



COALBED METHANE EXTRA

A publication of the Coalbed Methane Outreach Program (CMOP)

www.epa.gov/coalbed



India Coal Mine Methane / Coalbed Methane Clearinghouse Officially Launched

On November 17, 2008, in Ranchi, India, the India Coal Mine Methane / Coalbed Methane (CMM/CBM) Clearinghouse held a kickoff event to officially inaugurate its activities. The clearinghouse, located at the Central Mine Planning and Design Institute in Ranchi, will be the initial point of contact for domestic and international investors interested in the development of coalbed and coal mine methane projects in India. It will also help develop and promote the CMM/CBM market, providing information on technical, economic, financial, and policy issues to potential investors and service providers.

Event sponsors include the U.S. Trade and Development Agency (U.S. TDA), U.S. Environmental Protection

see INDIA CMM/CBM CLEARINGHOUSE, page 3



The India CMM / CBM Clearinghouse is based in Ranchi, India, on the campus of the Central Mine Planning and Design Institute.

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Methane to Markets Update

Methane to Markets Grant Solicitation - Deadline March 5th

EPA's Methane to Markets Partnership issued a major request for initial proposals (RFP) to fund projects and activities that advance methane recovery and use as a clean energy source. The total estimated amount for this competitive funding opportunity is up to \$7 million. EPA expects to award up to forty cooperative agreements through this announcement, ranging in value from approximately \$100,000 to \$700,000.

EPA requests proposals for projects that directly identify, characterize, or implement methane capture-and-use projects. Examples include technology transfers and demonstrations, feasibility studies, training and capacity building, information clearinghouses, and improved methane emissions estimates.

A wide variety of institutions are eligible, including international governments, universities, and public or private non-profit organizations to advance project development in the following Methane to Markets Partner countries: Argentina, Brazil, Chile, China, Colombia, Ecuador, India, Kazakhstan, Republic of Korea, Mexico, Mongolia, Nigeria, Pakistan, Philippines, Poland, Russia, Thailand,

see M2M UPDATE, page 2



Methane to Markets

M2M Update *from page 1* Ukraine, and Vietnam.


Additionally, EPA will consider proposals from developing countries or countries with economies in transition that are applying to join the partnership, as long as an acceptable letter of intent is submitted to the Methane to Markets Administrative Support Group prior to the close of the RFP deadline. The estimated project period for awards is September 2009 through September 2012. Proposals are due by **March 5, 2009**, at 11:59 p.m. EST. Grant information: <http://www.epa.gov/methanetomarkets/grants.htm>

IEA Will Release New Reports on Coal Mine Methane in China and Russia this Spring

Paris, January 2009: The International Energy Agency (IEA) is finalizing two new reports that analyze coal mine methane (CMM) in two key countries rich in CMM resources: China and Russia. The Chinese report, titled "Coal Mine Methane in China: A Budding Asset with the Potential to Bloom," results from IEA on-site interviews

and analysis with small-to-medium sized coal mines in China in 2007-08. The report finds that these mines are often passed over while other mines with richer resources are pursued. There are a number of smaller mines actively pursuing CMM use. However, while the government has recently enacted a number of policies which appear to support greater CMM recovery and use, the report finds that there are some hurdles to implementation that must be addressed to ensure safe, effective CMM use at smaller mines in China. The report will be published in February 2009. The Russian report, as yet untitled, will look at how regulations are affecting CMM development. It should be published in April 2009. Both of these reports will be available for free download at <http://www.iea.org/textbase/subjectqueries/methane.asp>.

IEA to Host CMM Workshops in China, Russia in 2009

To share findings from its recent CMM reports, the International Energy Agency will sponsor two workshops this year on coal mine methane. The first CMM workshop will take place in ChengDu, China, on April 7 - 8, and will be co-hosted by the National Center for International Cooperation in Work Safety (NCICS) and Sichuan Coal Mine Safety Bureau. The workshop will focus on policies and technologies for smaller-scale CMM use in China, and will feature national and international expert presentations. The Russian workshop has not yet been scheduled, but will likely take place in Moscow in May or June 2009. For more information about these events, please contact IEA's Tom Kerr at tom.kerr@iea.org. 

Methane to Markets Meeting in Monterrey, Mexico - to be held January 27 - 29, 2009

A Methane to Markets Partnership Meeting will take place on Tuesday - Thursday, January 27 - 29, 2009, in Monterrey, Mexico. This meeting will include site tours and sector-specific workshops, as well as networking opportunities. We are very grateful to Mexico's Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) and the State Government of Nuevo Leon for hosting this meeting.

This event will include:

- Optional sector site tours (all day) and Steering Committee Meeting (afternoon) on Tuesday, January 27th
- Opening plenary session, Steering Committee Meeting (continued), and sector-specific workshops on Wednesday, January 28th
- Closing Plenary and Subcommittee Meetings on Thursday, January 29th

Revised agendas are now available, and proceedings will be posted after the meeting online:

<http://www.methanetomarkets.org/events/2009/all/all-27jan09.htm>



India CMM/CBM Clearinghouse *from page 1*

Agency (U.S. EPA), the Indian Ministry of Coal, the Indian Ministry of Petroleum and Natural Gas, and Coal India Ltd. The launch of the clearinghouse is the culmination of a successful partnership between the U.S. and India under the auspices of the Methane to Markets Partnership.

The presentations from the kickoff event are available online at <http://www.indiacbm-cmm.govtools.us>. In addition, the India CMM/CBM Clearinghouse has created a great website which includes maps of coalfields and photos of the GEF CMM pilot project at Moonidih mine (<http://www.cmmclearinghouse.cmpdi.co.in>). Both of these websites contain useful technical and policy information on CMM and CBM in India. Studies are underway to collect data on methane emissions at several Indian coal mines, and the Clearinghouse website will be regularly updated to reflect new CMM and CBM developments.

For more information, see U.S. EPA's press release: <http://yosemite.epa.gov/opa/admpress.nsf/dc57b08b5acd42bc852573c90044a9c4/e51489ea941e65c085257504006d857d!OpenDocument>.

To learn more about the Methane to Markets Partnership, see <http://www.methanetomarkets.org>.



The Clearinghouse kickoff event in November 2008 drew a diverse audience of Indian and international business and government organizations interested in promoting coal mine methane and coalbed methane projects in India.

What do you want to know about?

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

Somers.Jayne@epa.gov

CMM Financial Model

CMOP has developed the **Coal Mine Methane Project Cash Flow Model**. The web-based tool allows you to evaluate the financial viability of recovering and utilizing CMM for several end-uses:

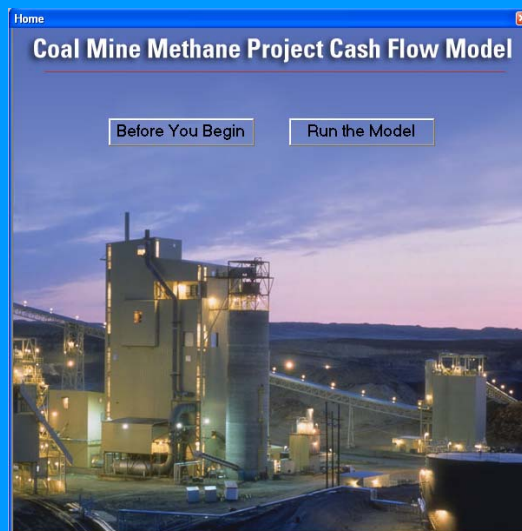
- ▶ Coal Drying Scenario
- ▶ Open-Flare and Closed-Flare Scenarios
- ▶ Mine Boilers Scenario
- ▶ On-Site Electricity Generation Scenario
- ▶ Pipeline Gas Scenario

The **CMM Project Cash Flow Model** allows a user to analyze the costs and benefits of developing any of the above projects. After making calculations based on the user inputs and preferences, the **CMM Project Cash Flow Model** displays its results in an attractive report, which includes:

- ▶ Cash flow bar graph
- ▶ Capital and operating costs
- ▶ Size of the project
- ▶ Sellable Carbon Emission Reduction (CER) credits
- ▶ Net Present Value (NPV) and Internal Rate of Return (IRR)

Please try out the model and give us your feedback!

<http://www.epa.gov/cmop/resources/index.html>





CBM/CMM News

Joint Venture Formed for Hybrid Coal Mine Gas Power Plants in India

EESTECH and Aryan Clean Coal Technologies have entered into an agreement to establish a joint venture company to introduce three 10-megawatt Hybrid Coalmine Gas Technology (HCGT) power plants to the underground coal mines of India over the next five years. The total cost for the three HCGT plants will exceed \$US65 million and potentially generate revenues of over \$US25 million per year from the sale of electricity and carbon credits.

EESTECH's HCGT power plant uses waste coal and ventilated air methane from underground coal mines to generate cost effective clean coal energy while destroying the methane that would have otherwise been released to the atmosphere. Each HCGT power plant is expected to generate over 350,000 tonnes of greenhouse gas credits per year.

For more information, go to <http://www.eestechinc.com> or http://www.energy-daily.com/reports/EESTECH_And_Aryan_Clean_Coal_Technologies_Establish_Joint_Venture_999.html

Moranbah North CMM Power Plant Operational

In a press release, GE Energy announced the completion of their largest coal mine methane (CMM) power plant in Australia. Methane-rich mine gas is being used to generate onsite power at Anglo Coal's Moranbah North mine in the state of

Queensland, helping to reduce the amount of greenhouse gas that can escape into the atmosphere.

Through the capture and utilization of mine gas, the Moranbah North project will deliver significant environmental benefits, saving up to about 1.5 million tons of carbon dioxide (CO₂) equivalents per year. The 45.6-megawatt (MW) project, which was contracted by Energy Developments Limited, uses 15 (3-MW each) Austrian Jenbacher engines. The project is designed to contribute to the country's energy development goals and is accredited under the New South Wales Government Greenhouse Gas Abatement Scheme. Energy Developments will be selling any power not used by the mine into the national grid.

Reference: *GE Press Release*, December 2, 2008 http://www.ge-energy.com/about/press/en/2008_press/120208e.htm

Anglo to Sell its Dawson Seamgas Business

On January 9, 2009, Anglo Coal Australia announced plans to sell its Dawson Seamgas business by April, according to *The Australian*. Mining giant Anglo American has offered for sale Queensland acreage in the Bowen Basin, about 180 kilometers (km) from Gladstone, the port town where plans for four separate liquefied natural gas export plants have sent the value of the region's reserves soaring in the past year.

Based on Arrow Energy's recent \$551 million deal to secure Pure Energy's Queensland coal seam gas reserves, the sale of Anglo's estimated 155 petajoules (PJ) of "proven and probable" reserves could fetch more than AUS \$200 million. In addition to its current production area,

which contains its certified reserves, Anglo is selling associated exploration areas and access to extract gas from within its mining lease area. Anglo has built two power stations in the past four years, at Moranbah North and Capcoal, which are fuelled with coal mine methane.

Reference: *The Australian*, January 9, 2009 <http://www.theaustralian.news.com.au/business/story/0,28124,24889069-36418,00.html>

Gas Supplies Restored to Europe

According to *BBC News*, Russian gas supplies have been restored to the majority of Eastern and Central Europe two weeks after being halted in a dispute between Moscow and Kiev. Austria, the Czech Republic, Slovenia, Croatia, Serbia, Bosnia, Turkey, and Macedonia are now receiving gas, as well as Hungary, Slovakia, and Bulgaria. Russia began pumping gas on January 20th after agreeing on a new gas price and transit fee with Ukraine.

Gas flows were resumed after Russia and Ukraine agreed to peg the price Ukraine pays for gas to oil prices. Previously, Ukraine has paid a heavily discounted rate, but the Russian state energy company, Gazprom, confirmed that Ukraine would start paying the market rate - with a 20% discount for the rest of 2009. Gazprom said that would initially mean a fee of \$360 per 1,000 cubic meters. That compares to the market rate paid by European customers of about \$450 - but is a major hike for Ukraine, which until December was paying only \$179.50.

Reference: *BBC News*, January 21, 2009 <http://news.bbc.co.uk/go/!fr/-/2/hi/europe/7841870.stm> 

International Project Database - New and Improved!

U.S. EPA's Coalbed Methane Outreach Program (CMOP), in support of the Methane to Markets Partnership, has developed several new features to the international projects database on the Methane to Markets website. This database features project information for more than 220 coal mine methane (CMM) projects globally. It is intended to be the definitive repository of information about global CMM projects operating, under development, or in the planning stages.

The database can be sorted by a number of features:

- ▶ Country
- ▶ Region (e.g., state, province)
- ▶ Project location (i.e., Mine name)
- ▶ Type of project end-use (e.g., power generation, pipeline injection, LNG, etc.)
- ▶ Mine status (i.e., active or abandoned)

New features allow users to create an account and

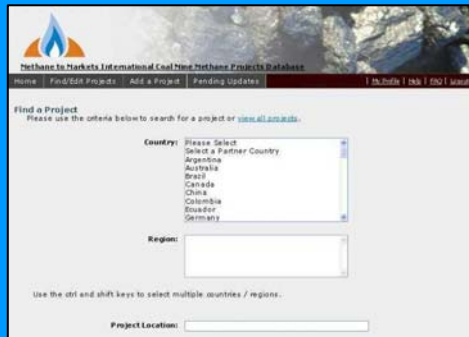
directly input information about projects that are already in the database, for example if they have updated data. In addition, the users can add information about projects that are not in the database at all.

There is a detailed explanation of how to use the database's new functions under the "help" tab in the upper right hand corner of the webpage. Users will also find useful information under the Frequently Asked Questions (FAQs) tab.

The database is spreadsheet-based and can be exported in its entirety or according to queries that are performed.

CMOP encourages project developers, mine owners, and others with access to information about projects that are planned, in development, or ongoing to visit the database and ensure that the information there is as accurate as possible.

Visit the database at: <http://www2.ergweb.com/cmm/index.aspx>



Proceedings from CMOP's 2008 U.S. Coal Mine Methane Conference Now Available

U.S. EPA's Coalbed Methane Outreach Program (CMOP) hosted the successful "2008 U.S. Coal Mine Methane Conference" in Pittsburgh, Pennsylvania, on October 28 – 30, 2008. The conference attracted over 120 participants from the coal industry, end-use technology, project development, and carbon financing sectors for two days of technical and policy presentations. On the third day, Consol Energy hosted a visit to its demonstration project of a ventilation air methane mitigation technology, and CNX Gas hosted a visit to a site using a membrane technology to prepare coalbed methane for pipeline sale.

Copies of presentations from the conference are available online at: http://www.epa.gov/cmop/conf/cmm_conference_oct08.htm



CONSOL Energy hosted a site tour of its technology demonstration project featuring the MEGTEC VOCSIDIZER at an abandoned mine site in West Liberty, WV.



Upcoming CBM/CMM Events

Methane to Markets Steering Committee & Methane to Markets Coal Subcommittee Meeting

27 – 29 January 2009
Monterrey, Mexico
Website: <http://www.methanetomarkets.org>

Ventilation and Heat Management in Underground Mines

Professional Development Course Presented by Dr. Roy Moreby
9 – 13 February 2009
Laurentian University
Sudbury, Ontario, Canada
Email: info@mirarco.org
Website: <http://www.mirarco.org/courses/2008/Feb9thMineVentPoster%20latest2.pdf>

Asia CBM Forum 2009

23 – 26 February 2009
Jakarta, Indonesia
Contact: Rex Ian Sayson
Phone: +65 6506 0984
Email: rex@alleventsgroup.com
Website: <http://www.alleventsgroup.com/cbm/>

2nd CBM World Conference: Developing Coal Seam Gas as LNG on Global Markets – Challenges Ahead

10 – 11 March 2009
Hotel Mulia
Jakarta, Indonesia
Contact: Li Ming
Phone: 603-2162-7322
Email: liming@cmtsp.com.sg
Website: <http://www.cmtevents.com/aboutevent.aspx?ev=090315&>

Carbon Market Insights 2009

17 – 19 March 2009
Copenhagen, Denmark
Website: <http://www.pointcarbon.com>

Unconventional Gas

30 – 31 March 2009
London, United Kingdom
Website: <http://www.smi-online.co.uk/events/overview.asp?is=5&ref=3045>

The 2nd Asia Pacific Unconventional Gas (CBM) Summit

1 – 2 April 2009
Crowne Plaza Sun Palace
Beijing, China.
Contact: Andy Wang
Phone: 86 21 5155 0817
Email: andywang@cbichina.com

CMM Recovery and Utilization Workshop

Hosted by International Energy Agency and Co-hosted by National Center for International Cooperation in Work Safety (NCICS) and Sichuan Coal Mine Safety Bureau
7 – 8 April 2009
Chengdu City, Sichuan Province, China
Contact: Tom Kerr
Email: tom.kerr@iea.org

Power, Mineral Resources, and Sustainable Development

Organized by Academy of Mining Sciences of Russia and UNESCO
13 – 14 May 2009
Paris, France
Contact: Mrs. Liudmila Silina
Email: liudmila.silina@mail.ru

2009 International Coalbed and Shale Gas Symposium

18 – 22 May 2009
Bryant Conference Center
Tuscaloosa, Alabama
Website: <http://coalbed.ua.edu>

Fifth International Symposium on Non-CO₂ Greenhouse Gases (NCGG-5)

30 June – 3 July 2009
Wageningen, The Netherlands
Website: <http://www.ncgg5.org>

5th Meeting of UNECE Ad Hoc Group of Experts on Coal Mine Methane

12 – 13 October 2009
Palais des Nations
Geneva, Switzerland
Contact: Carlotta Segre
Phone: +41 22 917 2444
Email: carlotta.segre@unece.org

9th International Mine Ventilation Congress

10 – 13 November 2009
New Delhi, India
Website: <http://www.9thimvc.org>

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