

**1Assessment of the Market for Electronic Technology for Underground Coal Mining Safety
and Health Applications**

Request for Office of Management and Budget (OMB) Review and Approval

Information Collection Request (ICR)

Supporting Statements B

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Supporting Statement B

This information collection does not involve statistical methods.

B.1 Respondent Universe and Sampling Methods

A list of potential respondents will be identified for the structured interviews and prioritization workshop. Potential respondents will be representatives from stakeholder organizations. Stakeholder organizations include those parties involved in the development, supply, use, and regulation of safety and health protection technologies relevant to underground coal mining. Because there is no nationally representative database of these stakeholder organizations, a list will be compiled from web searches of supplier and mining company websites, online mining publications, trade association member directories, federal and state regulator websites, and university mining research and development programs. The search will also be augmented with input from representatives of NIOSH OMSHR.

As the visibility and relevance of organizations, particularly smaller private companies, is inconsistent, an attempt will not be made to compile a comprehensive list of stakeholder organizations operating in the United States. Rather, the sample will include large, influential, and/or innovative organizations in each of the technology areas and stakeholder categories. The sample will also be restricted to those organizations that conduct operations within the United States.

Stakeholder organizations will be grouped into several different categories, including

- Government operated research and development
- Non-governmental research & development
- Safety/electronics equipment suppliers
- Original equipment manufacturers
- Equipment distributors
- Mining engineering & construction firms
- Mining companies
- Trade/professional organizations
- Safety & health regulators and experts

Stakeholder organizations will be further categorized by the following: technology type, industry, location of headquarters, location of operations (U.S. only or also outside the U.S).

Previous efforts to identify the stakeholder pool have yielded approximately 200 stakeholder organizations who match the criteria for inclusion. However, since this is a rapidly changing field, this list of potential stakeholders will be updated prior to data collection.

Once identified, up to two representatives from each stakeholders will be contacted to complete the interview. Given the diverse range of stakeholder types, the contractor will elicit participation from 100 stakeholder organizations comprising approximately 150 interviewees to maximize the informational yield across these various dimensions mentioned above. The distribution among stakeholder categories of the organizations

selected for the interviews and workshop will be approximately equal to that identified in the stakeholder pool.

B.2 Procedures for the Collection of Information

The structured interviews will be conducted by telephone. See the interview protocol in Attachment 3.

The contractor will use web searches and pre-calls to companies to identify the representatives who would be best able to respond to the interview. In most cases the stakeholder organization will be encouraged to identify the most appropriate interviewee(s) based on the types of questions being asked. Once the company contacts are identified, the contractor will send that contact an initial invitation by email; or if no email address is available, will contact them by telephone to schedule the interview. See attachment 5 for the initial email to respondents.

The workshop will be attended by representatives from stakeholders in the mining safety and health protection technology market. About half of the workshop participants will be drawn from the stakeholder interviewees and about half will be others not included in the interviews. Invitations to the one-day workshop will be sent by email, or if no email address is available, by letter. See attachment 5 for the workshop invitation letter/email to respondents.

The purpose of the workshop will be to prioritize the barriers and impediments identified in the stakeholder interviews. This will be accomplished with a Delphi consensus-building workshop. The Delphi method is an interactive, iterative process for gaining a semi-consensus view on complex questions. In the traditional Delphi panel, participants anonymously provide answers to a survey; their judgments are subsequently fed back to the group members, who review the feedback and answer a second set of questions (which may have been modified based on the results of the first round). This process is repeated until either consensus among participants is reached or a pre-determined number of rounds have passed. See attachments 3–4 for the workshop plan that includes a description of the strategy and terminology that will be used for the Delphi method.

B.3 Methods to Maximize Response Rates and Deal with No Response

The contractor will employ various methods to improve response rate. The contractor will identify the stakeholder sample shortly before the data collection begins to ensure that the sample information is current. Once the sample is identified, the contractor will search company websites will to confirm or update contact information.

The methodology includes follow-up with non-respondents to maximize response rates. For instance, the contractor will send prompting letters and/or emails and conduct telephone follow-ups to selected stakeholders who have not responded to requests. The methods proposed for data collection should yield acceptable response rates, we estimated that 100 of the 200 stakeholder organizations will participate in an interview. Because we are aiming for 1–2 interviewees per interview, we anticipate that we will collect responses from approximately 150 interviewees.

Experience has shown that limiting respondent burden reduces non-response. The

interview will ask only about issues critical to the analysis and request information that should be readily available to the respondent. The interview is estimated to take no more than 60 minutes, including the time it may take respondents to look-up and retrieve needed information. The workshop will only last one day, and will be held at a location that convenient for the majority of participants.

The methods proposed for data collection should yield acceptable response rates. We estimated that 100 of the 200 stakeholder organizations contacted, and 150 individuals from those organizations, will participate in the interview. We anticipate 30 participants in the workshop.

B.4 Tests of Procedures or Methods to be Undertaken

The question protocol for the structured interviews was vetted by number of experts in coal mining operations and technology markets. This vetting helped ensure that the language and wording are presented in a way that is accessible to the target audience and that the scope of the questions covers is appropriate for the objectives of the project. RAND has used the Delphi consensus-building method in a number of studies, most recently in a series of projects to assess and prioritize technology needs in the criminal justice system.

B.5 Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

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