

The Mining Industry Climate Action Plan (MICAP)

F O U N D A T I O N

The National Mining Association (NMA) supports a voluntary, research and technology driven response to the climate issue. NMA's climate policy is an integral part of our Sustainable Development Policy and Principles, which states:

- The potential for climate change is a special concern of global scope that requires significant attention and a responsible approach cutting across all three of the sustainable development pillars: environmental, social and economic;
- Climate policies should promote fuel diversity, development of technology and long-term actions to address climate concerns in order to ensure technological and financial resources are available to support the needs of the future; and,
- Climate policy should support additional research to improve scientific understanding of the existence, causes and effects of climate change and to enhance our understanding of carbon absorbing sinks; advancements in technology to increase efficiencies in electrical generation and capture and sequester carbon dioxide; voluntary programs to improve efficiency and reduce greenhouse gas emission intensity; and, constructive participation in climate policy formulation on both international and national levels.

B A C K G R O U N D

An equally important part of NMA's climate policy is support for new and innovative concepts included in the President's U.S. Climate Change Strategy announced February 14, 2002. This voluntary program charts a positive path forward that will reduce the emissions intensity of our economy by 18% over the next decade. The Strategy addresses and advances the climate issue without the economic penalties – including industry dislocation and job losses – that would result from mandatory “command and control” reduction programs.

The President is establishing “VISION” – Voluntary Industry Sector Initiative: Opportunities Now, a challenge to American business to contribute to the Strategy's emissions intensity reduction goal by developing and participating in voluntary initiatives to reduce their specific industry's emissions intensity and to avoid or sequester emissions. The Mining Industry Climate Action Plan (MICAP) described in this document has been drafted to give the members of the mining community the opportunity to contribute toward that goal on a voluntary basis by choosing the options and paths that are most economically and technically possible for each individual company to follow. MICAP will also provide NMA members and others in the mining industry with a consistent and simple means to report on the significant strides already made in achieving greater efficiencies (and thus lowering emissions intensities) and on progress made toward achieving future goals that companies individually may wish to set.

As is the case with all industries, each company in the mining industry has a different operating and business profile. Many of our members that produce coal, uranium, metals and non-metals



have already made significant progress in reducing the emissions intensity per unit of product produced or processed and these accomplishments must be recognized and taken into account. Some companies may be in a better position than others to participate in these voluntary programs. Some may have more opportunities to reduce emissions intensity and/or to sequester, offset or avoid greenhouse gas emissions than do others. Each company will consider its own unique situation when making a decision on which actions can be undertaken, taking into account the company profile and both technical and financial considerations. The menu of initiatives outlined in this action plan (which are not all inclusive) are

designed for flexibility so that participating members can recognize achievements already made and can tailor a voluntary program going forward that best meets their own requirements.

The action plan that follows focuses on 2003 and on steps that will be taken and goals that have been set for this year. MICAP will be an ongoing program however, and during 2003, members of the industry will work to develop additional initiatives that can be launched in 2004 and beyond.

G O A L

The specific goal of MICAP is to obtain participation, or the agreement to participate, in one or more of the following initiatives by as close to 100 percent of our Board of Directors (88 companies) as is feasible by the end of 2003. NMA will conduct an active and ongoing outreach program with all members to convey the importance of active participation in this program.

C O M M I T M E N T

NMA commits to issuing a review and progress report on MICAP activities following the close of the first quarter 2004. This report will include: a review of the goals set and activities undertaken; a measurement of the progress made toward achieving these goals (including a report on participation) and; a review of actions that can be taken to cost effectively reduce emissions intensity of operations and/or to avoid or sequester emissions from the present through 2012. The 2004 report will include a catalogue of activities that our members are engaged in that have already resulted in greater efficiencies (and lower emissions intensity) and that will contribute to avoidance, reduction or sequestration of emissions and reduction of emissions intensity in the future. The report will include our estimates of past and current industry emission intensity levels and the potential for cost effective reductions in emissions intensity in the future.

I. The Allied Partnership Program

D E S C R I P T I O N

Energy used for mining and processing per unit of product is not be as large as in other industries. Much has already been done to increase efficiency and lower energy used in the production process. However, there is the potential to make additional improvements that would lower costs and emissions and/or emissions intensity. To illustrate, one coal company found that optimization of a pumping system in their preparation plant increased the efficiencies of that system by 14.9 percent, saving several thousand dollars in energy costs and lowering CO₂ emissions by approximately 17 percent. A similar optimization at a gold company in the western part of the United States showed approximately the same result.

NMA and the Office of Energy Efficiency and Renewable Energy (EERE) are concluding a formal "Allied Partnership" agreement centered on a program that is designed to make optimization techniques developed by EERE known, available to, and used by, as broad a spectrum of the mining industry as is possible.

A C T I O N

Action items in this agreement include:

- A series of NMA-DOE co-hosted workshops for mining companies focusing on training in pumping systems, sensors, motor efficiencies, process heating, compressed air systems and other best practices. DOE resources permitting this series of six workshops will begin in the late spring and continue throughout 2003;
- NMA's commitment to achieving participation in this program from close to 100 percent of our base membership. There is a large potential for energy and cost savings in the over 1000 mines and several hundred preparation and processing plants that our membership operates;
- A goal to increase energy efficiency by no less than 10 percent in those systems that can be optimized with the processes and techniques made available through these workshops. NMA will work with EERE to compile a record of the results achieved as a result of employing these optimization techniques, the emissions avoided, changes in emissions intensity as a result and the potential for additional reductions. These results will be reported as early as possible in 2004, but no later than September;
- Collaboration with EERE to identify additional areas in the mining process where energy savings and emissions reductions can be achieved. The results of this work will be included in NMA's MICAP report. As DOE resources permit (and dependent upon appropriation schedules) NMA will work with EERE to develop additional training materials covering new areas and to host workshops to disseminate these materials; and,
- An expansion of our outreach program to state and regional mining associations to expand the audience for these training sessions to mining operations that are not currently counted in our membership and to include the results from these activities in the report referenced above.

II. The Mining Industry of the Future Program

D E S C R I P T I O N

NMA and EERE have been partners in the Mining Industry of the Future program since 1999. During that time, the industry has developed a Vision Statement and three technology roadmaps: Crosscutting Technologies for Mining, Processing Technologies and Exploration and Mining Technologies. These roadmaps set performance targets and the research projects selected are geared toward meeting these targets. Four solicitations have been completed and three rounds of project awards given. The projects begun under the first solicitation are nearing completion.

EERE estimates show that the technologies developed by the projects now underway will reduce greenhouse gas emissions by 600,000 metric tons of carbon equivalent annually by 2010 and 2 million tons of carbon equivalent annually by 2015.

A C T I O N

As part of MICAP, NMA:

- Commits to working with DOE to expand this important research program and to revise the mining industry's vision statement to reflect new research needs in coal, uranium, metals and non-metals mining and processing activities with an emphasis on areas that will increase efficiency, lower costs and reduce greenhouse gas emissions intensity. NMA will work with DOE to reflect these new priorities in budget requests and research solicitations;
- Commits to work with the first, second and third round sponsors as the projects are completed in an effort to maximize use of these new technologies throughout the mining industry wherever economically and technically possible in order to assure that the potential 600,000 metric ton per year reduction of carbon equivalent occurs by 2010. Progress will be reported in NMA's MICAP report; and,
- Will make every effort to expand participation of our membership beyond the current levels of approximately 50% of our Board members in the Industry of the Future and other research activities (see other initiatives under Coal Mine Methane and Reclamation). Achievement and maintenance of emissions intensity reduction goals will only be met in the long run through research and the development and use of new technologies.



III. Coal Mine Methane

DESCRIPTION

The coal industry is a leader in reducing methane emissions. Methane is removed from underground coal mines either in advance of mining, during mining activities, or after mining has occurred, exiting the mine through degasification systems or mine ventilation systems. Although not economically or technically feasible in many locations, coal companies do recover and sell coal mine methane wherever possible. Over the 1990 – 2000 time period, the Environmental Protection Agency reports that recovery of coal mine methane has resulted in a reduction of methane emissions by 30 percent or by the equivalent of approximately 25 million metric tons of CO₂ equivalent per year, a 175 million metric ton reduction over the decade.

The President's February 2002 Climate Change Strategy includes a focus on methane reductions and mentions the Environmental Protection Agency's (EPA) Coalbed Methane Outreach Program (CMOP). Since 1994, NMA members have participated in this program on a voluntary basis. The program has provided technical assistance to the industry to identify and implement methods to use CMM productively. Additionally, EPA has worked with DOE and the National Energy Technology Center in research projects to develop technologies that will allow recovery from ventilation air methane where low concentrations of methane gas have, heretofore, made recovery difficult if not impossible from both an economic and a technical standpoint. NMA members are currently involved both in this research and in testing promising technologies.

ACTION

As we go forward and as part of MICAP:

- NMA members will continue to maintain the annual level of coal mine methane reductions achieved over the last decade and will strive to recover additional methane wherever economic, technological and mining conditions permit;
- NMA members will continue to work with DOE and EPA in CMM research activities. NMA and its members will continue to encourage and work with DOE and EPA to develop, test and demonstrate new technologies to capture ventilation air methane with the goal of confirming and improving the technical and economic feasibility of the technologies needed to recover these emissions;
- By mid 2003, NMA will establish a formal mechanism to work with DOE and EPA to disseminate information on methane recovery technologies, information on the Coal Mine Methane Outreach Program and on other efforts to expand recovery of coal mine methane. NMA will focus a portion of our outreach program on an expansion of the number of companies involved in CMM research activities; and,
- NMA and its members will work with DOE and EPA to analyze additional methane reduction opportunities based on projected technology advances and will prepare a report on additional reductions that may be possible through 2012. This report will be completed by June 2004.

IV. Reclamation & Sequestration

D E S C R I P T I O N

Since 1977, the mining industry has reclaimed over 2 million acres of land. These numbers will increase significantly in the next decade and beyond. In addition, the coal industry has contributed close to \$6 billion to the Abandoned Mine Land program that has reclaimed 180,000 acres since 1977. Reclamation of mined lands offers significant opportunities to reduce greenhouse gas emissions beyond those now being sequestered through a substantial increase in the amount of land reclaimed through forestation.

Currently operators are encouraged to substantially overgrade land being reclaimed to return the land to original contour and to plant the land with grasses rather than to reforest. It may be possible under the right circumstances to increase the number of acres reforested. However, current reclamation regulations, practices and policy would have to be revised to promote forest carbon sequestration as part of post-mine land use. Reclamation practices, such as grading and soil preparation, need to be revised to enhance and maximize tree growth on reclaimed mine lands. Additionally, some modification to Office of Surface Mining's performance standards will be necessary to enable the mine operator to reforest land.

The amount of carbon that could be sequestered through the afforestation or reforestation of mined lands is unknown at this time although the potential is believed to be large.

A C T I O N

- NMA will participate in the Department of Agriculture/Department of Energy process now underway to develop methodologies to measure, monitor and verify the amount of carbon sequestered both on agricultural lands (applicable to lands reclaimed through creating grasslands) and forest lands;
- Commit to using these methodologies, once established, to estimate and report on the amount of carbon that has been sequestered on reclaimed lands at least since 1990. Provided final estimation methodologies are completed by the end of 2003, NMA will, by September 2004, provide the Administration with an estimate of carbon that can, dependent upon identified regulatory changes, be sequestered on reclaimed mine lands during the 2005-2012 period;
- Establish an industry working group to approach DOI, DOA and other appropriate agencies to propose a joint effort to determine the changes that need to be made in regulations and practices to encourage forestation and forest management and other reclamation practices to encourage carbon sequestration. Once identified, NMA would work with the agencies to effect the needed changes that are needed and are practical;
- Approach the Department of Interior (OSM and BLM), DOE, DOA and other relevant agencies to propose establishment of a formal agreement to jointly develop a "best practices" for sequestration on mined lands and a technology data base that will be placed on appropriate web sites so that NMA members (and the public) have ready access to the latest research and information. NMA's MICAP report will include an estimate of savings that may result; and,
- Approach appropriate state and federal government agencies and other industries, such as the utility industry, to explore opportunities for sequestration as part of the restoration of abandoned mine land properties and to distribute information about these potentials throughout the industry.

V. A Greenhouse Gas Emissions Reporting Protocol for the Mining Industry

D E S C R I P T I O N

The President has established a national goal, to reduce the greenhouse gas intensity of the U.S. Economy by 18 percent by 2012. It is necessary to have a reliable and consistent way to measure and report on emission levels in order to measure progress toward achieving that goal. The Department of Energy has developed a reporting methodology that is now used for voluntary reporting under the Department's 1605(b) program. This program is in the process of being improved to enhance measurement accuracy, reliability and verifiability of the reductions reported. NMA supports, and is participating in, this effort to improve the voluntary greenhouse gas database.

With some exceptions, the guidelines used for voluntary reporting under the 1605(b) program are not sector specific. There are specific guidelines for measuring and reporting on coal mine methane emissions. However, the guidelines that would be used for other mining activities are insufficient to make reporting an easy task. NMA believes that a simple and consistent reporting methodology for the mining industry would 1) allow the industry to determine achievements made over at least the past decade; 2) encourage greater participation in the voluntary reporting program; and 3) enable measurement of progress toward meeting new goals. Therefore:

A C T I O N

- NMA has made a commitment to complete preparation of a "Compendium of Greenhouse Gas Emissions Estimation Methodologies for the Mining Industry" by the end of 2003. This will give NMA members (and other mining companies) a "how to" instruction manual and spreadsheet model to make reporting simple and cost effective. This will contribute to the President's goal of expanding participation in the voluntary greenhouse gas emissions database;
- Upon completion of the compendium, NMA will conduct a series of workshops for members to discuss practices and recommendations for measuring and assessing emissions; and,
- NMA will encourage members to begin reporting emissions under the 1605(b) program and has established an ultimate goal of 100 percent participation in the program. This will enable companies, and the industry, to measure progress made in the past, to measure progress currently being made toward contributing to the President's emissions intensity reduction goal, and to consider and set voluntary emissions intensity goals for the future.



VI. Future Activities

D E S C R I P T I O N

National Mining Association has established a task force to explore options to address the climate issue and to identify actions that can be taken in 2004 and later. The group includes representatives from coal, uranium, metals and non-metal producers as well as equipment manufacturers. Options that will be explored include, but are not limited to:

A C T I O N

Research: Greater strides in reductions of greenhouse gas emissions intensity depend on cost effective new technologies and new methods. NMA members are already involved in research projects designed to reduce, avoid or sequester emissions. The Industry of the Future program is one example, as is the research into new technologies to improve coal mine methane capture (described above). Several NMA members are now involved in the 'zero emissions coalition,' a group exploring the opportunities for sequestration in geological formations. Others are involved in research aimed at improving carbon uptake of soils.

Terrestrial sequestration. Several NMA members are planning to participate in the Regional Carbon Sequestration Partnerships solicitation recently issued by DOE. Members such as Peabody Energy already plant over one million trees each year.

Geological sequestration. NMA will work with DOE, DOI, EPA and other agencies to identify research opportunities in carbon capture, disposal and sequestration and to establish a better outreach program to advise our members (and others in the industry) of these possibilities and to encourage active participation in this research.

Clean Coal Technologies. NMA will continue to work with the Department of Energy – Office of Fossil Energy, the Coal Utilization Research Council, Electric Power Research and other groups to refine emissions reduction and efficiency goals for new technology research. The ultimate goal is the development and commercialization of a zero emissions power plant. This requires both time and research dollars. Several NMA members are participating and investing in this cutting edge research. An indication of the dollars spent by industry in these research endeavors, along with the potential for emissions savings, will be included in the 2004 NMA MICAP report.

New methods and procedures: NMA will lead an effort among our members to explore the opportunity to use biodiesel for diesel fuels in mining operations. A recent EPA study shows the potential for emission reductions using biofuels. Additional work will be required to ascertain the feasibility and cost effectiveness of this option and to quantify the amount of potential emissions reductions.

Reports: NMA commits to a report that will review the goals that we have set and measure progress made toward those goals. The first NMA MICAP report will be issued shortly after the close of the first quarter of 2004. During the last part of 2003, NMA will conduct a survey of its membership to get a more complete picture of the activities that companies are undertaking to avoid, reduce or sequester emissions. NMA will combine the information gathered from this survey with information developed through the Allied Partnership for this report. This report will also indicate additional programs that the industry is contemplating for 2004 and beyond.