

First Approximation Report of the Sustainable Minerals Roundtable

Executive Summary

Energy and mineral resources are fundamental to human well-being. They are integral parts of virtually every sector of the economy and provide essential services. Nonetheless, management of energy and mineral resources is controversial because of the potential for negative environmental and social impacts stemming from nonrenewable resource production and use. Some stakeholders focus on the threat to the economy if extraction does not occur, while other stakeholders focus on the threat to the environment if it does.

Sustainable development provides a framework to address this type of complex, multifaceted problem. Therefore, in June 1999, concerned individuals representing government, the energy and mineral industries, and the environmental community formed the Sustainable Minerals Roundtable. The goal of the Roundtable has been to develop measures (indicators) of sustainability for energy and mineral systems. Such measures should be broadly applicable, be acceptable to a wide range of stakeholders, and meet the needs of the public, policymakers, and private firms in their respective roles. The Sustainable Minerals Roundtable is cochaired by the U.S. Forest Service and the U.S. Geological Survey, with meetings convened by the University of Nevada's Mining Life Cycle Center in Reno.

The primary purposes of the set of indicators developed by the Roundtable are as follows:

- to encourage a national dialog about how energy and mineral systems can best contribute to a sustainable America;
- to identify the types of information that will be needed for an informed public dialog;
- to highlight trends and priorities related to energy and mineral systems; and
- to support an interim assessment of the Nation's progress toward its sustainability goals in relation to nonrenewable resources.

Information about current and long-term conditions of economic, environmental, and social systems and about the processes that affect those conditions is essential to evaluating the Nation's progress toward a sustainable future. This information has been organized as criteria and indicators of sustainability. Criteria translate the principles of sustainability into system characteristics and desirable system states or dynamics, while the measurable elements of each criterion are the indicators of sustainability. The Roundtable's sustainability indicators were chosen so that they describe a broad range of attributes, positive as well as negative, of energy and mineral systems. They were not developed with a specific regulatory or policy application in mind, although it is possible that they will contribute to future needs in these areas.

In Phase I of the Roundtable process, the members of the Sustainable Minerals Roundtable used the 7 criteria and 67 indicators produced by the Montreal Process¹ as a starting point for their work. The Roundtable determined that four of the seven criteria from the Montreal Process were applicable to energy and mineral resources, although in two cases some adaptation was required. The remaining three criteria were either deemed to fall outside the scope of the Minerals Roundtable and/or are being addressed by the other sustainable development roundtables². The four criteria applicable to the Sustainable Minerals Roundtable are the following:

- Maintenance of capacities to produce commodities.
- Maintenance of environmental quality.

¹ The Montreal Process was an intergovernmental effort to develop the means to measure and track progress toward sustainable management of temperate and boreal forests. This Process resulted in the Santiago Declaration, of which the United States is a signatory (Coulombe, 1995).

² Roundtable on Sustainable Forests (<http://sustainableforests.net>), Sustainable Rangelands Roundtable (<http://www.cnr.colostate.edu/RES/srr/>), and Sustainable Water Resources Roundtable (<http://water.usgs.gov/wicp/acwi/swrr/>).

- Maintenance of long-term social, economic, and cultural benefits to meet the needs of societies.
- Legal, institutional, and economic framework to support sustainable development.

Indicators were developed through the course of meetings that were open to all interested parties. The meetings were held at various locations throughout the United States to ensure broad participation and a range of perspectives. It was agreed that the indicators should report neutral, science-based information and not imply by their wording a preconceived conclusion about the contributions of energy and minerals to sustainability. A list of 82 indicators was developed. A prioritization scheme was then used to identify 38 priority indicators. This First Approximation Report describes the work of Phase I of the Roundtable process. In addition to listing the indicators, the report includes a discussion of the process and complete write-ups for a small number of indicators.

No indicator on its own can cover the breadth of issues associated with sustainability or the contributions made by energy and minerals to sustainability. Each contributes to a more complex whole, that is, a broader understanding of the role of energy and mineral resources in a sustainable future. For that understanding to emerge, the indicator set must be complete. Therefore, Phase II of the Roundtable process will involve review, revision, and extension of the original indicator set, followed by the task of populating additional indicators with data.

The Roundtable will not produce an “official” interpretation of the full set of completed indicators. Instead, the Roundtable will encourage individuals and groups to make their own assessments, combining and interpreting the indicators as they deem appropriate. This decision was made because the overall meaning of the indicator set depends upon value-based decisions concerning what should be sustained, for whom, how, and at what point in time. There are diverse opinions on each topic and, as a result, about how energy and mineral resources and operations can and should contribute to sustainable development. The Sustainable Minerals Roundtable anticipates that most stakeholder groups will agree on some points of interpretation but disagree on others. And this diversity of thought will enrich the public debate about the role of nonrenewable resources in a sustainable America.

In Phase II, the Roundtable will continue to coordinate with other groups working on sustainability indicators. The U.S. Council on Environmental Quality (Connaughton, 2002) is leading a process to develop a framework for and coordinate work on indicators on natural and environmental resources and closely related economic, health, and social factors for the United States. The indicators developed by the Sustainable Minerals Roundtable and the other three Roundtables will eventually feed into this broader national framework. The work of the Roundtable also supports commitments made at the 2002 World Summit on Sustainable Development (WSSD). The United States is a signatory to the WSSD Plan of Implementation, paragraph 46 of which calls upon nations to take a life-cycle approach to the environmental, economic, health, and social impacts and benefits of mining activity and to identify measures and monitoring and assessment mechanisms, including life-cycle analysis and national indicators for measuring progress (United Nations, 2002).

REFERENCES:

Connaughton, J.L., 2002, Environmental indicators policy coordination: U.S. Council on Environmental Quality Memorandum to Agency Heads, December 31, 2 p.

Coulombe, M.J., 1995, Sustaining the world's forests—The Santiago Agreement: *Journal of Forestry*, v. 95, no. 4, p. 18-21.

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