

## COAL NEWS

### NEW ZEALAND

#### **Major advance for clean energy research**

Secure, clean, internationally competitive energy solutions will be the focus of CRL Energy under a new ownership deal signed in late March.

The National Institute of Water & Atmospheric Research (NIWA) has purchased a half-share of CRL Energy Ltd. The other 50% shareholding is retained by the Coal Association of New Zealand.

The move makes the NIWA group of companies, including NIWA Science and CRL Energy, the largest energy research provider in New Zealand.

"We are delighted to become partners with the Coal Association in CRL Energy," says NIWA chief executive Dr Rick Pridmore. "CRL Energy's focus on medium to long-term energy solutions, including biofuels, carbon capture and storage, coal gasification and the hydrogen economy, will complement and enhance NIWA's current focus on environmental impacts and renewable resources, including wind, solar, hydro, and wave."

"Sustainable energy is one of the most critical issues challenging New Zealand's future development and economic growth," says Dr Pridmore. "Government and industry are becoming aware of the need to invest in research on a range of resources and technologies, from renewables to clean coal to distributed electricity generation to efficiency throughout the energy chain. NIWA's investment in CRL Energy will allow us to bring together some of the smartest New Zealand scientific and engineering minds to generate environmentally acceptable solutions spanning the entire energy sector."

Coal represents one of New Zealand's most important energy resources. Coal and associated technologies will play an important part in the transition to new sources of electricity generation and transport fuels globally and in New Zealand. Reducing or eliminating the associated greenhouse gas emissions poses challenges, but technology will help provide solutions. CRL Energy was set up by the coal industry as an industry research association nearly 40 years ago. The Coal Association chairman, Chris Baker, says "This partnership between NIWA and the Coal Association reflects the industry's commitment to research-driven solutions leading to zero emissions coal use and the continued development of alternative energy sources."

Mr Baker says that the new partnership will enhance the contribution CRL Energy can make to the New Zealand energy sector and that CRL Energy's research into clean coal and carbon capture and storage technologies "will be a key contribution to the continued use of fossil fuels in New Zealand and overseas".

#### **Wildlife permit secures future of mine and Powelliphanta snail population**

Coal producer, Solid Energy New Zealand Ltd, has welcomed the decision by the Minister of Conservation and Associate Minister of Energy granting a Wildlife Permit for the Mt Augustus area of the Stockton as a good outcome that both secures the future of the opencast mine and gives the best possible chance of survival for the Powelliphanta snail population on the site.

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Over the last two to three years Solid Energy has rescheduled production at Stockton and delayed mining along the ridgeline while it has carried out extensive technical work to determine how to mine the ridgeline safely and without impacting neighbouring DOC land.

The technical solutions specifically designed for mining along the Stockton ridgeline, at a cost of more than \$30 million, include:

- Specialised blasting techniques engineered to control vibration and minimise ground movement.
- Stabilising blocks at the top of the slope prior to blasting.
- Water management designed to ensure drainage of run-off back into the mine
- Detailed slope and environmental monitoring programmes.

In addition to these controls, rock fall protection barriers will be erected in places on the coal floor.

The permit conditions require Solid Energy to move up to 250 snails to a similar habitat as close as possible to the source location. Solid Energy will carry out intensive predator control of this area and the existing habitat that will not be mined. It will construct a predator proof fence around the relocation area, fund a captive management programme and survey the surrounding environment to locate other possible areas of habitat for Powelliphanta snails.

As much of the snail habitat as possible, including intact soil and vegetation, will be transferred to an area adjacent to the relocation site by precise excavation (called "direct transfer").

### ***Roa Mining and Solid Energy sign Transport Agreement***

Roa Mining Company Ltd and Solid Energy New Zealand Ltd have signed a ten year contract which will see Solid Energy transport up to 150,000 tonnes of coal from Roa Mine, north of Greymouth, to the Port of Lyttelton. The coal will be railed to Lyttelton from Stillwater and then shipped to international markets. Coal from Roa Mine has been exported from the West Coast since 1989 when a blend of Solid Energy and Roa coal (then produced by Francis Mining) was shipped. This coal was handled and transported by Solid Energy. Since then Solid Energy and Roa Mine have blended their coals on many occasions for international export. Roa Mining, which employs 32 people on the West Coast, will undertake a full refurbishment of the coal loading facility at Stillwater to accommodate the required rapid loading of trains.

### ***Timely gas supplies from coal***

Research scientists from Solid Energy and Resource Development Technology LLC (USA) recently presented research showing promising results on supplies of CH<sub>4</sub> gas from underground coal seams at five sites in the Waikato area.

Early indications show flow rates of 2 to 5 PJ per annum, potentially sufficient to supply gas to between 40,000 and 100,000 households a year, or meet 5 to 10% of Huntly Power Station's annual needs. Gas purity is very positive with results showing CH<sub>4</sub> levels at more than 98%. The next stage was to proceed to drill 5 appraisal wells in the second quarter of 2006, with full results available at the end of the year.

### ***Transport consortium to ship Pike River coal from Port Taranaki***

Pike River Coal Company has awarded the West Coast Coal Company (WCCC) consortium a long-term contract for delivery and export of up to 1.3M tonnes a year from its underground mine out of the river port of Greymouth on the West Coast. The NZ \$80M supply chain will be operated by the consortium made up of Port Taranaki, road transport operators TNL Group, the ship management arm of Wendell Group, and the Norwegian-based specialised bulk ship owner-operator Jebsens International.

Two other major contracts to construct a 2.2 km tunnel to access the Pike River coal deposit, and to build an 8.5 km access road to the mine portal, have also been announced. Pike River Coal said that for the coal transport contract, the WCCC consortium will be responsible for all aspects of handling and freighting the coal from the mine stockpile areas to onboard the export vessels at Port Taranaki.

### ***Record half-year on the back of exceptional export prices***

Solid Energy produced a record net surplus after tax of \$38M for the half-year ending December 2005 (more than double the surplus for the same period in 2004). This was mainly due to exceptional export prices which offset the continuing high New Zealand dollar in the period. While overall production volumes were down, due to 17 days of industrial action at the beginning of July, revenue for the period was a record \$257M, 41% up on the 6 months to December 2004.

Chief Executive Officer, Dr Don Elder, said that international prices will weaken in the coming year, with falls of up to 30% for hard coking coal already signalled in current negotiations between Australian producers and Asian steelmakers. Longer term, proving resources and developing new mines to meet customer demand will remain the company's major challenge, together with the rising cost of mining in New Zealand relative to large international competitors.

### **Future NZ car fleet may drive on hydrogen from coal**

Coal research scientists, Ramon Brown and Dr Tony Clemens of CRL Energy Ltd and Dr Steven Pearce of Solid Energy, say in a paper on developments in coal to hydrogen (H<sub>2</sub>) technology that ways of converting low-rank coal to high-grade H<sub>2</sub> for use in fuel cells was now well advanced. The scientists say that while it is generally accepted within the international community that the ultimate aim is to base the H<sub>2</sub> economy entirely on renewable energy sources, there is a transitional period when H<sub>2</sub> production would mainly come from fossil fuels.

The scientists have been carrying out research as part of a six year government-funded "H<sub>2</sub> energy for the future of New Zealand" programme. The goal is to develop the technology platform, knowledge and expertise to underpin the introduction of a H<sub>2</sub> energy infrastructure into New Zealand. Three different sized applications of coal to hydrogen technology are considered in their paper: developing a small-scale coal to H<sub>2</sub> conversion package that could meet the needs of small remote communities; servicing a large industrial complex by producing hydrogen, electricity and heat; and large-scale plants to produce H<sub>2</sub> for the country's future transport fleet and for generating electricity.

A major part of the research programme has been to demonstrate a coal to H<sub>2</sub> to fuel cell to electricity package at a small scale (less than 1 MW), which is likely to be typical of a distributed generation system. A pilot plant at the 200kW scale using a fluidised bed gasifier has shown that good quality gas can be produced at 900°C at moderate rates of steam injection. This system is already being successfully used to generate alkaline fuel cell grade purity H<sub>2</sub> from syngas.

Their paper was among the 5 (out of 300 entries) that were awarded honourable mentions from Pittsburgh International Coal Conference last year.

### **Solid Energy publishes second Environment Report**

Solid Energy released in February its second Environmental Report detailing its environmental activities and assessing its performance against environmental objectives for the year ending 30 June 2005.

Dr Don Elder, Solid Energy Chief Executive Officer, said the company will continue to be challenged on environmental issues at many of its sites, but it stands by the commitment it made in 2003 to reduce the net effect of all its activities going forward and to measure and report performance regularly, consistently, openly and honestly.

Solid Energy said it has made good progress on a number of issues and there have been a number milestones achieved in planning and implementing initiatives to address environmental impacts at a number of sites, particularly on the West Coast.

### **Major coal stockpile planned near Westport**

Brookdale Mining proposes building and operating a coal stockpiling facility 7km east of Westport to hold its coal from a mine on the Denniston plateau. It wants to store up to 90,000 tonnes in this rural area. The company, the Buller District Council and residents were to debate the proposal at an on-site meeting at the end of March. Brookdale Mining said a stockpile was essential to the mining operation, which would create about 50 jobs over its 20-year life. After 12 years planning, Brookdale hoped to open the mine and start development by May. It was expected that all the coal would leave the district through the Westport port.

Concerns had been expressed by local residents about trucking noise and about coal dust contamination of water. The company said action would be taken to limit dust and water run-off.

## **INTERNATIONAL NEWS**

### **ABARE calls for coal port infrastructure improvements (Australia)**

The Australia Bureau of Agricultural Resource Economics (ABARE) said building infrastructure will be important for maintaining strength in the coal industry. ABARE has forecast coal prices to fall, but the opening of new mines and strong demand will see volumes continue to remain high.

The capacity improvements to port facilities and the rail facilities are critical to being able to continue to grow exports of bulk commodities like metallurgical coal and thermal coal and hold high value.

### **Coal terminal upgrading leads to loading delays (Australia)**

The Central Queensland Ports Authority said upgrading work at its Gladstone coal terminals has led to a blow-out in the number of ships waiting to be loaded. The capacity of Gladstone's RG Tanna Coal terminal is being almost doubled to 70 Mtonnes, while the Barney Point terminal is also being expanded.

### **Alberta evaluates gasification plant for low rank coal (Canada)**

Alberta's Energy Minister Greg Melchin said Alberta is set to become one of the largest energy suppliers in the world, through the so-called Hydrocarbon Upgrading Task Force. The task force is involved in an evaluation study of a building that's being proposed as Canada's largest refinery and petro-chemical complex, complete with gasification plant, near Edmonton. The C\$8.5-billion proposal would produce 450,000 barrels of gasoline, kerosene and diesel per day, along with petrochemical feedstocks, hydrogen, ammonia and 500MW of coal-fired electricity.

While gasification technology isn't new, the majority of the gasification experience worldwide involves high grade coal and not the low grade sub-bituminous and lignite coals found in Alberta and Saskatchewan, said the Canadian Clean Power Coalition, an association of Canadian coal and coal-fired electricity producers including ATCO Power, EPCOR, Luscar Ltd., TransAlta Corp., and SaskPower, among others.

### **Coal-fired power plant proposed for B.C. (Canada)**

British Columbia may soon join the rest of the world in burning coal to generate power. A Vancouver based coal mining company announced recently a C\$350M proposal to build a coal-fired electrical generating plant in northeastern B.C. in answer to BC Hydro's recent call for new sources of electricity.

Hillsborough Resources and a subsidiary of US based multinational utility company AES are proposing to develop a 165MW thermal power plant that would represent a fundamental change of direction for meeting B.C.'s growing electricity requirements. The plant would be supplied by thermal coal from Hillsborough's Wapiti coal property northeast of Tumbler Ridge.

### **Proposed Mackenzie Valley pipeline spurs Arctic coal gasification mega-plan (Canada)**

Vancouver-based West Hawk Development has unveiled plans to strip-mine extensive coal reserves along the Mackenzie River and begin building C\$2 billion worth of coal gasification plants to tie into the pipeline within four years.

West Hawk announced it had bought about 1,100 km<sup>2</sup> of leases in three areas of the Northwest Territories estimated to contain 2.1 billion tonnes of coal. Two of those are near Tulita, a tiny Dene community on the Mackenzie just west of Great Bear Lake. The company envisions a series of strip mines taking up to 30 Mtonnes of coal a year and feeding it into gasification plants. The plants would be developed in 4 phases, with each phase worth about \$450M.

### **New coal find (China)**

China has discovered a 3.5 billion tonne coal reserve in Shaanxi province. The Shaanxi mining bureau said the coal, near Jingbian town, was of good quality and rested at a depth of 400-800 metres. China consumed 2.14 billion tonnes of coal in 2005, meaning that at current rates the reserve could satisfy its coal needs for about 18 months.

### **Shanxi limits expansion of coal mining (China)**

China plans to put the brakes on the further expansion of coal mining in the next five years. The move is part of tough measures to clean up the sector's record in environmental damage, the waste of resources and mine accidents.

Shanxi produced 600M tonnes of coal last year. It could guarantee an annual output of 700M tonnes in the next 5 years, by increasing the recovery rate of coal that can be extracted from the coal bed without more mining. It is currently shutting down mines with an annual output below 90,000 tonnes and pushing those producing less than 200,000 tonnes per year to introduce more advanced and environment friendly technologies.

### **Baruun Naran coal project study (China)**

CNW Telbec/QGX Ltd. announced that the concept study on the Baruun Naran coal project, southern Mongolia, has been awarded to Minarco Pacific Asia Pty Ltd. The study will define and evaluate the technical and economic parameters for the Baruun Naran coal deposit and to produce a preliminary economic valuation. The study is expected to be completed in the 2<sup>nd</sup> quarter of this year. QGX also awarded the resource study to McElroy-Bryan Geological Services Pty Ltd. (MBGS) in December of 2005.

The concept study will provide QGX with an estimation of the mineable tonnage potential, a strategic analysis of open-pit development, life-of-mine schedule, equipment and mining infrastructure requirements, capital and operating costs analysis, coal market assessment, risk and critical issues assessment, and economic modeling. The study is expected to be completed in the 2<sup>nd</sup> quarter of 2006.

### **Chhattisgarh wants Bistar captive coal block (India)**

The Chhattisgarh State Electricity Board wants the intervention of the central government power ministry to ensure reallocation of the Bistar captive coal block to meet additional coal requirement for the enhanced capacity of the Bhaiyathan power project. The coal block was identified by CSEB, but was subsequently allocated to another developer. Despite the uncertainty about the coal block, CSEB is planning to go ahead with the implementation of the power project banking on availability of the Bistar block to meet additional coal requirements.

CSEB is planning to hike the capacity of its proposed 1,000MW Bhaiyathan project to 1,320 MW. The project is being developed as a joint venture between CSEB and IFFCO. Earlier CSEB was allocated captive mines of Gidhmuri and Pituria for the project. However, CSEB belatedly submitted application for allocation of the Bistar captive coal block to meet the enhanced requirement of the project.

### **Kolaghat TPS to import coal (India)**

The West Bengal Power Development Corporation Ltd's Kolaghat thermal power plant will import coal to fulfil its coal import target for 2005-06. The corporation has placed an order for this with MSTC India Ltd (earlier known as Metal Scrap Trading Corporation).

The delay in placing the order was due to initial difficulties in finding a supplier which could meet the required quality specifications. Recently the central government power ministry had issued a warning to slash coal allocation for those plants during 2006-07 who have failed to meet their coal import target for the current fiscal year.

### **Coal vies with uranium in quest for power (India)**

India and the US recently reached an understanding to expand energy sector cooperation beyond the nuclear arena to the coal sector, with focus on adoption of clean coal technologies and joint development of projects that include an ambitious coal liquefaction project.

This understanding was reached at a meeting of Prime Minister Manmohan Singh with US president George W Bush. The Coal Working Group (CWG), set up under the India-US Energy Dialogue, is to establish a Business Advisory Council. The council would consist of representatives from the business/industry, academia and non-governmental organisations.

According to officials of the coal ministry, the council would provide expert guidance on priority items of interest identified by the CWG. The two sides also agreed to work jointly to finalise an agreement for setting up an information centre, the Coal Bed Methane and Coal Mine Methane 'Clearing House' in India with joint funding by the US Environment Protection Agency and US Trade Development Agency and the government of India.

### **Bumi to start talks with Sasol for \$3 billion coal plant (Indonesia)**

PT Bumi Resources will start talks with South Africa's Sasol Ltd. to build a proposed plant in Sumatra for as much as US\$3 billion to produce diesel from coal. The company, which has bought a new mine to supply a plant, also will hold talks with Kobe Steel Ltd., Japan's fourth-largest steelmaker, because it has coal liquefaction technology.

Near record crude oil prices makes turning coal into diesel more profitable and prompted Bumi recently to sell its two coal mines for \$3.2 billion to help fund a switch in production. Sasol is the world's biggest producer of liquid fuel-from-coal and is looking to boost output outside South Africa. Indonesia is the world's second biggest coal exporter after Australia.

Sasol converts coal or gas to motor fuel at its Sasolburg and Secunda plants in South Africa. It is building gas-to-fuel plants in Qatar and Nigeria and may build more processing facilities in China, the U.S. and India.

### **Toshiba suspends coal power plants over CO<sub>2</sub> profit concerns (Japan)**

Toshiba Corp. has suspended a US\$850M project with Orix Corp. to build two coal-fired power plants in Ube, Yamaguchi Prefecture, because of concerns over global warming and profitability, officials said. The electronics manufacturer withdrew its environmental impact assessment reports it had submitted to authorities after reviewing the amount of CO<sub>2</sub> the plants would produce and other factors.

The company will most likely scrap its plans to build the two plants, each with a capacity of 500MW, although there remains a possibility that it may construct smaller facilities. Sigma Power Yamaguchi Corp., a planning company founded by Toshiba and Orix, will not be dissolved. It is 66.8% owned by Toshiba and the remainder by Orix.

### **Jimah unit gets nod to use clean coal tech (Malaysia)**

Jimah Energy Ventures Sdn Bhd has obtained the Government's approval to utilise clean coal technology to produce electricity at its independent power producer plant in Jimah, Malaysia.

The coal used by the plant would be mainly imported from Australia, Indonesia, South Africa and China. A 1.4 km jetty would be constructed to unload the material from ships. The plant would commission two coal-fired generating units with net capacity of 700MW each. Electricity from the plant would be channelled via a generator transformer to interconnection facilities connected to the National Grid System.

### **Court rejects Bush Administration power plant pollution rule (USA)**

A federal appeals court in late March struck down a Bush administration rule that would have made it easier for coal burning power plants to make equipment changes without installing extra emissions controls. The court rejected a US Environmental Protection Agency (USEPA) rule that said power plant owners would only have to install modern emission controls if equipment changes cost more than 20% of the replacement cost of the plant. Environmental groups and several states sued, arguing the rule would gut the new source review enforcement provisions of the Clean Air Act and allow the oldest coal fired power plants to expand output without cutting emissions.

The court agreed, saying the USEPA rule was "contrary to the plain language" of the Clean Air Act that says the new source review provisions would kick in if a power plant is modified to cause "any physical change" that increases the amount of air pollutants. The Electric Reliability Coordinating Council (made up of power generating companies) said it was disappointed by the court's ruling and that it will create a roadblock for companies to install pollution control equipment.

### **Purchase of properties in Powder River Basin coal bed methane development (USA)**

Western Gas Resources, Inc. announced recently it completed the acquisition of coal bed methane (CBM) properties and related gathering assets in the Big George fairway of the Powder River Basin of Wyoming for approximately US\$136.7M. The acquisition was funded with amounts available under the Company's revolving credit facility.

The company's partner in the Powder River Basin coal bed methane project has the option to elect to participate in the acquisition for a 50% interest, exercisable thirty days after the company has given formal notice of the acquisition.

### **Refilling old mines may be acceptable to dispose of coal ash (USA)**

Using old mines may be an acceptable way to dispose of the ash from burning coal, but the process needs better monitoring, according to a recent analysis. Burning coal produces enough ash to fill one million railroad cars annually in the USA.

Some 38% of this ash is used to make cement, wallboard and other products, but the rest is disposed of in landfills and other locations, and increasingly it has been used to refill old mines. There may be some advantages to this, the report says, such as providing filler for mine reclamation efforts that restore land-use conditions. In addition, the residues may neutralize acid mine drainage, lessening the potential for some contaminants from mines to enter the environment.

## **TECHNOLOGY & OTHER NEWS**

### **Investments in major pilot project to store CO<sub>2</sub> underground**

The Cooperative Research Centre for Greenhouse Gas Technologies (CO<sub>2</sub>CRC) said its pilot research project will start later this year and involve approximately 40 Australian and overseas researchers. The pilot project will simulate the capture of CO<sub>2</sub> from a power station, transport the CO<sub>2</sub> several kms by pipeline and store it two kms underground in western Victoria. Over the one to two-year period during which the CO<sub>2</sub> is injected, scientists will monitor the behaviour of the gas in an effort to demonstrate the safety and effectiveness of the technology. The project is designed to demonstrate that CO<sub>2</sub> capture and storage is a viable, safe and secure option for GHG abatement.

Solid Energy is participating in this international landmark project, with investment of about NZ \$2M to the overall CO<sub>2</sub>CRC programme, as part of its commitment to research and practical projects to reduce the environmental impacts of coal use in New Zealand.

### **Voluntary coal producer levy to fund greenhouse gas abatement technology**

The Australian black coal mining industry will provide up to A\$300M over the next five years to work with electricity generators to demonstrate promising technologies for reducing greenhouse gas emissions from coal fired power stations. The Australian Coal Association (ACA) said the establishment of the COAL21 Fund is a world first whole-of-industry funding approach to greenhouse gas abatement based on a voluntary levy on coal producers' output. Other sectors, including power generators, were also welcome to participate.

The ACA said that "the technologies being targeted through the COAL21 Fund were needed to allow energy use to grow in a sustainable way and were part of the transition to new energy systems. The ultimate prize is to achieve substantial reductions in greenhouse gas emissions while maintaining a secure, reliable and affordable energy supply. Projects would be carefully targeted in areas where Australia could make a difference and complement international efforts."

The COAL21 Fund complements and extends the coal industry's existing commitment to greenhouse gas abatement through the COAL21 Program. COAL21 has brought together federal and state government agencies, the coal and power industries, the key mining and power sector union and major research organisations to identify the most promising technologies and develop an action plan for their development and deployment, according to the ACA. The initial focus of the fund will be to support more mature projects applying for funding under the Federal Government's Low Emission Technology Development Fund. Projects that are less mature will be considered as they progress, which is why the fund will run over five years.

### **World's first 'zero emissions' coal plant issues host site request for proposals**

The FutureGen Industrial Alliance has released the final Request for Proposals (RFPs) for parties interested in hosting the world's first coal-fueled "zero emissions" powerplant. The final RFP and responses to questions and comments made on the Draft RFP are posted on the Alliance's website at <http://www.FutureGenAlliance.org>.

The FutureGen project will integrate several technologies to generate electricity and hydrogen from coal -- an abundant energy resource in the U.S. and other regions of the world -- while nearly eliminating emissions. It will combine several technologies including advanced Integrated Gasification Combined Cycle (IGCC) technology with CO<sub>2</sub> capture and storage in deep saline reservoirs, which have the greatest capacity for sequestration. This approach will help ensure global transferability of the technology.

### **Projects to reduce mercury emissions from coal-fired power plants**

Martin Marietta Magnesia Specialties (MMMS) will participate in an industry group led by CONSOL Energy to field test the Low Temperature Mercury Control (LTMC) method at PPL electrical generating plant in Martins Creek, Pennsylvania. The LTMC process, which cools flue gas temperatures and adsorbs mercury to the carbon in the fly ash, will be examined to determine the system's mercury removal performance and assess overall impacts. The project is to begin later this year to address increasing concerns in the US regarding mercury emissions from coal fired power plants.

Magnesia Specialties manufactures an extensive range of magnesia-based products used in industrial, environmental, water treatment, flame retardant, plastic and rubber, specialty and agricultural applications. MMMS is a leading global producer of magnesium oxide and magnesium hydroxide products.

### **Innovative PyStR Technology's carbon capture unit for clean coal technologies**

Syngas International has released further information following its February announcement of the completion of its CO<sub>2</sub> capture unit on its proprietary PyStR technology. The captured CO<sub>2</sub> can be injected into coal seams to recover CH<sub>4</sub> in a similar fashion to injecting CO<sub>2</sub> into depleted oil wells to enhance oil recovery.

Recent industry field projects of CO<sub>2</sub> injection into coalbeds have shown that methane production is increased. Coalbeds in North America represent a widely dispersed potential geological sink for CO<sub>2</sub> storage while offering an opportunity to recover commercial quantities of methane for field uses or marketing in nearby natural gas pipelines. The U.S. Department of Energy and Canadian Government (Alberta Research Council) have been researching development of this sequestration concept for disposal of CO<sub>2</sub> emissions.

Nearly 90% of the enormous coal resources in North America are unminable by today's mining standards, but CO<sub>2</sub> sequestration technology has the potential to change that. Surface coal can now be mined and gasified in Syngas' advanced gasification and PyStR systems, with the CO<sub>2</sub> injected (sequestered) into unminable coal beds to bring out the CH<sub>4</sub>.

### **Development of a coal based multi-megawatt solid oxide fuel cell system**

FuelCell Energy, Inc. announced it has been selected by the U.S. Department of Energy (DOE) as a prime contractor of a 3<sup>rd</sup> project team to develop a coal based multi-MW solid oxide fuel cell (SOFC) system. The total project award for the 10-year, three-phase Fuel Cell Coal-Based System is subject to negotiation of a final agreement.

The programme's goal is to develop a SOFC power system, 100MW and larger, with at least 50% overall net efficiency in converting energy contained in coal to grid electrical power. This compares to today's average U.S. coal-based power plant with a net electrical efficiency of approximately 35%. Other programme goals include capturing 90% or more of system's CO<sub>2</sub> emissions and meeting a cost of \$400/kW (exclusive of coal gasification unit and CO<sub>2</sub> separation subsystems).

### **E.ON building new power station in the Netherlands**

E.ON is building a new ultra-efficient coal fired power station at Maasvlakte near Rotterdam in the Netherlands for 1.2 billion euros. E.ON already operates a 1100MW coal fired power station there, which is currently being modernised. The new power station will also have an installed capacity of 1100 MW and be able to cover about 7% of Dutch electricity demand. Maasvlakte is favourably located by Rotterdam's deep-water port and is therefore one of the best sites in Europe for a coal fired power station. The new power station increases net efficiency by 4% to 46 %, a peak figure for coal fired power stations, simultaneously reducing CO<sub>2</sub> emissions by approximately 20%.

E.ON CEO Wulf Bernotat stated: "The Dutch market is developing very dynamically. With this new state-of-the-art power station E.ON is making an important contribution to power supplies for the country. In addition, we are helping with our power station know-how to reduce environmental pollution."

### **UK Coal braced for Russian bid after £1 billion deal with ex-chief**

UK Coal, the country's largest mining group, looked last night to be a future target for a Russian takeover following a planned £1 billion "first step" into Britain by minerals group, Kuzbassrazrezugol (KRU). The Siberian company, which is Russia's second biggest coal miner, has secured the services of Richard Budge, a former chief executive at UK Coal at the time it was called RJB Mining, by buying a 51% stake in his Powerfuel company.

Powerfuel was established to restart mining at Hatfield colliery in south Yorkshire, where it also wants to construct a "near zero emission" power station. UK Coal, which has already been the recent subject of unsuccessful merger talks, has been struggling to make money and keep its pits open. It has been unable to benefit from the surge in commodity prices because of long-term contracts. KRU's financial adviser, Fleming Family & Partners, said it was not aware of any talks between UK Coal and the Russians but admitted it was "an obvious area of speculation".

Russian companies such as KRU, which already exports 3 Mtonnes of coal to Britain, have become financially strong on the back of soaring global energy prices and are determined to expand outside their borders. The Russian gas firm Gazprom recently told this paper it was interested in British companies, sending the share price of British Gas's parent group Centrica spiralling upwards.

A spokesman for Fleming, Richard Hill, said KRU would be concentrating its efforts in the immediate term on Hatfield. "This is their first step out of Russia and their first into the UK. It [Hatfield] is a large-scale investment but who knows where they will be in two or three years' time?"

Powerfuel has already obtained conditional consent for a 430 MW combined cycle power plant at the 100-hectare site it owns at Hatfield, near Doncaster. Combined cycle plants re-use waste heat to power a 2<sup>nd</sup> turbine, making them more efficient; Powerfuel hopes also to capture the plant's CO<sub>2</sub> emissions to help counter global warming. Mr Budge's company had been planning to raise £35M on the London stock market for the initial start-up of the mine but this was dropped when the Russians made their move.

The initial deal is believed to have cost KRU about £30M, with a further £110M of investment needed to start coal mining and a further £800M needed for the power plant, which has not yet secured full planning consent.

Mr Budge, Powerfuel's chief executive, said he was already starting to hire 350 miners and expected full operations at Hatfield colliery to restart in 2007, aiming to produce 2.2 Mtonnes of coal a year.

## **EVENTS**

Energy Federation of New Zealand Annual General Meeting and Lucnheon Seminar with Mr. Phil O'Reilly, Chief Executive, Business New Zealand Topic: "The Importance of Energy on New Zealand Business", Wednesday, 17 May 2006, Lambton Room, InterContinental Wellington, New Zealand: Email: [C.Gazo@crl.co.nz](mailto:C.Gazo@crl.co.nz), Website: [www.energyfed.org.nz](http://www.energyfed.org.nz)

International Workshop – Coal for Sustainable Energy: Clean Development & Climate Change. New Delhi, India, 16-17 May 2006. World Coal Institute, UK, Tel: +44 (0) 20 8940 0477 Fax: +44 (0) 20 8940 9624 Email: [ijackson@worldcoal.org](mailto:ijackson@worldcoal.org).

31st international technical conference on coal utilization and coal systems Clearwater, FL, USA, 21-25 May 2006 Barbara A. Sakkestad, Coal Technology Association, 601 Suffield Drive, Gaithersburg, MD 20878, USA Tel: +1 301 294 6080 Fax: +1 301 294 7480 Email: [BarbaraSak@aol.com](mailto:BarbaraSak@aol.com) Internet: [www.coaltechnologies.com](http://www.coaltechnologies.com)

International conference on fluidized bed combustion Vienna, Austria, 21-24 May 2006 Franz Winter, Institute of Chemical Engineering, Vienna University of Technology, Getreidemarkt 9/166, A-1060 Vienna, Austria Tel: +43 1 58801 15940 Fax: +43 1 58801 15999 Email: [fwinter@mail.zserv.tuwien.ac.at](mailto:fwinter@mail.zserv.tuwien.ac.at) Internet: [www.fbc2006.org](http://www.fbc2006.org)

Coal market strategies conference San Antonio, TX, USA, 9-11 Oct 2006 American Coal Council, 2980 E. Northern Ave., Ste. B4, Phoenix, AZ 85028, USA Tel: +1 602 485 4737 Fax: +1 602 485 4847 Email: [info@americancoalcouncil.org](mailto:info@americancoalcouncil.org) Internet: [www.americancoalcouncil.org/events/index.html](http://www.americancoalcouncil.org/events/index.html)

9th session meeting of the United Nations Economic Commission for Europe Ad Hoc Group of Experts on Coal in Sustainable Development Geneva, Switzerland, 15-16 Nov 2006 Catherine Pierre, Industrial Restructuring, Energy and Enterprise Development Division, Palais des Nations, CH-1211 Geneva 10, Switzerland Tel: +41 22 917 4140 Fax: +41 22 917 0038 Email: [Catherine.pierre@unece.org](mailto:Catherine.pierre@unece.org)

Coal trading conference New York, NY, USA, 6-7 Dec 2006 American Coal Council, 2980 E. Northern Ave., Ste. B4, Phoenix, AZ 85028, USA Tel: +1 602 485 4737 Fax: +1 602 485 4847 Email: [info@americancoalcouncil.org](mailto:info@americancoalcouncil.org) Internet: [www.americancoalcouncil.org/events/index.html](http://www.americancoalcouncil.org/events/index.html)

World energy congress Rome, Italy, 9-15 Nov 2007 Mike Treacher, PennWell UK Office, PennWell House, Horseshoe Hill, Upshire Essex EN9 3SR, UK Tel: +44 1992 656 636 Fax: +44 1992 656 700 Email: [miket@pennwell.com](mailto:miket@pennwell.com) Internet: [www.rome2007.it](http://www.rome2007.it)

#### **FEEDBACK**

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*We value your feedback on issues discussed in this e-Newsletter.*

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