

**Testimony Submitted by
American Geosciences Institute**

Allyson K. Anderson Book, 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 30, 2018

Thank you for this opportunity to provide the perspective of the American Geosciences Institute (AGI) on fiscal year (FY) 2019 appropriations for programs within the Subcommittee's jurisdiction. Department of Energy (DOE) investments in geoscience-related research and development (R&D) will help to develop energy resources that support economic growth and employment, strengthen national security, and maintain the nation's global competitiveness.

AGI applauds Congress for successfully negotiating and passing the Bipartisan Budget Act of 2018 and the Consolidated Appropriations Act, 2018. We are grateful to the Members of Congress, congressional staff, and members of the Administration who crafted this significant legislation. The FY 2018 appropriations bill creates a robust baseline for future budgets. **For FY 2019 appropriations, AGI supports maintaining sustained, strong funding for the Department of Energy. Specifically, AGI supports investment in the Geothermal Technologies and Water Power programs, the Critical Materials Hub, the Offices of Science and Fossil Energy Research and Development, and the Energy Information Administration.**

To create an effective and efficient energy future, we urge DOE to work closely with the U.S. Geological Survey (USGS), the National Science Foundation (NSF), universities, and others to coordinate research on all aspects of the subsurface, to secure stable supplies of the raw materials needed to manufacture new energy technologies, and to ensure that innovation throughout the energy sector is compatible with the Earth system where the technologies are deployed.

AGI is a nonprofit federation of 52 geoscientific and professional associations that represent approximately 260,000 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: Research and proof-of-concept information derived from the Frontier Observatory for Research in Geothermal Energy (FORGE) and hydrothermal resources research should lead to significant advances and increased private-sector engagement in a clean energy sector that has the potential to supply essential base-load power. FORGE research on the relationship between Earth systems and enhanced geothermal projects should help minimize and mitigate the risk of induced seismicity or other hazards associated with enhanced geothermal energy systems.

Water Power Program: AGI encourages research and development in low-impact, small-scale water power projects, other onshore projects at various scales, and marine hydrokinetic energy development. All of these technologies show strong potential but need further R&D to become ready for commercial adoption.

Advanced Manufacturing Technologies: AGI is a member of the Minerals Science and Information Coalition, which supports mineral program 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 the nation's ability to withstand possible disruptions in the supply chains of elements that are critical to the energy sector.

We urge DOE to take a comprehensive and holistic view of the lifecycle of materials. Critical materials studies should integrate knowledge from the geosciences, including identifying unconventional sources of raw materials and improving the secure disposal of used products, with the existing technological expertise in DOE. The nation's supply chain will be strengthened by a developing a comprehensive lifecycle analysis of materials critical to the energy sector.

AGI strongly supports funding of at least \$25 million for nationally significant work at the Critical Materials Hub.

DOE Office of Fossil Energy Research and Development

Fossil Energy R&D: AGI supports investment in fossil fuel R&D that would enable the nation to gain the greatest benefit, while causing the least associated harm, from ongoing fossil fuel production and use. According to Energy Information Administration forecasts, the United States will obtain about 77 percent of our energy mix in 2040 from fossil fuels, though with a decreasing fraction from coal. Investing in developing more efficient technologies and in minimizing the impacts of fossil fuels, with an emphasis on the dominant natural gas and oil sectors, will benefit the economy, the environment, and human health and wellbeing. We support research, development, and deployment of carbon capture and storage mechanisms, and efforts to identify and reduce emissions from all energy sources as a practical approach to improving atmospheric quality.

Improving data integration between FracFocus and the Risk Based Data Management System, as outlined in the House report on the FY 2018 omnibus appropriations bill, should improve transparency and public access to information. We encourage data sharing in all energy sectors

to support better informed discussions and public engagement, and to provide a sound foundation for societal dialogue on the nation's energy future.

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 understanding 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 will train the workforce of the future. This program supports a diverse and talented pool of students and scientists who are the key to future innovation and maintaining the nation's status as the world leader in science and technology; it merits robust funding. **AGI respectfully requests increased funding of \$21 million for Workforce Development for Teachers and Scientists.**

Energy Information Administration

The Energy Information Administration (EIA) provides impartial information and analysis on all forms of global energy production, demand, flow, and prices. The public and private sectors use EIA products extensively to guide strategic national, economic, and environmental decisions; this information is vital for policy making at all levels of government and to support efficient, open markets. **AGI supports funding of \$125 million for EIA and urges improved coordination and collaboration between EIA and USGS in areas of mutual interest.**

Crosscutting and Collaborative Initiatives

It is encouraging to see collaborative efforts to minimize duplication and maximize synergies across several DOE offices and the emphasis in the House of Representatives FY 2018 report language on collaboration between government, academia, industry, and stakeholder groups on a range of projects. The subsurface is a key frontier that we must understand from multiple perspectives if we are to unlock its energy, water, and mineral resources to sustain society. The Subsurface Technology and Engineering (SubTER) Research, Development, and Demonstration Crosscut has been integrating research, development, and demonstration on shared issues associated with the Earth's subsurface across DOE. We strongly suggest that DOE expand this effort to include communication and, to the extent possible, collaboration with USGS, NSF, universities, and others to integrate projects and research, to share knowledge and best practices, and to optimize federal investment in the energy and materials sectors.

AGI respectfully suggests that the Subcommittee continues to encourage interagency collaboration, particularly between DOE, USGS, and NSF, to ensure the most efficient, safe, and effective exploration, development, and use of all aspects of the Earth's subsurface and its resources.

Thank you for the opportunity to present this testimony to the Subcommittee. If you would like any additional information for the record, please contact Anna Normand at 703-379-2480, ext. 220 (phone), 703-379-7563 (fax), anormand@agiweb.org, or 4220 King Street, Alexandria, VA 22302-1502.