

Together on methane matters

Roland Mader, Reyno Norval, Green Gas International, UK and Clark Talkington, UN Economic Commission for Europe, Switzerland, discuss the international UN survey on coal mine methane.

The United Nations Economic Commission for Europe (UNECE) carries out a co-operative programme on coal mine methane (CMM) as part of a larger effort to promote sustainable development within the energy sector and to enhance international economic co-operation to achieve this goal. The work on CMM is largely managed through the efforts of the UNECE's Ad Hoc Group of Experts on CMM (AHGE or Group of Experts) consisting of representatives from ECE and non-ECE member Governments, other international and intergovernmental bodies, the private sector, and non-governmental organisations.

Last year, the members of the Group of Experts responded to a comprehensive questionnaire prepared by the Chairman of the Group of Experts and the UNECE Secretariat. In addition to establishing a foundation for developing its programme of work, the Group of Experts also recognised the unique opportunity presented by the survey to document different perspectives and priorities among the various stakeholders within the CMM industry. This

is the first comprehensive survey on CMM of its kind, thus, the results could provide further insight into the interests and decision criteria of key industry stakeholders at a critical time in the industry's evolution.

Questionnaire development and processing

The questionnaire was prepared in English, French and Russian, and sent to approximately 350 recipients.

A total of 83 completed surveys were received from respondents in 26 countries and two international organisations. 50% of respondents were from developed economies, 40% from the countries of the transition economies of Eastern Europe and the Former Soviet Union, and 10% from developing countries.

Survey results

The questionnaire targeted the following focal areas:

- Uniformity of terminology and definitions for methane gas in coal seams.

- Government and private-sector motives to develop CMM projects.
- Perceived investment barriers and revenue drivers for CMM projects.

The survey also sought views from the Group of Experts on the most appropriate activities for the Group and the topical areas of interest.

Respondents were asked to rate each issue on a scale of 1 to 5, with 1 representing 'very important (high)' and 5 representing 'not important (low)'. The process of analysis included the computation of the raw score (numerical average) to assess the importance of each issue relative to the scale from 1 to 5. The computation of a rank based average score was also used to assess the importance of individual issues relative to other issues within each category of respondents (e.g., coal company vs. investor/developer). Additionally, the standard deviations for all results were calculated to assess the relative variation in responses to specific questions.

Uniformity of terminology and definitions

Terms such as coal mine methane, coal seam methane, coal seam gas, coalbed methane and abandoned mine methane are often used interchangeably and can have similar or different meanings depending on where, when and how they are used. The development of specialised terminology is a natural outcome of any evolving industry. However, as a relatively new market sector, the CMM industry may be ill-served by the confusion and uncertainty that result from the variety of terms in use today.

There was general agreement across the industry that universal definitions could be beneficial, especially from respondents in developing countries. There were, however, significant differences when it came to the most appropriate terms and related definitions. Only 60% of the respondents agreed with the proposals that appeared in the questionnaire. In some countries terminology is codified in statutes whilst in other countries the terms have become 'terms of art'. Especially where codified in statute, it should be expected that the coal industry and Government regulators will not move quickly to nomenclature simply due to the time and costs associated with regulatory changes. Still, it is apparent that the industry could gain from some uniformity or consistency. To address this issue, the Group of Experts has created a small informal task force to develop recommendations for further consideration. The most workable near-term solution may be to develop a glossary with a reference matrix of terms rather than working to achieving and implementing a consensus view.

Motives to develop and promote CMM utilisation projects

As a young industry and one with stakeholders entering the market from very diverse perspectives, market development is often inhibited by the misunderstanding or misinterpretation of the others' interests and objectives. With the hope of better discerning and eventually addressing these misperceptions, the questionnaire sought respondents' views on possible motives to two key players in the development of CMM projects: Governments and project investors/developers.

The one consistent view is that coal mine safety is important for both Governments

and the private sector. In addition to mine safety, the results show that industry participants believed Governments' interests in CMM projects are driven principally by the environmental benefits, support for sustainable development and public safety. Not surprisingly, the private sector was believed to be motivated more by enhancing coal production and profitability.

Sustainable development was ranked very low, especially for the private sector, even though CMM projects are very sustainable, producing profits while being environmentally and socially beneficial. The low scores may result from the small size of the projects compared with a general view of sustainable development as having very lofty and broad goals.

Another interesting outcome was the contrasting views on contributions of CMM projects to energy security. As might be expected, Governments believed that the private sector does not value energy security generated by a CMM project to the same extent as they do. However, for the private sector, the opposite was true. Governments did not value energy security as much as they did. Most CMM projects are small and their impact on energy security, even collectively, is relatively small. Still, it is not clear why each considered the other less serious about energy security.

Investment barriers and revenue drivers

CMM projects face their share of barriers to market entry, although there is often disagreement among industry participants on their impact and even on the barriers themselves.

Insufficient profits and CO₂ credit approval were without question the greatest barriers cited by respondents. This is consistent with the view that CMM projects will only succeed on a large scale if project supporters can make a business case for them. An interesting result, though, was that developing countries view CO₂ credit approval as important, but not to the same degree as developed or transition economies. The result is especially intriguing because the carbon markets underpin the growing interest in methane mitigation and other greenhouse gas projects in developing countries.

There was substantial divergence among the different industry sectors after agreement on the most important barriers. The investors and project developers

in particular highlighted the market/finance-related issues, whereas the mining industry was more concerned with operational issues. For example, the lack of power purchase agreements, increased revenue and country risks, and inadequate legal/policy systems were rated very highly by investors/project developers as project barriers but were rated very low by coal companies and developing countries. On the other hand, the coal companies were concerned with existing mine safety regulations and a lack of high quality projects to develop, but these were not major issues for investors/developers. Governments seemed to side with investors on some issues while agreeing with coal companies on others.

The responses to questions seeking insight into the most important revenue drivers generally complemented the views on investment barriers. The clear message is that carbon credits and electricity prices are driving project development, although respondents in transition economies rank coal mine productivity/safety and Government incentives (e.g., reduced taxes, etc) as their primary revenue drivers. Gas sales prices are also ranked highly in countries such as Australia and the US where the infrastructure is favourable, but were not seen as vital elsewhere.

Role of the ad hoc Group of Experts on CMM

Although the responses to these questions were specific to the work of the Group, the results have been included because the responses can be projected to the entire industry.

Emission reduction issues and mine safety stand out as the major issues across all groups of respondents. Policy/regulatory issues are also very important, especially for developing and developed economies, but not for transition economies. In contrast, the transition economies and coal companies place great emphasis on technology development and transfer.

Project finance and support for project development generated the greatest diversity of views. Specifically, respondents were asked about the benefit of creating a model for bankable documents, initiating a pilot project or developing a pipeline of projects to catalyse investment in the CMM sector. Investors/project developers and Governments seemed less interested in pursuing a pilot project, but supported

a model for bankable documents and a project pipeline. For the developers, a pilot project would bring no real benefit whereas a project pipeline would directly support their commercial activities. The reasons for Government reluctance may be due to their desire to create opportunities for multiple projects rather than focusing on a single project. Coal companies, transition economies, and developing countries took a complete opposite view, supporting pilot project development but not a project pipeline or model for bankable documents. The pilot project is probably seen as more tangible and action-oriented. In addition, such projects develop the basic skill set and experience necessary for future success.

The mining professionals' point of view

Although investors and Governments play a critical role, it is the coal industry that is most closely linked to projects: a project cannot happen without them. Thus they will normally understand and emphasise concepts that are often overlooked by other groups, and their needs must be met to further project development. For

this reason, special emphasis was given to examining the responses of the coal industry against those of all respondents.

Coal industry respondents were greatly concerned that mine safety regulations are actually a barrier to development while every other group discounted this as an inhibiting factor. They also had difficulty seeing that there were many projects with great potential. This shows a lack of confidence and demonstrates that the CMM industry and Governments have somehow fallen short in selling CMM projects to the mining industry. However, it may also reflect the clear focus on mining coal, rather than implementing CMM projects, as a commercial priority.

The limited quality / quantity of resource assessments was also a significant issue for the coal industry. Whilst ranked high in aggregate terms by all respondents, there was a substantial margin of difference in the numerical scores. We believe this is directly linked with the lack of quality projects to develop, as resource assessments underpin the entire investment in a project. It appears that a substantial effort is necessary to aggregate

existing information and convince the mining industry that quality resource assessments are possible.

The coal industry participants viewed the main revenue driver as coal mine productivity and safety, which was not the case for any of the other industry sectors active in CMM development. This again demonstrates the focus on coal production and safety within the mining community and that it is critically important that Governments, project developers, investors, and carbon traders recognise these priorities and views to be successful in bringing projects to fruition.

Conclusion

The responses to the questionnaire provide great insight into the views of the CMM industry among the developed, developing and transitioning economies. Until now, opinions on the views of industry stakeholders have largely been based on conjecture, but for the first time these views are documented. Although many responses confirmed previously held observations, there were also some surprises. ■