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Testimony on "Effect of the President's FY 2013 Budget for the U.S. Geological Survey on Private Sector Job Creation, Hazard Protection, Mineral Resources and Deficit Reduction"
SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES
NATURAL RESOURCES COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES
March 22, 2012

My name is Harvey Thorleifson. I am the Minnesota State Geologist and Director of the Minnesota Geological Survey, which is the state geological survey as well as a research and public service unit of the University of Minnesota, where I also am a Professor. As President Elect of the Association of American State Geologists (AASG), I am testifying today on behalf of that organization, which represents the geological surveys in the fifty states and Puerto Rico.

Thank you for this opportunity to comment on the budget of the U.S. Geological Survey (USGS) and the importance of USGS programs. Please allow me to begin by placing emphasis on our belief that the USGS is responsible for programs that are essential for the functioning of the US government and of the nation, for optimization of the health, wealth, and security of the American people, as well as preservation and appreciation of our natural heritage.

Whether at the US federal level, the US state level, or in national or regional jurisdictions throughout the world, geological survey agencies fulfill the role of maintaining systematic information on the landmass administered by the government they serve, as well as additional roles where geologic information is needed by government.

Whereas academic research institutes have a conceptual mandate, geological survey agencies have a unique and essential spatial mandate associated with their landmass. While academic centers focus on research and education, geological surveys are engaged in mapping over areas, and monitoring over time, as essential roles that accompany their needed research roles.

This jurisdiction-wide, long-term function builds and maintains a body of knowledge regarding an understanding and accounting of earth materials, processes, and geologic history, based on mapping, monitoring, and research. Benefits for society result, as this systematic, accessible, and authoritative knowledge is used in relation to energy, mineral, and water resources, as well as hazards. Management of these issues, guided by sound information, is needed by society to ensure orderly progress toward their objectives.

In a federal system, both federal and state governments require geological survey agencies to carry out their mission and mandates in an informed manner. States strongly endorse and support the unique federal role of the USGS, which addresses national programs, specialized capabilities, and the needs of the federal government. State geological surveys meanwhile work closely with users on the priorities of each state. In our roles, we benefit from partnerships with USGS, while our roles were strongly endorsed last year by a paper released by the American Institute of Professional Geologists.

While USGS functions with a budget of over one billion dollars, supported by on the order of 10,000 employees, state geological surveys in total are funded at a level of a quarter billion dollars per year, and are supported by over two thousand employees.

The work of the US federal and state geological surveys is closely coordinated. State geological surveys therefore have a great interest in the role of the USGS, as this role is a major factor in fulfillment of our roles.

The President's budget proposal outlines support for successful and effective USGS programs that stimulate economic development, that save lives and property from natural disasters, and that protect the environment and public health. Through competitive grants and partnership programs, USGS directly benefits from collaboration with leading experts across the nation.

We endorse identification of priorities to which resources need to be shifted. We agree with the importance of a National Groundwater Monitoring Network, other water programs such as those related to stream gages, improved disaster mitigation and response, improved information needed to guide the economic benefits and risks of hydraulic fracturing, and increased attention to rare earth element research and assessment.

We note with concern, however, potential reduction to important programs, including the minerals program, coal assessments, and several water programs. We are particularly concerned about proposed reductions to partnership and grant programs that promote efficiency, as well as preserving long-term datasets.

Proposed reductions to the minerals programs are difficult to reconcile with the rapidly growing urgency of the efforts that are needed to ensure our access to materials that allow our economy to function. We endorse conservation and recycling, and we recognize that increasing global population and standard of living will require more mining.

Most mineral commodities occur in the US, where these materials can be mined using the world's best practices for environmental stewardship and health and safety for workers and the public. The USGS has a vital role in documenting domestic production and reserves, and in assessing the likelihood of future discoveries that will add to our mineral and energy resources.

The dominance of China as a producer and consumer of mineral and energy commodities is a major factor that will influence our future. This can best be understood by utilizing critical data that are collected and reported by the USGS. USGS minerals data collection was considered to be an essential government function in two 2008 National Academy of Sciences reports. We therefore believe these are programs and functions that should not be cut.

We also are concerned about proposed reductions to energy-related programs, such as grants to States for coal resource assessments. Coal remains a major source of inexpensive electricity for America, while coal and other carbon-based energy fuels such as unconventional sources of oil and natural gas will continue to dominate global energy supply for years to come. It therefore is important that research is developing ways to reduce fossil-fuel-related emissions.

While the Department of Energy maintains information on domestic energy production, the USGS role in long-term forecasting of energy supplies is unique and necessary. Much of this work is done in collaboration with states, using data largely compiled and provided by states, and the Association of American State Geologists supports this working relationship.

State Geologists recognize, however, that geologic maps showing sediment and rock materials at and below the land surface are the foundation that guides all programs dealing with issues such as energy, minerals, construction, water, and hazards.

In Ohio, for example, developers and engineers who used modern geologic maps saved about $50,000 for every project. Typically, many projects use the same map, multiplying these cost savings many times over. Furthermore, economists documented Kentucky's geologic maps to be worth 25 to 39 times the cost of the mapping.

In Colorado, State Geologist Vince Matthews has aligned geologic mapping under the National Cooperative Geologic Mapping Program with the needs of regions. Mapping along the Front Range from south of Colorado Springs to Denver is clarifying aquifers relied on across the region for water supply. Other mapping in the Colorado Springs region south and southwest of Denver is identifying geologic hazards and potential mineral resources to help counties fulfill their responsibilities in managing land use.

In New Jersey, State Geologist Karl Muessig has directed geologic mapping under the same USGS-coordinated cooperative program to the regions around the Salem, Hope Creek, and Oyster Creek Nuclear Generating Stations – to clarify foundational stability, seismic vulnerability, impacts of coolant-water use, and sea-level rise as a contributor to storm-surge vulnerability. This work is in support of requests from plant operators, state regulators, and the Nuclear Regulatory Commission, in relation to existing plant assessment and new plant evaluations.

Less than half of the US, however, is covered by adequate geologic maps, and many maps need to be updated due to the progress of science, new technology, and much new data. USGS therefore needs to have a vibrant geologic mapping program, as do state geological surveys nation-wide, and we welcome the federal role in maintenance of standards and coordination.

Geologic mapping at the resolution and coverage done by geological survey agencies is clearly a role for government, because the public benefits and cost savings are broad, and businesses must limit their work to small areas of immediate interest to their activity.

While the mapping is guided by the accumulated knowledge of government geologists, geologic mapping commonly utilizes surveys conducted by the private-sector, such as immensely useful new airborne laser elevation surveys known as LiDAR.

We therefore place emphasis on our advocacy for the National Cooperative Geologic Mapping Program, a subactivity within the USGS Core Science Systems Activity, funded at $26.3 million in FY 2012. Given its proven record in stimulating economic development and protecting the

public, we believe that this program should grow to its authorized level of $64 million per year in upcoming years.

All federal dollars in the portions of this program that we are involved with are matched one to one with state dollars. Despite this, significant state geologic mapping resources that could be used to match federal dollars are being left on the table.

We certainly are pleased, however, that the President's budget proposal recognizes the key role of geologic mapping in pressing priorities, in particular related to water and hydraulic fracturing, by proposing transfers to the program in relation to these topics.

Given the importance of geologic mapping, however, we not only endorse these proposed transfers, but we also suggest that a proposed reduction to the base of the program not be implemented, thus resulting in a further expansion of this crucial activity. We also note that it is good that the National Cooperative Geologic Mapping Act provides clear guidance for distribution of these proposed increases.

In turn, geologic mapping is underpinned by precious data and materials accumulated by scientists over decades. We thus recognize the fundamental importance of the National Geological and Geophysical Data Preservation Program, also a subactivity within the Core Science Systems Activity, funded at about $1 million in FY 2012. This is another cooperative program with states, which doubles the federal investment.

The 2002 National Academy of Sciences report on Geoscience Data and Collections – National Resources in Peril made the case for preserving these irreplaceable data and physical samples and led to Congressional authorization of this program at $30 million per year within the Energy Policy Act of 2005. We have seen many uses for these data and samples in exploration for domestic mineral and energy resources. We believe that this program should grow.

In the President's budget proposal, we note that this program has been merged with allied activity, and we applaud efficiencies that will be thus achieved, while we strongly support the activity being maintained at a funding level at least equivalent to that of FY12.

In summary, the Association of American State Geologists strongly endorses the President's FY13 budget proposal for the US Geological Survey, because we strongly endorse what we regard as the essential role that the USGS fulfils in building and maintaining essential information needed by the US government and by people nation-wide.

In particular, we endorse programs that are operated as partnerships, thus leveraging funds, as well as encouraging coordination, efficiency, and adoption of nation-wide standards. Nevertheless, we have concerns about proposed reductions in important programs.

In closing, I want to again indicate that we appreciate this opportunity to offer information that we hope will be helpful for the work of the subcommittee.