

GAINS IN GLOBAL NUCLEAR DETECTION ARCHITECTURE  
 ACT

JULY 1, 2016.—Committed to the Committee of the Whole House on the State of  
 the Union and ordered to be printed

Mr. McCAUL, from the Committee on Homeland Security,  
 submitted the following

R E P O R T

[To accompany H.R. 5391]

[Including cost estimate of the Congressional Budget Office]

The Committee on Homeland Security, to whom was referred the bill (H.R. 5391) to amend the Homeland Security Act of 2002 to enhance certain duties of the Domestic Nuclear Detection Office, and for other purposes, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

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## PURPOSE AND SUMMARY

H.R. 5391, the Gains in Global Nuclear Detection Architecture Act, directs the Department of Homeland Security's Domestic Nuclear Detection Office (DNDO) to develop and maintain documentation that provides information on how the Office's research investments align with gaps in the Global Nuclear Detection Architecture (GNDA) and the research challenges identified by the DNDO Director. It further directs DNDO to document the rationale for selecting research topics and to develop a systematic approach for evaluating how the outcomes of the Office's individual research projects collectively contribute to addressing the research challenges.

In March 2015, the Government Accountability Office reported that DNDO's Transformation and Applied Research Directorate obligated about \$350 million, between fiscal years 2008 and 2013, to fund 189 nuclear and radiation detection research and development projects (GAO Report, *Combating Nuclear Smuggling: DHS Research and Development on Radiation Detection Technology Could Be Strengthened*, [GAO-15-263]). H.R. 5391, aims to ensure that limited research dollars are targeted to gaps in the GNDA and challenges identified by the DNDO Director by requiring DNDO to improve its documentation of decisionmaking, including prioritization, of the nuclear detection research and development that it initiates.

## BACKGROUND AND NEED FOR LEGISLATION

Preventing terrorists from smuggling nuclear or radiological material to carry out an attack in the United States is a top national priority. The detonation of an improvised nuclear device in an urban setting could result in hundreds of thousands of deaths and devastate buildings and physical infrastructure for miles. Similarly, a detonation of a radiological dispersal device could inflict hundreds of millions of dollars in socioeconomic costs if a large part of a city had to be evacuated until extensive radiological decontamination was completed.

The Department of Homeland Security's Domestic Nuclear Detection Office (DNDO) mission is to improve capabilities to deter, detect, respond to, and attribute responsibility for nuclear terrorist attacks, in coordination with domestic and international partners. As part of this mission, DNDO conducts research and development (R&D) on radiation and nuclear detection devices.

DNDO R&D research projects are intended to address gaps in the Global Nuclear Detection Architecture (GNDA), a U.S. Government framework to detect and interdict nuclear smuggling. In March, the Government Accountability Office concluded that, because of limitations in DNDO's documentation, it is unclear to what extent DNDO's process for planning and selecting R&D projects to fund aligns these investments with gaps in the GNDA (GAO-15-263). Specifically, GAO reported that, in its annual process for planning and selecting R&D projects, DNDO develops high-level goals—known as research challenges—based on gaps in the GNDA to guide its R&D investment planning, but documentation is lacking to demonstrate that the research projects it funds align with the Directorate's research challenges.

## HEARINGS

No hearings were held on H.R. 5391 in the 114th Congress.

## COMMITTEE CONSIDERATION

The Committee met on June 8, 2016, to consider H.R. 5391, and ordered the measure to be reported to the House with a favorable recommendation, without amendment, by voice vote.

## COMMITTEE VOTES

Clause 3(b) of Rule XIII of the Rules of the House of Representatives requires the Committee to list the recorded votes on the motion to report legislation and amendments thereto.

No recorded votes were requested during consideration of H.R. 5391.

## COMMITTEE OVERSIGHT FINDINGS

Pursuant to clause 3(c)(1) of Rule XIII of the Rules of the House of Representatives, the Committee has held oversight hearings and made findings that are reflected in this report.

## NEW BUDGET AUTHORITY, ENTITLEMENT AUTHORITY, AND TAX EXPENDITURES

In compliance with clause 3(c)(2) of Rule XIII of the Rules of the House of Representatives, the Committee finds that H.R. 5391, the Gains in Global Nuclear Detection Architecture Act, would result in no new or increased budget authority, entitlement authority, or tax expenditures or revenues.

## CONGRESSIONAL BUDGET OFFICE ESTIMATE

The Committee adopts as its own the cost estimate prepared by the Director of the Congressional Budget Office pursuant to section 402 of the Congressional Budget Act of 1974.

U.S. CONGRESS,  
CONGRESSIONAL BUDGET OFFICE,  
*Washington, DC, June 22, 2016.*

Hon. MICHAEL MCCAUL,  
*Chairman, Committee on Homeland Security,  
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 5391, the Gains in Global Nuclear Detection Architecture Act.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Mark Grabowicz.

Sincerely,

KEITH HALL.

Enclosure.

*H.R. 5391—Gains in Global Nuclear Detection Architecture Act*

H.R. 5391 would direct the Domestic Nuclear Detection Office in the Department of Homeland Security (DHS) to improve the documentation and evaluation of research and development projects.

The department is currently carrying out activities similar to those required by the bill, and CBO estimates that implementing H.R. 5391 would not significantly affect DHS spending.

Because enacting the legislation would not affect direct spending or revenues, pay-as-you-go procedures do not apply. CBO estimates that enacting H.R. 5391 would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2027.

H.R. 5391 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act and would not affect the budgets of state, local, or tribal governments.

The CBO staff contact for this estimate is Mark Grabowicz. The estimate was approved by H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

#### STATEMENT OF GENERAL PERFORMANCE GOALS AND OBJECTIVES

Pursuant to clause 3(c)(4) of Rule XIII of the Rules of the House of Representatives, H.R. 5391 contains the following general performance goals and objectives, including outcome related goals and objectives authorized.

This legislation provides for the DNDO to develop and maintain documentation that provides information on how the Office's research investments align with gaps in the GNDA and the research challenges identified by the Director. It further provides for DNDO to document the rationale for selecting research topics and to develop a systematic approach for evaluating how the outcomes of the Office's individual research projects collectively contribute to addressing the research challenges.

#### DUPLICATIVE FEDERAL PROGRAMS

Pursuant to clause 3(c) of Rule XIII, the Committee finds that H.R. 5391 does not contain any provision that establishes or reauthorizes a program known to be duplicative of another Federal program.

#### CONGRESSIONAL EARMARKS, LIMITED TAX BENEFITS, AND LIMITED TARIFF BENEFITS

In compliance with Rule XXI of the Rules of the House of Representatives, this bill, as reported, contains no congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9(e), 9(f), or 9(g) of the Rule XXI.

#### FEDERAL MANDATES STATEMENT

The Committee adopts as its own the estimate of Federal mandates prepared by the Director of the Congressional Budget Office pursuant to section 423 of the Unfunded Mandates Reform Act.

#### PREEMPTION CLARIFICATION

In compliance with section 423 of the Congressional Budget Act of 1974, requiring the report of any Committee on a bill or joint resolution to include a statement on the extent to which the bill or joint resolution is intended to preempt State, local, or Tribal law,

the Committee finds that H.R. 5391 does not preempt any State, local, or Tribal law.

#### DISCLOSURE OF DIRECTED RULE MAKINGS

The Committee estimates that H.R. 5391 would require no directed rule makings.

#### ADVISORY COMMITTEE STATEMENT

No advisory committees within the meaning of section 5(b) of the Federal Advisory Committee Act were created by this legislation.

#### APPLICABILITY TO LEGISLATIVE BRANCH

The Committee finds that the legislation does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act.

#### SECTION-BY-SECTION ANALYSIS OF THE LEGISLATION

##### *Section 1. Short Title.*

This section provides that this bill may be cited as the “Gains in Global Nuclear Detection Architecture Act”.

##### *Sec. 2. Duties of the Domestic Nuclear Detection Office.*

This section amends section 1902 of the Homeland Security Act of 2002 (Pub. L. 107-296) to direct the Director of the Domestic Nuclear Detection Office (DNDO) to develop and maintain documentation, such as a technology roadmap and strategy to provide information on how the Office’s research investments align with the gaps in the Global Nuclear Detection Architecture (GNDA) and also with the research challenges identified by the Director. Additionally, the DNDO Director is directed to document the rationale for prioritizing and selecting research topics and develop a systematic approach, which may include annual metrics and periodic qualitative evaluations, for evaluating how the outcomes of DNDO’s individual research projects collectively contribute to address DNDO’s research challenges.

Documentation that explains how the portfolios align with the Transformational and Applied Research (TAR) Directorate’s research challenges and gaps in the GNDA is essential to measuring progress on DNDO’s efforts at addressing gaps in the GNDA.

#### CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3(e) of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italics, and existing law in which no change is proposed is shown in roman):

#### **HOMELAND SECURITY ACT OF 2002**

\* \* \* \* \*

## TITLE XIX—DOMESTIC NUCLEAR DETECTION OFFICE

\* \* \* \* \*

### SEC. 1902. MISSION OF OFFICE.

(a) MISSION.—The Office shall be responsible for coordinating Federal efforts to detect and protect against the unauthorized importation, possession, storage, transportation, development, or use of a nuclear explosive device, fissile material, or radiological material in the United States, and to protect against attack using such devices or materials against the people, territory, or interests of the United States and, to this end, shall—

(1) serve as the primary entity of the United States Government to further develop, acquire, and support the deployment of an enhanced domestic system to detect and report on attempts to import, possess, store, transport, develop, or use an unauthorized nuclear explosive device, fissile material, or radiological material in the United States, and improve that system over time;

(2) enhance and coordinate the nuclear detection efforts of Federal, State, local, and tribal governments and the private sector to ensure a managed, coordinated response;

(3) establish, with the approval of the Secretary and in coordination with the Attorney General, the Secretary of Defense, and the Secretary of Energy, additional protocols and procedures for use within the United States to ensure that the detection of unauthorized nuclear explosive devices, fissile material, or radiological material is promptly reported to the Attorney General, the Secretary, the Secretary of Defense, the Secretary of Energy, and other appropriate officials or their respective designees for appropriate action by law enforcement, military, emergency response, or other authorities;

(4) develop, with the approval of the Secretary and in coordination with the Attorney General, the Secretary of State, the Secretary of Defense, and the Secretary of Energy, an enhanced global nuclear detection architecture with implementation under which—

(A) the Office will be responsible for the implementation of the domestic portion of the global architecture;

(B) the Secretary of Defense will retain responsibility for implementation of Department of Defense requirements within and outside the United States; and

(C) the Secretary of State, the Secretary of Defense, and the Secretary of Energy will maintain their respective responsibilities for policy guidance and implementation of the portion of the global architecture outside the United States, which will be implemented consistent with applicable law and relevant international arrangements;

(5) ensure that the expertise necessary to accurately interpret detection data is made available in a timely manner for all technology deployed by the Office to implement the global nuclear detection architecture;

(6) conduct, support, coordinate, and encourage an aggressive, expedited, evolutionary, and transformational program of

research and development to generate and improve technologies to detect and prevent the illicit entry, transport, assembly, or potential use within the United States of a nuclear explosive device or fissile or radiological material, and coordinate with the Under Secretary for Science and Technology on basic and advanced or transformational research and development efforts relevant to the mission of both organizations;

(7) carry out a program to test and evaluate technology for detecting a nuclear explosive device and fissile or radiological material, in coordination with the Secretary of Defense and the Secretary of Energy, as appropriate, and establish performance metrics for evaluating the effectiveness of individual detectors and detection systems in detecting such devices or material—

(A) under realistic operational and environmental conditions; and

(B) against realistic adversary tactics and countermeasures;

(8) support and enhance the effective sharing and use of appropriate information generated by the intelligence community, law enforcement agencies, counterterrorism community, other government agencies, and foreign governments, as well as provide appropriate information to such entities;

(9) further enhance and maintain continuous awareness by analyzing information from all Office mission-related detection systems;

(10) lead the development and implementation of the national strategic five-year plan for improving the nuclear forensic and attribution capabilities of the United States required under section 1036 of the National Defense Authorization Act for Fiscal Year 2010;

(11) establish, within the Domestic Nuclear Detection Office, the National Technical Nuclear Forensics Center to provide centralized stewardship, planning, assessment, gap analysis, exercises, improvement, and integration for all Federal nuclear forensics and attribution activities—

(A) to ensure an enduring national technical nuclear forensics capability to strengthen the collective response of the United States to nuclear terrorism or other nuclear attacks; and

(B) to coordinate and implement the national strategic five-year plan referred to in paragraph (10);

(12) establish a National Nuclear Forensics Expertise Development Program, which—

(A) is devoted to developing and maintaining a vibrant and enduring academic pathway from undergraduate to post-doctorate study in nuclear and geochemical science specialties directly relevant to technical nuclear forensics, including radiochemistry, geochemistry, nuclear physics, nuclear engineering, materials science, and analytical chemistry;

(B) shall—

(i) make available for undergraduate study student scholarships, with a duration of up to 4 years per student, which shall include, if possible, at least 1 summer internship at a national laboratory or appropriate

Federal agency in the field of technical nuclear forensics during the course of the student's undergraduate career;

(ii) make available for doctoral study student fellowships, with a duration of up to 5 years per student, which shall—

(I) include, if possible, at least 2 summer internships at a national laboratory or appropriate Federal agency in the field of technical nuclear forensics during the course of the student's graduate career; and

(II) require each recipient to commit to serve for 2 years in a post-doctoral position in a technical nuclear forensics-related specialty at a national laboratory or appropriate Federal agency after graduation;

(iii) make available to faculty awards, with a duration of 3 to 5 years each, to ensure faculty and their graduate students have a sustained funding stream; and

(iv) place a particular emphasis on reinvigorating technical nuclear forensics programs while encouraging the participation of undergraduate students, graduate students, and university faculty from historically Black colleges and universities, Hispanic-serving institutions, Tribal Colleges and Universities, Asian American and Native American Pacific Islander-serving institutions, Alaska Native-serving institutions, and Hawaiian Native-serving institutions; and

(C) shall—

(i) provide for the selection of individuals to receive scholarships or fellowships under this section through a competitive process primarily on the basis of academic merit and the nuclear forensics and attribution needs of the United States Government;

(ii) provide for the setting aside of up to 10 percent of the scholarships or fellowships awarded under this section for individuals who are Federal employees to enhance the education of such employees in areas of critical nuclear forensics and attribution needs of the United States Government, for doctoral education under the scholarship on a full-time or part-time basis;

(iii) provide that the Secretary may enter into a contractual agreement with an institution of higher education under which the amounts provided for a scholarship under this section for tuition, fees, and other authorized expenses are paid directly to the institution with respect to which such scholarship is awarded;

(iv) require scholarship recipients to maintain satisfactory academic progress; and

(v) require that—

(I) a scholarship recipient who fails to maintain a high level of academic standing, as defined by the Secretary, who is dismissed for disciplinary

reasons from the educational institution such recipient is attending, or who voluntarily terminates academic training before graduation from the educational program for which the scholarship was awarded shall be liable to the United States for repayment within 1 year after the date of such default of all scholarship funds paid to such recipient and to the institution of higher education on the behalf of such recipient, provided that the repayment period may be extended by the Secretary if the Secretary determines it necessary, as established by regulation; and

(II) a scholarship recipient who, for any reason except death or disability, fails to begin or complete the post-doctoral service requirements in a technical nuclear forensics-related specialty at a national laboratory or appropriate Federal agency after completion of academic training shall be liable to the United States for an amount equal to—

(aa) the total amount of the scholarship received by such recipient under this section; and

(bb) the interest on such amounts which would be payable if at the time the scholarship was received such scholarship was a loan bearing interest at the maximum legally prevailing rate;

(13) provide an annual report to Congress on the activities carried out under paragraphs (10), (11), and (12); and

(14) perform other duties as assigned by the Secretary.

(b) *IMPLEMENTATION.*—*In carrying out paragraph (6) of subsection (a), the Director of the Domestic Nuclear Detection Office shall—*

*(1) develop and maintain documentation, such as a technology roadmap and strategy, that—*

*(A) provides information on how the Office’s research investments align with—*

*(i) gaps in the enhanced global nuclear detection architecture, as developed pursuant to paragraph (4) of such subsection; and*

*(ii) research challenges identified by the Director; and*

*(B) defines in detail how the Office will address such research challenges;*

*(2) document the rationale for prioritizing and selecting research topics; and*

*(3) develop a systematic approach, which may include annual metrics and periodic qualitative evaluations, for evaluating how the outcomes of the Office’s individual research projects collectively contribute to addressing the Office’s research challenges.*

**[(b)] (c) DEFINITIONS.**—*In this section:*

(1) **ALASKA NATIVE-SERVING INSTITUTION.**—The term “Alaska Native-serving institution” has the meaning given the term in section 317 of the Higher Education Act of 1965 (20 U.S.C. 1059d).

(2) ASIAN AMERICAN AND NATIVE AMERICAN PACIFIC ISLANDER-SERVING INSTITUTION.—The term “Asian American and Native American Pacific Islander-serving institution” has the meaning given the term in section 320 of the Higher Education Act of 1965 (20 U.S.C. 1059g).

(3) HAWAIIAN NATIVE-SERVING INSTITUTION.—The term “Hawaiian native-serving institution” has the meaning given the term in section 317 of the Higher Education Act of 1965 (20 U.S.C. 1059d).

(4) HISPANIC-SERVING INSTITUTION.—The term “Hispanic-serving institution” has the meaning given that term in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a).

(5) HISTORICALLY BLACK COLLEGE OR UNIVERSITY.—The term “historically Black college or university” has the meaning given the term “part B institution” in section 322(2) of the Higher Education Act of 1965 (20 U.S.C. 1061(2)).

(6) TRIBAL COLLEGE OR UNIVERSITY.—The term “Tribal College or University” has the meaning given that term in section 316(b) of the Higher Education Act of 1965 (20 U.S.C. 1059c(b)).

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