

**Statement of
Anne Castle
Assistant Secretary for Water and Science
U.S. Department of the Interior**

**Carbon Capture & Sequestration Legislative Hearing:
S. 1856, a Bill to Amend the Energy Policy Act of 2005 to Clarify Policies Regarding
Ownership of Pore Space
S. 1134, Responsible Use of Coal Act**

**U.S. Senate Energy and Natural Resources Committee
April 20, 2010**

Introduction

Mr. Chairman and Members of the Committee, thank you for the opportunity to discuss S. 1856, a bill to amend the Energy Policy Act of 2005 to clarify policies regarding the ownership of pore space, and S. 1134, the Responsible Use of Coal Act. The Department of the Interior defers to the Department of Energy on S. 1134 as the scope of the bill is limited to activities within the Department of Energy.

I am Anne Castle, the Department of the Interior's Assistant Secretary for Water and Science. I am accompanied by Tim Spisak, the Bureau of Land Management (BLM) Deputy Assistant Director for Minerals and Realty Management. Under Secretary Salazar's leadership, the Department of the Interior has made addressing global climate change among its highest priorities. A key component to addressing climate change is mitigating the impact of carbon dioxide through energy conservation, clean renewable energy, and measures such as geologic carbon sequestration into permeable rock pore spaces.

S. 1856 would ensure that the ownership of any subsurface pore space located below a Federal surface estate would be vested in the Federal Government. The Department of the Interior supports the goal of S. 1856 to clarify policies regarding ownership of pore space. We support having clear rules in place before, not after, disputes over property rights arise. However, we would like to discuss with the Committee concerns related to pore space ownership on split estate lands – including important liability concerns – where the Federal government manages the subsurface mineral estate but not the surface.

Background

Climate Change Impacts & the Department of the Interior

At the Department of the Interior, our land and water and wildlife managers are already confronting the impacts of climate change. Reduced snowpack is leading to decreased recharge of groundwater systems, increasing stress on surface water supplies and public water systems, and reducing river flows that impact temperature, depth, and other characteristics of spawning environments for fish. Our Arctic parks and refuges are seeing some of the earliest impacts of

climate change. Melting sea ice threatens marine mammals as well as coastal communities, and thawing permafrost can destabilize buildings, roads, and facilities – disrupting the structural basis of large regions of Interior-managed lands.

Our scientists are also noting changes in the abundance and distribution of species, including changes to migration patterns; the expansion of pests and invasive species; increased vulnerability to wildland fire and erosion; and an overall reduction in carrying capacity. Many of the iconic wildlife species that the Department manages from the Arctic to the Everglades will see their habitat threatened by global climate change.

To assure that our climate change adaptation strategies are grounded in sound science, Secretary Salazar has created a new climate change strategy for the Department through Secretarial Order #3289 (September 14, 2009): “Addressing the Impacts of Climate Change on America’s Water, Land and Other Natural and Cultural Resources.” This Order establishes a new Department-wide strategy to address climate change, with an emphasis on climate change science, adaptation, and mitigation.

This Order identifies geologic carbon sequestration as a key component in the Department’s climate change mitigation program – the Carbon Storage Project. The Order identifies the U.S. Geological Survey (USGS) as the lead agency in administering the Department’s Carbon Storage Project, and the USGS will work closely with the BLM and external partners to enhance carbon storage in geologic formations consistent with the Department’s responsibility to provide comprehensive, long-term stewardship of its resources.

The Role of the Bureau of Land Management & the U.S. Geological Survey

As the Nation’s largest land manager, the BLM is entrusted with the multiple-use management of 253 million acres of surface land. The agency also administers 700 million acres of sub-surface mineral estate of which the surface owners are Federal agencies, states, or private entities. This Federal mineral estate includes 57.2 million acres underlying a privately-owned surface (split estate). The USGS collects, monitors, analyzes, and provides scientific understanding about natural resource conditions, issues, and problems. As part of its mission, the USGS also conducts assessments of energy resources such as oil and natural gas of the United States and the world. Because of this expertise and experience, the USGS is conducting a national assessment of the carbon dioxide storage capacity in oil and gas reservoirs and saline formations. The USGS is currently finalizing the methodology for this national assessment.

The Department diligently executes its responsibilities to make our Nation’s energy resources available in an environmentally-sound manner. Within the framework of a transparent public process, we carefully consider habitat, groundwater, air and other resources; mitigate impacts through best management practices, stipulations and conditions of approval; and balance development with other uses across the landscape. All of these considerations remain consistent as the Department contemplates its role in the use of the public lands to sequester carbon dioxide. Additionally, the Department’s bureaus have the expertise and experience needed to effectively implement carbon sequestration programs, from the identification of areas appropriate for storage to the deployment of leasing programs.

The BLM's existing administrative and regulatory framework could facilitate future carbon sequestration demonstration projects. However, clearer statutory authority specific to carbon sequestration may be desirable in some areas in order to move more effectively in implementing commercial-scale storage on Federal lands. The Administration is currently reviewing these issues, including whether additional legislation is desirable, as part of the White House Task Force on Carbon Capture and Storage. Issues that we are currently discussing include the most appropriate mechanism for longer term storage of carbon dioxide (leasing, rights-of-way, or other methods), the nature and term of the agreements, and how other uses such as future energy and mineral extraction, other subsurface resources, and other surface uses that the BLM may authorize could affect longer term storage, and liability. We look forward to reporting back to the Committee on the results of the Task Force's work in the near future.

In addition to experience in administering large-scale mineral leasing programs, the BLM has the realty expertise and an existing framework for issuing rights-of-way on public land that could serve future needs for carbon dioxide pipelines across public lands. Other programmatic and land management expertise, such as the BLM's experience in evaluation of potential environmental impacts of projects, will facilitate this effort. In addition, the USGS will play an important role in recommending geologic criteria that could be incorporated into a set of "best practices" for geologic site selection.

A number of challenges will need to be addressed moving forward, and we must make use of current information to inform future discussions. For example, the Department has the results of research at international non-Enhanced Oil Recovery (EOR) sites at which large quantities of carbon dioxide have been injected for as long as 12 years. These sites have operated safely and shown no sign of leakage. However, the carbon storage contemplated for the primary purposes of sequestration may be for longer terms and larger quantities. We believe that the DOI land managers and scientists who are on-the-ground have expertise to offer on monitoring carbon dioxide sequestration, and we are working with our partner agencies to share their expertise.

Carbon Capture & Sequestration (CCS)

Geological storage of carbon dioxide in subsurface rocks involves injection of carbon dioxide into the pore space of permeable rock units. 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 United States is in deep saline formations.

The current atmospheric carbon dioxide concentration is approximately 380 parts per million and rising at a rate of approximately 2 parts per million annually, according to data collected since 1959 by NOAA at the Mauna Loa observatory in Hawaii and 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, the global storage capacity of geologic formations may be able to accommodate most of the captured carbon dioxide. However, the extent to which this storage capacity is economically viable depends on the price of carbon. Also, geologic storage capacity

may vary widely on a regional and national scale. A more refined scientific and operational understanding of geologic storage capacity is needed to address these knowledge gaps.

Energy Security & Independence Act of 2007(EISA) / Pore Space Ownership

Section 714 of the EISA directed the Secretary of the Interior to submit a report to Congress containing a recommended framework for geological sequestration on public lands. Through the BLM, and in coordination with the USGS, the EPA, the DOE, and other appropriate agencies, the Department fulfilled this mandate with its May 13, 2009, report, *Regulatory Framework for Geologic Carbon Sequestration on Public Land*. This report addressed a wide variety of issues related to geologic carbon sequestration and helps inform our response to the legislation before the committee.

The report also included a discussion of pore space ownership. Section (6) of the report notes that Interior Board of Land Appeals (IBLA) rulings have recognized the “American Rule,” which holds that subsurface pore space is the property of the surface owner. Various state governments are considering legislation that would establish the “American Rule” as state law. Wyoming enacted such a law in 2008; Montana and North Dakota enacted similar legislation in 2009.

S. 1856

The Department supports the concepts of S. 1856, which consists of two key provisions. The first, Section (1)(b), clarifies that the subsurface pore space is the property of the Federal Government in cases where the Federal Government is the surface landowner (codification of the “American Rule”). The second key provision, Section (1)(d), establishes the mineral estate as the dominant interest when in competition for priority with a pore space interest. Section 1(d) presents questions related to how mineral interests and those with interests in storing carbon dioxide in the pore space would intersect.

In following the American Rule, S. 1856 provides that the Federal government would own the pore space when it owns the surface interests. While not addressed in the bill, the American Rule would also hold that a private surface owner would own the pore space if the surface/subsurface estate is split between the private surface owner and the Federal mineral estate. In the case of approximately 57 million acres of land where the estate is split between a private surface owner and the Federal mineral estate, the private surface owner’s pore space interest could present long-term liability questions. We can foresee a situation where a private entity holding split estate surface rights sequesters carbon dioxide in the pore space but then finds itself in a position of not being able to manage the carbon dioxide or bear its liability in perpetuity. It remains unclear who would be liable for the carbon dioxide in these situations. Questions also remain as to whether carbon dioxide, which is a leasable mineral when naturally occurring on Federal lands, could be considered part of the mineral estate when transported onsite, injected, and stored long-term. The Department would like to engage in discussions with the Committee concerning these issues.

Conclusion

The Department of the Interior believes that carbon capture and sequestration can play a significant role in reducing the long-term effects of carbon emissions. The Department of the Interior looks forward to continuing to work with the Committee on the critical work of mitigating the effects of climate change.