

**Testimony Submitted by  
American Geosciences Institute  
P. Patrick Leahy, Executive Director  
To the United States Senate  
Committee on Appropriations  
Subcommittee on Energy and Water Development, and Related Agencies  
Regarding the Department of Energy**

**March 11, 2016**

Thank you for this opportunity to provide the perspective of the American Geosciences Institute (AGI) on fiscal year (FY) 2017 appropriations for programs within the Subcommittee's jurisdiction. Department of Energy (DOE) investments in geoscience-related research and development (R&D) will help develop and sustain energy resources to support economic growth, national security, and resilient communities.

**AGI supports proposed increases to the Geothermal Energy Technologies and Water Power Programs, renewed funding of the Critical Materials Hub in the Office of Energy Efficiency and Renewable Energy, and increases to the Subsurface Technology and Engineering RD&D and Energy-Water Nexus crosscuts. We respectfully ask the Committee to reject the proposed cuts to the Fuel Supply Impact Mitigation program in Fossil Energy. AGI supports robust funding for science at DOE and the President's request of \$5.67 billion for the Office of Science.**

**To create an effective clean energy future, we urge DOE to work closely with the U.S. Geological Survey, universities, and others to ensure that innovation in energy technologies is compatible with the Earth system where the technologies will be deployed. The Mission Innovation initiative may offer opportunities for this cross-system integration.**

AGI is a nonprofit federation of 51 geoscientific and professional associations that represent approximately 250,000 geoscientists who work in industry, academia, and government. Founded in 1948, AGI provides information services to geoscientists, serves as a voice of shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources, resilience to natural hazards, and the health of the environment.

## **DOE Office of Energy Efficiency and Renewable Energy**

***Geothermal Technologies Program:*** Major investments in the Frontier Observatory for Research in Geothermal Energy (FORGE) and the Hydrothermal subprogram should lead to significant advances and private-sector engagement in these promising clean energy sectors.

***Water Power Program:*** Low-impact water power projects can be a resilient, clean source of power; onshore projects at various scales and marine hydrokinetic energy development show strong potential but need increased R&D to become ready for commercial adoption.

**AGI supports the President's request for \$99.5 million for the Geothermal Technologies Program and \$80 million for the Water Power Program to diversify our energy portfolio.**

***Advanced Manufacturing Technologies:*** New materials are a foundation for innovative energy development. The Advanced Manufacturing Technologies program focuses on one section of the lifecycle of materials for the energy sector: developing new materials and technologies.

AGI is a member of the Minerals Science and Information Coalition, which supports mineral functions in the federal government. The Critical Materials Hub, a consortium led by Ames National Laboratory, is carrying out important and timely research that should increase resilience to possible disruptions in the supply chains of elements that are critical to the energy sector. **AGI strongly supports a new phase of funding of at least \$20 million to extend the nationally significant work at the Critical Materials Hub.**

We urge DOE to take a comprehensive and holistic view of the lifecycle of materials. Studies should integrate knowledge from the geosciences, from sourcing raw materials to disposal of used products, with the existing technological expertise in DOE to produce a full lifecycle analysis of materials critical to the energy sector.

### **Crosscutting Initiatives**

***Subsurface Technology and Engineering RD&D crosscut (SubTER):*** The Subsurface Technology and Engineering RD&D crosscut integrates research, development, and demonstration on shared issues associated with the Earth's subsurface across the agency. It is encouraging to see a collaborative effort to minimize duplication and maximize synergies across several DOE offices. We strongly suggest that DOE expand this effort to include communication and, to the extent possible, collaboration with the U.S. Geological Survey, which has unique expertise in and responsibility for studying the Earth's subsurface.

***Energy-Water Nexus:*** Demand for water and energy, which enable our existence, is rising. Investment in the Energy-Water Nexus crosscut will provide vital information for decision makers and help develop resilient energy-water systems. We again suggest that the U.S. Geological Survey and other entities be included in the process.

**AGI asks the Committee to support these crosscutting DOE initiatives, and we respectfully suggest that the Committee encourage interagency collaboration in order to ensure the most efficient and effective use of federal resources in the national interest.** The proposed Mission

Integration initiative may open pathways for integrated studies of the intimately linked Earth and energy systems.

## **DOE Office of Fossil Energy Research and Development**

***Fossil Energy R&D:*** We respectfully request that the committee support increased research on natural gas, unconventional fossil fuel, carbon capture and geologic carbon storage, and hydrates. According to Energy Information Administration forecasts, our energy mix will be unchanged in 2040 with 80 percent of our energy coming from fossil fuels; developing more efficient technologies and minimizing the impacts of fossil fuels will benefit the economy, the environment, and human health and wellbeing. The renamed Fuel Supply Impact Mitigation program is working, in coordination with the U.S. Geological Survey and other agencies, to minimize emissions, water usage, and other impacts from the development of unconventional oil and gas resources, and to evaluate the nation's gas hydrate resources.

**AGI supports investment in fossil fuel R&D that would enable the nation to reap the greatest benefit, while causing the least associated harm, from ongoing fossil fuel production and use, and requests that funding for the Fuel Supply Impact Mitigation program be maintained at the FY 2016 level of \$43 million.**

## **DOE Office of Science**

The DOE Office of Science is the single largest supporter of basic research in the physical sciences in the United States. The Biological and Environmental Research Program carries out important work in atmospheric modeling and the linkages between Earth, biological, and human systems; the Chemical Sciences, Geosciences, and Biosciences Division of the Basic Energy Sciences program helps elucidate the geochemical and geophysical characteristics of the Earth.

The Workforce Development for Teachers and Scientists program actively engages those who will become and who train the workforce of the future. This program supports a diverse and talented pool of students and scientists; it merits robust funding.

**AGI asks the Committee to support the President's request of \$5.67 billion for the Office of Science.**

Thank you for the opportunity to present this testimony to the subcommittee. If you would like any additional information for the record, please contact Maeve Boland at 703-379-2480, ext. 228 voice, 703-379-7563 fax, [mboland@agiweb.org](mailto:mboland@agiweb.org), or 4220 King Street, Alexandria VA 22302-1502.