



COALBED METHANE EXTRA



A publication of the Coalbed Methane Outreach Program (CMOP)

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The International Issue

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China's CMM, CBM Investment Opportunities Attract International Interest

China has abundant resources of coalbed methane (CBM) and coal mine methane (CMM), and is taking an active role in their development. According to 1996 figures published by the China Coal Information Institute (CCII), CBM resources, to a depth of 1000 meters, are estimated at 11 trillion cubic meters, and resources shallower than 2000 meters total approximately 35 trillion cubic meters. CCII also estimates that China's coal mines emit 8 to 10 billion cubic meters of methane annually. This article highlights some recent events as well as ongoing activities in China that are intended to promote and take advantage of the country's vast CBM/CMM resources.

2001 International CMM/CBM Investment and Technology Symposium/Expo

The tremendous potential for energy development and emissions reductions from CBM and CMM projects in China has captured the attention of companies within and outside China. This high level of interest was demonstrated in Shanghai on November 6-8, 2001, when 130 Chinese and foreign experts participated in the 2001 International CMM/CBM Investment and Technology Symposium/Expo. The Symposium provided a forum for industry and government officials to discuss recent progress in identifying market opportunities for CMM/CBM project development at Chinese coal mines.

The Symposium featured reports on project opportunities in several Chinese coal mining areas, prepared under the joint Sino- U.S. "Coal Mine Methane Market Development Project." This project, launched in 1999 and co-sponsored by the former State Administration of Coal

Industry and the US Environmental Protection Agency (EPA), reflects seven years of continuing cooperation between EPA and the China Coalbed Methane Clearinghouse (CBMC). The project led to the formation of a Business Advisory Committee, whose goals are to help Chinese coal mining companies promote the development of CMM resources and learn the skills necessary to become partners with Western exploration firms. The project also produced market opportunity reports for eight Chinese coal companies, prepared by the Clearinghouse and mine experts, that point to a number of profitable CMM development options at each company.

In January 2002, cooperation between EPA and Chinese government organizations continued with the initiation of a new two-year project between CCII and EPA. The goal of the project, "Commercializing Coal Mine Methane Projects in China", is to commercialize coal mine methane in China by establishing cooperative partnerships among government organizations, coal companies, coal mine methane developers, and investors. *(Continued on Page 2)*



November 2001 Symposium in Shanghai
(Photo courtesy China Coalbed Methane Clearinghouse)

China CMM/CBM Opportunities (Continued From Page 1)

This, in turn, could lead to a substantial reduction in coal mine methane emissions. In 1999, average drainage efficiency was 24%, with 728 million cubic meters of methane drained, of which 400 million cubic meters were used as fuel. EPA and CCII estimate that through the utilization of advanced technologies, drainage efficiency can be increased to 35%, increasing drained gas yields to 1.5 billion cubic meters. If new coal mine methane projects are established to use all the recovered methane, an additional 650 million cubic meters of methane emission reductions could be achieved. This is equivalent to reducing 9.15 million tonnes of CO₂ emissions.

Upcoming activities under the joint EPA-CCII project include a Business Advisory Committee Group meeting in China this June, and a larger finance and technology workshop to be held in China this fall. Interested parties may contact Karl Schultz of CMOP at schultz.karl@epa.gov.

JCOAL Active in China

Since 1990, Chinese mines have more than doubled the quantity of methane they use, and several experts at the Symposium presented papers on ongoing and upcoming projects. One such project, at the Tiefert Coal Mine Group in Liaoning Province is being developed by Asia Pacific Economic Cooperation (APEC) and jointly funded by China and Japan. According to a presentation by Hiroaki Hirasawa of the Japan Coal Energy Center (JCOAL), this project, which began in 1998, introduced an effective gas recovery and utilization system at the seven mines of the Tiefert Coal Mine Group. Results of a gas recovery demonstration test at one mine using new drilling, drainage,

monitoring and control techniques show that the gas recovery rates increased from 32% to 59%, and the gas concentration in the ventilation air was reduced from 0.83% to 0.61%. The project will culminate with a comprehensive demonstration in 2002 that increases the scale and scope of the project. In addition to gas recovery at additional mines, the comprehensive demonstration will also evaluate gas transport and storage, heat value control, demisting, and delivery to Tieling City as municipal gas supply. Mr. Hirasawa's presentation also described other JCOAL projects aimed at reducing coal mine methane emissions (see related article on Page 4 of this issue).

Since 1990 Chinese mines have more than doubled the quantity of methane they use

Asian Development Bank

Another important development for China's coal mine methane industry is the recent allocation of \$150 to \$200 million in financing by the Asian Development Bank (ADB). A coal mine methane project in the Jincheng Mining Area is under consideration for financing approval in 2002. Preliminary plans call for a 120 MW coal mine methane-fueled power plant with an annual demand of up to 240 million cubic meters of methane, equivalent to avoided emissions of 3.4 million tonnes CO₂ each year. ADB may finance additional Chinese coal mine methane projects in 2003.

A joint ADB-China Coalbed Methane Clearinghouse-EPA delegation recently visited the

Jincheng Mining Area, which has an estimated 35.8 billion cubic meters of recoverable methane resources, to discuss the power generation project that is under study for financing. As a part of the ongoing exchange of ideas, Edu Hassing of ADB met with Shanxi Province Vice-Governor Wang Xianzheng in November at Taiyuan. Mr. Wang is supportive of EPA and ADB programs that promote the use of clean energy. Mr. Wang noted that Shanxi Province has a long history of CMM use, and will benefit from expanding the use of natural gas in the power generation, chemical and metallurgical industries.

Other CBM/CMM Activities in China

The United Kingdom's (UK) Department of Trade and Industry (DTI) has launched a series of collaborative CMM/CBM projects in China. Most of these projects aim to promote the development of commercial CMM/CBM recovery in China, and to encourage the use of UK technology and skills wherever appropriate (see related article on Page 5 of this issue).

The private sector is also very interested and active in China CBM/CMM. According to a paper delivered at the Shanghai Symposium in November by Hu Aimei and Ye Jianping of China United Coalbed Methane Co. Ltd. (CUCBM), during a three-year period ending in January 2001 CUCBM signed eleven production sharing contracts (PSCs) with six foreign companies: Texaco, Phillips, Arco, Lowell, Greka, and Virgin. The total concession area of the eleven contracts exceeds 20,000 sq. km. CUCBM expects to sign an additional five to six PSCs with foreign companies in the near future.

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Technology

Japanese Project Uses Gas From Abandoned Coal Mine to Generate Electricity

The Akabira coal mine, located on the island of Hokkaido, Japan approximately 97 km northeast of Sapporo closed in 1994 after 60 years of operation. The mine produced nearly 48 million tonnes of clean coal during its operation, and produced as much as 1.9 million tonnes annually. Akabira was also one of the gassiest coal mines in the world, and liberated nearly 3.5 billion cubic meters of methane prior to its closure. Some of this methane was captured and used in two Toshiba 7 MW gas turbines. The first turbine was installed in 1964, and ran solely on CMM until it was modified in 1987 to cofire CMM and kerosene. It operated until the mine closed in 1994. The second turbine began operation in 1965 and shut down in 1979 with depletion of the gas supply.

In 2000, Sumitomo began using methane recovered from the mine to fuel five 30 kW microturbines. Microturbines were chosen because they are generally maintenance free, flexible with demand change, and are a new technology. The coal mine gas, with a methane concentration of 80%, is being recovered from the mine shaft under positive pressure, gathered by pipeline and injected into the microturbines. Each microturbine unit consumes 1.2 m³ of pure methane per minute and produces exhaust gas consisting of 30% CO₂. The exhaust gas is being re-injected into the shaft by a blower, where it is absorbed by the coal and thus sequestered. This process is being tested elsewhere to enhance CBM production.

Because the mine produces significantly more gas than is currently used by the microturbines, Sumitomo is studying other options for CMM-fueled power generation at the site. Taking advantage of additional power generation options could expand the generation capacity of the mine to 10 or 20 times that of the existing plant. The company is also planning to install submersible pumps at the bottom of the vertical shaft to mitigate rising groundwater levels.

The target of the Akabira project is zero-emission power generation using coal mine gas. Total cost of the project, including pipelines, a gas purification plant to remove dust and mist from the raw gas, microturbines, and labor is about \$US 1 million. Sumitomo financed the introduction and installation of the microturbines. Other aspects of the project, including monitoring gas potential, groundwater levels, and CO₂ sequestration, are funded by the Ministry of Economy, Trade and Industry through the Japan Coal Energy Center (JCOAL).

For more information, contact Hiroshi Nambo, Sumitomo Coal Mining Co. Ltd., at hnambo@msj.biglobe.ne.jp.



Five 30-kW microturbines use coal mine gas with a CH₄ concentration of 80% (photo courtesy Raven Ridge Resources, Inc.)

U.K. Coal Mine Methane Projects Commercially Successful



Gathering facilities at Alkane Energy's Steetly abandoned mine methane power project in Nottinghamshire, England. (Photo courtesy Raven Ridge Resources, Inc.)

Extraction and utilization of methane from abandoned and operational mines in the UK has been a commercial success, according to information supplied by UK's Cleaner Coal Technology Programme. Most of the projects have been industry-led and are now in operation. There are six abandoned mine projects producing an equivalent of 42.5 MW of electricity (two projects deliver pipeline gas to local industry), and two projects using extracted methane from operational mines, generating about 22 MW but involving the use of some natural gas at one site. More projects are planned, with an anticipated 500 MW of electricity to be generated from abandoned mines by 2004. Project developers include Alkane Energy PLC (www.alkane.co.uk), Octagon Energy (www.octagonenergy.com), Edinburgh Oil & Gas Plc, Evergreen Resources UK (www.evergreen-res.com), and Stratagas PLC.

JCOAL Involved in Diverse Array of CMM Projects

During the past several years, the Japan Coal Energy Center (JCOAL) has been conducting CMM projects in several countries. In addition to playing a key role in the APEC project at Tiefa Coal Industry LLC in Liaoning Province, China (see keynote article in this issue), and providing financial and technical support to the CMM recovery project at the Akabira mine (see article on Page 3), JCOAL has undertaken other CMM studies and projects in China, Australia, Poland, Russia and Ukraine.

In 2001, JCOAL conducted a pre-feasibility study at mines in Shanxi Province, China on recovering CMM as a feedstock for acetic acid production. The study estimates that for a capital investment of \$US 100 million, the project would reduce 1.5 million tons of CO₂ equivalent per year. In previous years, JCOAL conducted studies in Shanxi and Guizhou Provinces to investigate the potential for recovering CMM for use in power generation, town gas supply, and raw material for methanol.

JCOAL has also conducted pre-feasibility studies in Poland and Ukraine. At the gassy Budryk mine in the Upper Silesian Coal Basin of Poland, JCOAL conducted a study in 2000 of the potential for using

coal mine gas to fuel four 1.9 MW gas engines for power generation. The project would require \$US 14.8 million in capital investment and would reduce methane emissions by an equivalent of 0.28 million tonnes of CO₂ per year. During the same year, JCOAL conducted a similar study in the Donetsk coalfield of Ukraine. The pre-feasibility study determined that a \$US 25 million project to use CMM in seven 1.7 MW gas engines would result in CO₂-equivalent reductions of 0.48 million tons per year.

Earlier JCOAL projects include a pre-development study at the Wambo Mine in New South Wales, Australia, to investigate technologies for recovering and using CMM, and a pre-feasibility study on CMM use for power generation in the Kuznetsk coal basin of Russia. JCOAL undertook these studies in 1999, and the joint research project in Australia is currently at the demonstration stage.

JCOAL is a non-profit organization that receives government support through its member coal mining, engineering, equipment manufacture, and utility companies. For additional information on JCOAL activities, contact Hiroaki Hirasawa, Deputy General Manager, JCOAL, at hirasawa@jcoal.or.jp or visit JCOAL's website at www.jcoal.or.jp.

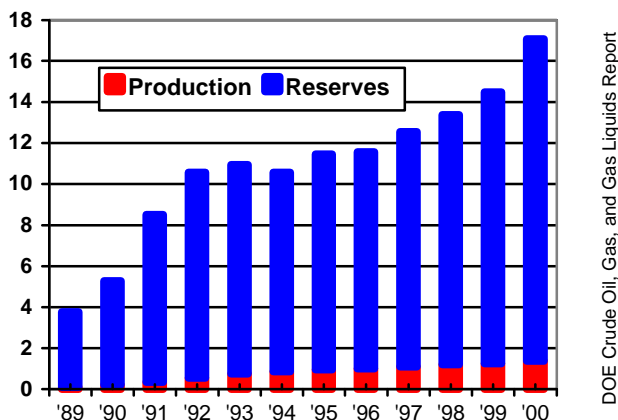
Increase in U.S. Gas Reserves Due Largely to CBM

The Advance Summary of the U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 2000 Annual Report, published in November 2001 by DOE's Energy Information Administration (EIA), indicates unusually large increases in proved natural gas reserves in 2001. EIA attributes much of this to large increases in coalbed methane reserves in Wyoming, Colorado, and Utah. Coalbed methane accounted for 9 percent of proved dry gas reserves in 2000, and coalbed methane production in 2000 was 7 percent of total U.S. dry gas production.

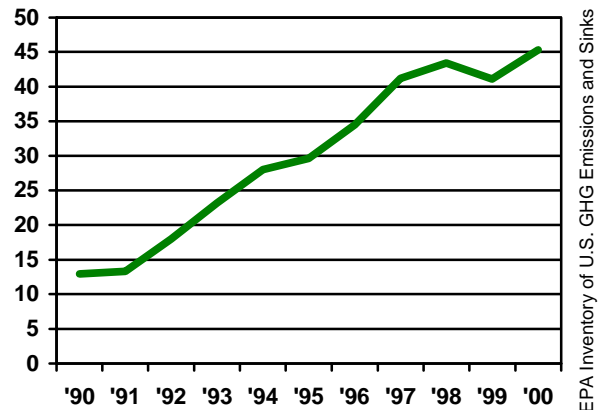
According to the report, proven reserves of coalbed methane in the U.S. have increased from nearly 3.7 trillion cubic feet (TCF) in 1989 to more than 15.7 TCF in 2000. Production has increased even more dramatically, from 0.09 TCF in 1989 to more than 1.4 TCF in 2001.

Based on EPA estimates, coal mine methane accounts for approximately 3% of U.S. coalbed methane production.

U.S. CBM Production and Reserves, 1989-2000 (TCF)



U.S. CMM Recovery and Use, 1990--2000 (BCF)



DOE Crude Oil, Gas, and Gas Liquids Report

EPA Inventory of U.S. GHG Emissions and Sinks

Legislative Update

Coal Mine Methane / Coalbed Methane Activity Increases State Revenues

In terms of economic development, states that have encouraged coal mine methane and coalbed methane (CMM/CBM) exploration have profited from their decision, according to Elizabeth McClanahan, attorney at PennStuart, a Virginia-based law firm. In several states, taxes from development of the resource lend much-needed support to public schools and roads. Many states are attracting companies that want to develop CMM/CBM opportunities and are generating profits through revenues and taxes reaped from CMM/CBM recovery. In Virginia, for example, CBM production of nearly 34.2 billion cubic feet in 1996 resulted in estimated tax revenues of \$1.7 million, according to EPA's 1997 publication *Coalbed Methane Legislation and Recovery in Alabama, Pennsylvania, Virginia and West Virginia*. Royalty escrow provisions, under which each pooling order establishes an escrow account to protect conflicting claimants, have helped boost the Virginia's CMM/CBM production to the point where it exceeds its conventional natural gas production.

West Virginia is another state encouraging CMM/CBM development. As in Virginia, the West Virginia Coalbed Methane Wells and Units Article of the Environmental Resources Act includes royalty escrow provisions.

Moreover, in March 2000 West Virginia passed a law that granted a tax exemption for those who produce CMM/CBM. The legislature found that "coalbed methane is underdeveloped and an under-utilized resource" and that CMM/CBM projects have "important economic benefits for the mines and their local economies while they also reduce the emissions of methane." To meet these goals, the West Virginia law exempts the taxpayer from "the imposition of the tax for a maximum period of five years for all coalbed methane produced from any coalbed methane well placed in service after the first day of January, 2000." The tax incentive created by this legislation is consistent with other successful incentive programs, such as the Section 29 Tax Credit. Through the tax credit, West Virginia is seeking to not only spur the kind of economic development seen in states like Virginia, Alabama, and Wyoming, but is also trying to protect its coal miners and the environment.

In addition to CBM tax legislation at the state level, some counties have increased revenues by taxing CBM production as well. At least two counties in Pennsylvania, Fayette and Greene, currently impose a tax on CBM. The primary basis for this tax is found in Pennsylvania Commonwealth Assessment Laws which state that when coal is severed from the land it becomes a taxable entity.

UK's Cleaner Coal Technology Programme Supports a Variety of CMM, CBM Projects

The UK Department of Trade and Industry's (DTI) Cleaner Coal Technology Programme, has initiated a series of collaborative projects to promote the development of commercial coal mine methane and coalbed methane (CMM/CBM) recovery in China, and to encourage the use of UK technology and skills wherever appropriate. To date, the Programme has been involved in three projects relating to CMM/CBM in China:

- An 18-month project reviewing CBM extraction from virgin coal seams was completed in January 2001.
- A project aimed at investigating the prospects for methane extraction from abandoned mines is ongoing and is scheduled to be completed in June 2002.
- A project was launched in November 2001 at the CMM/CBM conference in Shanghai, China to improve extraction of methane from operating mines, with a view to increasing the amount of methane that can be utilized.

Work is now underway to develop contacts within the CMM/CBM industry in India and to initiate the first of several technology transfer projects. The UK DTI is also a member of the consortium of companies supporting work led by Alberta Research Council (Canada) to investigate enhanced CBM recovery using carbon dioxide and nitrogen injection.

One of the aims of the Cleaner Coal Technology Programme is to ensure that the results are widely disseminated. This is achieved through a number of activities including trade missions, technology visits, workshops and publication of reports. For further information about CBM or the UK DTI Cleaner Coal Technology Transfer Programme, please contact Dr. Keith Burnard, Programme Manager, ETSU, B154 Harwell, Didcot, Oxfordshire, OX11 0QJ, United Kingdom, Tel: +44 1235 432120, Fax: +44 1235 432753, email keith.burnard@aeat.co.uk or visit the UK DTI Cleaner Coal Technology Programme website at www.dti.gov.uk/cct.

Emissions Trading: Opportunities for CMM Emissions Reduction Projects

Now, more than ever, coal mine operators have the opportunity to profit by recovering their coal mine methane (CMM). Emitters of CO₂ and other greenhouse gases are interested in offsetting their emissions and are looking at methane recovery from several sources, including coal mining, as offset projects. This may be very important for some CMM projects because the revenues from these transactions could provide the marginal cash flow necessary to yield an acceptable rate of return for projects.

The upsurge in activity is due in part to the agreements reached at COP7 (the 7th Session of the Conference of the Parties to the UN Framework Convention on Climate Change) in Morocco in November 2001 to reduce greenhouse gas emissions and to allow use of flexible mechanisms. Additional factors contributing to the growth of offset opportunities include the continuing development of market-based trading programs in Europe, the establishment of the World Bank Prototype Carbon Fund, and the increased interest and sophistication among buyers, sellers, and trading firms.

Buyers are attracted to CMM projects because project baselines can be reliably established and emission reductions can be accurately measured, monitored, and verified. Projects in developing countries and economies in transition are especially attractive to buyers because CMM projects in those countries also have important socio-economic benefits beyond the mitigation of greenhouse gases.

United Kingdom and European Union

Activity by the UK and EU on several fronts is creating excellent opportunities for CMM projects and creating a growing market for greenhouse gas emission reductions. According to Neil Cohn of Natsource LLC, the UK has implemented a national climate change strategy through a greenhouse gas-trading program. Currently, the UK program is limited to CO₂, but it intends to include methane and four other greenhouse gases (nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)) by 2005. Concurrently, the European Union is designing an EU-wide CO₂ emissions trading program that will come into effect and be integrated with the UK system in 2005. In contrast to the UK system, the EU system is currently only focused on CO₂. However, it is possible that all greenhouse gases (GHGs) may eventually be included.

The Netherlands

In 2000, the Dutch government launched the Emission Reduction Unit Procurement Tender (ERUPT). ERUPT can improve the return of investments in energy efficiency, renewable energy, GHG reduction and other projects in Central and Eastern Europe. Through ERUPT, the Ministry of Economic Affairs of The Netherlands buys the GHG emission reductions generated from those projects. This creates an additional source of revenue that increases project feasibility and accelerates implementation. Because most coal mine methane projects offer significant reductions in greenhouse gas emissions, they may be ideal candidate projects under these tenders. Additionally, opportunities for coal mine methane projects are abundant in developing countries and

Central and Eastern Europe. Senter International, acting on behalf of the Dutch Ministry of Economic Affairs, is seeking Emission Reduction Units (ERUs) from projects in Central and Eastern Europe, with proposals due March 4. The Dutch government is also interested in Clean Development Mechanism (CDM) projects in developing countries. For more information visit Senter's website at www.senter.nl/carboncredits.

British Columbia Hydro

BC Hydro, Canada's third largest electric utility, has issued an international request for proposals for 5.5 million tonnes of greenhouse gas offsets. According to a recent press release, BC Hydro has voluntarily committed to offsetting 50 percent of the increase in greenhouse gas emissions through 2010 at two new natural gas-fired electricity generation plants. The company is looking to acquire offsets occurring between 2002 and 2020, with a minimum project size of 100,000 tonnes over the contract term. Proposals are due to BC Hydro by May 1, 2002. The request for proposals is posted on the Internet at www.bchydro.com/environment/ghg/offsets.html.

Prototype Carbon Fund

The World Bank has established the Prototype Carbon Fund (PCF) to help develop an international market for greenhouse gas emission reductions. A key objective of the PCF is to facilitate trading between industrialized countries and developing countries and economies in transition. To achieve this objective, the PCF is implementing a program to disseminate information on the emissions transactions that it structures. Specifically, data on GHG sources, reduction technologies and baseline calculation, monitoring and verification, etc. are available. The
(Continued on Page 7)



Recent Underground Coal Mine Openings and Closures

Mine Openings:

Elk Creek Mine - Oxbow Mining, Inc., a subsidiary of Oxbow Carbon & Minerals, Inc., is developing the new Elk Creek Mine in Somerset, Colorado. The new mine, a longwall operation, is located just north of the gassy Sanborn Creek and Somerset Mines. Oxbow Mining plans to extract more than 60 million tons of high-quality coal from privately held and federally leased tracts. Initial coal production from this new mine is expected in early 2002, with full production rates achieved in early 2003.

Hatfield Mine – Coalpower Ltd has reopened and is operating the Hatfield Mine near Doncaster, England. The mine began producing coal in November 2001. The mine is typical of this area, having coal with a gas content of 3 - 5 m³/tonne (96 – 160 ft³/ton).

Highland Coal Mine – Peabody Group broke ground in May 2001 for its new deep mine, the first in western Kentucky in more than a decade. Located in Union County, Kentucky, the mine is scheduled to begin production in the summer of

2002 and is expected to produce approximately 4 million tons of coal annually. The Highland Mine will use four continuous miners at peak production. Previous Union County mines have typically been gassy.

Willow Creek Mine – A year after RAG American Coal Holdings Inc.'s Willow Creek Mine in Helper, Utah was closed and sealed following a mine explosion and fire, Plateau Mining Corp. (an RAG subsidiary) announced plans to enter into an agreement with Amwest Exploration Company that could result in Amwest acquiring some of Willow Creek's reserves. Amwest is assessing the feasibility of a relatively small room-and-pillar operation at the mine, but has no plans for a longwall operation.

Mine Closures:

Loveridge Mine - CONSOL Energy's gassy Loveridge Mine near Fairview, West Virginia was idled on July 20, 2001. After being sealed following a June 1999 fire, the mine was reopened in July 2000 to complete coal production in the developed longwall section. CONSOL has since removed the longwall equipment and plans to

install it at their Robinson Run Mine near Shinnston, West Virginia.

Meigs No. 31 - In November 2001, Consol Energy closed an Ohio underground coal mine, Meigs No. 31, which it purchased earlier that same year from American Electric Power Co. The company plans to move the longwall mining system to their Mine No. 84 in western Pennsylvania to increase production. During the 1990s, the Meigs No. 31 Mine produced annual methane emissions of 1 – 2.5 million cubic feet per day.

Taiheyo Mine - Japan's last underground coal mine, the gassy Taiheyo Mine, is scheduled to cease commercial operations in early 2002. Opened since the 1920s, the mine is currently owned by Taiheyo Kouhatsu Inc., and has seen a decline in output since late 2000. At its peak, the Taiheyo Mine produced over two million tons of coal annually.

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Emissions Trading: Opportunities for CMM Projects

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PCF has created a web site at www.prototypecarbonfund.org for quick and timely access to this information, and to encourage dialogue among parties active or interested in emissions trading. Although to date there have been no CMM projects approved for PCF funding, CMM projects are eligible.

Greenhouse Gas Trading and Consulting

Several firms have begun consulting, advisory, and brokerage services in the growing greenhouse gas market. For more information visit the websites of these greenhouse gas brokerage and consulting firms:

Natsource, www.natsource.com;

CO2e.com, www.CO2e.com;

Evolution Markets LLC, www.evomarkets.com;

Environmental Financial Products, www.envifi.com;

Trexler & Associates, www.climateservices.com;

Ecosecurities, www.ecosecurities.com;

Emission Credits International, www.ecarbontrade.com.

The Carbon Trader, www.thecarbontrader.com.



Upcoming Events

AICHE Spring National Meeting New Orleans, LA, U.S.A. March 10-14, 2002

Coal Bed Methane/Gas Upgrading/CO₂ Sequestration will be one of four symposia held at the Spring 2002 National Meeting of the American Institute of Chemical Engineers. It will deal with CBM resources, production, production enhancements and more. For more information, visit the AIChE website: www.aiche.org/conferences/Spring

AAPG Annual Convention Houston, TX, U.S.A. March 10-13, 2002

At the 2002 American Association of Petroleum Geologists Annual Convention, session themes include New Frontiers in Coal and Coalbed Methane. For more information, visit the AAPG website at www.aapg.org/meetings/annual2002.

SMI Coalmine Methane and Coalbed Methane Conference London, England, U.K. March 18-19, 2002

The conference will include a panel of international experts in CMM and CBM. Conference topics include technological changes and overviews of markets in several countries. There will also be an associated half-day workshop. Visit www.smi-online.co.uk for more information.

SRI 3rd Annual Coalbed Methane and Coal Mine Methane Conference Denver, CO, U.S.A. March 25-26, 2002

The conference will address many areas of interest in CMM and CBM development including reservoir characterization, enhanced production, the role of CBM and CMM in the US and global energy

mix, and the emerging greenhouse gas market. Speakers will be on hand to provide insight into potential CBM/CMM opportunities in several countries. For more information, visit the web site at www.srinstitute.com or contact Heidi Aigler at haigler@srinstitute.com or at (212) 967-0095, ext 271.

Symposium on Utilization of Greenhouse Gases at the 223rd American Chemical Society Meeting Orlando, FL, U.S.A. April 7-11, 2002

The Symposium will focus on utilization of greenhouse gases including methane conversion, CO₂ utilization, coalbed methane, and more. For more information, please check out the ACS website at www.acs.org/meetings.

North American Coalbed Methane Forum Washington, PA, U.S.A. April 24-25, 2002

For more information regarding the Spring meeting of the North American Coalbed Methane Forum, please contact Dr. Kashy Aminian, (304) 293-7682 or kaminian@wvu.edu.

Emissions Marketing Association Spring 2002 Meeting New Orleans, LA, U.S.A. United States May 5-7, 2002

EMA will be holding its Annual Spring meeting at the Hotel Intercontinental in New Orleans. Please visit the EMA website at www.emissions.org for more information.

North American/9th U.S. Mine Ventilation Symposium Kingston, Ontario, Canada June 8-12, 2002

This Symposium is geared towards all those interested in the field of

mine ventilation and environmental control. Early registration is March 29, workshops are June 8 and 9, and industrial field trips are June 13 and 14. For more information, please check out the website at <http://mine.queensu.ca/ventilation>

Fifth European Coal Conference Mons-Frameries Belgium September 17-19, 2002

Recovery and use of coalbed methane and coal mine methane, abandonment and natural gas storage will be among the conference themes. Abstracts are due May 1, 2002. For more information please visit the conference web site at <http://ibelgique.iffrance.com/Geoinddec/eurocoal/ecc5.htm> or contact Michiel Duser, Geological Survey of Belgium at Jenner str. 13, B-1000 Brussels, Belgium tel ++32 26270410 ; fax ++32 26477359; e-mail michiel.duser@pophost.eunet.be

Emissions Marketing Association Fall 2002 Conference and International Meeting Toronto, Ontario, Canada

September 29 - October 1, 2002
The EMA will be holding its Fall 2002 meeting at the Hilton Toronto. Please visit the EMA website at www.emissions.org for more information.

Society for Mining, Metallurgy and Exploration Cincinnati, OH, U.S.A. United States February 24-26, 2003

SME has issued a call for papers for its 2003 annual meeting. There are a number of sessions devoted to coal mining including Underground Coal Mine Ventilation. For more information, go to www.smenet.org.



New Publications

Proceedings from the 2001 International CMM/CBM Investment and Technology Symposium/Expo, held November 6-8 in Shanghai, China, are available in English. To order, send your request along with a check for \$US 60 to the China Coalbed Methane Clearinghouse, 35 Shaoyaoju, Chaoyang District, Beijing 100029, China. Questions concerning the Proceedings be addressed to Mr. Zhu Chao at cbmc@public.bta.net.cn.

Publications on investment opportunities in coal mine methane projects in seven different mining areas of China, prepared by the China Coalbed Methane Clearinghouse, are now available. For each of the mining areas – **Fushun, Jiaozuo, Yangquan, Huaibei, Huianan, and Jincheng, and Panjiang** – the Clearinghouse has prepared full-length (12-16 page) reports. To order the full-length reports, please contact Mr. Zhu Chao at cbmc@public.bta.net.cn. The latter four reports are also available in the form of four-page overviews that can be downloaded in PDF format from www.ravenridge.com/KeyTopics.htm.

Carbon Market Intelligence Report No. 2, published electronically by the World Bank Prototype Carbon Fund, was released in November 2001. This publication, written by Svetlana Morosova of EcoSecurities, Ltd., details the emergence of carbon market policies up to COP 7. To download, visit www.prototypecarbonfund.org/docs/ecosecurities_2nd_report.pdf.

Three reports published by **UK's Department of Trade and Industry (DTI)** are now available:

- **Technology status review of coalbed methane extraction and utilisation** (DTI/Pub URN01/1081). This report reviews the worldwide status of CBM in operational mines, abandoned mines and from virgin coal seams. To order contact Mr. Nicholas Aluko, nicholas.aluko@dti.gov.uk.
- **Capability brochure for coalbed methane extraction and utilisation** (DTI/Pub URN 01/1332). This report lists the capabilities of all UK companies and includes a list of project developers, equipment manufacturers, engineering companies, consultant and companies involved in R&D. To order contact Mr. Nicholas Aluko, Email: nicholas.aluko@dti.gov.uk.
- **Best practice brochure on the use of extracted coalbed methane for power production at Tower Colliery** (DTI/Pub URN 00/730): This brochure describes the experience gained by personnel at Tower Colliery in South Wales, UK. To download, visit www.dti.gov.uk/cct/pub/bpb002.pdf.

Address inquiries about the Coalbed Methane *Extra* or about the US EPA Coalbed Methane Outreach Program to:

Karl Schultz
 Telephone: (202) 564-9468
 E-mail: schultz.karl@epa.gov
 Fax: (202) 565-6674

Clark Talkington
 Telephone: (202) 564-8969
 E-mail: talkington.clark@epa.gov
 Fax: (202) 565-2254

Our mailing address is:
 U.S. Environmental Protection Agency
 Coalbed Methane Outreach Program, 6202J
 Ariel Rios Building
 1200 Pennsylvania Ave., NW
 Washington, DC 20460

Please notify us if your contact information (address, e-mail, or phone/fax number) changes.