

Communication

## International Methane Partnership Fighting Climate Change

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### Abstract

Due to the growth of international attention on the problem of climate change combined with the attractiveness of methane mitigation technologies, the capture and use of methane in agriculture, coal mines, landfills, and the oil and gas sector has increasingly become popular over the past few years. Highlighting this, several countries hosted the international “Methane to Market” Partnership Conference and Exposition in October 2007 in Beijing, China. The Expo highlighted technologies, markets, and policies affecting methane recovery and use projects and involved over 750 attendees from 34 countries. Importantly, the Expo feature 91 new methane recovery and use projects with the hopes of matching up investors, project hosts and developers.

Keywords: Climate Change; New technology; Renewable energy policy

The first Methane to Markets (M2M) Partnership Conference and Expo (Expo) was hosted by the US Environmental Protection Agency (USEPA) and China National Development and Reform Commission (NDRC) from 30 October to 2 November 2007 in Beijing, China. This event was also co-hosted by a number of other Chinese organizations, including the Ministry of Foreign Affairs, the Ministry of Agriculture, the Ministry of Construction, the State Administration of Work Safety, China Natural Gas and Petroleum Cooperation (CNPC), China Petroleum and Chemical Corporation (SINOPEC) and China National Off-shore Oil Corporation (CNOOC). The China Coal Information Institute (CCII) was also a key organizing sponsor. While the event took place in China, it was international in scope, with a number of international organizations, including the International Energy Agency, the United Nations Economic Commission for Europe, and the Asian Development Bank, as sponsors.

With over 750 participants from 34 countries, the Beijing Expo was truly international. Participants widely came from national governments, private sectors, coal industry, oil and gas sector, municipal governments, agriculture,

universities, research institutions, non-government organizations, financial agencies, and development banks. In a unique display of the public-private nature of the M2M Partnership, 83 exhibition stands were featured alongside the event, highlighting different government and industry efforts to spur methane capture and use.

There was a comprehensive agenda for the three-day event, covering a range of policy and technical issues related to anthropogenic (human-caused) methane capture and use in four sectors: agriculture, coal industry, landfill, and oil and gas sector. About 120 government policy makers, politicians and professionals made presentations. The conference proceedings included over 100 high-quality papers and presentations covering methane recovery and use markets, technology best practices, project financing (including carbon financing), and solutions to address key barriers.

The opening session of the Expo included top representatives of China's National Development and Reform Commission (NDRC), the ambassador of the U.S. embassy in Beijing, the Deputy Head of China National Safety Production Management Bureau, a USEPA Deputy Assistant Administrator, and a Vice President from the Asian Development Bank.

Mr Xie Zhen Hua, a deputy Minister of China's National Development and Reform Commission (NDRC) delivered a welcoming speech. He cited Chinese president Hu Jing Tao, who said recently in the 17<sup>th</sup> Congress of the Chinese Communist Party: "It is China's national fundamental policy to save energy, conserve resources, and protect the environment. China will strengthen its capability in adapting climate change and make new contribution to climate change mitigation". Mr. Xie then discussed how China has set up a national climate change adaptation group at the NDRC, headed by Wen Jia Bao, the Chinese Prime Minister. Mr. Xie also discussed China's 2007 *National Action Plan in 2008-2010 Responding to Climate Change*. He highlighted how the *Action Plan* sets a concrete goal, fundamental principles, key working areas, and policy measures for tackling climate change.

Importantly for this event, China currently emits 3 billion cubic meters of coal mine methane (CMM) each year into the air; Mr. Xie claimed that by 2010, China will make use of 10 billion cubic meters of coal bed methane (CBM). To implement this and other goals, Mr. Xie highlighted that the NDRC and other national agencies are developing incentive policies to facilitate capturing and using CMM. For example, NDRC has issued a policy, the *Management of CDM Project Operation*, to facilitate the development and cooperation of CDM projects in CMM capture and use. Mr. Xie concluded by stating that CMM was not the only methane recovery opportunity. Here, he highlighted promising opportunities in landfill gas recovery and use: by 2010, China will produce 290 million tons of urban solid waste, with potential production of up to 28 billion cubic meters of landfill gas.

The next speaker, was U.S. Ambassador to China Mr. Clark T. Randt, Jr.. Mr. Randt first thanked the NDRC, the CCII and other parties for their hard work to make the event possible. He then briefly reviewed the history of the M2M partnership and stressed the contribution of the US government. In 2004, U.S. President George W. Bush, launched the M2M with China and 12 country partners as part of the Group of Eight (G8) ministerial meeting. Since then, the M2M Partnership has provided an opportunity to mitigate climate change internationally by engaging the private sector to invest in climate change mitigation. Over the past three years, the partnership has grown to include 21 countries; most recently welcoming the European Union and Vietnam. In addition, over 600 public and private organizations are part of the M2M Network, advancing the goals of the Partnership.

Mr. Randt then highlighted that because of the U.S. EPA's leadership, since the 1990s, the U.S. has reduced domestic methane emissions by 11%, while keeping its economy at fast development. The US government's financial support commitment for M2M activities is US\$18 million. This investment has successfully leveraged over US\$261 million in methane projects that reduce 10 million tons of CO2 equivalent per year worldwide.

Mr Lian Jia Jun, Deputy of China's National Safety Production Management Bureau (the Bureau), stated that the Chinese government is an active participant in M2M activities. The NDRC and the Bureau have appointed a number of scientists and energy experts to work with foreign experts and developed the Chinese domestic M2M work plan. The Chinese government has so far approved 32 CBM and CMM to market projects. He highlighted that his Bureau and the NDRC recently issued a policy on capturing and using coal bed methane: "Coal bed methane development first, and coal exploration second". This means that before coal mining activities are begun, coal bed methane should be captured and used. He cited the cooperation of Chinese and foreign companies that has led to a number of methane projects. He then went on to say that a methane project information exchange center has been established under the leadership and assistance of the Bureau and the USEPA. This center has greatly facilitated CMM project information dissemination in China. As a result, many large Chinese coal mine operators in San Xi, Liao Lin and An Hui provinces with collaboration with foreign firms, have been developing coal mine methane power projects. In particular, the methane power project in Jin Cheng of San Xi province (financed by the Asian Development Bank) is an excellent demonstration project for the rest of the world.

The next speaker was USEPA Deputy Assistant Administrator for Air & Radiation, John Beale. Mr. Beale stressed the important public/private nature of the Partnership. As the Chairman of the M2M Partnership, Mr. Beale reminded attendees about the Partnership's goals and highlighted key issues that would be discussed at the M2M Conference and Expo. He noted that together the M2M

Partnership countries now account for over 60% of global anthropogenic methane emissions. He highlighted the local benefits of methane recovery and use, including enhance coal production safety, and improving air and water qualities. He thanked Partnership countries for providing strategic input on policy and technology solutions. Mr. Beale surveyed the structure of the M2M, and explained how the four sector Working Groups have developed action plans for each of the M2M Partnership countries with the goal of developing multiple projects in all the sectors. He closed by pointing to the 91 projects that were being featured at the Expo, and reminded the audience that the final goal of the M2M Conference and Expo is to get the 91 projects financed.

Mr Bindu Lohani, the Vice President of Finance and Administration at the Asian Development Bank, closed the plenary session by emphasizing the importance methane recovery and use activities in Asia. First, large population in Asia requires significant development of agriculture; second, Asia's quick urbanization generates large amount of solid wastes; and third, fast economic development demands considerable fossil energy development. Therefore, the M2M Conference and Expo is timely event that will help mitigate methane emissions from these fast-growing sectors in Asia. He also highlighted the other benefits of methane capture and use, including energy security, climate change mitigation and economic development. He closed by citing that the ADB has provided considerable finance to clean energy projects, and will continue supporting and financing methane projects in Asia.

After the opening ceremony, Mr Neil Hirst, Director of the International Energy Agency's Energy Technology Office, chaired a Leadership Panel featuring senior representatives from leading companies. Participants included companies with interests in all four methane sectors, from developed and emerging methane markets. Speakers included:

- Cameron Davies, Chief Executive, Alkane Ltd. (UK)
- Steve Zou, President and CEO, Asian American Gas, Inc. (China)
- Rich Lavin, Senior Vice President, Caterpillar (USA)
- He Tian-cai, Chief Engineer, Jincheng Anthracite Coal Mining Company (China)
- Ajit Kumar Hazarika, Director, Oil and Natural Gas Corporation of India (ONGC) (India)

Gary Crawford, Vice President, Veolia Environmental Services (France),

Mr. Hirst first provided a framing presentation, introducing the IEA's viewpoints on energy sector methane opportunities. He reminded participants about the

major challenges facing energy policy makers today. Urgent solutions are needed on climate change, and on securing energy supply to support nations' economic development. A wider range of energy supply and energy efficiency technologies are under consideration, and a broader portfolio will be needed in the future. While, better methane management at landfills, oil and gas stream, coal mining, and agriculture are not be on the top of everyone's list, the IEA believes that they should be, because the technologies are now available; and because methane recovery is profitable in many situations.

Mr. Hirst then explained that methane recovery is now squarely integrated with the IEA's work. In 2005, at Gleneagles, the G8 asked the IEA to help develop strategies toward a clean, clever and competitive energy future. As a result, the IEA is managing a portfolio of G8-related energy work on energy technologies and policies. As such, the IEA is expanding its work with key partner countries including Brazil, China, India, Mexico, Russia, and South Africa. The IEA is particularly interested in methane recovery because it delivers competitive, environmentally friendly energy to these economies. The IEA will present project results of methane recovery to the G8 Summit in Japan in 2008.

After his speech, Mr. Hirst then led the Leadership Panel discussion about key elements of corporate leadership in methane recovery and use. He asked participants to explain their business motivations for investing in methane recovery technologies and projects; and explored the barriers that continue to prevent greater private sector investment. Key themes of a lack of government and industry awareness, uncertainties in the carbon markets, lack of financing, and a need for greater quality assurance arose during this session. There was also a need for further advancement of technologies for associated gas use and coal mine methane utilisation. This panel provided an excellent bridge to the rest of the Expo, where the four sectors were divided into breakout sessions to explore policy, technology and market solutions to these barriers.

The breakout sessions were led as follows: (1) coal mining committee chaired by the USA, India and China; (2) landfill committee chaired by Argentina and Italy; (3) agriculture committee chaired by Argentina and the UK; and (4) the oil and gas committee chaired by Canada, Mexico and Russia. Policy makers, project developers, financial institutions and banks, equipment suppliers and NGOs presented many detailed case studies highlighting particular projects and best practices. The sessions further explored barriers and solutions that will lead to the development of additional projects. These barriers and issues include:

The Expo closed with a roundtable of participating member countries, where the session chairs presented key points and issues. This was followed by a presentation from the U.S. EPA's Dina Kruger, Director of the Climate Change Division, about the path forward for the M2M initiative.

Ms. Kruger thanked all the committees, conference participants, the Chinese hosts and the conference organisers for their hard work to make the Expo a success. She outlined the M2M plan for the next two years until 2009, explaining that the initiative had been a strong success in achieving its initial goals of raising awareness and creating a network for identifying and sharing good project opportunities. Ms. Kruger highlighted the need for additional projects, network participants, and partner countries. She discussed how the Steering Committee had discussed plans for the Partnership's work for the next year and beyond. The Steering Committee decided that the Partnership should develop mechanisms to increase the involvement of the Project Network and to showcase exemplary activities. Subcommittees were tasked to identify ways to enhance Project Network recognition over the next year. All Subcommittees will meet twice in 2008 in conjunction with the next Steering Committee meeting.

Additionally, the Steering Committee will continue preparing the Partnership-wide Methane to Markets Accomplishments Report for publication in late 2008 or 2009. Finally the Steering Committee agreed that the Partnership Expo was a great success and that a full evaluation should be conducted to inform the preparations for another Partnership Expo tentatively planned for 2009.