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**ECONOMIC COMMISSION FOR EUROPE**

**COMMITTEE ON SUSTAINABLE ENERGY**

Ad Hoc Group of Experts on Coal Mine Methane

Fifth session  
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Item 6 of the provisional agenda

**ACTIVITIES OF THE AD HOC GROUP OF EXPERTS WITH RESPECT TO  
MINE SAFETY**

Cooperative Project on Methane Capture and Use to Improve Mine Safety:  
Overview of Best Practices Guidance Document

Note by the secretariat

**INTRODUCTION**

1. At its fourth session, the Ad Hoc Group of Experts (ECE/ENERGY/GE.4/2008/2, para 15) agreed that the global coal mining industry lacks a set of recommended principles and standards to guide mine operators, regulators, government officials and technical professionals in more effectively managing their methane problems, especially in emerging economies. The organizations supporting the initiative – Methane to Markets Partnership, UNECE, World Coal Institute – aim to contribute to improving mine safety practices through the development of a technical report providing best practices guidance on methane control. The report, approved by the Committee on Sustainable Energy (ECE/ENERGY/78, para 19/b), will detail the benefits, objectives and principles of coal mine methane drainage and utilization in order to reduce fatalities and injuries of mine workers, protect mine property, reduce greenhouse gas emissions and efficiently utilize valuable energy resources. It was also envisaged that a publication might be prepared by early 2010.

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2. Methane released during coal mining creates unsafe working conditions in underground coal mines around the world. Although methane is not a problem in every mine, methane-related accidents are notable for their frequency and horrific devastation in loss of life and property.
3. Many factors increase the risks of methane explosions, including difficult geologic conditions, underinvestment in mine operations, poor operational practices, ineffective or even counter-productive regulatory standards, and poor enforcement of safety regulations.
4. The concern over loss of life and the negative publicity surrounding mine accidents have provided a strong incentive for cooperation on mine safety among international organizations and the mining industry in emerging economies and developed countries alike. There have been, and continue to be, a range of bilateral and multilateral technical assistance programmes to support safer mining practices. Yet the global coal industry still lacks a set of recommended principles and standards to guide mine operators, regulators, government officials, and technical professionals in more effectively managing methane problems in underground coal mines, especially those in emerging economies.

## **I. OBJECTIVE OF THE GUIDELINES**

5. These “Best Practices” guidelines are intended to provide a genuine contribution to improving mine safety practices at active underground coal mines, by supporting safer mining practices to reduce fatalities, injuries, and property losses, while encouraging the use of coal mine methane (CMM) to reduce greenhouse gas emissions and utilize otherwise wasted energy resources. This document is intended to be principles-based, rather than prescriptive. It is intended to provide broad guidance as to what constitutes “best practices” for methane drainage, recovery and utilization at underground coal mines.
6. Ultimately, these guidelines should facilitate the coal industry’s effectiveness in achieving the following:
  - (a) Striving towards a goal of zero fatalities, injuries, and property losses;
  - (b) Demonstrating the global coal industry’s commitment to mine safety, climate change mitigation, corporate social responsibility, and good citizenship;
  - (c) Establishing an intra-industry dialogue and network among the coal mining industries in the developed and emerging economies;
  - (d) Creating the necessary linkage between the industry and the government / regulatory officials;
  - (e) Linking effective CMM capture and management as part of an effective risk management portfolio.

## **II. BENEFITS OF COAL MINE METHANE DRAINAGE AND UTILIZATION**

7. Professional methane management at underground coal mines can achieve three primary benefits:

- (a) Enhances mine safety, including actually saving lives;
- (b) Increases coal mine productivity, leading to greater profitability;
- (c) If the gas is effectively captured and used, it avoids greenhouse gas emissions to the atmosphere.

### **III. INTENDED AUDIENCE**

8. The primary intended audience for this guidance is mine operators, regulators and policymakers.

### **IV. OVERVIEW OF THE GUIDELINES**

9. The guidelines will be a relatively succinct document (approximately 50 pages total) covering the following topics:

- (a) Fundamentals of gas control, including a description of the occurrence of gas hazards, ways to reduce explosion and outburst risks, and general regulatory and management principles;
- (b) Assessing methane emissions potential, including measuring methane content, and predicting and controlling methane emissions during mining;
- (c) Principles of mine ventilation, including design considerations, monitoring, and control;
- (d) Methane drainage principles and practices employed globally, including principles of system design determining appropriate technologies such as pre-mining drainage and post-mining drainage;
- (e) Methane utilization, including impact of gas quality, options for medium- to high-concentration drained gas and ventilation air methane;
- (f) Cost and economic issues associated with drainage and utilization systems; and
- (g) Case studies.

### **V. PROCESS**

10. A Steering Committee composed of representatives from the three sponsoring organizations provided direction and the overall vision for the project as well as feedback during the drafting process. Responding to the interests of their constituencies, the World Coal Institute, Economic Commission for Europe (ECE), and Methane to Markets Partnership (M2M) joined together to develop a good practice guidance document for effective methane capture and use at coal mines.

11. The World Coal Institute is a global industry association comprising major international coal producers and stakeholders. Membership is open to companies and not-for-profit organizations with a stake in the future of coal from anywhere in the world, with member companies represented at Chief Executive level. It is a non-profit, non-governmental organization with accredited consultative status with the United Nations and was established to

provide a forum for the exchange of information and the discussion of challenges relating to the coal industry ([www.worldcoal.org](http://www.worldcoal.org)).

12. ECE is one of the five United Nations regional commissions and provides a forum where 56 countries of Europe, Central Asia and North America come together to forge the tools of their economic cooperation. It is active in facilitating the development and profitable recovery and use of CMM. The Ad Hoc Group of Experts carries out, under the guidance of the Committee on Sustainable Energy, activities related to the development and profitable recovery and use of CMM and abandoned mine methane, with a specific focus on the three pillars of sustainable development: economic, social and environmental. Representatives from governments, industry, investors and international organizations meet to address mine safety issues and methane emission reduction potential ([www.unece.org/energy/se/cmm.html](http://www.unece.org/energy/se/cmm.html)).

13. The Methane to Markets Partnership (M2M) is an international public-private partnership established in 2004 focused on promoting cost-effective methane emissions reductions through recovery and use from four key methane sectors: coal mining, landfills, oil and gas systems, and agriculture. Its Coal Subcommittee brings together key experts in coal mine methane recovery and utilization to share information about state of the art technologies and practices through workshops, training, study tours, and capacity-building initiatives. The Committee also supports information gathering and data collection about potential project opportunities as well as project-specific development efforts including pre-feasibility studies, comprehensive feasibility studies, and demonstration projects. The Partnership now has 30 partner countries ([www.methanetomarkets.org](http://www.methanetomarkets.org)).

14. The Guidance Document has been drafted by a Technical Experts Panel, consisting of six globally-renowned experts in underground ventilation and methane drainage at coal mines.

15. A small panel of industry experts, known as the Stakeholders Advisory Group, from key coal mining countries and organizations globally, will review the draft Guidance Document to ensure that it is accessible to policymakers and is clear, succinct and persuasive in delivering the key messages.

16. The document will then undergo a formal technical peer review process by members of the Technical Peer Review Group before it is finalized and published.

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