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Association of
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Merry Christmas and a Happy New Year!



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COAL NEWS

NEW ZEALAND

Mine sees light at the end of the tunnel

The Pike River mine is expected to reach its first seam of coal in April 2008. Pike River Coal says higher tunnelling costs and slower-than-forecast mining progress will be offset by better prices for coking coals.

The company said the 670m to be completed of the 2300m tunnel would mostly encounter a more expensive fractured rock class than expected in the May prospectus. Consequently, a further \$11M has been added to the original \$174M cost of developing the tunnel.

The company intends to mine about 17.6M tonnes of high grade, low ash, coking coal identified as recoverable from the Brunner seam over 19 years. A coal preparation plant is

progressing with detailed plant design and hazard reviews. The plant will receive all the raw coal from the mine through a 10.6km coal slurry pipeline and "wash" it to remove rocks.

Pike River hard coking coal used in the steel-making process is forecast to sell at about US\$120 (\$159) to US\$125 a tonne next year, compared with US\$96 per tonne now.

Indications are that longer term coking coal prices from 2011 onwards will also lift due to ongoing strong international demand, particularly from China and India.

Pike River to rail coal to Lyttelton

Solid Energy signed an 18-year agreement recently with Pike River to use rail to carry its coal from a new load out, near Pike River underground mine, north of Greymouth, to Lyttelton for export. Solid Energy guarantees Pike River capacity to transport up to 1.3M tonnes a year on the rail line (up to three trains a day) from late 2008. As a result of the



agreement Solid Energy is now planning further capital investment in the rail line, rolling stock, an additional coal load out facility on the West Coast and increased capacity at Lyttelton.

Solid Energy said it has worked collaboratively with On Track, Toll Rail and Lyttelton Port since 2004 to improve reliability and upgrade overall capacity. As a result coal and other freight on the line including dairy, cement and gold concentrate have increased significantly. Delivery of the proven annual capacity of more than 4M tonnes gave Pike River the confidence to move forward with Solid Energy's transport supply proposal.

Port Taranaki will miss out on the contract to barge the coal from Greymouth to New Plymouth. Port Taranaki was to make an \$18M investment in upgrading and had started a purpose built coastal bulk ship. The port has also just spent \$20M on a dredging project designed to deepen the harbour so it can accommodate much bigger ships. Pike River said that while Port Taranaki would have to wear some financial losses, he doubted the loss of the contract would impact the company's bottom line.

Record year for Solid Energy

Solid Energy produced record coal sales of 4.8M tonnes in the year to 30 June 2007, up slightly from 4.67M tonnes in the previous year. The company also made a record after-tax profit of \$94.1M for the latest year, up 10% from \$85.5M in the 2006 year.

Export volumes of coal were down 11% to 2,190,000 tonnes in the year to June 2007 from 2,470,000 tonnes the previous year. (Five shipments of coking coal from its Stockton mine were cancelled in May-June).

Solid Energy's decision to continue mining at Spring Creek underground mine near Greymouth had a favourable effect on the company's profits, helped by the sale of a 49% stake in the mine to international trader Cargill for \$24M.

Solid Energy chairman John Palmer said the sound financial position is allowing the company to continue to reinvest in mining assets, progress its investigations into the potential for using eastern Southland lignite resources, and to invest further in the renewables and new energy areas of the business such as biodiesel fuel, wood pellet heating fuel and solar water heating.

Solid Energy increases coal reserves by 10% to 33M tonnes

Solid Energy increased its coal reserves proven feasible and economic to mine, by 10% to 33M tonnes in its financial year to June 30 2007 from 30M tonnes in the previous year, the company said in its annual report.

To qualify as reserves coal must be in a current mining licence or permit, have resource consents granted, land and private mineral access agreements in place and an approved feasibility study.

The reserves increase came largely from assessment of the feasibility of mining at two mines in the Waikato and at Spring Creek. There were reserves increases at Huntly North - a

planned extension of the existing Huntly East underground mine to supply coal for New Zealand Steel; and work to expand the Rotowaro opencast mine's Awaroa 4 pit increased its reserves by 1.5M tonnes. Reserves also rose at the Spring Creek underground mine with planned new development of an extractable 3.1M tonne area.

Solid Energy currently has about 4.8 billion tonnes of coal resources compared with New Zealand's in-ground coal resources estimated at 15 billion tonnes.

Drilling and exploration during the year included work at Stockton to better define resources at the Millerton prospect of the Stockton mine and at Mt William north in the Upper Waimangaroa area, east of the existing mine. Extensive deep drilling programmes were completed on the Liverpool No 4 opencast and underground hard coking coal prospects in the Bishop Block.

In Waikato, the focus has been on coal quality and geotechnical infill drilling to finalise the feasibility of expanding Huntly East mine into Huntly North, increasing reserves at Awaroa 4 pit of Rotowaro and completing the feasibility assessment of mining at Kopako opencast, Maramarua.

In total, 25km of drilling was undertaken for resource proving and geotechnical drilling at a cost of \$8M.

Holcim investigating cement options

Holcim New Zealand is investigating the energy requirements for a possible new cement plant at Westport as one of three options to meet the projected growth in demand for cement. A medium term option is to continue the existing Westport plant, with an appropriate maintenance and capital works programme, in combination with supporting imports on a bulk basis. Two long term options are either a new plant at Westport or a new plant at Weston, near Oamaru. Resource consents have been approved for the Weston proposal but they may be challenged in the Environment Court.

The company is working on narrowing the three options to two, which will be put forward to its parent company, Holcim Ltd, to decide. At Westport, one of the key components for a new plant is forecasting the cost of both thermal (coal) energy and electricity for the projected life of a plant. A cement kiln requires significant energy inputs to provide the heat (up to 1450°C) required for the chemical reactions that produce cement.

Security of supply is also essential and required for the life of a plant. Short, medium and long-term options are being assessed, as well as investigations looking at contingencies should an unexpected event interrupt normal energy supply. A new cement plant would have emergency power generators and coal stockpiles.

The suitability of the coal available for a new Westport plant is being analysed as part of these investigations. This involves trials of the coal's physical properties (looking at moisture, heat value, ash and grindability) as well as chemistry. The company says coal sulphur content is not typically a problem in cement production as almost all of the



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sulphur in coal is incorporated within the cement during the high temperature chemical processes that occur in the kiln.

Eastern builds up coal production from new Southland mine

The Takitimu coal mine in Nightcaps, Western Southland, being developed by Eastern Corporation, is building up production to meet demand. Eastern says that stripping of the first 50,000 tonne block was completed during the June quarter.

All-weather haul roads and run of mine and product coal stockpiles have also been established, while the coal handling and processing facility has been refurbished to increase production efficiencies.

Sales of 40,000 tonnes are forecast for the 2007/08 financial year, particularly with the commencement of the contract to supply the Fonterra Clondeboyne plant in South Canterbury by September 2008.

Exploration programmes for Ohai and at Orepuki on the western Southland coast, will be developed while the Takitimu mine is under development.

Eastern revises Cascade mine resources

Eastern Corporation's Cascade mine near Westport is expected to produce up to 55,000 tonnes of coal per year over the next four years.

A recent report stated that revised resources at Cascade will be 472,000 tonnes measured and 88,000 tonnes indicated. A recent mini-sosie seismic survey confirmed a reassessment of the complexity and economics of operating in the Cascade environment.

Eastern said it will increase its focus on the Whareatea West exploration permit, 5km from Cascade, as a target for development. An information memorandum is being prepared on Whareatea for potential joint venture partners before the next stages of exploration are undertaken.

Ohai coal sales to continue until at least 2010

Solid Energy confirmed that it plans to continue supplying Ohai coal to retail and industrial markets until at least the winter of 2010.

Bulk stripping finished at Ohai Opencast Mine at the end of October. Solid Energy will run a smaller scale mining operation mining, selling coal to industrial customers and into the bagged coal retail market until winter 2010. The company is investigating whether there is an opportunity to produce enough coal to continue to supply the bagged coal market in Otago and Southland until the end of winter 2011.

Solid Energy expects to finalise its operational and staffing plans for the mine over the coming year, based on the mine's expected economic life and the company's ability to supply customers. Solid Energy currently employs 16 coal processing and administration staff at the mine.

INTERNATIONAL NEWS

AUSTRALIA

Xstrata ups coal price offers

Xstrata Plc has upped its offer in thermal coal term contract negotiations with Japanese utilities by as much as 20% to \$78 a tonne. But utilities, such as Chubu Electric, balked at the steep increase in prices. The utilities were expected to counter offer at below \$70 a tonne.

Xstrata had previously offered coal in the October 2007-September 2008 annual contracts at about \$69-\$71 a tonne, but a recent bull-run in forward 2008 coal prices on the global COAL index on an expected worsening supply situation next year prompted the price increase.

Meanwhile, Rio Tinto Coal, the world's second-largest coal producer, has yet firm up a price for the contracts.

Producers and traders said rising domestic coal prices in China would also prompt Chinese producers, such as Shenhua Energy Ltd and China Coal, to trim exports and keep more supplies for utilities on the mainland.

Force majeure at Anglo's complex

Anglo Coal is understood to be declaring force majeure on some cargoes from its 51%-controlled Dawson/Moura met and thermal complex, in Queensland, where production problems have deepened.

Damage to a reclaimer unit at the preparation plant is understood to be at the centre of latest issues which follow a series of difficulties in commissioning equipment to support the current expansion phase from a slated 7mt/yr to 12.7mt/yr.

The latest incident is understood to have immediately hit train loading, but the Dawson/Moura venture, 49%-owned by Japan's Mitsui, is still assessing the impact on shipping schedules.

Queensland to build railway link

Australia's Queensland government will build a 69-km railway line to transport coal to Abbot Point port from the central part of the state.

Queensland Rail will advertise for participants in this project and the initial contract will be awarded by this year and completed 2010.

Insufficient infrastructure to move coal from mines to ports is costing Australia. The country risks losing as much as A\$7.9 billion (\$7.1 billion) in export revenue in the next decade if port and rail congestion aren't resolved, government figures show.

Coal shipments were the biggest contributor to Australian exports in the 12 months ended May, reaching A\$20.4 billion, or 12.9% of the total.



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Macarthur Coal expects lower profit

Macarthur Coal Ltd says its first half profit is likely to fall significantly, as bottlenecks at port facilities and other constraints continue to dent its earnings.

Macarthur Coal has forecast a net profit of \$12M to \$15M for the first six months of 2007/08, down from \$42M in the same period last year.

Chief executive Nicole Hollows said operations at the Queensland company's 73.3% owned Coppabella and Moorvale mines continue to perform extremely well.

But sales volumes and profits are being heavily impacted by ongoing constraints in the Goonyella coal chain and high levels of demurrage. The current port infrastructure bottlenecks are due to the expansion works underway at Dalrymple Bay Coal Terminal.

Miner's profit falls

Coal & Allied Industries of Rio Tinto-Australia said first-half profit fell 53% as flooding along with port and rail congestion limited sales. Record waiting lines for ships at Newcastle, Australia curbed exports and raised costs for miners in the Hunter Valley of New South Wales State.

Infrastructure issues continued to impact Coal & Allied's financial performance and until a satisfactory long term commercial framework is put in place, there is unlikely to be any significant improvement in this performance.

New NSW coal mine approved

The Moolarben mine in Mudgee, central west NSW, is reported to be equal in size to the recently approved and controversial Anvil Hill mine in the Upper Hunter. Moolarben is expected to yield 10 Mtonnes of coal a year for 21 years.

CANADA

Slurry pipeline transportation study

Fortune Minerals Ltd presented an update of development activities for its wholly-owned Mount Klappan anthracite coal project in northwest British Columbia, which straddles the B.C. Railway right-of-way 150 km northeast of the port of Stewart and 330 km northeast of the port of Prince Rupert. Mount Klappan has already been assessed in a positive full feasibility study by Marston & Marston Inc. (Marston) and the project is currently in the environmental assessment process to develop an export metallurgical coal producing ultra-low volatile pulverized coal injection (PCI) products for the overseas steel industry.

Fortune has commissioned a preliminary economic assessment for the transportation of coal products from Mount Klappan using a buried slurry pipeline as opposed to the rail and truck haulage options that were assessed in the 2005 feasibility study. Fortune retained Marston to undertake this latest study in order to assess alternative methods of conveying coal to the port, mitigate the impacts of a stronger Canadian dollar and increasing fuel costs, and reduce the environmental impacts with the use of existing transportation corridors. The pipeline would also provide an alternative for access to the port of Prince Rupert where there is an under-utilized, world class coal handling facility that can

accommodate large "Cape-size" bulk vessels for delivery to international customers.

Albertans 'depend on coal' to meet energy security

The Dodds-Roundhill Coal Gasification Project is designed to provide Alberta with a new source of economic and environmentally sustainable energy. The Project represents a key step towards Alberta's future as a global centre of excellence in innovative clean coal technology. This new technology will help preserve natural gas resources for higher-value uses and unlock the full energy potential of low-grade coal. This new energy source can support the development of Alberta's vast oilsands resources in an environmentally sustainable manner.

CHINA

China sees reduction in coal emissions

China said measures to improve the environment by cutting pollution at coal-fired power plants has started to show results, with emissions of a key air pollutant falling so far this year.

Emissions of sulfur dioxide, a main marker of air pollution, fell by 1.8% year-on-year in the first three quarters of 2007. This compared to a 1.2% rise in 2006 from a year earlier. This is attributed the decrease to the installation of facilities that cut emissions of sulfur from coal-fired power plants.

Back as net coal exporter as global prices soar

China returned as a net coal exporter in October, with record international prices encouraging miners to ship more of the black hydrocarbon abroad ahead of the 2008 price negotiations with domestic power generators.

October imports rose 2.8% from September to 3.72 M tonnes, the second smallest amount this year. China's total imports for the first 10 months climbed 44% to 42.34 M tonnes. Exports for the same period stood at 43.26 M tonnes, boosted by October exports of 5.25 M tonnes, the second highest this year.

China turned a net exporter of about 1 M tonnes for the first 10 months. Traders and industry officials said China, the world's top coal consumer and producer, was likely to stay a net exporter this year, despite its emergence as a net importer for the first time ever in January.

Soaring international spot coal prices, coupled with record freight rates, had deterred Chinese power generators from purchasing the fuel from overseas suppliers, such as Indonesia. On the other hand, foreign buyers from nearby countries, such as Japan, were taking more term cargoes from China or even paying up to acquire additional tonnages, they said.

China Coal taps M.Stanley JV for Shanghai IPO

China Coal Energy Co has hired a Morgan Stanley joint venture to handle its roughly US\$4.3 billion Shanghai listing, amid a bullish outlook for Chinese coal demand.

The company has hired China International Capital Corp (CICC), in which Wall Street bank Morgan Stanley holds a



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34.3% stake, to sponsor its Shanghai IPO, which is expected to be launched in December.

China Coal announced in July that it planned to issue up to 1.525 billion A shares on the Shanghai Stock Exchange to fund coal-related projects, joining a growing list of domestic firms tapping the country's buoyant stock market. The sources said China Coal was awaiting approval from the China Securities Regulatory Commission for its Shanghai IPO.

Sticking with coal despite call to cut CO₂

China and India are under pressure to reduce their carbon emissions, but energy executives and government representatives at an energy conference in Rome agreed that the two booming economies will be sticking with coal - whether the rest of the world likes it or not.

The officials said the international community must help the two countries develop cleaner coal operations and offer them incentives to move away from the cheap and abundant fuel, or risk a serious blow to efforts to fight climate change.

Shanxi proves additional coal reserve

North China's Shanxi Province, the country's largest coal producer has proved additional coal reserves of 8.8 billion tons since 2004.

The overall coal reserves of the province amount to more than 260 billion tons. With an estimated annual coal reserve consumption of 1.2 billion tons, supply to the country's coal industry can be guaranteed for at least 200 years.

The annual coal production of Shanxi is 580 Mtonnes. According to the statistics released on the bureau's website, the newly found coal reserves added up to 8.45 billion tons from 2004 to 2006.

Coal bed methane exploration in Xinjiang

PetroChina signed an initial accord with Arrow Energy (Australia) to explore for coal bed methane in the Xinjiang autonomous region in northwest China.

The agreement covers the 4,000-square-kilometer, or 1,500-square-mile, Dajing block in the Junggar basin, where conventional natural gas is produced to supply a pipeline connecting to Shanghai, Arrow Energy, said Tuesday in a statement. The block could hold 35 trillion cubic feet of coal bed methane

Arrow Energy is developing overseas interests in coal seam methane and has entered ventures in India and Indonesia. Once a production sharing contract with PetroChina is signed, it plans to drill as many as 20 exploration wells in the Dajing block over 18 months to better determine the volume of coal seam gas that could be recovered.

Shenhua's first half up on high prices

China's Shenhua Energy Co Ltd posted a 20% rise in first-half earnings owing to higher prices and sales volume. Shenhua is now in a prime position to invest in power and transportation and buy mines in China or overseas as growing demand for electricity pushes Asian coal prices to record highs.

Shenhua said the demand for coal would continue to experience comparatively strong and steady growth in the rest of the year and the spot price for coal would generally remain high despite certain fluctuations.

Shenhua also planned to buy Shendong Coal and Shendong Power from its parent company. The firm has also stepped up mining to fuel power plants and steel mills across the world's fourth-largest economy, selling 21% more coal in the first six months, or 97.8 Mtonnes.

INDIA

Coal India eyes blocks in Australia and Canada

Coal India Ltd is betting big on Australia and Canada in its quest for acquiring exploration acreages and equity in producing mines overseas. The state-owned company is closely pursuing several opportunities in both countries and is looking for office set-ups in those countries, even as its proposal for floating an overseas investment arm - Coal Videsh - on the lines of ONGC Videsh hangs fire.

The move is part of Coal India's strategy to enhance coal availability in the country through a mix of higher domestic production and sourcing from offshore assets. While the government finetunes the Coal Videsh proposal, as an alternative, CIL aims to acquire overseas acreages in joint venture with user industries, say, a steel company.

Orissa, Kerala, Gujarat to jointly explore coal

Orissa, Kerala and Gujarat agreed to float a Special Purpose Vehicle for joint exploration of coal from Baitarani (west) coal block in the state.

The agreement was signed between the state owned Orissa Hydro-Power Corporation (OHPC), Kerala State Electricity Board (KSEB) and Gujarat Power Corporation Limited (GPCL) here for floating a joint venture company which would work towards exploration and use of coal from the Baitarani (west) coal block.

The Baitarani (west) coal block which reserved nearly 602M of coal would be equally divided among the three partner states. The three companies would also equally share the expenditure to be made for exploration of coal, Singh said.

Deal for Indonesian coal

Coal & Oil of Chennai, India has signed an agreement with Samtan-Kideco of Indonesia to source 50 Mtonnes of coal over 10 years. These imports will account for 10% of the total projected imports of coal into India in the next five years and translate into generation of about 1,500MW of power per year. India is expected to add 73,000 MW of power in the next five years, at least 65% of which will be generated through coal-based thermal plants.

Though India is home to one of the world's largest reserves of coal, quality thermal coal is hard to find. Indian power companies initially depended on imports to meet needs, but the recent spree of greenfield projects has forced players to look for opportunities abroad.



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Merger to form coal mining company

India's Gujarat NRE Coke Ltd will recommend a merger of its three mines in the New South Wales to form a focused coal mining company in Australia. The proposed merger of India NRE Minerals Ltd (INM) and Gujarat NRE Resources NL (GNR), will take place through a scrip offer by INM for the issued shares of GNR. Three INM shares will be offered for every four GNR shares.

Coal shortage plagues power utilities

Coal availability has become a serious concern for power-generating utilities this year. An increasing number of plants find their coal stocks running at "critical levels" or insufficient to last even for seven days of generation. In the last two months, 11 of the 75-odd power stations tracked by the Central Electricity Authority (CEA) had coal stocks at "critical levels".

Coal imports have already been on the rise in the last few years, as demand has outpaced supply of coal. Import of non-coking coal went up to 22 Mtonnes in 2005-06. The imports in 2006-07, yet to be finally estimated, are likely to be in the region of 24 Mtonnes.

Coal on upswing

India needs coal, and it is hoping to ramp up domestic production and increase imports to make sure its rapidly growing economy has enough fuel. The National Thermal Power Corporation announced that it will be importing about 2 Mtons of coal annually (about 5,500 tons per day) from Indonesia to meet demand. The company is also considering buying large amounts of coal from South Africa and Australia and may even buy stakes in Indonesian coal miners to assure future supplies.

Nearly 80% of the country's coal is produced from strip mines and about half of all the coal produced is used for power generation.

INDONESIA

NTPC mines JV to secure coal linkage

PSU major NTPC may enter into a power and coal joint venture (JV) with an Indonesian company as part of its initiative to expand global operations and secure coal linkage for its power plants. The company is in talks with Indonesian mineral company PT Tambang Batubara Bukit Asam Tbk (PTBA) for entering into a JV where NTPC would help the company in its proposed power foray and also jointly mine coal for use by the PSU.

A delegation from NTPC is expected to visit Indonesia soon to hold final discussions with PTBA for a possible joint venture. If the talks succeed, the two sides could sign a MoU for development of a thermal power plant and a coal mine.

Government to scrap VAT on coal

Following a protracted debate over the various duties on coal, the government says it will scrap the value-added tax (VAT) on the commodity.

The Finance Ministry's director general for taxation, Darmin Nasution, said in the latest proposed amendment of the VAT

law coal would be excluded from the list of taxable goods, effectively exempting the commodity from the 10% tax.

The tax exemption, which is expected to provide more certainty for businesses in the sector, will still not apply to products derived from coal. Being non-taxable, the government can simply collect royalties from coal producers without having to provide restitution -- or tax refunds -- for certain production facilities.

Straits Asia acquires Jembayan coal mine

Straits Asia Resources Ltd announced that it had entered into a definitive sale and purchase agreement to acquire a 100% interest in the Jembayan coal mine in East Kalimantan ("Jembayan") for a total purchase consideration of US\$350M.

The Jembayan concession covers a total area of nearly 13,000 hectares. Using present records, an independent review of the coal deposits has identified non-JORC classified reserves and resources of approximately 41 M tonnes and 115 M tonnes respectively. Only 48% of the total concession area has been explored, implying significant reserve and resource upside potential.

Asia's thermal coal supply squeeze to worsen in 2008

Asia's thermal coal supply squeeze, which has driven spot prices to record highs of over \$72 a tonne, is set to worsen next year as Indonesia and Australia struggle to meet feverish demand growth in China and India.

Tight supply is projected to push spot prices to average about US\$75 a tonne in the first quarter of 2008, and increase long-term contract prices between Australian producers and Japanese utilities by as much as 10%.

Top five Indonesian producers -- Bumi, Banpu, PT Adaro, PT Kideco and PT Berau -- which account for nearly 75% of the country's total coal output, have forecast total production from the five miners to rise to just 155 M tonnes in 2008.

Straits Asia wants coal

Straits Asia plans to produce 4 Mtons of coal this year at its Sebuku mine in Indonesia, and is working to expand output to 6 Mtons in 2008. It wants to buy mines with at least 10 years production life. The company plans to borrow and may also sell shares to fund an acquisition.

Arrow Energy signs coal gas accord with Pertamina

Arrow Energy NL (Australia) signed venture agreements with Indonesia's state oil company PT Pertamina to study coal seam methane deposits in South Kalimantan.

The study of deposits within the eastern Barito Basin may lead to a production contract.

Arrow is developing overseas interests in coal seam methane and has entered ventures in India and China. It plans to spend A\$294 M on projects including drilling and development of fields.

Miners post strong interim results

Bumi Resources said their first-half net profit was boosted by the sale of stakes in two mines to Tata Power (India). Even without the Tata Deal, Bumi's net profit jumped by 93%, due



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to a 23% increase in production from last year and rising coal prices, which have more than doubled in the past three years.

Bumi's results were very strong and that the deal with Tata eased corporate governance concerns that linger around the company. Bumi is expecting production this year to be 58Mtonnes and further expected to double to 100Mtonnes by 2010.

JAPAN

Collaboration on coal procurement and trading

EDF Trading and Chubu Electric Power Company announced they will establish a new coal business, Chubu Energy Trading, based in Nagoya, Japan.

Chubu Energy Trading will procure and deliver coal for Chubu Electric Power Company's power station in Hekinan, Japan. It will also establish physical and financial coal trading with wholesale counterparties in the Asia Pacific region.

Chubu Energy Trading will use EDF Trading's experience in the coal and freight markets and its successful business model to optimise Chubu's coal and freight positions, hedge its exposure and secure coal supply. EDF Trading, the wholesale trading subsidiary of the EDF Group, secures and optimises coal and freight supply for the Group in France and the UK as well as for other European utilities. Chubu Energy Trading will commence business in early 2008.

MADAGASCAR

Australian firm sees coal growth

Australia's Red Island Minerals Ltd has found a 215 Mtonne coal resource in Madagascar, with potential to supply power to domestic and foreign markets. Red Island said plans to develop the resource would unfold over the next few years.

The Madagascar's location in the east African coast is an ideal position to export to India and China, where hunger for coal is booming, while there is also scope to supply energy in Madagascar, which now has electricity coverage of only 15%.

MONGOLIA

Acquisition of Chandgana Khavtgai Coal Basin

Red Hill Energy Inc. announced that it has entered into an agreement to purchase a 100% interest in, and has already commenced significant exploratory drilling operations on, the 37,000 hectare Chandgana Khavtgai coal exploration property located in the Nyalga Coal Basin in southeast central Mongolia.

Field exploration on Chandgana Khavtgai has identified several thick coal outcrop zones that appear to indicate the continuation of the same 30-50 metre coal seam observed at Red Hill's Chandgana Tal coal property. The coal outcrop extends at least 4 km onto the license, covering an area several times the size of the Chandgana Tal license area.

NAMIBIA

New coal power plant to be constructed

Three companies are jostling for a Namibian government contract to construct a new coal power plant.

Namibia's national power utility NamPower put out tenders for a 400MW coal plant last year, in the wake of severe shortages in energy supply from South Africa. The three contenders were international engineering consortium Vizion Energy, a German company Binvis Investments, and Namcoal.

Vizion Energy envisages a plant with a capacity to generate 800 MWs, which would use about 2M tonnes of coal per year, Binvis is looking to construct a 700MW power plant, while Namcoal hopes to set up a 400MW plant.

NORWAY

Rise on coal, ore freight rates

Dry-bulk shipping rates may extend their gains after rising the most in a month, boosted by congestion at ports and demand to transport iron ore, coal and other goods on large ships.

The Baltic Dry Index, an overall measure of commodity-shipping costs on different routes and ship sizes, rose 1.1% to 10,867. The measure advanced for the fourth straight day and is down 1.5% from the record 11,033 reached on Oct. 29.

Dry-bulk shipping rates have more than doubled in the past year, as China's switch to being a net coal importer in January prompted other Asian countries to source the fuel from further afield. That has tied up ships longer than usual and caused port bottlenecks. Anticipation of higher iron prices next year is also driving imports by steel millers and traders in China, creating more demand for sea transport.

PHILIPPINES

Coal deals with Indonesia

The Philippine government signed a 5-year contract to buy 500,000 tonnes of coal annually from Indonesia at a 5% discount to the Platts' international commodity pricing benchmark. The coal supply will come in eight shipments from Sumatra, Indonesia.

Separately, the National Power Corp (Napocor) had bought two orders of steaming coal, at 65,000 tonnes each, for \$120 per tonne for delivery in the coming months of the year. Napocor recently issued a tender to buy three 65,000-tonne coal cargoes for delivery in November and December. The tender, meant to supply the requirements of the 600MW Masinloc power plant, comes just two weeks after it sought to buy two cargoes for the Sual power plant and amid a seven-month-long dry spell that has cut electricity output at the country's hydropower plants.

The Philippines has six major coal-fired power plants that supply about 40% of the country's power requirements. It sources most of its coal requirements from foreign producers and traders, mainly from China, Indonesia and Australia.



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SOUTH AFRICA

Coal trader signs 25-year supply deal

KIS (India) had signed a 25 year deal to supply 4 Mtonnes a year of coal a year to Athena Energy Ventures which runs a 1,200 MW coal-fired power plant in Visakhapatnam, India. A portion of the 4 Mtonnes supply will come from KIS' two newly-acquired coal mines in Indonesia. KIS is also likely to supply South African coal.

SOUTH KOREA

South Korea signs coal deal with South Africa

At least two South Korean power companies have signed contracts for 1.25 Mtonnes of South African coal in 2008 from more than one supplier.

State-run Korea South East Power Corp (KOSEP) has renewed its contract for 500,000 tonnes of South African coal. Korea Western Power Co (KOWEPO) has also signed a contract for 750,000 tonnes from different suppliers.

A trading source said that South Korean power generators are set to sign contracts for a total 1.5 Mtonnes of South African coal for next year at a price of about \$65.00 a tonne.

THAILAND

EGAT moves to build coal-fired plant

The Electricity Generating Authority of Thailand (EGAT) expects to finalise the site for its new coal-fired power plant by the end of this year and plans to raise acceptance from nearby communities.

EGAT said that the coal-fired plant would be equipped with technology that reduces toxic emissions by 99% and that only high-quality coal from Australia and Indonesia would be used. It will proceed with the construction of two coal-fired plants on a single site that will have a capacity of 800MW each which will take seven years to construct. Under the power development plan, EGAT will build four coal-fired plants.

UK

Increased coal production could play part in future energy mix

The UK government said that it may increase UK coal production as part of the UK's plan to secure reliable energy supplies for the future. It said that an increased use of carbon capture and storage technology could ensure that carbon emissions from coal burning are kept to a minimum.

The UK faces a challenge to replace ageing power stations and nuclear power plants and the government reckons that by 2020, 20-25 GW of new electricity generation will be needed to meet increased demand. This is likely to cost about 20 bln stg, the government said.

Renewables will play a growing role in meeting the short fall, though by how much is unclear. Energy minister Malcolm Wicks said, 'Whatever the exact composition of the future energy mix is, it must clearly involve a far greater role for renewable energy'. The EU has set a target for each

member state to create 20% of its energy from renewables by 2020.

USA

Consol Energy plans more coal exports

Consol Energy which already exports about 10% of its coal production, plans to increase shipments to Europe where it can get better prices. While domestic U.S. customers such as power utilities will remain a priority, Consol sees a growing demand abroad for both its high-Btu, or heat-generating, steam coal and metallurgical, or coking, coal that is used in steel-making.

Consol said it expects steam coal exports this year to increase by more than 40% from 2006 and 2007 volumes to rise by approximately 25% for 2008. The company would export around 4 M tons of steam coal and approximately 2-1/2 Mtons of coking coal this year. Consol produces approximately 70 Mtons per year.

Consol said it believes the world is moving into a cycle of strengthening demand for coal. Developing countries like China, India, Vietnam and Indonesia are experiencing economic growth, driving demand for both steam coal and metallurgical coal.

Stable outlook continues for US coal industry

Moody's Investors Service said it continues to maintain a stable near-term outlook for the US coal industry despite some softening in prices and higher costs this year.

The rating agency said the long-term fundamentals for the coal industry remain sound, given coal's position as the primary fuel for generating electricity in the US.

Further, it expects a slight growth in demand and supply next year, which should have a neutral effect on pricing. However, it sees continued soft pricing, rising costs, and heavy capital spending diminishing margins and free cash flow over the next 12 to 15 months.

Moody's expects 2008 prices for steam coal to remain relatively soft due to abnormally high inventory levels at US power plants. The rating agency said another mild winter or summer or a recession in the US will also temper the demand for coal, leading to lower prices and negative ratings pressure.

Agreement to explore U.S. coal gasification projects

Synthesis Energy Systems, Inc. and CONSOL Energy Inc. have entered into an agreement to investigate the development of coal-based gasification facilities to produce feedstock for various industrial chemical manufacturers whose plants have been shut down due to the high cost of natural gas. They will also investigate the feasibility of developing substitute natural gas ("SNG") facilities to meet the demand for clean, affordable energy.

The projects will initially be focused geographically within CONSOL Energy's Northern Appalachian mine sites in Pennsylvania, West Virginia, and Ohio. This agreement requires completion of a successful project feasibility study



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and further negotiation of a definitive agreement by both parties before any projects will be undertaken.

Belle Ayr Mine gets new coal equipment

Foundation Coal Holdings has installed a new \$38.5M coal crusher and conveyor belt system at its Belle Ayr Mine in Campbell County.

The company says the new equipment reduces the use of trucks hauling coal from the pit, resulting in lower emissions from the heavy trucks and savings for the company on fuel costs. In addition, the new equipment will allow production at the mine to increase by about 5Mtons a year.

The Belle Ayr Mine shipped 20 Mtons of coal in 2005. Foundation Coal also owns the Eagle Butte mine in the Powder River Basin of northeast Wyoming.

Selection of site for new clean coal power plant

Consumers Energy has selected its Karn/Weadock Generating Complex near Bay City as the site for construction of an 800MW clean coal power plant for Michigan.

The utility's plans call for 500MW of the plant's output to be used to help serve its 1.8 M electric customers with 300MW going to other owners. A number of municipal utilities in Michigan have expressed interest in becoming part owners of the new plant, however, no formal agreements have been reached with potential participants.

Proposed coal gasification power plant

Public power agency Energy Northwest is moving forward with plans to construct a 680MW coal gasification power plant at the Port of Kalama in southwestern Washington state.

The consortium of publicly owned utilities has asked the state's Energy Facility Site Evaluation Council to hold adjudicatory hearings in late October, followed by a recommendation on the project by the end of December and a decision by the governor in early 2008.

Unlike conventional coal plants that burn coal, Energy Northwest says the new power plant would produce "a clean-burning, hydrogen-rich synthesis gas from petroleum coke, coal or other solid feedstocks. The technology allows for the reduction or removal of carbon dioxide and pollutants often associated with power plant emissions."

Arch Coal mine earns best safety record

Arch Coal Inc. announced one of its mines achieved the nation's best safety record in 2006 among all large underground coal mines.

An Arch Coal subsidiary, Cumberland River Coal Co.'s Band Mill No. 2 mine in Letcher Count, Kentucky, received the award from the Mine Safety and Health Administration. The Band Mill mine's employees worked 178,000 hours in 2006 without a single reportable or lost-time injury. The national average is 7.35 incidents per 200,000 hours worked for underground coal mines. Another Arch Coal subsidiary, Canyon Fuel Co.'s Skyline mine in Utah, earned the same award last year.

VIETNAM

Vietnam coal mining operation standardisation

Two new Tamrock Pantera Rock Pilot 1100 surface rock drilling rigs from Sandvik have been delivered to the Vietmindo opencast coalmine in Northern Vietnam, joining four units that have been working there for the past three years; enhancing the Tamrock as a benchmark for overburden drilling in the Vietnamese coalmining industry.

Vietmindo's mining concession is located in the huge Quang Yen Basin, the largest coalfield in Vietnam accounting for over 80% of the nation's production. The seven-seam deposit has total reserves of over 30 Mtonnes within the concession area, the seams varying in thickness up to 10 m with the seam dip ranging from 5 to 30°.

The mine has a capacity to produce 1 Mtonnes of anthracite per year, but output varies according to market demand. Vietmindo anthracite is well known for its use in the sintering process for the iron and steel industry. Approximately 40% is exported to Japan, with the remainder going to other Asian countries including South Korea and Taiwan, and to Western Europe.

TECHNOLOGY & OTHER NEWS

FutureGen Alliance Selects Mattoon, Illinois

The FutureGen Alliance has announced that Mattoon, Illinois has been chosen as the final site to host the FutureGen power plant.

The site evaluation process has been rigorous, transparent and held to the highest level of scrutiny. The US DOE's environmental review was thorough and resulted in finding all four candidate sites worthy of being selected. The selection of Mattoon will be finalized upon the DOE's issuance of the National Environmental Policy Act Record of Decision and other DOE contractual formalities.

US Hydrogen Fuel Initiative

Since its inception in 2003, the Office of Fossil Energy Hydrogen from Coal Programme has sponsored more than 60 projects and made advances in the science of separating out pure hydrogen from syngas produced through coal gasification.

The programme is investigating several different membrane types, most involving separating 99.999% pure hydrogen from syngas. A major step in the development of a membrane was recently reported by Eltron Research Inc. when their proprietary membrane was scaled up and demonstrated in continuous tests conducted for over 11 months. Laboratory tests showed a membrane flux which achieved the 2015 programme flux target but need to be verified at increasingly larger scale.

Large-scale demonstration of CCS

NRG Energy, Inc. and Powerspan Corp. announced their memorandum of understanding to demonstrate at commercial scale one of the most promising technologies for CO₂ capture from conventional coal-fueled, electric power plants -- Powerspan's ECO2(TM) technology. The post-combustion, regenerative process uses an ammonia-based



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solution to capture CO₂ from the flue gas of a power plant and release it in a form that is ready for safe transportation and permanent geological storage.

To date, CO₂ capture demonstrations on coal-fueled power plants have been conducted only at pilot scale, or 1 to 5MW of electricity. This CCS demonstration, which will be conducted at NRG's WA Parish plant near Sugar Land, Texas, on flue gas equal in quantity to that from a 125MW unit, is expected to capture and sequester about 1M tonnes of CO₂ annually -- ranking it among the world's largest CCS projects and potentially the first to achieve commercial scale capture and sequestration from an existing coal-fueled power plant.

The ECO₂ process is a post-combustion CO₂ capture process for conventional power plants that is differentiated from other approaches by its simpler capital equipment design and significantly lower energy consumption. The technology is suitable for retrofit to the existing coal-fueled, electric generating fleet as well as for new coal-fueled plants.

Patent for ThermoEnergy's 'TIPS' clean coal process

ThermoEnergy Corporation announced that the Chinese Patent Office recently granted the patent for the Company's new zero air emission, carbon capture technology known as the ThermoEnergy Integrated Power System, or "TIPS" process. TIPS burns carbonaceous fuels, including coal, oil, natural gas or biomass, to make steam and power without air emissions. CO₂ and H₂O produced in the combustion process are captured for sequestration or beneficial reuse. TIPS represents a totally different thermodynamic approach in power plant design that will allow greater process efficiencies and economic performance as well as eliminating greenhouse gas emissions.

The Chinese patent is the sixth TIPS foreign patent to be granted, along with two US patents already issued.

DOE completes environmental impact study on CTL project

The first-of-its-kind coal-to-liquid fuel project planned for Pennsylvania took another significant step forward recently with the completion of the US Department of Energy's final environmental evaluation.

The DOE will publish in the federal registry its "Final Environmental Impact Statement," or EIS, on the US\$800M+ coal-to-clean fuels plant. The EIS evaluates potential impacts of the proposed plant on land use, aesthetics, air quality, geology, water resources, floodplains, wetlands, ecological resources, socioeconomic resources, waste management, human health, and noise.

This is the first coal-to-liquid fuel project in the nation that has received local, state and federal permits. It will take three years to build. Construction would provide about 1,000 jobs and the plant itself would employ about 600 primary and secondary workers.

The DOE selected this project under the "Clean Coal Power Initiative" to demonstrate the integration of two technologies: coal waste gasification and the Fischer-Tropsch process of synthesizing syngas into liquid fuels at a commercial scale.

The power plant portion of the project would use the synthesis gas to drive a gas combustion turbine. And it would use the exhaust gas from the gas turbine to generate steam to drive a steam turbine. Both turbines would generate electricity.

Syntroleum completes coal-to-liquids demonstration

USA Syntroleum Corp. successfully completed a demonstration of its proprietary technology designed to convert coal into clean synthetic liquid fuels. The test run utilized synthesis gas produced from coal and Syntroleum's proprietary cobalt catalyst technology in the conversion process.

The 2,500-hour bench-scale test run was undertaken at Eastman Chemical Co.'s Kingsport, Tenn., facility. Syntroleum officials said the demonstration proved that fuels made from coal have the same superior synthetic Fischer-Tropsch qualities as those made from natural gas, and that Syntroleum's proprietary cobalt-based catalyst performs robustly under real-world coal-to-liquids conditions, as was predicted from earlier extended life tests performed by Syntroleum.

Syntroleum owns the Syntroleum Process for Fischer-Tropsch conversion of synthesis gas derived from biomass, coal, natural gas and other carbon-based feedstocks into liquid hydrocarbons, the Synfining Process for upgrading Fischer-Tropsch liquid hydrocarbons into middle distillate products such as synthetic diesel and jet fuels, and the Biofining' technology for converting animal fat and vegetable oil feedstocks into middle distillate products such as renewable diesel and jet fuel.

Drying coal to make it more green

A new project in North Dakota's coal country will use dryers to refine lignite and cut down on pollution.

Minnesota-based Great American Energy is investing \$20M in a plant that aims to enhance the coal mined near Underwood. Construction on the building is under way, and officials hope to make the refined coal available in 2009.

The dryers can remove 25% of the moisture from the coal, allowing it to burn better. The process also takes out 20% of the mercury and at least 20% of the sulphur, which means reductions in sulphur dioxide emissions, power plant officials said.

With eight dryers, company officials expect to refine more coal than Coal Creek can use. The extra coal -- possibly as much as 100M tonnes a year -- will be sold to other area users. The refined coal could be used at other area power plants that now ship in higher-grade coal from the Powder River Basin in Wyoming.

Award for technology enabling clean combustion of coal-derived liquids

LPP Combustion, LLC won an award for their paper at the 24th Annual Pittsburgh Coal Conference, held in Johannesburg, South Africa. The paper described LPP Combustion's new environmentally friendly technology that enables the combustion of coal-derived liquids while achieving natural gas level emissions. The paper also



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highlighted additional economic and operational benefits of using LPP's Combustion technology with clean coal technologies such as IGCC power plants.

LPP Combustion demonstrated that coal-derived liquids can burn as cleanly as natural gas. Synthetic JP-8 and naphtha, surrogates for coal liquids, were tested using a commercial "state-of-the-art" dry low emissions gas turbine combustor and achieved natural gas level emissions for NO_x, SO_x, CO and particulate matter. Coal-derived liquids are cleaner fuels than their petroleum-based counterparts because the typical contaminants found in coal, such as nitrogen, sulphur, mercury, and other metals, are removed during the coal-to-liquids (CTL) process.

Low emission coal test success

Australia will have a blueprint for a near-zero-emission coal fired power plant by the end of 2008 after successful drill tests proved the central Queensland coal and gas fields could safely store CO₂ underground. The drill tests in the Northern Denison Trough near Rockhampton were undertaken at depths of between 1000m and 2000m, with water injected into underground caverns to replicate CO₂ released from burning coal.

An international peer review of the results has now confirmed the tests were successful in determining that the local geology could support the clean coal technology. The ZeroGen team has now mapped out the area for a second round of tests to locate the best saline aquifer for storing large quantities of CO₂. ZeroGen will also complete a thorough cost and risk analysis and consult with key stakeholders to have a feasibility study completed by the end of next year.

If ZeroGen gets the green light (and does not sell its technology and expertise to other players) the A\$1.3 billion project will become a world leader. It plans a 100MW coal fired demonstration power plant fitted with CCS technology allowing up to 400,000 tonnes of CO₂ each year to be piped about 200km and stored underground instead of released into the atmosphere. The ZeroGen plant could be in use by 2011 and potentially modified at a later stage to produce commercial quantities of hydrogen or ammonia.

The Queensland Premier said ZeroGen still faced competition for up to \$900M in state government and industry funding (and perhaps extra commonwealth funds). He said he was determined that Queensland's next power station would use clean coal technology. ZeroGen is owned by the Queensland Government and run by its Stanwell power corporation and its commercial partner Shell Development (Australia) has agreed to be part of the next stage and will work in collaboration with Sunshine Gas and MBA Petroleum Consultants.

ZeroGen claims to be several years ahead of its comparable rivals, including the US based FutureGen project. ZeroGen is considered unique among geosequestration projects in that it is designed to produce power and reduce emissions in Queensland geological conditions which are similar to that of China. The Premier has made no secret of his desire to sell clean coal technology to China in an effort to safeguard Queensland's future as a coal exporter. He has promoted

ZeroGen in meetings with Chinese government officials, while the ZeroGen team has also helped China's GreenGen project and held talks with potential Chinese investors. ZeroGen's critics, including at one point the federal Industry Minister, argue that it is too small at 100MW and will not be commercially viable.

Pilot CCS project for NSW power plant welcomed

The Australian Coal Association and the NSW Minerals Council recently welcomed the announcement by the NSW Government of further development of low emissions coal based power generation in the State. The go-ahead has been given for a pilot post-combustion capture trial at the state owned Delta Munmorah power station on the NSW Central Coast. NSW coal producers, through the COAL21 Fund, will contribute to this pilot as part of its commitment to fund up to A\$400M to projects in the State.

The Post Combustion Capture (PCC) pilot facility will capture CO₂ emissions using ammonia absorption technology. When developed to demonstration and commercial scale the technology can be used on new or existing power stations capturing at least 80% of greenhouse gas emissions. The pilot facility is expected to be operational by mid-2008 where a range of experimental trials will be carried out to determine the potential to adapt the technology to NSW coal and power station conditions.

The ACA said it is ultimately looking at funding, with the government, a much larger \$150M demonstration project that will follow on from the Munmorah pilot. It will include industry help to finance exploration for long term CO₂ storage sites in NSW. The ACA said early results from the Darling Basin are showing the availability of storage sites which meet stringent safety standards.

Call to build plants to learn and to reduce costs

The current costs of building and operating a coal fired power plant with CCS were so high that emissions trading alone was not an adequate tool to encourage the investment required in the first such plants, according to the Mining Executive, Energy, of Rio Tinto, Andy Lloyd, at the recent COAL21 Conference. He believed that over time, the costs of the technology would fall. "We have to design and build the first plants, learn the lessons to reduce costs, and implement these lessons immediately in the next generation of plant," he said.

The Chair of COAL21 and Chair of the CO2CRC, Tim Besley, told the conference Australia's work in developing low emission technologies for coal based power generation were vital to major greenhouse gas reductions, given Australia's dependency on low cost coal and its place as a major coal exporter. "Of perhaps greater significance is the role that Australia can play in the development, deployment and commercialisation of that technology among the major emitters of greenhouse gases in the developing world, notably China and India," Mr Besley said.

Boost to Australian collaboration with China on clean coal technology

The Australian Coal Association welcomed the Prime Minister's recent announcement to commit A\$20M to



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collaborative work with China on clean coal technologies. The ACA said that "ongoing collaboration with China on the development, demonstration and deployment of clean coal technologies was essential to a global transition to a low emission future". The ACA noted that a strong ongoing commitment to RD&D to establish a portfolio of low emission technologies (including renewables and measures to improve energy efficiency) would be needed to deliver significant global reductions in greenhouse gas emissions over the long term.

The Australian coal industry is an active participant in the Australia-China Joint Coordination Group on Clean Coal Technology and AP6 Cleaner Fossil Energy Taskforce which are international initiatives that complement the industry's commitment to the COAL21 national agenda and the A\$1 billion plus COAL21 Fund.

Equipment developed for enhanced monitoring

Leading geosequestration researchers from Australia and the US are about to install the world's most comprehensive enhanced CO₂ monitoring equipment at CO2CRC's Naylor-1 well in south-western Victoria. The extensive use of the Naylor-1 well for sub-surface monitoring for the CO2CRC Otway Project enables an extremely thorough monitoring programme. The Otway Project will include injection and geological storage of up to 100,000 tonnes of CO₂ together with the most extensive monitoring and verification programme yet undertaken at a geosequestration site.

The CO2CRC Otway Project Manager said no suitable equipment was readily available as this is the first time this type of work has been done, so CO2CRC researchers from Curtin University in Western Australia were joined by experts from Lawrence Berkeley Laboratories to develop and install monitoring equipment in the well. The equipment will allow researchers to sample fluids from the well for analysis while ensuring that no gases escape. The enhanced subsurface monitoring complements the soil, groundwater and air monitoring that is already taking place and will continue for the life of the project.

Penn State and Chevron announce coal research alliance

Penn State University and energy giant Chevron have announced a five year alliance to collaborate on coal related research, including how best to convert the fossil fuel for cleaner future uses. Chevron will provide the university with as much as \$17.5M under the agreement. The company believes the diversification of the energy base (in the US and abroad) will be critical in coming years and new uses for coal will be instrumental in that move. It says it is impressed by the university's emphasis on integrating its research with business applications.

Penn State said the alliance will help it fulfill its three part mission in teaching, research and service, citing training for up-and-coming engineers, the development of new coal technologies, and the delivery of those technologies to society. The university already has a strong presence in energy fields, including coal. The mining engineering programme is among the oldest in the US. The Chevron-Penn State partnership will emphasise coal chemistry and conversion technology, advanced fuels, combustion and greenhouse gas management and conversion, among other

elements. Coal related research at the university has already involved the conversion of coal to liquid fuels, the simulation of coal conversion, and the capture of CO₂ emissions.

Enel eyes EU backing for CCS plans

Italy's biggest utility Enel said it hopes to win the European Commission's backing for projects to capture and store CO₂ as it aims to reduce the environmental impact of its plants. It recently presented two CCS projects for inclusion in the EC backed European Flagship Programme of 10-12 CCS demonstration projects. The utility plans to invest US\$450M in the projects under its five year industrial plan.

Enel said a coal fired plant equipped with CCS technology would emit 0.15 Mt CO₂ per terawatt hour compared to 0.69 Mt/TWh emitted by an oil fired plant or 0.35 Mt/TWh emitted by a gas fired CCGT plant. Under one demonstration project, which should start up in 2012, Enel aims to capture 1.0-1.5 Mt CO₂ (30-50% of emissions from a 660MW coal fired plant). Enel has identified three possible sites: near Brindisi where it has a 2,600MW coal fired plant, or off-shore Civitavecchia, near Rome where it has been converting a 2,000MW oil fired plant to coal or near the Porto Tolle 2,000MW station in northern Italy where its coal conversion plans have been effectively blocked by opposition.

Under the second demonstration project, Enel has been developing the 'zero-emission' technology which involves burning coal in pure oxygen under pressure to simplify capture of CO₂. Enel plans to run a pilot facility in Brindisi in 2010 and then expand it to a demonstration plant in 2012.

EPRI Energy Technology Assessment of CO₂ emissions reduction potential

The US Electric Power Research Institute Energy Technology Assessment Center has published a discussion paper assessing the technical capability and economic feasibility of achieving substantial CO₂ emissions reductions from the US electricity sector. The analyses include an assessment of the CO₂ emissions reduction potential of a portfolio of advanced technologies; an assessment of the national economic impacts associated with deploying these advanced technologies; and an assessment of the RD&D pathways necessary for these technologies to reach prescribed performance goals.

Four major conclusions emerge from these studies:

- The strategy for reducing sector emissions will be technology based. A technology based strategy is sustainable, minimises costs to the US economy, and creates opportunities for decarbonisation beyond the electricity sector and ultimately beyond the US.
- A diverse portfolio of advanced technologies will be required. No single technological "silver bullet" will suffice. Rather, a full portfolio is needed that includes efficiency, renewable energy resources, nuclear, coal with CCS, and other technologies enabled by expanded transmission and distribution system capabilities.
- Significant RD&D is needed over a sustained period, and technology development lead times require starting now. An investment in RD&D investment (public and private) will lower the cost of emissions reductions on the order of \$1 trillion.



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- Near and long term RD&D activities will be needed to enable significant emissions reductions. The proposals discussed in the paper are designed to elicit discussion from industry stakeholders about how best to develop the technology capabilities to substantially reduce the electricity sector's CO₂ emissions.

EVENTS

28-29 Jan 2008, Global coal methane energy summit, Singapore, Singapore, Centre for Management Technology, 80 Marine Parade Road, #13-02 Parkway Parade, Singapore 449269, Tel: +65 6346 9124, Fax: +65 6345 5928, Email: sasha@cmtsp.com.sg, Internet: www.cmtevents.com

30 Jan-1 Feb 2008, Coal markets 2008 conference, Singapore, Singapore, IBC Asia (S) Pte Ltd, No. 1 Grange Road, #08-02, Orchard Building, Singapore 239693, Tel: +65 6514 3180, Fax: +65 6733 5087, Email: register@ibcasia.com.sg, Internet: www.ibc-asia.com/coalmarkets

26-27 Feb 2008, McCloskey's Asian coal conference, Singapore, Singapore, Claire Lewis, The McCloskey Group, Unit 6, Rotherbrook Court, Bedford Road, Petersfield GU32 3QG, UK, Tel: +44 1730 265095, Fax: +44 1730 260044, Email: claire.lewis@mccloskeycoal.com, Internet: www.mccloskeycoal.com/conferences

4-5 Mar 2008, 5th forum on clean coal gasification, liquefaction & conversions projects/technologies, Beijing, China, Centre for Management Technology, 80 Marine Parade Road, #13-02 Parkway

Parade, Singapore 449269, Tel: +65 6346 9124, Fax: +65 6345 5928, Email: sasha@cmtsp.com.sg, Internet: www.cmtevents.com

4-5 Mar 2008, 7th Coaltrans India conference, India, Coaltrans Conferences Ltd, Nestor House, Playhouse Yard, London EC4V 5EX, UK, Tel: +44 20 7779 8189, Tel: +351 22 973 4624, Fax: +351 22 973 07 46, Email: cenertec@cenertec.pt, Internet: www.cenertec.pt/infub

5-8 May 2008, 7th annual carbon capture & sequestration conference, Pittsburgh, PA, USA, Cheryl Joe, Exchangemonitor, 4455 Connecticut Ave NW, Suite A700, Washington, DC 20008, USA, Tel: +1 865 966 7124, Fax: +1 865 966 7231, Email: carbonsq@exchangemonitor.com

26-27 Jun 2008, International experts' workshop on mercury emission from coal, Newcastle, NSW, Australia, Prof. Terry Wall, Chemical Engineering, University of Newcastle, Newcastle, NSW 2308, Australia, Tel: +61 2 4921 6179, Fax: +61 2 4921 6920, Email: Terry.Wall@newcastle.edu.au

19-23 Oct 2008, 12th Australian coal preparation conference: cleaning coal to secure our future, Darling Harbour, NSW, Australia, Australian Coal Preparation Society National & NSW, PO Box 2315, DANGAR NSW 2309, Australia, Tel: +61 02 4926 4870, Fax: +61 02 4926 4902, Email: acpsnational@acps.com.au, Internet: www.acps.com.au

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

FEEDBACK

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