



COAL NEWS

NEW ZEALAND

Solid Energy considering partners for liquid fuels plant

Solid Energy is considering potential technology and funding partners for a planned lignite based liquid fuels plant in Southland. "We've spent pretty much the last two years looking at a project, which can produce high quality diesel," according to chief operating officer Barry Bragg.

The company has spent the last two years on scoping studies on the lignite resource, focusing on resource selection and access (land and minerals), resource knowledge (drilling programme), mining and required plant infrastructure. Mr Bragg said Solid Energy is at the pre-feasibility stage in terms of looking at the technology to gasify and liquefy the lignite. "The key going forward will be selecting the right partners who have the expertise and technology, and the right partners to underwrite a huge capital investment." The project would take a minimum of five years to commission.

Solid Energy had access to more than 600M tonnes of Southland coal. Internationally, New Zealand has per capita coal reserves second only to Australia, with a large proportion lignite based. The Southland lignites are a nationally (if not internationally) significant resource. The resource currently controlled by Solid Energy could support a plant producing 40,000 to 50,000 barrels of transport fuel (primarily diesel) per day, more than 1/3rd of New Zealand's current transport fuel demand.

A Solid Energy scoping assessment has considered product options with a preliminary conclusion being that the projects with the most potential are liquid fuels, urea and electricity generation for domestic consumption.

Pike River Coal project makes rapid strides

Pike River Coal Ltd's high quality coking coal mine project is making rapid progress with successful capital raising completed, access tunnel almost halfway, and other construction well under way.

The Pike River share issue was 20M shares oversubscribed above the initial 65M shares allocated thus raising a total of \$85M in capital. The company said the funds will be used for the ongoing development of the Pike River coal resource near Greymouth and for reducing debt.

Pike River said that at July prices (before the NZ\$ drop), the coal mine is expected to generate \$2.3 billion in export receipts over its lifetime.

Pike River also signed a \$19M contract with Brightwater-PEAT Ltd for the construction of the coal preparation plant to be located at the entrance to the Pike valley. This plant will receive the raw coal from the mine via the 10.6 km slurry pipeline and "wash" the coal to remove diluting rocks. Clean, dewatered coal will be stockpiled for haulage by road to the port at Greymouth.

Coal will be shipped from the river port on two purpose-built self propelled vessels to Port Taranaki for export to India, Japan, and other markets.

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A new \$20M terminal at the Greymouth port will be developed with financing underwritten by Port Taranaki Ltd.

More than 70% of Pike River's first three years' production has already been sold.

Coal seam gas mining permit granted

Crown Minerals has granted Christchurch based Macdonald Investments Ltd (MIL) a 40 year coal seam gas mining permit in a 107sq km area immediately east of Greymouth. Methane occurs naturally around coalfields and can be used for industrial energy and electricity or can be injected into gas transmission systems to supplement gas resources. Crown Minerals said the move was exciting although the potential for coal seam gas extraction on the West Coast was unknown.

MIL said the project could recover 175 billion cubic feet of gas, the energy equivalent of 28 million barrels of oil. The development is at an early stage, with a pilot programme planned next year before iwi and landowners are consulted.

MIL plans to build the necessary electricity generation facility to initially deliver 20MW into the national grid. When mature, the project might deliver over 50MW.

Weavers Park rehabilitation praised by Association of Consulting Engineers of NZ

Solid Energy's creation of a park from the former Weavers Opencast Mine, Huntly, and the local community's contribution to making the park a success, has been recognised as an outstanding project by the Association of Consulting Engineers of New Zealand (ACENZ).

The mine site rehabilitation, started in 1993, included turning the former opencast mine pit into a 54ha lake, developing surrounding wetlands, the planting of more than 30,000 trees and the creation of numerous walking and mountain biking tracks, boat ramps and jetties and other recreational amenities. Volunteer groups and local companies have contributed to the park's development.

ACENZ's Innovate NZ Awards of Excellence judges said the project, submitted by Maunsell Ltd for Solid Energy, showed "an exceptional commitment by the community affected, ensuring it is a success. The community has welcomed this project to rehabilitate an opencast coal mine at Huntly and contributed by planting and construction of facilities for use in numerous recreational and educational purposes."

Solid Energy extends Stockton tours

Solid Energy is extending its subsidised public tours of Stockton Opencast Mine to all New Zealand and overseas visitors. Since the company started free tours of Stockton Mine for Buller residents at the end of 2005 more than 3000 people have visited, donating almost \$9000 to the Solid Energy Rescue Helicopter. There will be a small charge for future tours and money collected by tour operator Outwest Tours will continue to be donated by Solid Energy to local charities and community initiatives.

Solid Energy said the tours of Stockton have been hugely popular and very successful in giving local people an insight into the operation of a modern opencast mine which is a significant local employer. Tours of the mine will continue to be free to all primary, secondary and tertiary education groups.

INTERNATIONAL NEWS

Port, rail congestion curb coal exports (Australia)

Macarthur Coal said fourth-quarter sales fell 15% as rail and port congestion in Australia curbed shipments. Sales fell to 1.1Mt in the three months ended June 30, down from 1.3Mt a year ago.

Prices of coal used in steelmaking may have a first gain in three years in 2008 because of rising demand and bottlenecks in Australia. Coal exporters might face a 17% shortfall this calendar year in meeting orders out of the nation's second largest coal port, Dalrymple Bay, because of congestion.

'Substantial uplift' in coal price will help recovery (Australia)

Centennial Coal expects a "substantial uplift" in 2008 profit as prices and output rise, helping it to recover from a slump in earnings last year. Australia's second largest coal company by sales said prices for coking and thermal coal would increase this year and production at the Tahmoor mine should rebound from lower than expected output last year.



"The strength experienced in the market is not just short term, with the future outlook also predicted to remain strong," Centennial said, adding the price of coking coal, used in steelmaking, was heading for the record reached in 2005.

The spot price of coking coal has risen to more than US\$110 a tonne and is heading for the US\$125 reached in 2005. BHP Billiton, the world's largest exporter of coking coal, settled benchmark coking coal prices for this year at US\$98 a tonne. Centennial said the price of thermal coal, used by power stations, might rise to US\$70 a tonne in 2008. Its highest priced contract for this year was US\$56.

Queensland Coal Company partners with India (Australia)

Bowen Energy Ltd of Queensland has signed an agreement with Bhushan Steel of India to develop coal reserves in West Rolleston and Middlemount mines of the Bowen Basin.

Bowen Energy has launched a takeover bid for Rocklands Richfield, to bring two of its mines online in the coming year. The Hillalong can be developed within the next 12 months together with another project near Blackwater South.

Asia to buy more South African, Canadian coal (Australia)

The Australian Bureau for Agriculture and Resource Economics (ABARE) said Asia was set to buy more coal from South Africa and Canada to meet its growing needs since China was soaking up supplies across the Pacific region.

Asia's buyers were scrambling to find alternative suppliers to replace China and Australia, whose exports are down, with Korean and Japanese utilities buying several cargoes of South African coal since June.

Analysts expect the market to tighten more as India returns to the Asian market after a drop-off during the monsoon season.

Queensland Rail to buy 510 coal wagons (Australia)

The Queensland government announced a A\$113M investment from Queensland Rail to buy 510 new coal wagons and approved the immediate establishment of a business improvement programme across the supply chain, starting with rail operations.

The government has been under fire from coal firms and the federal government for not acting quickly enough to free up bottlenecks in transporting minerals to central Queensland ports. Queensland coal exports have increased from 59Mt in 1988-89 to 153Mt in 2006-07.

In a related development, Queensland coal companies have thrown their financial support behind the filling of a "missing link" in the state's coal rail network.

Queensland Resources Council said recently seven coal companies interested in using a 69km proposed rail corridor in central Queensland had agreed to underwrite the costs of initial works to develop the rail link.

The corridor would connect the northern Bowen Basin in central Queensland and the Abbott Point export terminal, and allow an extra 35Mt of coal a year to be exported.

CVRD buys Aussie coal project (Brazil)

Brazil's CVRD, the world's biggest iron ore miner, said it has bought a majority (51%) stake in Australia's Belvedere coal project, the latest in a series of acquisitions as the company seeks to become a top coal producer. The Brazilian company has the option to buy the remainder of the project at a later date.

In February CVRD bought Australian coal miner AMCI Holdings Pty, with output capacity of 8Mt of coal a year. CVRD, which is also part of a group investing in the Moatize coal project in Mozambique, has said it plans to become one of the top 10 biggest global coal producers.

Coal power sector's expansion (Bulgaria)

Bulgaria's coal power sector is undergoing renewal and expansion, filling a gap left by the closure of two nuclear reactors. While older stations are being overhauled, new projects are in the pipeline in Bulgaria's coal-mining heartland.

The Maritsa East coal mines, located near Stara Zagora in the centre of the country, supply coal to power plants in the area. This includes Bulgaria's largest coal-fired power plant, Maritsa East 2 plant, which has a combined installed capacity of 1450MW and Italy's Enel Maritsa East 3 plant, which will have 900MW capacity after renovation.



A new 670MW plant being built over the original Maritsa East 1 by US-based AES will also get its coal from these mines. In June, the government gave the go-ahead for the construction of a new lignite coal-fired plant in the basin. The new power station will have an output of at least 600MW.

The state-owned coal mine in the region, Maritsa East, is one of the largest in Europe. It covers 240 sq km and plans to mine 21.35Mt this year.

PetroChina eyes Shanxi coal-bed methane resources (China)

PetroChina Company Ltd is going to participate in a coalbed methane project in Shanxi, a central China province. Through its subsidiary PetroChina Huabei Oilfield Company, PetroChina will launch the project in partnership with Shanxi Energy Industries Group.

Located in Qinshui County, Shanxi Province, the project will have an annual capacity of 240M cubic metres of coalbed methane, and 200,000 tonnes of liquefied coalbed methane. The project is estimated to have a daily capacity of 900,000 cubic metres upon completion.

Shenhua Energy eyes foreign coal mines (China)

China Shenhua Energy Co, China's largest coal producer, is studying opportunities to buy and develop coal mines in several countries to increase output. The company is examining prospects in Indonesia, Australia, Vietnam and Mongolia.

Coal producers in China are increasing capacity to meet growing demand for the fuel from power companies. China burns coal to generate 78% of its electricity. Shenhua, though, has not yet reached any agreements on overseas acquisitions.

Hard coal production to cease by 2018 (Germany)

Germany's 500-year-old tradition of hard coal mining is dying out. With domestic coal long unprofitable because of lower cost imports from Africa and Asia, the German government this year decided to gradually withdraw expensive subsidies that have kept its mines open for nearly a half-century.

Today, only eight hard coal mines are in operation, down from more than 100 at the industry's peak in the late 1950s. The last of those is set to close by 2018, when the subsidies dry up. And with that, there will be no more German hard coal miners, who once numbered more than 500,000.

All but one of Germany's hard coal mines are located in the Ruhr, a steelmaking region along the country's western border. Coal production soared in the Ruhr during the 19th century and propelled Germany through the Industrial Revolution. It fueled the nation's steel mills and armaments factories during both world wars. After the defeat of the Nazis, coal rebuilt the tattered country, underpinning the postwar economic boom in the former West Germany.

Penalties for defaulting in coal bed methane exploration (India)

The Indian government is planning to be strict with companies that do not adhere to the minimum work programme (MWP) agreed during the search for coal bed methane (CBM). The measure is likely to be implemented for companies that make huge promises in order to win the blocks and subsequently fail to fulfil them.

The promises are in the form of targets of exploration work such as seismic surveys and drilling exploratory wells, clubbed under the heading of the MWP.

The new rules are expected to define penalties for companies that have won licences to prospect for CBM. The government was compelled to come out with the rules after companies started seeking extensions of terms after failing to complete their scheduled work.

The rules will act as a deterrent for operators seeking unnecessary extensions and holding on to the acreage without any (or limited) exploration activities. The policy envisages a system of progressive penalty by way of increasing bank guarantee amount against the duration of extension sought and recognising companies who have established commercial viability.

It also enables the government to seek 50-75% of bank guarantee for the unfinished MWP for extension from six to 18 months. The government has signed 26 contracts under three rounds of CBM. The blocks are under various stages of production and the first commercial production is likely to start by the end of this year.



SV Power to build coal washery, thermal plant (India)

SV Power, a subsidiary of KVK Energy of India, is planning to set up a 5Mt per annum coal washery unit and a 120MW thermal power plant at Reki village in Korba district of Chhattisgarh. The company has signed an MOU with the Chhattisgarh government for both the projects.

The company has acquired 220 acres of land for the two projects which are in the process of being finalised. The coal washery unit will require 10 acres and another 75 acres each will be used for a greenbelt and an ash dyke. A mixture of 75% coal washery rejects and 25% coal will be used as fuel for the fluidised bed boilers.

India to form new firm to buy overseas coal blocks (India)

Five state-run Indian companies are to set up a new firm to acquire coal blocks overseas to ensure regular supply.

The Steel Ministry said it would shortly place before the federal Cabinet a proposal to set up a special-purpose vehicle to buy coal properties abroad. The move is aimed at ensuring regular supply of coal to the steel and power sectors. The new company can buy stakes overseas or explore the opportunities to acquire coal mines.

Government announces first coal bed methane project (Indonesia)

South Sea Energy Corporation announced in July that the Indonesian government plans to sign a contract with an undisclosed investor to develop the country's first coal bed methane (CBM) project. Indonesia's Energy and Mineral Resources Minister disclosed that the Ministry is also reviewing 3 or 4 other companies that are seeking to do similar developments.

South Sea Energy said "The announcement by the Ministry is extremely exciting news for South Sea Energy and its partners. The contract will likely become the framework on which future contracts will be negotiated and awarded. This announcement shows that the Indonesian Government is committed to adding coal bed methane to its vast natural resource base."

Iranian companies, China sign coal mine contract (Iran)

The Iran Minerals Production and Supply Co. , the Kani Kavan Sharq Co., and the Chinese ambassador to Iran recently signed a contract on preparing and equipping the Parvardeh 4 Coal Mine in Tabas, central Iran.

The first phase of the mine, with a capacity of 750,000 tonnes of coal concentrate per year, will go on stream by September, and it will be the country's first totally mechanised coal mine.

Billion dollar coal station for Walvis Bay (Namibia)

Binvis Investments has applied to the Electricity Control Board for a 24 year generation licence for two 350MW power stations using clean coal technology. Binvis Investments is made up of German and Namibian investors.

The project has been strategically placed in Walvis Bay because it will be easy to ship in the coal and also ocean water will be used to cool the stations. Binvis is also in the process of finalising an agreement with the municipality of Walvis Bay for the piece of land where the station will be situated.

Aboitiz buys into Mindanao coal plant (Philippines)

The Philippine Stock Exchange recently suspended trading in the shares of Aboitiz Power Corp. pending disclosure of relevant data regarding its share purchase agreement with STEAG GmbH, Germany's fifth largest power generator.

Aboitiz Power informed the exchange that it would acquire a 34% stake in STEAG State Power Inc., a unit of STEAG. STEAG State Power is the owner and operator of a 232MW coal-fired power plant in the Phividec Industrial Estate in Misamis Oriental. It enjoys a 25-year power purchase agreement with National Power Corp. The agreement is backed by a performance undertaking issued by the government.

With the conclusion of the share purchase agreement, Aboitiz Power will become equity partners with majority stockholder STEAG GmbH (owning 55%) while State Investments Trust Inc. has 11%.

Government eyes long-term coal supply deals (Philippines)

The Philippines' Department of Energy (DOE) is seeking more long-term coal supply deals to prevent a shortage in fuel supply for the country's baseload power plants. DOE said that while there was enough coal at present for the needs of coal-fired power plants, it would be ideal to have long-term supply contracts to ensure against future shortages.



The National Power Corporation (Napocor) earlier said it is recommending changing the procurement mix from an even split between coal purchased in the spot market and coal supply under long-term contracts. Napocor also proposed to extend the coverage of long-term contracts to beyond three years.

The actual changes would depend on what the Government Procurement Policy Board will approve. To help also provide the country with a buffer coal supply in case of emergencies, the DOE has held negotiations with Indonesian coal firm PT Bukit Asam for 500,000 metric tonnes of coal that can be delivered when need arises. The deal is still being finalised.

The Philippines relies mainly on China, Indonesia and Australia for coal, as local mines cannot produce enough to meet domestic demand and local coal is not suitable for use in almost all of the country's power plants.

Investments on Shanxi coal mine (South Korea)

SK Energy of South Korea will acquire a 20% stake in a coal mine in China, while its affiliate, SK Gas will also secure a 12% stake in the Pingding coal mine in Shanxi Province. The investment comes at a time when increasing amounts of Chinese coal are being diverted for domestic use.

South Korea is expected to see coal demand increasing 7% a year. The Pingding coal mine produces metallurgical coal, mostly used in the production of steel. The current production capacity of Pingding is 450,000 tonnes per year, and the mine expects to increase annual production to 1.8 million tonnes by 2009.

Opting for coal-fired power plants (Taiwan)

Power demand recently rose to a record high in Taiwan and the country said it would favour plans for coal-fired stations when it awarded permits to build new capacity next year because coal plants are cheaper to run and easier to supply than plants fueled by gas. Taiwan Power spends the equivalent of US\$0.40/kWh of electricity by burning coal, less than half the costs involved in gas-fired production.

Taiwan has invited bids to build power plants to stave off the threat of possible shortages, made worse by a ban on building new nuclear power plants. The island's reserve margin, or spare capacity at times of peak demand, dropped to 6.9%, less than half of a state target of 16%.

The government will issue permits to build 1,980MW of capacity, enough to meet 5% of the island's peak summer electricity demand. Tenders will close in December and the government is likely to name two or three contract winners before the end of February.

First coal taken from reopened Welsh drift mine (UK)

The first coal in a decade has been produced from a reopened drift mine in the Neath Valley in south Wales. The Unity mine at Cwmgwrach, has been closed since 1998, but is estimated to have reserves of up to 90Mt. Around 120 jobs should be created at the site by early next year when it is hoped full industrial production will be achieved. The mine's owners said that it will be capable of producing up to 1Mt of coal a year for the next 25 years.

The drift mine (one that miners can walk into rather than being transported in a lift) is the first to be opened in Wales since Betws colliery in Ammanford in 1974. The rising amount of imported coal, coupled with global price increases and demand makes formerly uneconomic sites commercial again.

Unity also have four other mine sites in south Wales under development. The only deep mine still operating in the once thriving south Wales coalfield is Tower Colliery at Hirwaun and that is to close next year because its reserves have been exhausted.

Incentives to land high-tech coal project (USA)

The Governor of Illinois signed an incentive package to make Illinois more attractive to land the FutureGen power plant project to its developers. The project plans to demonstrate a new, environmentally friendly way of utilising coal and Illinois is competing against Texas for the right to host the power plant.

It might be the first in a wave of new power plants that could burn coal while minimising emissions.

Potential FutureGen sites include Mattoon and Tuscola in eastern Illinois, and Jewett and Odessa in Texas. One study found that it would create more than 300 jobs and \$20M in annual wages if built in eastern Illinois. The decision on the location is expected in November.



US wants to cut power plant water usage (USA)

Two US Department of Energy laboratories are joining forces in an effort to reduce electric producers' demands for fresh water. The National Energy Technology Laboratory and the Sandia National Laboratory signed an agreement designed to advance the research, development, demonstration and commercial deployment of technologies that reduce fresh water demands related to fossil energy generation.

DOE officials said thermoelectric power plants using coal, oil, natural gas and nuclear sources require significant amounts of water for cooling and are a major competitor for water resources. A 2000 study found power plants were the second largest US user of fresh water, withdrawing 136 billion gallons of fresh water daily. Only agriculture used more water.

The new agreement called for the two laboratories to develop technologies that significantly reduce fresh water withdrawal and consumption and ensure energy and water planners use improved decision making tools. DOE officials said the goal is to achieve a 50% reduction in power plant fresh water usage by 2015.

TECHNOLOGY & OTHER NEWS

IEA calls for international rules for burying greenhouse gases

The International Energy Agency (IEA) said recently the world needs legal guidelines for burying greenhouse gases to help the still tiny business become one of the main ways of fighting global warming by 2050. The IEA said pilot projects for capturing CO₂ now accounted for just 0.05% of the potential total by mid-century.

Most IEA estimates showed that CCS would be the top contributor to curbing greenhouse gases by 2050, behind only energy efficiency savings and ahead of renewable energies and nuclear power. Until now, most work has focused on ways of cutting the prohibitively high costs of capturing, piping away and entombing the gases. However, a legal framework was also urgently needed, in tandem with development of cheaper technologies. The IEA assessed that most projects so far were small, such as the Sleipner gas field off Norway where Statoil has been separating out and reinjecting about a million tonnes of CO₂ a year since 1996 to avoid a carbon emissions tax.

BP and China forge partnership for clean energy commercialisation

BP and the Chinese Academy of Sciences (CAS) held a ceremony in Shanghai in August to announce their intent to establish the Clean Energy Commercialization Centre (CECC). CECC aims to accelerate the development in China of clean coal conversion technologies by managing large scale demonstration projects which primarily use coal as feedstock for fuel production, chemicals manufacturing and power generation.

According to a Memorandum of Understanding, CECC will aim to become a profitable world class platform which will identify, evaluate, select, develop and commercialise strategic cleaner coal conversion technologies. It will also integrate individual technologies from CAS and other research institutes into commercially viable technological systems in order to contribute to China's clean energy development and energy security.

In 2001, BP and CAS jointly launched the "Clean Energy, Facing the Future" programme - a 10-year, US\$10M R&D initiative. BP has been operating in China since the early 1970s and has invested over \$4.2 billion in commercial projects. Its activities in China include the production and importation of natural gas, supply of aviation fuel, import and marketing of LPG, fuels retailing, lubricants blending and sales, petrochemical manufacturing and solar electric facilities. As one of China's largest foreign investors, BP employs over 3,000 staff in China, either directly or through joint ventures.

Carbon capture technology to help UK tackle global warming

Cutting edge technology that captures CO₂ and stores it permanently underground will be developed at a new £1.1M research centre at The University of Nottingham. The Centre for Innovation in Carbon Capture and Storage (CICCS), due to open in October, will develop novel technologies to trap and store greenhouse gases permanently and safely.

The UK Engineering and Physical Sciences Research Council announced recently a five year funding package for CICCS, with a view to it becoming a world leader in the development of novel processes for CCS and establishing partnerships with major international industries and research centres.

CICCS will work on research at the interface of science and engineering, industry and international cooperation in order to accelerate technological innovation in the field and lead to a wider deployment of CCS. It will also have a strong programme of knowledge transfer and training with a range of opportunities for industrial engagement. It claims it will



bring together engineers, mathematicians, bioscientists, geographers, geologists and end users in a 'hot-house' environment that will encourage creative problem solving.

One of the technologies that CICCS will work on uses a natural process in conjunction with silicate based rocks such as serpentine, which is found in large enough quantities, and in the right places, to store all the CO₂ produced by the combustion of the entire world's known fossil fuel reserves. The CO₂ from say fossil fuel combustion combines with serpentine in a reactor within minutes, 'locking it in' permanently. This reaction occurs much more slowly in nature. The end product is a mineral such as magnesite, which can be used as aggregates for road-building or shaped into bricks for construction. CO₂ makes up 40% of its weight and it would take 1,500 times more space to store the same amount in gas form.

Compared to other proposed CCS processes, such as burying CO₂ under the sea, once the CO₂ is locked inside the rock by the CICCS process, it can not go back to its previous state. This is considered of paramount importance because the researchers claim the permanent storage of CO₂ has been the most controversial issue in CCS.

Test of new capture process

E.ON will test a new process in Sweden which can be used to remove up to 90% of the CO₂ from power plant flue gases. The method is currently being developed by Alstom, the power generation specialist. E.ON and Alstom have now agreed to continue developing the technology at E.ON's power plant at Karlshamn to a stage where it can be used in the actual environment of a power plant. The pilot plant at Karlshamn is to start trial operation in early 2008.

Development of coal-to-substitute natural gas facility

Peabody Energy and ConocoPhillips today announced they have entered into an agreement to explore development of a commercial scale coal-to-SNG (substitute natural gas) facility using proprietary ConocoPhillips E-GAS technology.

The project would be developed as a \$3 billion mine-mouth facility at a location where Peabody has access to large reserves and existing infrastructure. It would be designed to annually produce 50 billion to 70 billion cubic feet of pipeline quality SNG from more than 3.5Mt of Midwest sourced coal. In addition, presuming there is a supportive regulatory framework in place, the project scope will provide for carbon capture and storage.

Peabody and ConocoPhillips would participate in project ownership along with other potential equity partners. The preliminary design and economic assessment is expected to be complete in early 2008.

Praxair to unveil new fluidised bed technology

A new technology that could dramatically reduce emissions could be added to a new coal-fired power plant that is scheduled to be built in Jamestown (New York State). The new technology, being developed by Praxair Inc., would change the way coal is burned in the new power plant in a way that would reduce emissions and potentially allow the CO₂ produced at the facility to be captured and safely stored underground.

The agreement would give Western New York a second proposal for a new coal-fired power plant that would use new types of technology to reduce emissions. If funding can be obtained for the projects, the proposed coal-fired power plants at the Huntley Station and from the Jamestown Board of Public Utilities could help make the Buffalo Niagara region a centre for research into new coal-burning technology.

The University at Buffalo also is interested in creating an education and research centre in carbon capture and sequestration that would be associated closely with the proposed plants.

The new Jamestown coal plant, which would produce about 40MW of electricity, would replace an aging unit that supplies electricity to the municipal utility in Jamestown. The \$145M plant would use circulating fluidised bed technology.

Building a bench-scale coal-to-liquid plant

W2 Energy Inc. of Canada announced that it will build a bench scale coal-to-diesel plant at its Toronto facility. The plant will allow W2 Energy to enter into a previously untapped market for the company. Previously, W2 Energy has concentrated fully on its biomass-to-liquid fuel plants which continue to move forward according to the company's business plan.

The new plant will act as a demonstration facility for new customers and potential partners to view the company's unique plasma technology using coal as the feedstock. The unit will also be used as a blueprint for scale-up to larger



coal-to-diesel plants. W2 Energy claims its revolutionary plasma technology is capable of zero CO₂ production from the plasma assisted partial oxidation of coal, making the W2 plasma reactor superior to other coal gasification technologies. The technology is also smaller, more compact and requires fewer components than traditional coal gasification processes making the capital expenditure a fraction of the cost of competing technologies.

Chinese method for underground coal gasification

Chinese researchers have demonstrated what they claim is a cheap, simple way to achieve underground coal gasification (UCG). The new method could make it more economical to exploit coal seams that are otherwise difficult to reach, but it also raises environmental concerns.

The process could be cheaper because it would avoid the need for the coal to be mined and transported. For this reason, a number of countries have experimented with a process that drives two vertical shafts into the ground to connect a tunnel containing coal. A fire is started at one end, and air and steam are supplied through one shaft; gas is collected through the other.

The gas is produced in a reducing atmosphere, which means the oxygen content is too low for actual combustion. This process can be shut down by cutting off the supply of air. However, manually carving out the connecting tunnel is expensive and time-consuming.

The researchers at China University of Mining and Technology in Xuzhou, Jiangsu Province, came up with a different idea and tested it at an existing mine. They sank two vertical shafts into a seam of coal, 40m deep and 40m apart from one another. They ignited the coal seam at the base of one shaft and started pumping air in.

As soon as the fire had created sufficient space to allow an efficient reaction, they pumped steam in too. The resulting gases seeped through the coal seam and were extracted out of the second shaft. Eventually, the fire began to create a combustion chamber so big that the reaction became inefficient. The researchers then reversed the air flow, feeding air in through the opposite shaft, towards the fire. This "backward combustion" process caused the fire to burn towards the flow of air.

By alternating forward and backward combustion, the researchers were able to control the shape of the combustion chamber, keeping it at an average of 40cm diameter. They were able to monitor its size by sampling the composition of the gases that came out each shaft.

A new coal source for ethanol

Researchers at Louisiana State University, along with colleagues from Clemson University and Oak Ridge National Laboratories, are trying to develop catalysts and processes that would allow energy companies to gasify coal into a mix of carbon monoxide and hydrogen, and then convert those gases into ethanol.

The ethanol could then be used as a liquid fuel additive or, alternatively, shipped as a liquid and then be converted into hydrogen for hydrogen fuel cells. Right now, ethanol is primarily made out of corn or sugarcane, an expensive and time consuming process. Ethanol derived from coal-created synthetic gases could provide a more energy efficient process that utilises massive US reserves of coal.

EVENTS

16-18 Sept 2007, China (Taiyuan) International Coal & Energy New Industry Expo, China, Zhang Lei, No.1 Xinjian Road, Taiyuan, Shanxi, China. Tel: +86 351 408 3916, Fax: +86 351 408 7916, Email: office@cicenexpo.com, Internet: www.cicenexpo.com NZ contact Yan Zhigang, Attache, Tel: +64 4 471 4102, Fax: +64 4 471 4104, Email: yanzhigang@chinaeco.org.nz

18-19 Sep 2007, Coal21 annual conference, Hunter Valley, NSW, Australia, COAL21 Secretariat, Level 3, MTAA House, 39 Brisbane Avenue, Barton, ACT 2600, Australia, Tel: +61 2 6273 6044, Fax: + 61 2 6273 6060, Email: info@coal21.com.au

4-5 Oct 2007, 2nd international symposium on capture and geological storage of CO₂, Paris, France, François Kalaydjian, IFP - Communication Division, 1 & 4, avenue de Bois-Préau, 92852 Rueil-Malmaison Cedex, France, Tel: +33 1 4752 6440, Fax: +33 1 4752 7049, Email: francois.kalaydjian@ifp.fr, Internet: www.co2symposium.com

7-10 Oct 2007, Capture and Geological Storage of CO₂, SPE Applied Technology Workshop, Perth, Australia, Jenny Chong, SPE, Suite 23-02, Level 23, Centrepoint South, 59200 Kuala Lumpur, Malaysia, Tel: +60 3 2288 1233, Fax: +60 3 2282 1220, Email: jchong@spe.org, Internet: www.spe.org



17-18 Oct 2007, Clean coal Asia 2007 conference, Singapore, Roderic McLauchlan, Terrapinn Pte Ltd, 1 Harbourfront Place, #18-01/06 Harbourfront Tower One, NA 098633, Singapore, Tel: +65 6322 2724, Fax: +65 6226 3264, Email: rod.mclauchlan@terrapinn.com, Internet: www.terrapinn.com/2007/coal

21-24 Oct 2007, 27th coaltrans world coal conference, Rome, Italy, Stephanie Mercier, Coaltrans Conferences Ltd, Nestor House, Playhouse Yard, London EC4V 5EX, UK, Tel: +44 20 7779 8189, Fax: +44 20 7779 8946, Email: smercier@euromoneyplc.com, Internet: www.coaltrans.com/

9-15 Nov 2007, World energy congress, Rome, Italy, , 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 , Internet: www.rome2007.it

16-20 Nov 2007, 9th international conference on greenhouse gas control technologies, Washington, DC, USA, John Gale, IEA Greenhouse Gas R&D Programme, Orchard Business Centre, Stoke Orchard, CheltenhamGL52 7RZ, UK, Tel: +44 1242 680753, Fax: +44 1242 680758, Email: johng@ieaghg.org, Internet: mit.edu/ghgt9

19-20 Nov 2007, McCloskey's Australian coal conference 2007, Sydney, NSW., Australia, 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

FEEDBACK

This e-Newsletter is published for the Coal Association of New Zealand Inc. by CRL Energy Ltd.

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

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