

# Subcommittee on Energy and Mineral Resources

Paul Gosar, Chairman  
Hearing Memorandum

November 27, 2017

To: All Subcommittee on Energy and Mineral Resources Members

From: Majority Committee Staff—Joshua Hoffman  
Subcommittee on Energy and Mineral Resources (x5-9297)

Hearing: **Legislative hearing on H.R. 4033 (Rep. Doug Lamborn, R-CO-05), To reauthorize the National Geologic Mapping Act of 1992. November 30, 2017, 2:30 PM, 1334 Longworth House Office Building**

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**H.R. 4033 (Rep. Doug Lamborn), “National Geologic Mapping Act Reauthorization Act”**

## **Summary of the Bill**

This bill amends the National Geologic Mapping Act of 1992 to reauthorize it through FY2023, and to provide for the Associate Director for Core Science Systems to replace the Associate Director for Geology as the chairperson of the geologic mapping advisory committee.

## **Invited Witnesses**

*Dr. David Applegate*  
Deputy Director (Acting)  
Office of the Director / Natural Hazards  
United States Geological Survey  
Reston, VA

*Ms. Allyson K. Anderson Book*  
Executive Director  
American Geosciences Institute  
Alexandria, VA

*Mr. Scott Nichols*  
Permitting and Lands Manager  
U.S. Geothermal Inc.  
Boise, ID

*Mr. Steve Masterman*  
Alaska State Geologist  
(On Behalf of the Association of American State Geologists)  
Fairbanks, AK

**Cosponsor:** Rep. Brown, Anthony (D-MD-4)

## **Background**

The Geologic Mapping Act of 1992 established the National Cooperative Geologic Mapping Program (NCGMP).<sup>1</sup> This program was designed to foster cooperation and coordination between the United States Geological Survey and the State Geologic Surveys in generating modern, detailed, digitized, geologic maps in a cost effective and efficient manner. These maps are intended to foster resource development, environmental protection, and identification and mitigation of natural hazards. Geologic maps are records of the nature and distribution of rocks and soils, water, energy and mineral resources both on the surface and subsurface. There are three subcomponents to the NCGMP:<sup>2</sup>

- FEDMAP - A federal mapping effort by the U.S. Geological Survey.
- STATEMAP - A state mapping effort by state geologic surveys.
- EDMAP - University programs that support geologic mapping projects for undergraduate and graduate students.

Funds for projects through the STATEMAP and EDMAP subprograms are matched one to one by state dollars and are selected through a competitive process. Each state has an advisory committee made up of the end-users of the geologic maps produced.<sup>3</sup> These may include representatives from county health departments, state environmental agencies, federal agencies and the private sector. This ensures that areas with the highest priority and need are selected for mapping projects.

Each program has a review panel which provides oversight on the effectiveness and efficiency of the projects funded. Representatives from Federal agencies, State Surveys and the private sector serve on the Federal Advisory Committee for the NCGMP.

More than 8,500 new geologic maps have been produced through this cooperative program. On average 350 new maps and reports are produced each year. To date 49 States and Puerto Rico have participated in this program producing geologic maps that are available for approximately 53% of the U.S.<sup>4</sup>

Another important requirement of the Geologic Mapping Act of 1992 was the establishment of the National Geologic Database. One of the components of this database is a catalog that has information on most of the geologic maps ever produced in the U.S., more than 100,000 products.<sup>5</sup>

These geologic maps provide valuable information needed for identifying energy, mineral and water resources, geologic and environmental hazards such as active faults and seismic areas, unstable ground subject to landslides, swelling soils, floodplains and abandoned

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<sup>1</sup> 43 U.S.C. 31

<sup>2</sup> U.S. Geological Survey, National Cooperative Geologic Mapping Program, <https://ncgmp.usgs.gov/about/>

<sup>3</sup> U.S. Geological Survey, State Mapping Funding, <https://ncgmp.usgs.gov/about/STATEMAP/funding.html>

<sup>4</sup> U.S. Department of the Interior 2017/2018 Annual Performance Plan and 2016 Report, May 26, 2017, [https://www.doi.gov/sites/doi.gov/files/uploads/doi\\_appr\\_05262017\\_final.pdf](https://www.doi.gov/sites/doi.gov/files/uploads/doi_appr_05262017_final.pdf)

<sup>5</sup> The National Geologic Map Database Catalog, [https://ngmdb.usgs.gov/ngmdb/ngmdb\\_home.html](https://ngmdb.usgs.gov/ngmdb/ngmdb_home.html)

mine lands. Understanding the sub-surface geology and soil profiles can facilitate better planning for septic systems in rural areas, water treatment facilities, and road construction and maintenance, home construction and other infrastructure.

Monies expended in this program reap significant benefits. An assessment of the economic benefits of detailed geologic mapping in Kentucky commissioned by the State Geological Surveys of Kentucky and Illinois estimated that the economic return to Kentucky was 25 to 39 times the cost of the program.<sup>6</sup> The geologic maps in Kentucky benefited many end users including city planners, coal and other mineral resource developers, water users and others. In Ohio, developers and engineers that used geologic maps save on average \$50,000 on each project.<sup>7</sup>

H.R. 4033 reauthorizes the National Geologic Mapping Act through 2023 and keeps authorization levels equal to the 2005 level at \$64,000,000 per fiscal year. Currently the NCGMP is set to expire in 2018.

### **Major Provisions/Section-by-Section Analysis of H.R. 4033**

#### **Section 1 - Short Title**

#### **Section 2 – Reauthorization of National Geologic Mapping Act of 1992**

This section extends the authorization for the National Cooperative Geologic Mapping Program through the year 2023. It also replaces the Associate Director for Geology at the USGS with the Associate Director for Core Science Systems at the USGS on the Geologic Mapping Advisory Committee.

#### **Cost**

While H.R. 4033 reauthorizes NCGMP through 2023 the authorized amount remains the same at \$64 million for each fiscal year. The amount appropriated has been \$24.4 for each of the past five fiscal years.

#### **Administration Position**

Unknown at this time.

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<sup>6</sup> Bhagwat, S. B., and V. C. Ipe, 2000, Economic benefits of detailed geologic mapping to Kentucky: Illinois State Geological Survey, Special Report 3, 39 p.

<sup>7</sup> Kleinhenz and Associates, 2011, An Economic Impact Analysis of the Ohio Geological Survey's Products and Services, Ohio Geological Survey, 29 p.

## Effect on Current Law

### Showing Current Law as Amended by H.R. 4033

[text to be added highlighted in yellow; text to be deleted bracketed and highlighted in blue]

## The National Geologic Mapping Act of 1992 (43 U.S.C. 31a et seq.)

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### §31b. Definitions

In sections 31a to 31h of this title:

**(1) Advisory committee**

The term "advisory committee" means the advisory committee established under section 31d of this title.

**(2) Association**

The term "Association" means the Association of American State Geologists.

**(3) Director**

The term "Director" means the Director of the United States Geological Survey.

**(4) Education component**

The term "education component" means the education component of the geologic mapping program described in [section 31e(d)(3)] section 4(d)(3) of this title.

**(5) Federal component**

The term "Federal component" means the Federal component of the geologic mapping program described in [section 31e(d)(1)] section 4(d)(1) of this title.

**(6) Geologic mapping program**

The term "geologic mapping program" means the National Cooperative Geologic Mapping Program established by section 31c(a) of this title.

**(7) Secretary**

The term "Secretary" means the Secretary of the Interior.

**(8) State**

The term "State" includes the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, and the Virgin Islands.

**(9) State component**

The term "State component" means the State component of the geologic mapping program described in [section 31e(d)(2)] section 4(d)(2) of this title.

**(10) Survey**

The term "Survey" means the United States Geological Survey.

## **§31c. Geologic mapping program**

### **(a) Establishment**

#### **(1) In general**

There is established a national cooperative geologic mapping program between the United States Geological Survey and the State geological surveys, acting through the Association.

#### **(2) Design, development, and administration**

The cooperative geologic mapping program shall be-

- (A) designed and administered to achieve the objectives set forth in subsection (c);
- (B) developed in consultation with the advisory committee; and
- (C) administered through the Survey.

### **(b) Responsibilities of the Survey**

#### **(1) Lead agency**

The Survey shall be the lead Federal agency responsible for planning, developing national priorities and standards for, coordinating, and managing the geologic mapping program. In carrying out this paragraph, the Secretary, acting through the Director, shall-

- (A) develop a 5-year strategic plan for the geologic mapping program in accordance with [section 31e of this title](#) [National Geologic Mapping Act Reauthorization Act](#), which plan shall be submitted to the Committee on Resources of the House of Representatives and the Committee on Energy and Natural Resources of the Senate not later than 1 year after March 30, 2009;
- (B) appoint, with the advice and consultation of the Association, the advisory committee not later than 1 year after March 30, 2009, in accordance with [section 31d of this title](#) [National Geologic Mapping Act Reauthorization Act](#); and
- (C) submit biennially a report to the Committee on Energy and Natural Resources of the United States Senate and to the Committee on Resources of the House of Representatives identifying-
  - (i) how the Survey and the Association are coordinating the development and implementation of the geologic mapping program;
  - (ii) how the Survey and the Association establish goals, mapping priorities, and target dates for implementation of the geologic mapping program; and
  - (iii) how long-term staffing plans for the various components of the geologic mapping program affect successful implementation of the geologic mapping program.

#### **(2) Responsibilities of the Secretary**

In addition to paragraph (1), the Secretary, acting through the Director, shall be responsible for developing, as soon as practicable-

- (A) in cooperation with the Association, other Federal and State agencies, public and private sector organizations and academia, the geologic-map data base; and
- (B) maps and mapping techniques which achieve the objectives specified in subsection (c).

### **(c) Program objectives**

The objectives of the geologic mapping program shall include-

- (1) determining the Nation's geologic framework through systematic development of geologic maps at scales appropriate to the geologic setting and the perceived applications, such maps to be contributed to the national geologic map data base;
- (2) development of a complementary national geochronologic and paleontologic data base that provides value-added descriptive and interpretative information to the geologic-map data base;
- (3) application of cost-effective mapping techniques that assemble, produce, translate and disseminate geologic-map information and that render such information of greater application and benefit to the public; and
- (4) development of public awareness of the role and application of geologic-map information to the resolution of national issues of land use management.

**(d) Program components**

**(1) Federal component**

**(A) In general**

The geologic mapping program shall include a Federal geologic mapping component, the objective of which shall be to determine the geologic framework of areas determined to be vital to the economic, social, environmental, or scientific welfare of the United States.

**(B) Mapping priorities**

For the Federal component, mapping priorities-

- (i) shall be described in the 5-year plan under [section 31e of this title](#); and
- (ii) shall be based on-
  - (I) national requirements for geologic map information in areas of multiple-issue need or areas of compelling single-issue need;
  - (II) national requirements for geologic map information in areas where mapping is required to solve critical earth science problems; and
  - (III) the needs of land management agencies of the Department of the Interior.

**(C) Interdisciplinary studies**

**(i) In general**

The Federal component shall include interdisciplinary studies that add value to geologic mapping.

**(ii) Representative categories**

Interdisciplinary studies under clause (i) may include-

- (I) establishment of a national geologic map database under [section 31f of this title](#);
- (II) studies that lead to the implementation of cost-effective digital methods for the acquisition, compilation, analysis, cartographic production, and dissemination of geologic map information;
- (III) paleontologic, geochronologic, and isotopic investigations that provide information critical to understanding the age and history of geologic map units;

- (IV) geophysical investigations that assist in delineating and mapping the physical characteristics and 3-dimensional distribution of geologic materials and geologic structures; and
- (V) geochemical investigations and analytical operations that characterize the composition of geologic map units.

**(iii) Use of results**

The results of investigations under clause (ii) shall be contributed to national databases.

**(2) State component**

**(A) In general**

The geologic mapping program shall include a State geologic mapping component, the objective of which shall be to establish the geologic framework of areas determined to be vital to the economic, social, environmental, or scientific welfare of individual States.

**(B) Mapping priorities**

For the State component, mapping priorities-

- (i) shall be determined by State panels representing a broad range of users of geologic maps; and
- (ii) shall be based on-
  - (I) State requirements for geologic map information in areas of multiple-issue need or areas of compelling single-issue need; and
  - (II) State requirements for geologic map information in areas where mapping is required to solve critical earth science problems.

**(C) Integration of Federal and State priorities**

A national panel including representatives of the Survey shall integrate the State mapping priorities under this paragraph with the Federal mapping priorities under paragraph (1).

**(D) Use of funds**

The Survey and recipients of grants under the State component shall not use more than 15.25 percent of the Federal funds made available under the State component for any fiscal year to pay indirect, servicing, or program management charges.

**(E) Federal share**

The Federal share of the cost of activities under the State component for any fiscal year shall not exceed 50 percent.

**(3) Education component**

**(A) In general**

The geologic mapping program shall include a geologic mapping education component for the training of geologic mappers, the objectives of which shall be-

- (i) to provide for broad education in geologic mapping and field analysis through support of field studies; and
- (ii) to develop academic programs that teach students of earth science the fundamental principles of geologic mapping and field analysis.

## **(B) Investigations**

The education component may include the conduct of investigations, which-

- (i) shall be integrated with the Federal component and the State component; and
- (ii) shall respond to mapping priorities identified for the Federal component and the State component.

## **(C) Use of funds**

The Survey and recipients of grants under the education component shall not use more than 15.25 percent of the Federal funds made available under the education component for any fiscal year to pay indirect, servicing, or program management charges.

## **(D) Federal share**

The Federal share of the cost of activities under the education component for any fiscal year shall not exceed 50 percent.

## **§31d. Advisory committee**

### **(a) Establishment**

#### **(1) In general**

There shall be established a 11-member geologic mapping advisory committee to advise the Director on planning and implementation of the geologic mapping program.

#### **(2) Members ex officio**

Federal agency members shall include the Administrator of the Environmental Protection Agency or a designee, the Secretary of the Interior or a designee from a land management agency of the Department of the Interior, the Secretary of Energy or a designee, and the Secretary of Agriculture or a designee.

#### **(3) Appointed members**

In consultation with the Association, the Secretary shall appoint to the advisory committee two representatives from the Survey (including the **Associate Director for Geology** **Associate Director for Core Science Systems**, as Chair), two representatives from the State geological surveys, one representative from academia, and 2 representatives from the private sector.

### **(b) Duties**

The advisory committee shall-

- (1) review and update the 5-year plan prepared by the Director pursuant to [section 31e of this title](#);
- (2) review the scientific progress of the geologic mapping program;
- (3) provide a scientific overview of geologic maps (including maps of geologic-based hazards) used or disseminated by Federal agencies for regulation or land-use planning; and
- (4) submit an annual report to the Secretary that evaluates the progress of the Federal, State, and university mapping activities and evaluates the progress made toward fulfilling the purposes of [sections 31c through 31f of this title](#).

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### **§31h. Authorization of appropriations**

#### **(a) In general**

There is authorized to be appropriated to carry out sections 31a to 31h of this title \$64,000,000 for each of fiscal years 2009 through **[2018]** **2023**.

#### **(b) Allocation of appropriations**

Of any amounts appropriated for any fiscal year in excess of the amount appropriated for fiscal year 2005-

- (1) 50 percent shall be available for the State component; and
- (2) 4 percent shall be available for the education component.