Statement of
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Large Scale Carbon Capture and Storage Technologies
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Introduction

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to be here today in Bismarck, North Dakota, to discuss large scale carbon capture and storage technologies. My testimony today will address the Bureau of Land Management's (BLM) perspective on carbon capture and storage as it relates to on-going and future work of the BLM, particularly with respect to implementation of Sections 713 and 714 of the Energy Independence and Security Act of 2007 (EISA).

The challenges of addressing carbon dioxide accumulation in the atmosphere are significant. Fossil fuel usage, a major source of carbon dioxide emissions to the atmosphere, will continue for the foreseeable future in both industrialized and developing nations. Therefore, a variety of strategies are being investigated to reduce emissions and remove carbon dioxide from the atmosphere. Such strategies include the facilitated sequestration of carbon for the capture and storage of carbon dioxide through terrestrial sequestration using soils and trees, or by injection into geologic formations.

Carbon injection techniques also have useful practical applications in processes known as enhanced oil recovery (EOR), which currently takes place on some public lands managed by the BLM. These processes often allow the recovery of additional energy resources from older oil and gas fields. Carbon dioxide is a leasable commodity under the Mineral Leasing Act of 1920. The BLM currently collects revenues in the form of royalties derived from the sale of carbon dioxide produced in connection with oil and gas production on public lands. In 2007, for example, the sale of carbon dioxide generated over $23 million in royalty revenue in the states of Colorado, New Mexico, and Wyoming.

In addition to enhancing oil recovery, EOR's utilization of carbon injection may yield valuable data that will inform efforts to capture and sequester carbon dioxide effectively in geologic formations found on public lands. A critical issue for evaluation of storage capacity is the integrity and effectiveness of these formations for sealing carbon dioxide underground, thereby preventing its release into the atmosphere.

Geologic Storage of Carbon

The current atmospheric carbon dioxide concentration is approximately 380 parts per million volume and rising at a rate of approximately 2 parts per million volume annually, according to the most recent information from the Intergovernmental Panel on Climate Change (IPCC). The 2005 IPCC Special Report on *Carbon Dioxide Capture and Storage* concluded that in emissions reductions scenarios striving to stabilize global atmospheric carbon dioxide concentrations at targets ranging from 450 to 750 parts per million volume, the global storage capacity of geologic formations may be able to accommodate most of the captured carbon dioxide. How much of this carbon dioxide storage capacity would be economically feasible (assuming some price on carbon), however, is not known. Also, geologic storage capacity may vary widely on a regional and national scale. A more refined understanding of geologic storage capacity is needed to address these knowledge gaps.

Geological storage of carbon dioxide in porous and permeable rocks involves injection of carbon dioxide into a subsurface rock unit and displacement of the fluid or formation water that initially occupied the pore space. This principle operates in all types of potential geological storage formations such as oil and gas fields, deep saline water-bearing formations, or coal beds. Most of the potential carbon dioxide storage capacity in the U.S. is in deep saline formations.

Ongoing Efforts

The EISA includes provisions on carbon capture and storage that the BLM is implementing. Section 713 of EISA directs the BLM to maintain records on, and an inventory of, the quantity of carbon dioxide stored within Federal mineral leaseholds. The BLM is reviewing its current data collection structures and methods, including commercially available data, and will determine how this new data collection requirement can be incorporated into existing systems. The BLM will coordinate with the Minerals Management Service on changes that may be required to the Oil and Gas Operations Report that is used to collect production and injection data on Federal mineral estate. We do not anticipate any obstacles with collecting the additional information at this time.

Section 714 of the EISA directs the Secretary of the Interior to submit a report containing a recommended framework for geological sequestration on public land to this Committee, as well as to the House Committee on Natural Resources, by December 2008.

This effort, coordinated among several agencies within the Department of the Interior, is anticipated to result in recommendations relating to:

- criteria for identifying candidate geological sequestration sites in several specific types of geological settings;
- a proposed regulatory framework for the leasing of public land or of an interest in public land for the long-term geological sequestration of carbon dioxide;
- a procedure for ensuring any geological carbon sequestration activities on public land provide for public review and protect the quality of natural and cultural resources;

- if appropriate, additional legislation that may be required to ensure that public land management and leasing laws are adequate to accommodate the long-term geological sequestration of carbon dioxide; and
- if appropriate, additional legislation that may be required to clarify the appropriate framework for issuing rights-of-way for carbon dioxide pipelines on public land.

The report will also describe the status of Federal leasehold or Federal mineral estate liability issues related to the release of carbon dioxide stored underground in public land, including any relevant experience from enhanced oil recovery using carbon dioxide on public lands.

In addition, the report will identify issues specific to the issuance of pipeline rights-of-way on public land and legal and regulatory issues specific to carbon dioxide sequestration on land in cases in which title to mineral resources is held by the United States, but title to the surface estate is not.

This effort will be undertaken in coordination with the Environmental Protection Agency, the Department of Energy, and other appropriate agencies.

Conclusion

It is clear that addressing the challenge of reducing atmospheric carbon dioxide and understanding the effect of global climate change is a complex issue with many interrelated components. The assessment activities called for in EISA should ultimately increase the information base upon which decision makers will rely as they deal with these issues. In addition to addressing the challenges presented by carbon dioxide, we should also recognize that this commodity presents certain opportunities for future knowledge and use. As a leasable commodity, our experience demonstrates that there is a demand and a value attributable to this resource. As we examine undeveloped oil and gas reservoirs, we should consider the potential benefits of accessible sequestered carbon dioxide. It is clear that the discussion on this subject will continue and the BLM stands ready to assist Congress as it examines these challenges and opportunities. Thank you for the opportunity to present this testimony. I am pleased to answer questions you and other Members of the subcommittee might have.