholders.

Australia is awash with deals involving coal-bed methane. Earlier this year BG and Queensland Gas Company, one of Origin's rivals, agreed to build a plant to liquefy coal-bed methane and export it to Asia. Royal Dutch Shell, a huge oil-and-gas firm, and its local partner, Arrow, have similar plans, as do Petronas, Malaysia's state-owned oil firm, and Santos, another Australian coal-bed methane outfit.



### **Commodity sales forecast on coal raised**

Australia may earn 12% more from commodity exports than forecast in March because of higher prices. Sales may rise to a record A\$ 212 billion in the year ending June 2009 according to Australian Bureau of Agricultural and Resource Economics (ABARE).

Prices for coking and thermal coals, iron ore and crude oil have all risen to records this year, bolstering profits for producers including BHP Billiton Ltd. Global commodity prices are likely to remain at an "elevated level" amid ongoing demand from Asia.

The strength of Australia's minerals and energy exports continues to underpin commodity sector performance. The price outlook across minerals and energy commodities remains positive, reflecting continued strong demand and only modest world supply growth.

### **BHP, Mitsubishi in US\$ 2.5 billion coal deal**

BHP Billiton and Mitsubishi have agreed to pay US\$ 2.45 billion to buy a large development project from Queensland miner New Hope Coal. The BHP Mitsubishi Alliance (BMA), the world's largest coking coal producer, said it bought the New Saraji project because it was a high quality project adjacent to its Saraji mine in the Bowen Basin. New Saraji contains 690M tonnes of resources. The deal will also give BMA the right to 10M tonnes of export capacity at the Abbott Point coal terminal as it is expanded.

The New Saraji project purchase marks BHP's second moderately sized acquisition since it launched its US\$ 160 billion hostile bid for Rio Tinto in February. BHP has also completed its C\$ 284M purchase of one of its joint venture partners, Canadian potash developer Anglo Potash.

### **Coal gas boost firms up LNG plant**

Queensland Gas Co is set to boost reserves by 80% at its onshore Surat Basin fields in a move to secure coal seam gas for an A\$8 billion Gladstone export plant. The company had exceeded a previous reserves target by a third, taking a key step towards approval of the Curtis liquefied natural gas project, in which it was a partner with British gas giant BG Group.

Curtis is one of five projects to build LNG plants at Gladstone, where the interest of global majors Royal Dutch Shell and Petronas, along with BG, have sent shares soaring for owners of the region's vast coal seam gas reserves. Queensland Gas said it would boost proven and probable (2P) reserves from 1317 PJ to 2370 PJ. Mr Cottee said this was well above a previous target of 1800 PJ. In the coming planned reserve statement, QGC will boost 1P reserves to 560 PJ from 477 PJ and 3P reserves, which are defined to a lesser level of confidence than 1P, to 7100 PJ from 3116 PJ.

## **Bulgaria**

### **Bobov Dol power plant**

Consortium Energia MK, a group of Bulgarian coal mines, won a tender to buy the 630MW Bobov Dol coal-fired thermal power plant for US\$ 80M. The only other suitor for the plant in western Bulgaria was not allowed to bid because it had failed to pay a deposit for the auction. The deal is pending approval by the privatisation agency's supervisory board.

The new owners will invest in environmental upgrades to bring the plant up to European Union standards. Bobov Dol has two operational units with output capacity of 210MW and one 210MW unit that has been shut.

## **Canada**

### **Greencastle enters Saskatchewan coal hunt**

Greencastle Resources Ltd. reported that it has applied to the government of Manitoba for a coal exploration permit on the Manitoba/Saskatchewan border.

The recent coal discovery in Saskatchewan by Goldsource Mines Inc. has resulted in a rush of permit application activity, covering a large area of eastern Saskatchewan. In April, Goldsource announced that, while drill testing geophysical anomalies for kimberlite, it had intersected coal (at a depth of about 80m) in two core holes located 1.6km apart and represent 26m and 32m, respectively, of coal seam, including 23m of continuous coal in each hole. The two core drill holes are located approximately 50km north of Hudson Bay, Saskatchewan.



In June, Goldsource announced that it had been granted 55 coal permits and a further 179 were expected soon. It now plans a drill programme to evaluate an area of 17km by 9km which Goldsource says could conceptually have the potential to contain 2 to 4 billion tonnes of coal.

## China

### **Coal spot coal price jumps despite price freeze**

The spot coal price in China recently jumped to a record high despite a government order to cap thermal coal prices, as supply tightened with the arrival of the peak summer consumption season. The benchmark spot price for top grade 5,800 kcal/kg coals at Qinhuangdao jumped to US\$ 138.40-139.80 per tonne, more than doubling from a year earlier.

China announced a cap on thermal coal prices through the end of the year at the June 19 level. Analysts and traders believed the price cap would be temporary and would not change the upward trend in the coal price.

### **China cuts VAT rate on DAME**

China will cut the rate of value-added tax (VAT) on diethyl ether (DAME), a coal-based alternative to oil, to help boost the development of alternative energy amid soaring world energy prices.

The Ministry of Finance and State Administration of Taxation jointly announced that the government will cut the VAT rate on DAME by 4% points, to 13%. The adjustment removes the gap between the VAT rate levied on DAME and other fuels, including liquefied gas and natural gas. The move will help the development of the DAME industry.

China is accelerating the use of DAME-powered buses. Shanghai, for example, planned to put 90 more such buses into operation this year, up from 10 last year. It expected to have 1,000 such vehicles running in the city by 2010.

### **Plant to begin coal-to-liquid production**

One of the world's largest coal producers will finish construction this year of the first coal-to-liquid plant built in 40 years in China. The Shenmue Group will begin producing diesel fuel from coal later this year at the facility, located in Inner Mongolia, about 500km west of Beijing. The plant will convert coal into some 22,000 barrels of crude oil-like liquid per day, of which 70% will be pure diesel fuel.

### **Companies sign Shanxi coal-bed methane exploration deal**

China Era Energy Power Investment Ltd has signed a contract with China National Petroleum Corp (CONIC) for joint exploration of a coal-bed methane (CBM) block in northern China's Shanxi province. The CBM block, located in the west of Shilou county, covers a total area of 1524 square km. The block has estimated proven reserves of 56 billion m<sup>3</sup>, with recoverable reserves of 28 billion m<sup>3</sup>. It is expected to produce 400 million m<sup>3</sup> of CBM per year after operations begin. The company did not say when this will be.

## India

### **Tata power will double coal imports to raise electricity output**

Tata Power Ltd. (India) will double coal imports this fiscal year to 3M tonnes, aiming to boost production by a fifth. Most of the supplies will come from Indonesia. Tata Power plans to add 490MW of coal fired electricity to its existing 2,472MW capacity in the year ending March 2009.

Peak power shortages in India are as high as 15%. Tata Power needs to import as much as 22M tonnes of coal annually to increase capacity more than fivefold to 12,861MW by March 2013. The company last year paid US\$ 1.3 billion to PT Bumi Resources of Indonesia for 30% of units from PT Kaltim Prima Coal and PT Arutmin Indonesia.

The company will spend US\$ 150M to hire nine capesize bulk carriers. The ships will transport coal from the company's Indonesian mines to the Mundra port on India's west coast, where Tata Power is building a 4000MW coal fired plant.

### **Binani plans investment in coal assets**

Binani Cement plans to invest up to US\$ 100M to acquire coal mines in Indonesia. The cement firm was also looking at long term contracts to source coal from South Africa to meet captive requirements. It also plans to develop lignite mines in the northern state of Rajasthan to feed its proposed 100MW captive power plant in the area as an alternative to coal.

The lignite mines in Rajasthan were estimated to have 13M tonnes in reserves. Binani currently buys coal from state-owned Coal India and the spot market. Binani, which currently produces about 6.5M tonnes of cement in its units in India and abroad, is also finalising plans to raise capacity to 13M tonnes in next 2-3 years.



## Indonesia

### **BHP approves development of coal mine**

BHP Billiton has approved development of the Maruwai coal deposit in Indonesia for a capital investment of about US\$ 100M, to take advantage of soaring coal prices. BHP said the Haju open cut mine in Kalimantan province will initially produce 1M tonnes per year of metallurgical coal for steel-making, with potential to expand to 2M tonnes. Construction will start immediately and first production is expected mid-2009.

## Namibia

### **SA coal magnate to spend on Aranos coal**

South African coal magnate Kobus Smit, the majority shareholder in South African coal mining group Umcebo Mining, will commence coal prospecting in the Aranos district in the next few months. Smit said buying a farm in the area or concluding any Surface Owners Agreement with farmers on whose land the prospecting would take place, will only be decided once the process begins. Smit said he is busy registering legal entities in Namibia, which he said would carry out the mining activities should the venture turn out to be successful.

The high quality coal, fit for blast furnaces and power plants, was discovered about 30 years ago during one of Anglo American's regular drilling surveys. In a 1991 study, the coal resource was estimated at 370M tonnes. A mine life of 300 years was then mentioned at an extraction rate of 600,000 tonnes per year. The same study described the coal as having high carbon and low phosphorus qualities.

Smit has already been given an exploration processing licence (EPL) by the Ministry of Mines and Energy. Smit has had meetings with the Namibia Agricultural Union to discuss the farmers' interests following the acquisition of the mining rights.

## Philippines

### **More coal-fired plants needed until renewables kick in**

The Department of Energy is pushing for clean coal technologies as "bridge fuel" to help avert a power crisis in the near future. The Energy Secretary said they are supportive of coal projects that utilize new technologies that will eliminate nitrogen dioxide, sulphur oxides and particulates which pollute the environment.

Among the coal plants in the pipeline are the 100MW Semirara coal-fired project in Concepcion, Iloilo and 200MW of Kamanga power plant of Conal Holdings Corp. in Sarangani, Mindanao and 200MW Naga power plant of Korea Electric Co. (Kepeco) and Salcon Power Corp. The completion of these plants, together with the growing number of power plants and manufacturers shifting to coal from bunker or diesel, is seen to further boost demand for both local and imported coal.

Reyes said coal-fired power plants currently account for 30% of the power generation mix in Luzon and 25% for the entire country.

### **Isabela government reconsiders coal power plant project**

The Isabela provincial government is reconsidering the putting up and operation of a coal fired plant which was put on hold in 2006 when its proponent, the Philippine National Oil Co. (PNOC) decided to shelve the project following failure then to obtain an environmental compliance certificate (ECC).

The project has been receiving constant opposition from residents of Cauayan City and the towns of Naguilian and Benito Soliven in the central part of the province where the plant was to be put up.

Vice Governor Ramon Reyes clarified that the project was only "temporarily suspended" owing to the inability of the firm then to answer questions on the residents' opposition to the project. Reyes also said most members of the provincial board support the resumption of the project by PNOC which was undertaking exploration activities in the said areas prior to the project's shelving two years ago. The company has resumed information dissemination and education activities in the affected communities.

### **Coal miner eyes 300MW power plant in South Cotabato**

Coal miner Sultan Mining and Energy Development Corp. is exploring the possibility of putting up a power plant in Daguma, South Cotabato, in the southern Philippines.

Sultan Mining's coal resources are enough to power up a 300MW power plant, according to sources familiar with the company's activities. Sultan's wholly owned subsidiary, MG Mining and Energy Corp. (MGMEC), indirectly owns 13%



of Sultan Energy Philippines Corp.—the owner of a 7,000-hectare concession area in what is called the Daguma coal deposit. The area is situated between the provinces of South Cotabato and Sultan Kudarat in Mindanao.

Resource consultants in 2006 estimated MGMEC's coal resources potential at 211M tonnes within seven coal blocks in Daguma. MGMEC holds coal operating contracts (COC) that allows it to explore, develop and extract coal in specific areas covered by the contract.

## South Korea

### **POSCO to buy stake in Australia coal mine**

POSCO, a South Korean steel giant, had agreed to buy a 10% stake in an Australian coal mine in an effort to secure a stable supply of raw materials.

The US\$ 404M deal with Australia's Macarthur Coal requires approval by POSCO's board. POSCO, the world's fourth largest steelmaker, now has stakes in six coal mines and two iron ore mines in Australia. The firm is competing with global giants to meet rapidly growing Asian demand led by China and India.

## United Arab Emirates

### **Why the Gulf is switching to coal**

The Persian Gulf may be sitting atop massive oil reserves but with prices for crude skyrocketing, it makes more sense to sell it than to burn it. Instead, the Gulf is turning to coal for its energy needs, according to an article in Der Spiegel. Essen based energy giant Evonik Steag is hoping for tidy profits in the future from this trend: "The Gulf is a growth region for us." To illustrate the strong demand for electricity, Kuwait has five large scale gas and oil fired power plants in operation. The power they generate is for Kuwait's gigantic seawater desalination plants and the country's enormous air-conditioning needs.

At the end of April, the state owned Oman Oil Company signed a memorandum of understanding with two Korean companies on the construction and operation of several coal fired power plants. Dubai, for its part, is initially planning to build at least four large facilities with a cumulative output of 4000MW. Abu Dhabi also wants to get into the act. Even Egypt is thinking of constructing its first coal fired plant on the shores of the Red Sea.

The economics behind the switch to coal are clear. To produce a megawatt hour of electricity using Australian coal, it costs just €11. Using natural gas, on the other hand, ups that price to €26 while oil fired power plants cost €51 per megawatt hour. Also, coal is likely to be available for quite some time to come. The article stated that global coal reserves will last an estimated 100 more years and possibly even twice that long.

## USA

### **McCain wants US\$ 30 billion for clean coal research, 45 new nuclear reactors**

Republican presidential nominee John McCain derided Democratic plans to sue OPEC over high oil prices and the Bush administration's pleas to Saudi Arabia to boost oil production. The Arizona senator said that asking the Saudi to boost production shows weakness and questioned the validity of Democratic proposals to sue the OPEC oil cartel for antitrust violations.

President Bush and Vice President Dick Cheney both asked the Saudis to up oil exports. McCain also said he would dedicate US\$ 30 billion over the next 15 years to develop cleaner energy use of coal and wants the U.S. to build 45 nuclear reactors by 2030.

Rising crude oil and gasoline prices spark high food prices and burden businesses and consumers. The issue is fast becoming a centrepiece in the presidential race between Obama and McCain.

McCain favours more domestic oil and gas exploration and is offering a US\$ 300M prize to develop hybrid, flex-fuel and electric car batteries. Obama wants to tax oil company profits and parlay that money into middle-class tax relief.

### **New coal fired power plant approved**

The Virginia Air Pollution Control Board has approved permits for a US\$ 1800M coal-fired plant in southwest Virginia. The approval came with conditions to reduce planned emissions of sulphur dioxide and mercury and conversion of a power plant to natural gas.

The vote was the last major hurdle to the construction of the 585MW Virginia City Hybrid Energy Centre. It is scheduled to go on line in 2012. Proponents have said the energy plant would create jobs in the economically



depressed region and a new market for Virginia coal. Environmentalists have raised health and safety concerns about mining of coal for the plant and the effects of sulphur dioxide and mercury emissions.

### **BP America coal-bed methane wells to get OK**

Federal officials plan to give BP America Production Co. final authorization to drill four coal-bed methane wells in the San Juan National Forest. The Forest Service and Bureau of Land Management said Wednesday that they also expect in the next two weeks to approve BP's plans to construct up to seven other CBM wells.

All the wells would be in the Sauls Creek Area, outside of the HD Mountain Roadless Area and the Fruitland Outcrop. Some residents, environmentalists and Archuleta County commissioners have raised concerns about how development on the Fruitland Outcrop and HD Mountains could affect quality of life, wildlife, forests and water.

### **Peabody coal mine to supply southwestern utilities**

Peabody Energy has commissioned its new El Segundo coal mine in northwest New Mexico to serve utilities in the Southwest. It's the first new coal mine developed in New Mexico in more than two decades.

Peabody, which is ramping up El Segundo to produce 6M tonnes of coal per year, signed a 19-year agreement with Arizona Public Service Co. to supply 65M tonnes of coal to the Cholla Generating Station near Joseph City, Arizona.

El Segundo also will supply Tuscon Electric Power Co.'s Springville Generating Station in Springerville through a long-term contract that runs to 2020. Peabody invested approximately \$70M to develop El Segundo, which is located adjacent to its Lee Ranch Mine.

Both El Segundo and Lee Ranch ship coal to customers via the Burlington Northern Santa Fe and Union Pacific railroads. Together they employ nearly 265 workers. Peabody Energy is the world's largest private-sector coal company, with sales of 238M tonnes and US\$ 4.6 billion in revenue in 2007.

### **Oil, coal not on way out, forecast says**

World energy demand will grow by 50% over the next two decades, crude-oil prices could rise to US\$ 186/barrel, and coal will remain the biggest source of electricity despite its effect on global warming, government experts predict.

The Energy Information Administration's forecast to 2030 released yesterday said the world is far from abandoning fossil fuels. They will remain the core of energy production for transportation and electricity.

The steepest increases in energy use, the report said, will come in China and other developing economies, including in the Middle East and Africa, where energy demand is expected to be 85% greater in 2030 than it is today.

The outlook largely assumes no international agreements on capping greenhouse gases, which comes from burning fossil fuels. Without such limits, the annual amount of CO<sub>2</sub> flowing into the atmosphere would be 51% greater in 2030 than it was three years ago.

### **Legislation would create \$1 billion fund for clean coal technology**

US Representatives Mike Doyle and John Murtha are among the sponsors of bipartisan legislation introduced recently to accelerate the development and deployment of carbon capture and storage technologies via a US\$1 billion annual fund to bring cutting-edge clean coal technologies to market.

The fund would be received from fees on the generation of electricity from coal, oil and natural gas. Grants from the fund would be awarded to large-scale projects advancing the commercial availability of CCS technology.

### **EPA asked to consider proposed coal plant's technology**

Governor Bill Richardson and Attorney General Gary King want the US Environmental Protection Agency to ensure that a proposed coal-fired power plant in northwestern New Mexico has the best technology to deal with hazardous pollutants before construction on the plant can begin.

Under the Federal Clean Air Act, the EPA has to review the Desert Rock Energy Project's maximum achievable control technology, or MACT, before work can start on 1500MW plant.

Richardson and King, however, are asking the EPA to make that determination as part of the air permitting process, though the agency is not legally required to. The air permit would set limits for emissions such as sulphur dioxide,



nitrogen oxides, carbon monoxide, particulates and lead emissions. The MACT determination would look at pollutants such as lead, arsenic and mercury.

An EPA spokeswoman in San Francisco, Margot Perez-Sullivan, said the agency has received the letter and will formally respond in a timely manner. She said distinguishing the air permit and MACT processes "is the right way to do it." She declined to comment further.

If EPA does not complete the MACT determination before it acts on the air permit, the New Mexico officials want the EPA to reconsider the permit to incorporate any modifications that might be brought up in the MACT determination.

## Vietnam

### *Plans to buy coal from Indonesia*

Vietnam National Coal and Minerals Industries Group, known as Vinacomin, has signed contracts with a group including Indonesia's PT Berau Coal to buy coal for one of its power projects. Vinacomin has also visited Australia to look at the possibility of importing coal for other power projects.

## TECHNOLOGY & OTHER NEWS

### *CO<sub>2</sub> storage project achieves 10,000 tonne mark*

The first CO<sub>2</sub> storage project in the Southern Hemisphere has succeeded in storing its first 10,000 tonnes in a depleted natural gas reservoir 2km underground in Victoria, Australia. Solid Energy is a major investor and one of the founding members of the company set up to own and operate the CO<sub>2</sub>CRC Otway Project. The A\$ 40M project's aim is to inject 100,000 tonnes of CO<sub>2</sub> and to demonstrate, through extensive monitoring, that carbon storage (geosequestration) is technically and environmentally feasible and ready for widespread commercial application.

"Every indication is that the carbon dioxide is behaving just as researchers have predicted," the CO<sub>2</sub>CRC Chief Executive, Dr Peter Cook, said in July. "The injection process is proceeding very well and we are now starting on our next 10,000 tonnes. Through our monitoring programme, researchers track the behaviour of the carbon dioxide in the storage reservoir using very sophisticated geophysical and geochemical techniques. Soil, groundwater and atmospheric monitoring complement the subsurface activities. The use of such a wide variety of monitoring techniques gives us a high level of confidence that the compressed liquid carbon dioxide is stored safely and securely."

The project has been developed over the last 10 years by the Australian Cooperative Research Centre for Greenhouse Gas Technologies (CO<sub>2</sub>CRC) and was officially opened in April.

### *Lack of funds limits potential of carbon capture*

A recent article in the International Herald Tribune highlighted the CCS examples of Statoil in Norway, the Algerian natural gas and oil company's In Salah field and Canadian energy company EnCana's enhanced oil recovery in the Weyburn field. While these and other experiments show that CO<sub>2</sub> can be trapped underground with little or no leakage, commercial scale facilities to capture and bury the carbon emitted by utilities and industrial plants still do not exist. Two high profile projects - one in Scotland led by BP and another in Illinois led by the FutureGen consortium - were dealt setbacks over the past year because of ballooning costs and shortfalls in public funding.

"The really striking thing is the tremendously powerful view that carbon capture has pride of place in the pantheon of low carbon technologies, and yet it is the one that very little private money is going to," according to Professor Michael Grubb from Cambridge University. He considers this odd because if emitting carbon by burning fossil fuels becomes expensive or drastically restricted, then carbon capture technologies could keep them in business. In fact, members of the Organization of Petroleum Exporting Countries have allocated funding for developing carbon capture but generally, they say developing the technology is not their responsibility.

Companies like Royal Dutch Shell are contributing resources to carbon capture but they say it is too soon to make the technology mandatory, and that public - meaning taxpayer - support is vital. Shell stated "The scale of this activity is simply enormous. It is difficult for private companies to solely shoulder that burden because the specific experiment they participate in may not be the winning experiment."

Shell chairs the European Technology Platform on Zero Emission Fossil Fuel Power Plants, a coalition of European utilities, oil companies, scientists, and environmental groups that support technologies for carbon capture. According to that group, 10 to 12 demonstration plants - enough to test all the combinations of technologies to capture, transport and bury carbon dioxide, and choose the most efficient model - would cost as much as €10 billion. A proposal under



consideration by the European Parliament would allocate free carbon credits to companies that participate in carbon capture projects that can then be sold on the carbon market to raise funds for demonstration plants.

However, that approach worried Professor Grubb. He said a more direct and transparent way to promote carbon capture in Europe would be for governments to allocate directly money that is raised from auctioning carbon allowances, rather than from an additional system of free allowances. Beyond Europe, Grubb said, there could be further stagnation in the development of carbon capture technologies unless many more parts of the world moved swiftly to introduce laws making polluting more expensive. Some fossil fuel companies and exporting countries "are not yet convinced that governments have the guts to impose a carbon price that would make carbon capture a viable proposition".

### ***Hawaii joins DOE's carbon sequestration regional partnership program***

The state of Hawaii is the newest member of the US Department of Energy (DOE) Regional Carbon Sequestration Partnership Program - the centrepiece of national efforts to validate and deploy carbon sequestration technologies. The addition of Hawaii, the 42nd state to join the partnerships program, helps strengthen US efforts to reduce greenhouse gas emissions. Hawaii was included as a regional partner for the first time when the West Coast Regional Carbon Sequestration Partnership (WESTCARB) was awarded DOE funding in May for a Phase III large scale sequestration test.

Under the restructured FutureGen programme, DOE recently issued a Funding Opportunity Announcement (FOA) to invest US\$ 1.3 billion in multiple commercial scale Integrated Gasification Combined Cycle (IGCC) or other clean coal power plants with CCS technology. DOE anticipates US\$ 290M million will be available for funding of selected projects through fiscal year 2009 and an additional US\$ 1.01 billion is expected to be available in subsequent years, subject to appropriations by Congress. President Bush's FY 2009 budget request of US\$ 648M for clean coal research, development and deployment represents the largest amount requested for DOE's coal programme in more than 25 years and builds on more than US\$ 2.5 billion invested to advance clean coal technology since 2001.

Subject to compliance with the National Environmental Policy Act, the FOA envisions commercial operation of IGCC or other clean coal power plants equipped with CCS technology to begin as soon as the plants are commissioned by the end of 2015. Technical, economic, and operational results from multiple projects will inform and guide the promulgation of regulations related to wide scale carbon sequestration activities and at the same time will help establish technologies and protocols for CO<sub>2</sub> monitoring, mitigation and verification.

DOE's FOA requires that at least 50% of the energy output of the project's energy conversion system must be used to produce electricity and the FutureGen goal is 90% capture of carbon content in the syngas or flue gas. Projects must also remove at least 90% of the mercury emissions from the coal, and reduce sulphur, nitrogen oxides and particulate emissions to very low levels.

### ***IEA finds US CO<sub>2</sub> sequestration programme world's most ambitious***

A panel of scientific experts from the International Energy Agency (IEA) has validated that the DOE Regional Carbon Sequestration Partnerships (RCSP) and their large scale CO<sub>2</sub> tests are the world's most ambitious and will significantly advance CCS in the United States, Canada and internationally.

The IEA found that the seven Regional Carbon Sequestration Partnerships are unique in that no other country or region has initiated such an ambitious CCS effort. The panel's findings are important since the Partnerships, comprised of 42 US states and four Canadian provinces, have entered the stage (Phase Three) where they are focusing on large scale tests involving a million tonnes or more of CO<sub>2</sub> injected annually.

The panel of scientific experts selected by the IEA from Europe, Canada and Australia determined that the RCSP's Phase Three Deployment, is "an excellent programme that will significantly advance and accelerate the field of CCS." The IEA's findings indicate that the projects are realistic, achievable and should be implemented immediately to benefit national and international governmental organisations that will be responsible for establishing CCS projects; they are comprehensive and together comprise a major research initiative; no other country or region is undertaking such an ambitious programme; and that Phase Three is an excellent programme that will achieve major results for the US, Canada and the world.

### ***Britain seeks to set pace in carbon capture quest***

Britain announced in June a shortlist of four firms in a tender to build the world's first commercial scale power plant with CCS. "It is the great panacea. It would mean not having to do the hard things like changing the way we live," said Professor Michael Grubb, chief economist at Britain's Carbon Trust. "The trouble is that while everybody says it can be



done, no one has yet done it. There are very big companies out there with very deep pockets but even they are not doing it."

The reason is cost. "Estimates tend to group around an extra 30 to 50% in capital costs and around 15% more in running costs of a power station," according to environment lobby group E3G. At the same time, power output is cut by anywhere between 10 and 30%, depending on the technology used. The resulting extra cost of building and running a CCS power station means no company is prepared to invest in trying out the technology, and perhaps finding ways to improve and streamline it, without enormous subsidies.

The European Union wants 12 full sized pilot projects to be running by 2015, and the technology commercially viable by 2020. The incentive for power firms is that, if CCS can be made commercially viable, demand for the technology could be huge, with a potential market worth trillions.

Utilities such as Germany's E.ON and RWE and oil majors such as Shell, Total and BP have voiced an interest, but only in Britain has any progress been made with a CCS competition. The firms shortlisted were BP Alternative Energy International, E.ON UK, Peel Power and Scottish Power Generation.

### **UK parliamentary report on future of CCS**

The UK House of Commons Environmental Audit Committee recently published its report on the future of CCS in Britain, based on recent government policy decisions on the issue and also partly in response to E.ON UK's request that the government undertake a consultation of the meaning of the term 'carbon capture ready' before giving approval for its planned new coal fired power plant at Kingsnorth in Kent. The Committee's latest report is critical of the government's recent progress on CCS policy, suggesting that little more has been done other than 'issuing documents and reports'.

The report has received widespread coverage in the British media, with the Committee's calls for a deadline to be set for the adoption of CCS on all new coal fired power plants receiving heavy attention. In the report, the Committee has made a number of key recommendations for the UK's future policy on coal and CCS. The report acknowledges criticism of the government's decision to restrict its CCS funding competition to post-combustion CCS projects only. The Committee supports the government's pledge to fund the winning project in this competition but calls for governmental CCS support to be extended to a wider range of demonstration plants utilising all CCS technologies, including pre-combustion capture. It is argued that this extended support would give the UK a clear competitive advantage in CCS on the global stage.

The government should not rely on the emissions cap set by the EU ETS to justify the construction of new unabated coal fired capacity. This would leave the UK's economic position vulnerable in the case of constrictions on the emissions limit and any significant rises in the carbon price in phase III of the EU ETS. The government should not rely solely on the carbon price to drive investment in CCS. Uncertainty over the future price level and the costs of CCS requires the government to provide extra financial incentives (e.g. feed-in tariffs) beyond the carbon market to bridge the gap and send a clear signal that CCS is not only desirable, but essential.

### **UK compulsory carbon capture proposal attacked**

Electricity producers would be unable to comply with Conservative Party proposals set out in June to allow no new coal fired power plants to be built without "some element of carbon capture and storage", an electricity trade body warned. The Tories had "the wrong approach", according to the Association of Electricity Producers, as their proposals would make CCS "mandatory before it has been demonstrated successfully".

"Developing a regulatory framework and the infrastructure for capturing and storing carbon will take time. Meanwhile, coal fired power stations still have a significant role to play in maintaining security of electricity supply." AEP said the decision on whether to invest in CCS should be left to the market: "The EU emissions trading scheme will set CO<sub>2</sub> emission limits out to 2020, and it should be left to companies to choose how to stay within those limits."

### **Japanese and Chinese groups to conduct carbon capture studies**

A consortium of Japanese firms said it would conduct a feasibility study on a three year CCS project for the government, with the eventual goal of demonstrating the technology at a large scale power plant in Japan. The study envisions injecting CO<sub>2</sub> emissions from a Japanese coal fired test plant into the offshore Iwaki gas field, which ceased gas production last year. The gas field was expected to be able to hold at least 20M tonnes of CO<sub>2</sub>, while the test plant would emit around 1M tonnes of CO<sub>2</sub> a year at a capture rate of about 70%. However, the consortium did not yet know if and when an actual demonstration project would start.



In China, it has been reported that China Huaneng Group, the country's largest power producer, has successfully begun capturing CO<sub>2</sub> from the flue gas of a power station in Beijing. It is estimated that this pilot project has the potential to capture up to 3,000 tonnes of CO<sub>2</sub> annually.

### **SECA fuel cell programme selects several projects**

The US DOE has selected several projects for its Solid State Energy Conversion Alliance (SECA) programme portfolio. Two of the projects, focused on enhancing energy security through zero emission applications, will be led by UTC Power, in partnership with Delphi Corporation, and by Rolls-Royce Fuel Cell Systems (US) Inc. The Rolls-Royce project will include work at Ohio's Stark State College Fuel Cell Prototyping Centre, which is also supported through a National Science Foundation grant.

From an environmental perspective, fuel cells are one of the most attractive technologies for generating electricity. Solid oxide fuel cells operate by separating and transferring oxygen across a solid electrolyte membrane, where it reacts with a fuel - such as synthesis gas derived from coal, biofuels or natural gas - to produce steam and CO<sub>2</sub>. Condensing the steam results in a pure stream of CO<sub>2</sub> gas; this can be readily captured for storage or other use in a central location. This feature, coupled with the fact that fuel cell efficiency does not depend on high temperatures, results in near zero emissions (e.g., NO<sub>x</sub> <0.5ppm) at equivalent or reduced cost of electricity compared to today's power generation.

### **USDOE launches 30th annual university coal research competition**

The US DOE has released a funding opportunity announcement calling on US colleges and universities to propose new projects to enhance the long-term use of coal. The announcement launches the 30th year of DOE's University Coal Research (UCR) program, the Department's longest-running student-teacher research grant program.

Since the program's inception in 1979, nearly 1,765 students have received hands-on research experience investigating long-term solutions for clean and efficient use of coal. The program supports DOE's continued commitment to improving the environmental performance of our Nation's most abundant energy resource.

This year, the program will make available US\$ 2.4M to fund projects with a maximum of US\$ 300,000 per project. Each project will involve one or two colleges or universities and will extend over 36 months. Research proposals are being sought in three areas of interest:

- Computational Energy Sciences - For multiphase flow research to complement ongoing NETL-funded modelling research and for projects to develop process/equipment co-simulations of highly efficient, near-zero-emission fossil energy plants.
- Material Science - For new materials ideas and concepts that stretch beyond the current state of the art for fossil energy applications. For the development of computational tools and simulations that will reliably predict properties of materials for fossil energy systems in advance of fabrication.
- Novel Materials for Sensing or Monitoring in Extreme Environments of Fossil Energy Systems - For the development of novel sensor materials and devices to measure process parameters in the corrosive, high-temperature (>500°C), high-pressure (250 lbs/in<sup>2</sup>) conditions found in fossil energy systems.

## **EVENTS**

**09-10 Sep 2008**, McCloskey Russia Coal Conference 2008, St Petersburg, For further information regarding this conference please contact: [claire.lewis@mccloskeycoal.com](mailto:claire.lewis@mccloskeycoal.com), Tel: +44 (0) 1730 265095 or visit: [www.mccloskeycoal.com/conferences](http://www.mccloskeycoal.com/conferences).

**11-12 Sep 2008**, 6th China International Coking Technology and Coke Market Congress, Renaissan, Tianjin TEDA Hotel & Conference Centre, 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>.

**15-16 Sep 2008**, 10<sup>th</sup> Annual New Zealand Energy Summit, Wellington, New Zealand, Tel: +64 9 912 3617, Fax: +64 912 3616, Email: [register@conferenz.co.nz](mailto:register@conferenz.co.nz), Internet: [www.conferenz.co.nz](http://www.conferenz.co.nz).

**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](mailto:pcc@engr.pitt.edu), Internet: [www.engr.pitt.edu/pcc](http://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](mailto:tcoffey@americancoalcouncil.org), Internet: [www.clean-coal.info/drupal/cms08](http://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.

**9-10 Oct 2008**, McCloskey China Coal Conference 2008, Kempinski Hotel, Beijing, For further information regarding this conference please contact: claire.lewis@mccloskeycoal.com, Tel: +44 (0) 1730 265095 or visit: [www.mccloskeycoal.com/conferences](http://www.mccloskeycoal.com/conferences)

**19- 21 Oct 2008**, 28th Coaltrans' World Coal Conference, Prague, This conference has been running for 28 years. 1400 participants in 2007. At each event, new business has been won, existing relationships consolidated and valuable contracts have been negotiated and agreed; quite simply, it is the event where coal deals are done. Visit [www.coaltrans.com/prague](http://www.coaltrans.com/prague)

**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](mailto:acpsnational@acps.com.au), Internet: [www.acps.com.au](http://www.acps.com.au).

**20-22 Oct 2008**, 17th International Symposium on Mine Planning and Equipment Selection 2008 and China International Mine Planning and Equipment Selection Exhibition, Held at the Beijing International Convention Centre, Beijing, China. Contact persons: Mr Guangjun Qiu Tel: +86-10-85110095 / 65132109 Fax: +86-10-85110094 Email: [qiu@mc-ccpit.com](mailto:qiu@mc-ccpit.com) Official Website: <http://www.mpesbeijing.com>.

**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](mailto:attendingpga@pennwell.com), Internet: [www.powergenasia.com](http://www.powergenasia.com).

**11-12 Nov 2008**, McCloskey US Coal Imports and Exports Conference 2008, Renaissance Hotel, Portsmouth, Virginia. For further information regarding this conference please contact: claire.lewis@mccloskeycoal.com, Tel: +44 (0) 1730 265095 or visit: [www.mccloskeycoal.com/conferences](http://www.mccloskeycoal.com/conferences)

**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: [johnhg@ieaghg.org](mailto:johnhg@ieaghg.org), Internet: [mit.edu/ghgt9](http://mit.edu/ghgt9).

**3-5 Dec 2008**, McCloskey India Coal Conference 2008, Hyatt Regency, New Delhi, For further information regarding this conference please contact: claire.lewis@mccloskeycoal.com, Tel: +44 (0) 1730 265095 or visit: [www.mccloskeycoal.com/conferences](http://www.mccloskeycoal.com/conferences)

**9-10 Dec 2008**, Exploration, Mining & Processing Fundamentals, A Comprehensive 2 Day Course Teaching the Technical Fundamentals of Exploration, Geology, Mining Methods & Production for Industry Newcomers Visit: [www.ibt-asia.com/exploration](http://www.ibt-asia.com/exploration) for more information today.

**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](mailto:mail@iea-coal.org.uk), Internet: [www.iea-coal.org.uk](http://www.iea-coal.org.uk).

#### FEEDBACK

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