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# COALBED METHANE EXTRA

*A publication of the Coalbed Methane Outreach Program (CMOP)*
www.epa.gov/coalbed

## Safety at Coal Mines: What Role Does Methane Play?

The Coalbed Methane Outreach Program (CMOP) works with coal mines in the US and abroad to recover methane gas—rather than liberate it into the atmosphere—and to use it productively. The program's primary goal is to reduce greenhouse gas emissions and to promote the environmental benefits of coal mine methane (CMM) recovery and utilization projects. Because accumulated methane can cause explosions and other serious accidents in a coal mine, removing it from the coal seam also has implications for coal mine safety. Therefore, CMOP recognizes and promotes improved mine safety as a critical co-benefit of CMM projects.

The recent Sago Mine disaster in West Virginia and other widely publicized coal mine accidents around the world have received a great deal of attention and have generated some confusion about the link between methane drainage and safety. In response, this article provides an overview of safety concerns faced by coal mines and how they do or do not relate to methane. The first section explains the variety of safety issues a coal mine must take into consideration, including methane build-up. The second section summarizes the recent coal mine accident at Sago Mine in West Virginia. The final section describes the regulatory and legislative responses in the U.S.

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## Methane to Markets Update

The first quarter of 2006 has been an eventful one for the Methane to Markets Partnership as a whole. As a result, CMOP remained busy as it attended and planned various Partnership events and tackled important subcommittee action items.

***UNECE Coal Mine Methane Meetings held in Geneva***

From January 30 to February 1, 2006, CMOP participated in CMM meetings convened in Geneva, Switzerland by the United Nations Economic Commission for Europe (UNECE), a Methane to Markets Project Network (PN) member. The meetings included the Ad Hoc Group of Experts on Coal Mine Methane as well as the Task Force on the Economic Benefits of Improving Mine Safety through the Extraction and Use of Coal Mine Methane. Delegates from several partner countries, including Russia, Ukraine, Australia, the U.K., and the U.S., participated.

The meeting of the Ad Hoc Group of Experts featured presentations from country delegates, academic scholars, and the financial sector. CMOP gave a presentation providing updates on global Methane to Market Partnership activities in the coal sector. The Ad Hoc Group of Experts meeting featured a workshop on the basics of project financing for CMM projects through securing debt and equity investments. This workshop was the inaugural event of a US EPA-funded UNECE project to develop CMM recovery and utilization projects in Central and Eastern Europe and the Commonwealth of Independent States (CIS). This project seeks to facilitate financing of CMM projects in this region by overcoming the specific barriers of the mining community, building capacity to develop "bankable" investment documents, and providing access to the international finance community. There will be a follow-up workshop in the future. The UNECE is an active member of the Methane to Markets Partnership Project Network.

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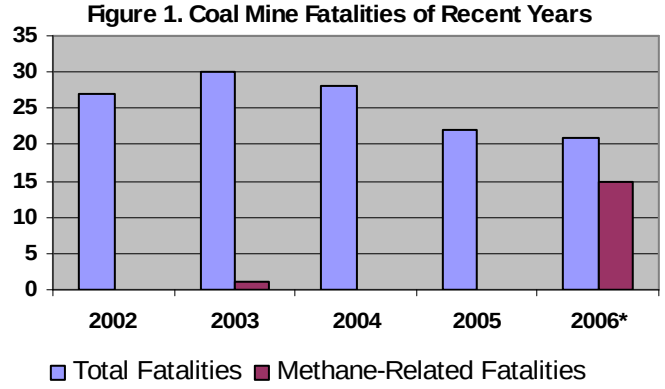
## Safety Issues at Coal Mines

Over the last 80 years, U.S. coal mines have come a long way in increasing safety and decreasing fatalities and accidents. The number of deaths from coal mining in the United States has dwindled over time – from 2,063 in 1930, to 325 in 1960, to 22 in 2005. According to the US Department of Labor, U.S. coal mining fatalities have been relatively consistent over the past few years as shown in Figure 1. Safety at U.S. coal mines has undoubtedly improved due to stronger regulations, more thorough oversight, increased automation, and improved equipment. Yet, so far in 2006, there have already been 21 deaths due to coal mining, 15 of which are attributed to methane related fires or explosions. This recent upsurge has brought mine safety to the forefront, emphasizing the numerous hazards and safety issues faced by coal miners. The sources of risk for coal miners include not only methane accumulation but also coal dust accumulation and the dangers of working in dark, confined spaces with motorized equipment.

**Figure 1. Coal Mine Fatalities of Recent Years**




**2006 data is January through March*

*Methane Accumulation*

Methane build-up is a common concern because all underground coal mines in the U.S. encounter methane to some extent. Only those mines that emit at least 100,000 cubic feet (~2,832 cubic meters) of methane per day, however, are considered "gassy". CMOP has profiled the 50 gassiest mines in the U.S. in a recent publication[1] as the best candidates for CMM recovery projects.

To ensure that methane does not endanger worker safety, the Mine Safety Health Administration (MSHA) requires that all underground mines in the U.S. keep methane levels below 1 percent at all times. As a result, all U.S. mines use ventilation systems to circulate air through the mine workings. In the case of some gassy mines, methane can still accumulate in pockets within the mine where ventilation is inadequate. If these methane accumulations are ignited by mining equipment and friction due to roof falls, they can be responsible for explosions and fires. To prevent this type of disaster, those mines that cannot consistently keep methane levels safe with a ventilation system alone turn to a second mechanism—drainage wells.

According to CMOP records, in 2004 21 mines in the US drained methane from the coal seam either before or during mining to decrease the load on the ventilation system and keep in-mine methane concentrations within a safe range. Other mines are considering or planning the installation of drainage as their operations encounter more gas.

Employing these methods is not always a cure, however, as methane-related explosions and fires still occur. Roof falls can release unanticipated pockets of methane, increasing the methane concentration to ignitable levels. For example, several mines in Alabama experienced explosions and accidents over the past several years despite their use of both ventilation and drainage systems.

*Flammable Dust Accumulation*

Another major issue encountered by coal miners is the accumulation of flammable dust, which is created when coal is extracted, drilled, and transported in the workings of the mine. When this dust accumulates in mine tunnels, it can easily be ignited and cause devastating accidents. For example, eighteen people were killed and nine were injured in late February in a dust-related explosion in a Chinese mine. Dust explosions often occur after methane explosions or during drilling. To prevent such explosions, miners cover the floor, rib, and roof surfaces of mine openings with large quantities of inert rock dust such as fine limestone dust. Ventilation is often used to carry dust away; however, depending on the mine, ventilation may exacerbate the problem.

*Other Safety Hazards*

Another major safety issue in underground mines is roof falls and skin failures which are smaller debris falls. In both continuous and conventional mining, the roof over the mined-out area is supported for safety. The most important development in roof support -- both in terms of safety and cost -- has been the "roof bolt." Roof bolts are long rods driven into the roof to bind several layers of weak strata into a layer strong enough to support its own weight. Roof falls, which are often fatal, occur when a roof bolt fails. Skin failures occur when smaller debris falls from between the bolted area, which may result in injury but is not usually fatal. The National Institute for Occupational Safety and Health (NIOSH) suggests that miners use protective canopies and roof screens while installing bolts in

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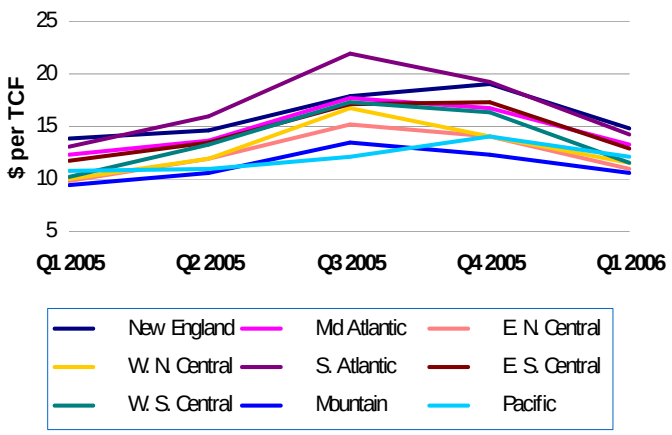
1 Identifying Opportunities for Coal Mine Methane Recovery at US Coal Mines: Profiles of Selected Gassy Underground Mines (1999-2003). http://www.epa.gov/cmop/pdf/profiles_2003_final.pdf

# Energy Prices Update

## Update on the Natural Gas and Electricity Markets

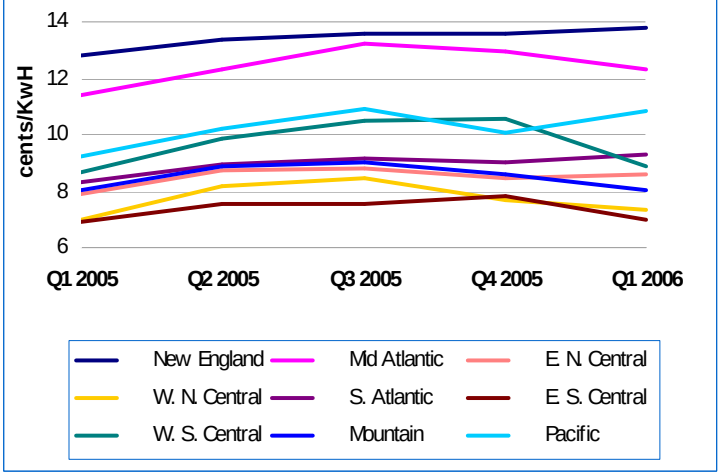
Last fall, natural gas prices broke records nationwide during the aftermath of hurricanes Katrina and Rita and the subsequent decline in production. Though wellhead price increases led to higher than ever winter heating bills as utilities and energy experts warned last fall, prices fell from the post-hurricane peaks (see Figure 1). Prices declined late in the year along with demand because of warmer than average winter temperatures. Prices still hit record highs in the fourth quarter of 2005 and the first quarter of 2006 but were lower than forecasted, raising concerns for the coming year. The Energy Information Administration's Short Term Energy Outlook for March reports approximately 400 million cubic feet per day of natural gas production are expected to remain offline prior to the start of the next hurricane season, June 1, 2006. Concerns about potential future supply tightness and continuing pressure from high oil market prices are keeping expected spot natural gas prices for the next heating season at high levels.

Figure 1. Quarterly Residential Natural Gas Prices by Region




The Energy Outlook notes residential electricity prices rose an estimated 5.5 percent nationally in 2005. Some of the fastest increases in household electricity prices occurred in the Northeast, as evidenced by New England's towering prices, and in the West South Central region (Texas, Louisiana, Oklahoma, and Arkansas)—see Figure 2. Electricity demand is expected to increase only slightly in 2006 due to weak heating-related demand this January and lower cooling-related demand this summer. However, economic growth and an expected boost in heating-related demand in the first quarter next year are expected to yield an overall growth in electricity demand of 2.1 percent in 2007.

Figure 2. Quarterly Residential Regional Electricity Prices




## Natural Gas Supply Shortages: Evidence in the Rocky Mountains

Dwindling natural gas supply and increased demand are responsible for rolling power blackouts in areas of Colorado in late February. The controlled blackouts affected 325,000 power customers, some for several hours. Xcel Energy, the region's largest power supplier, released information citing reduced natural gas supply into Colorado as the reason for curtailed electrical service. Later news releases reported that portions of three coal-fired Colorado power plants were out of commission for scheduled maintenance or because of mechanical breakdowns, increasing the need for natural gas which usually generates half of Xcel's energy. In addition, weather forecasts predicted higher than actual temperatures; thus, natural gas was not available to meet demand created by extreme cold. The shortage was exacerbated by a number of Rocky Mountain natural gas wells suffering frozen pumping equipment as well as regional gas pipelines operating at full capacity, preventing delivery of additional supplies from other areas. Xcel issued a report to the Colorado Public Utilities Commission on March 13, which will be reviewed over the next three months to determine if regulatory action is needed. The company will investigate its weather forecasting sources to see if better accuracy is possible.

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newly mined-out areas. MSHA requires carefully executed roof control systems and roof hazard alert devices to keep miners out of unprotected areas as ways to prevent injuries and death.

Finally, working in tight spaces with equipment and vehicles poses the risk of being crushed or struck. Miners can be hurt by conveyor belts, hydraulic hoses, and while repairing equipment. In 2005, 10 deaths occurred in U.S. underground coal mines due to powered equipment.

**The Sago Mine Accident**

As discussed above, even mines that aren't considered especially prone to high methane levels are vulnerable to methane-related accidents. Nothing brought this point home to the public more than the January 2 Sago mine disaster, which has been called the worst mining-related accident in the state of West Virginia in almost 40 years. The explosion occurred when miners returned to work following the New Year's holiday. Twelve miners perished, while one survivor is recovering.

Since the Sago event, speculation regarding the cause of the accident led to media coverage of the mine's safety record leading up to the accident. Sago had 208 MSHA citations in 2005, but MSHA reports that none were serious enough to close the entire mine. According to MSHA, less than half were for "significant and substantial" violations and none involved an immediate risk of injury. MSHA attributes the relatively high number of citations to Sago's increased mining operations in 2005 (more than double the 2004 production levels), which prompted MSHA to dramatically increase its on-site inspection and enforcement presence. Though some of the citations addressed methane ventilation issues, Sago was not considered a gassy mine and was not profiled by CMOP as a good candidate for a methane drainage project.

Currently, MSHA and the West Virginia Office of Miner's Health, Safety, and Training (WVMHST) are conducting an official investigation of the accident. One question this federal-state team is asking is whether leaks in nearby natural gas wells may have led to methane buildup in the mine or if lightning may have hit a well. Also under investigation is the design and installation of a block wall, the timeliness of rescue efforts, and the absence of a mobile communications system. International Coal Group (ICG), which purchased Sago and began operating it in November 2005, completed their independent accident investigation and released the results on March 14. ICG reports that an explosion was ignited by lightning and fueled by methane that naturally accumulated in an abandoned area of the mine that had been recently sealed. The ICG investigation concludes that none of the citations issued at the Sago Mine during the accident investigation, or prior to the accident during 2005, were linked to the explosion in any way. ICG believes the results of the joint federal-state investigation will reach a similar conclusion. As of March 15, Sago has resumed mining operations.

**MSHA's Response**

U.S. mine safety regulations, today considered among the most stringent in the world, have been developed primarily in response to coal mine tragedies over the past several decades. The 1968 explosion at West Virginia's Farmington No. 9 mine, which killed 78 miners, led to the Mine Health and Safety Act of 1969. The Coal Act, as it is generally known, was more comprehensive and more stringent than any previous Federal legislation governing the

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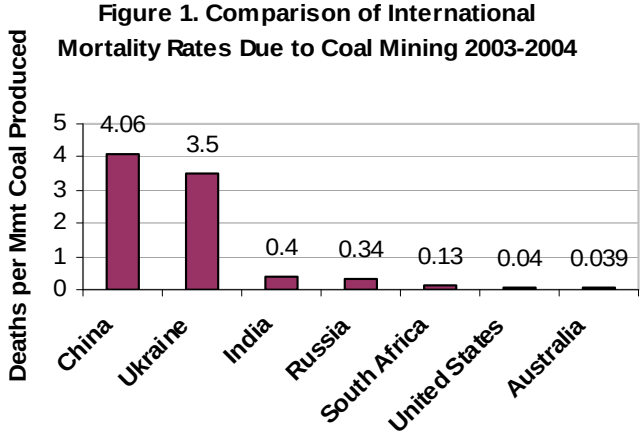
## International Perspective on Coal Mine Safety

The United States is not the only country facing safety concerns at coal mines. In fact, several other countries have higher fatality rates per million metric tons of coal produced (see Figure 1). Recent high profile coal mine accidents in Mexico and China, the world leader in coal production, CMM emissions, and coal mining fatalities, illustrate the global nature of the danger posed by mine methane. Both China and Mexico are making efforts to improve mine safety specifically by targeting CMM drainage and recovery operations.

**Figure 1. Comparison of International Mortality Rates Due to Coal Mining 2003-2004**




Sources: Ukraine - peer.org; Russia and South Africa - Wang Deming of China University of Mining and Technology; Australia, US, and China - YX Cao, Ph.D. of Asian American Gas Inc.; India - China Labor Watch

*Note*: China's mortality rate is based on official data from the State General Administration of Work Safety.

China is often the focus of mine safety discussions. In 2005 alone it is estimated that there were 6,000 deaths from coal mining according to official government statistics; other estimates are as high as 20,000, according to the Hong Kong-based labor group China Labor Bulletin. The Chinese fatality rate of 6,000 to 20,000 coal mining deaths per year indicates that 4 to 13 miners die for every million metric tons of coal produced. Currently in the US, 0.04 miners die for

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mining industry. The Coal Act included surface as well as underground coal mines within its scope, required more inspections, and imposed monetary penalties for violations. Most recently Congress passed the Federal Mine Safety and Health Act of 1977 (Mine Act), the legislation which currently governs MSHA's activities. The Mine Act transferred responsibility for carrying out its mandates from the Department of the Interior to the Department of Labor, and named MSHA responsible for assisting the mining community with rule compliance and offering education and technical training to mining personnel. Today, MSHA is required to inspect underground mines at least four times per year while more frequent inspections are authorized and required for certain mines, such as those that release large amounts of methane gas. MSHA also investigates all fatal mine accidents. Furthermore, MSHA has the authority to issue citations, assess fines, and even stop work at mines for safety reasons. It is estimated that MSHA collected $25 million in fines from all U.S. mines in 2005.

Primarily in response to the Sago incident, MSHA has initiated a variety of safety measures and events. First, MSHA is in the process of field-testing a number of emergency communications and tracking systems that represent the most promising technologies for application in underground mines. Both MSHA-approved technologies and those under development will be evaluated. Furthermore, the agency is co-sponsoring the "Spring Thaw 2006 Safety Program" to host more than fifty cooperative mine safety and health workshops around the nation to increase awareness of mining hazards. For example, MSHA, the state of West Virginia, and NIOSH will co-sponsor an international Mining Health and Safety Symposium from April 20-22 at Wheeling Jesuit University in Wheeling, West Virginia. MSHA has also promoted time-sensitive safety themes. It declared February 20 – 24 "Focus on Safety Week" for metal and non-metal mines nationwide, and it conducted a "Stand Down for Safety" nationwide on February 6 during which time miners, company officials and management discussed safety issues and hazards.

MSHA also responded to the Sago incident with tougher regulation. On February 10, MSHA announced that it would pursue an emergency temporary standard (ETS), a rulemaking procedure that has only been used twice before by MSHA. On March 9, the ETS took effect upon its publication in the *Federal Register*. The standard makes the following health and safety enhancements:

1) *Self-Contained Self Rescue Devices:* MSHA requires mine operators to maintain additional SCSRs for each miner underground in a storage area where they are readily accessible for miners in the event of an emergency.

2) *Lifelines:* MSHA requires mine operators to install lifelines in all primary and alternate escape routes out of the mine. Lifelines help guide miners in poor visibility conditions toward evacuation routes.

3) *Training:* Training provisions

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every million metric tons of coal produced. Several disasters this year have resulted in fatalities. A gas explosion February 1 at Jincheng Mining Group's Sihe mine in the Shanxi Province resulted in the death of 23 miners and gas poisoning of 53 others. This particular accident has received attention because the largest CMM power generation project in the world—a 120 MW power plant—is currently under construction at Sihe mine.

China's government has made improving work safety a policy priority for years, but has fallen short of its goals for reducing the number of accidents as mines have increased production to meet increasing demand. Coal is produced in China from both state and provincially owned mines as well as mines owned by the private sector. Although laws and regulations should apply regardless of ownership, enforcement of regulations in private mines is difficult, and consequently safety practices vary sharply depending on location and ownership. Thousands of mines have been ordered to close, and China has joined international training and safety programs. In addition, officials have been outlawed from owning shares in mining operations and awards have been given for tips on unsafe mining operations.

Though globally it ranks 27$^{th}$ in coal production and 17$^{th}$ in CMM emissions, Mexico has recently had at least one high-profile mine accident. In the border state of Coahuila, an explosion killed 65 miners and injured eight at the Pasta de Conchos coal mine on February 19. Investigators report that the mine collapsed in an explosion fed by methane and coal dust. The vice president of operations at the mine cites a sudden accumulation of gas in the mine as the cause. Recovery of the 65 perished miners is expected to take weeks to months due to the elevated methane levels remaining, which continue to pose unsafe conditions. Two weeks prior to the accident federal inspectors found several safety violations. Mine officials state that none of the violations were serious and most had been fixed before the accident. The cause of the sudden gas accumulation is under investigation. The Pasta de Conchos mine initiated a degasification program in the early 1990s but could not use or sell the resulting gas because of Mexican law prohibiting all entities besides the state oil and gas monopoly from profiting on the resource. In response to the tragedy, the Mexican legislature has acted quickly to overturn this regulation. The new law, which was awaiting Senate approval when this article went to press, could provide an added incentive for mines to practice drainage in the future.

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***UNECE Task Force on Mine Safety Launches Case Studies***

The UNECE Task Force on Mine Safety was created to help clarify the benefits of methane recovery as a critical element of improving mine safety. At the January meeting in Geneva, the Task Force resolved to develop a series of case studies that would provide concrete examples illustrating the range of conditions that occur in gassy coal mines, the technologies that have been implemented and their applicability for specific conditions, and the social and economic impacts of methane-related explosions and accidents. The goal of the case studies will be to identify best practices that result in beneficial social and economic outcomes for gassy coal mines. Case studies in the United States, Russia, and Kazakhstan are being undertaken and developed.

***Extended Dates for the Coal Technical Subcommittee Meeting***

The next Coal Technical Subcommittee meeting is fast approaching, and planning has been underway for months to ensure a dynamic and informative event. The Subcommittee meeting will take place over one and a half days, May 22 to 23, at the Bryant Conference Center in Tuscaloosa, Alabama in conjunction with the 2006 International Coalbed Methane Symposium (May 22-26, 2006). An additional day has been added to focus on presentations from the World Bank and other multilateral financial institutions on acquiring funding for coal mine methane projects. The meeting will also include a presentation from GE Jenbacher on abandoned mine methane projects in Europe and an update from the Administrative Support Group (ASG). The Subcommittee will discuss its progress on the Action Plan developed at the November 2005 meeting in Argentina and will hear from country representatives and project network members about their activities, priorities, and needs. This is your opportunity to influence the action items and next steps for the subcommittee! Please join us for this important meeting. http://www.methanetomarkets.org/events/2006/coal/coal-may06.htm

The other Methane to Markets sectors are planning exciting subcommittee meeting events as well. The Oil and Gas Subcommittee will convene on April 27 in Villahermosa, Mexico. The Landfill sector will hold its subcommittee meeting on May 12 in Cologne, Germany in conjunction with the 2006 Carbon Expo. http://www.methanetomarkets.org/events/index.htm

***2007 Methane to Markets Partnership Expo***

Plans are underway for the M2M Partnership Expo to be held during the second half of 2007. This event will serve to highlight project opportunities, successes, and methane recovery and use technologies across all Partnership sectors. The Expo Committee is working hard to finalize details on the date and location—stay tuned!

***Two M2M Funding Opportunities Still Open***

Two grant opportunities are giving priority to projects that meet the criteria for inclusion in the Methane to Markets Partnership. The International Utility Efficiency Partnerships (IUEP) announced a 2006 Request for Proposals (RFP) for developing and implementing international energy efficiency projects and methane reduction projects that will result in the reduction, avoidance, or sequestration of greenhouse gases (GHG). The RFP will provide funding for approximately 10 to 15 GHG reduction projects with a total value of $4,000,000 including a 50/50 cost share requirement. The RFP is open through April 20, 2006. Projects awarded under this year's RFP will be those that demonstrate quantifiable emissions reductions that can be immediately implemented in host countries. In addition, USAID's Global Development Alliance (GDA) has called for the submission of concept papers that propose innovate approaches to supporting the core Methane to Markets activities. Proposals are being solicited for Mexico, Ukraine, Brazil, Columbia, India, and Nigeria. The deadline for submission is September 30, 2006. The number and value of grant awards will be determine by the Mission Staff in each country.

***United States and Mexico Pledge to Reduce GHG Emissions***

On March 24, 2006, U.S. EPA, USAID, and the Mexican Secretariat of Environment and Natural Resources (SEMARNAT) took a concrete step towards the implementation of methane utilization projects in Mexico. At a ceremony presided over by U.S. EPA Deputy Administrator Marcus Peacock, USAID Acting Administrator Frederick Schieck, and SEMARNAT Undersecretary José Ramón Ardavín Ituarte, the three agencies signed a Letter of Cooperation stating their commitment to collaborate on Methane to Markets activities in Mexico. Under the terms the letter of cooperation, U.S. EPA, USAID, and SEMARNAT will work together to further the Partnership's mission by sharing and expanding the use of technologies to recover and use methane gas currently released from natural gas and oil systems, landfills, underground coal mines, and agricultural operations. In his remarks, Undersecretary Ituarte specifically mentioned the recent coal mine explosion in Coahuila that killed 65 miners and injured 8. He indicated that legislation is under consideration by the Mexican Senate to address current regulatory barriers to CMM project development in order to decrease the likelihood of such a tragedy in the future.

# CMM/CBM News

**India Offers Blocks for Coalbed Methane Exploration and Development**

The Indian government will offer 10 coal-field blocks for coalbed methane exploration and development under a third round of international bidding. Since the first two rounds of international bidding for CBM blocks in 2001 and 2003, significant finds have been reported in coal blocks in eastern and central India. The government is offering a 7-year tax holiday starting from the date of gas production. Other incentives include freedom to sell gas in domestic markets at market rates, zero customs duty on operation-related imports, and no participating interest for the government. The blocks are located in Madhya Pradesh, Chattisgarh, Jharkhand, West Bengal, Andhra Pradesh and Rajasthan. The Notice Inviting Offer and the Bid Evaluation Criteria have been posted and can be accessed at www.dghindia-cbm-iii.com.

**Canadian Coalbed Activity**

According to industry estimates, Canadian natural gas production is expected to rise as much as 20% from the current 17 billion cubic feet per day to 20 bcf per day. Most of the new production is expected to come from coalbed methane and from conventional natural gas production in the Arctic. Coalbed methane will grow from a sector in its infancy to a major natural gas contributor. Jon Baker, CEO of Trident Exploration Corp., one of Canada's largest CBM companies, predicts that CBM will likely represent 10% of Canadian gas volumes by 2010 from two main plays: the Horseshoe Canyon and the Mannville. If the increased production is realized, Canada would solidify its rank as the world's No. 3 natural gas producer behind Russia and the United States.

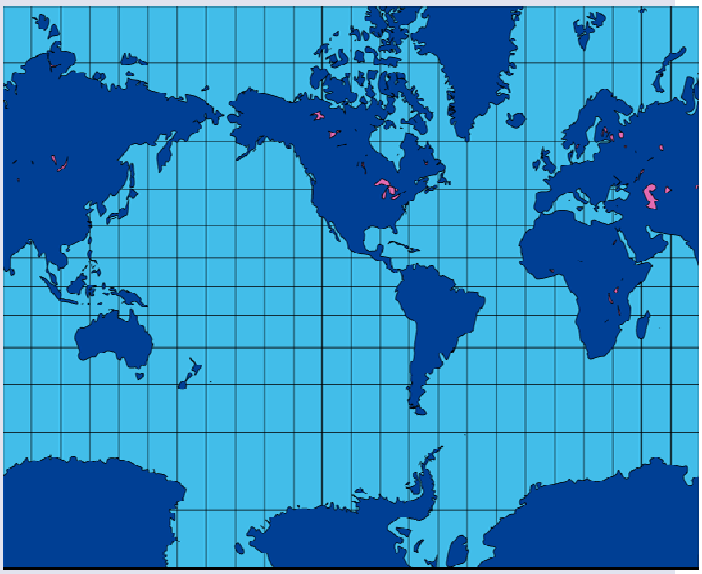
**TerraWest Strikes CBM Deal in China**

TerraWest Energy Corp. has struck a deal to develop coalbed methane gas deposits on 650 square kilometers in the Junggar coal basin in the western Chinese province of Xinjiang. This is TerraWest's first production-sharing contract with China United Coalbed Methane Corp. Ltd (CUCBM). The contract, signed in Beijing on December 30, 2005, also involves Chinese oil giant PetroChina, which holds the original natural gas lease for the property. Under the deal, TerraWest is responsible for all of the exploration spending with the project partners sharing commercial development and production costs. PetroChina has a 48 percent interest in the project, while TerraWest holds 47 percent and CUCBM about 5 percent.

**Ukraine's Cabinet Approved JI Procedures**

Ukraine's Cabinet officially approved a set of Joint Implementation (JI) procedures in Decree #206 on February 22, 2006. The legislation, which was subsequently signed by the Ukrainian Prime Minister, formally outlines the Federal Government's procedures of consideration, approval and implementation for domestic companies to carry out JI projects under Article 6 of the Kyoto Protocol. The official procedure outlines a two-step process for the approval of JI projects by Ukraine's Ministry for Environmental Protection (MENP). First, a project developer must submit an initial application on the claimed amount of Emission Reduction Units (ERUs). The MENP is allowed up to one month to consider the application and issue either a Letter of Endorsement (LoE) or a written reason for refusal. If the application is accepted, the project developer must then submit addition application material including a baseline study, ERU calculations, a monitoring plan, an environmental impact assessment and a project financing plan. Within 30 days, the MENP will submit either a Letter of Approval (LoA) or reason for refusal. The final application must be submitted with the determination of one of the verifying companies that is accredited by the JI Supervisory Committee.

This important step opens the way for Ukrainian companies, including coal mines interested in developing coal mine methane recovery and utilization projects, to take advantage of the Kyoto Protocol's financial support. Currently, Ukraine ranks 4th in the world in methane emissions from coal mines.



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have been added requiring operators to train miners to transfer from one SCSR to another. This training will be reinforced during mine emergency evacuation drills held on a quarterly basis.
4) *Accident Notification:* MSHA requires mine operators to inform MSHA of an accident within 15 minutes of its occurrence so that coordination of appropriate mine rescue or other emergency response can begin as soon as possible.

In developing its standard, MSHA followed the lead of West Virginia, where lawmakers passed a new mine-safety bill on January 23 requiring companies to use communication and tracking devices, store extra air packs underground and report accidents within 15 minutes. Other states are debating similar measures. Lastly, MSHA intends to revise its 25 year old penalty structure and increase fines in an effort to curb safety violations.

**Conclusion**
Though the US coal industry has a relatively low mortality rate among top coal-producing nations, US miners are still challenged by a number of safety issues. Several incidents in addition to the Sago accident have hit the coal mining industry already this year. During the first two months of 2006, nine additional fatalities in four states were reported due to mine fires, transportation accidents, and equipment mishandling. This range of risks reinforces that coal mines must monitor more than just methane levels to ensure safety.

The recent focus on domestic mine safety has inspired regulatory reform, increased inspections, and numerous investigations. This attention brings methane's role in mine safety to the forefront since methane accumulations, if not managed and avoided, can have devastating results. CMOP works with coal mines in the US and all over the world to recover methane, mitigating greenhouse gas emissions as well as promoting use of this clean-burning energy resource. Management of CMM can positively influence mine safety because drainage removes methane from the coal seam. As this year's accidents are investigated and regulatory improvement continues, innovative and effective ways to manage methane will become increasingly relevant to the coal mining industry.

***Announcement:***

**The CMOP Website now features quarterly, regional electricity and natural gas prices as reported by EIA. Check it out!**

**http://www.epa.gov/cmop/resources.html**

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

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**www.methanetomarkets.org**

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***If you have suggestions or requests for future CBM Extra Content, please drop us a line.***

# Upcoming CMM/CBM Events

**North American Coalbed Methane Spring Forum**
18-19 April, 2006
Hilton Garden Inn-Southpointe, Canonsburg, PA
Contact: K. Aminian, Coordinator
Email: khaminian@mail.wvu.edu
Invitation Letter and Registration Form at www.epa.gov/cmop/workshops.html

**Indonesia Coalbed Methane Development: A Future Alternative Energy for the Region**
18-19 April 2006
The Ritz Carlton Hotel, Jakarta, Indonesia
Phone: +62 21 837 95203 or 83757
Fax: + 62 21 837 95302
Email: indocbm.committee@iee-e.com
Website: http://www.iee-c.com/events_indocbm.html

**Mining Energy Outlook: Economic Barriers and Solutions to Energy Issues in Mining**
15th Annual Mineral Economics & Management Society (MEMS) Conference
19-21 April 2006
Golden Hotel, Golden, Colorado
Website: www.minecon.com

**International Mining Health and Safety Symposium**
20-22 April 2006
Wheeling Jesuit University, Wheeling, West Virginia
Email: minesafety@nttc.edu
Phone: (800) 678-6882

**Coal Seam Methane – Coal Mine Methane Summit 2006**
27-28 April 2006
Marriott Hotel, Brisbane, Australia
Email: info@iir.com.au
Tel: (02) 9923 5090
Website: CSM / CMM Summit 2006

**Climate Change Technology: Engineering Challenges and Solutions in the 21st Century**
9-12 May 2006
Ottawa, Canada
Phone: 613-839-1108
Link: http://www.ccc2006.ca/eng/program.html

**International Workshop-Coal for Sustainable Energy: Clean Development & Climate Change**
16-17 May 2006
New Delhi, India
Phone: +44 (0) 20 8940 0477
Fax: +44 (0) 20 8940 9624
Contact: Ms. Ivana Jackson, World Coal Institute
Email: ijackson@worldcoal.org

**2006 International Coalbed Methane Symposium**
22-25 May 2006
The Bryant Conference Center, Tuscaloosa, Alabama
Contact: nhodo@ccs.ua.edu
Fax: 205-348-9276
http://bama.ua.edu/~coalbed/

**Methane to Markets Coal Technical Subcommittee Meeting (held in Conjunction with the Coalbed Methane Symposium)**
22-23 May 2006
The Bryant Conference Center, Tuscaloosa, Alabama
www.methanetomarkets.org

**Linking Schemes: Potential Impacts of Linking the European Union Emissions Trading System with Emerging Carbon Markets in other Countries**
29-30 May 2006
Fondation Universitaire, Brussels, Belgium
Contact: Dr. Ralf Schüle
Email: ralf.schuele@wupperinst.org
Website: www.wupperinst.org/Sites/Projects/rg2/3214.html

**11th US/North American Mine Ventilation Symposium**
5-7 June 2006
University Park, Pennsylvania, USA
Contact: Rachel Altemus, Penn State University
Rla7@psu.edu
Tel: +1 814-865-3439
www.egee.psu.edu/USMVS2006/

**World Energy Council Regional Energy Forum – FOREN 2006**
11-15 June 2006
Neptun, Romania
Phone: (+4021) 346.43.30; (+4021) 346.47.31
Fax: (+4021) 346.45.46
foren2006@cnr-cme.ro
www.cnr-cme.ro/foren2006

**Coal Mine Methane: Recovery, Utilization, Investment Opportunities**
19-21 June 2006
Kemerovo, Russia
http://www.undp.uglemetan.ru/confeng.php

**8th International Conference on Greenhouse Gas Control Technologies**
19-23 June 2006
Trondheim, Norway
www.ghgt-8.no