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The White House Office of Science and Technology Policy: Issues for the 114th Congress

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Summary

Congress established the Office of Science and Technology Policy (OSTP) through the National Science and Technology Policy, Organization, and Priorities Act of 1976 (P.L. 94-282). The act states, "The primary function of the OSTP Director is to provide, within the Executive Office of the President [EOP], advice on the scientific, engineering, and technological aspects of issues that require attention at the highest level of Government." Further, "The Office shall serve as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal Government."

The OSTP Director is appointed by the President, subject to Senate confirmation, and may also be appointed Assistant to the President for Science and Technology (APST). The APST manages the National Science and Technology Council, an interagency body established by Executive Order 12881 that coordinates science and technology policy across the federal government. The APST also co-chairs the President's Council of Advisors on Science and Technology, a council established by Executive Order 13539 and composed of external advisors who provide advice to the President. In the Obama Administration, John Holdren is both the OSTP Director and the APST.

OSTP is engaged in several activities of potential interest to the 114th Congress. Since FY2011, Congress has restricted OSTP's ability to use appropriated funds "to develop, design, plan, promulgate, implement, or execute a bilateral policy, program, order, or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with China or any Chinese-owned company" unless authorized to do so by a subsequent law. The 114th Congress may continue its interest in the participation of OSTP in China-related activities.

OSTP plays a role in ensuring the scientific integrity of research conducted and supported by the federal government, as well as in the communication of scientific and technical information developed and analyzed by federal scientists and engineers. The 114th Congress may continue congressional consideration of the extent to which OSTP oversees these activities.

OSTP has taken actions to provide greater public access to the results of federally funded research and development. In February 2013, OSTP Director Holdren issued a memorandum requiring federal agencies investing at least $100 million per year in research and development to develop policies allowing the general public access to the results of this investment. These policies are in the process of being released and implemented and may spur additional congressional oversight.

Finally, OSTP has inventoried federal science, technology, engineering, and mathematics (STEM) education investments and developed a strategic plan for them. In his FY2015 and FY2014 budget requests, the President proposed reorganizations of federal STEM education programs. The extent and success of this reorganization may further focus congressional attention on OSTP's role as a coordinator of cross-agency science and technology activities.

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The National Science and Technology Policy, Organization, and Priorities Act of 1976 (P.L. 94-282) established the Office of Science and Technology Policy (OSTP), including the position of its Director, within the Executive Office of the President (EOP) to provide scientific and technological analysis and advice to the President. The act also codified a presidential science advice function that previously existed at each President's discretion.

This report provides background on EOP science and technology (S&T) advice to the President and discusses selected issues and options for Congress regarding OSTP's Director, OSTP management and operations, the President's Council of Advisors on Science and Technology (PCAST), and the National Science and Technology Council (NSTC). For additional information on OSTP, including historical information regarding funding and provision of scientific advice, see CRS Report R43935, *Office of Science and Technology Policy (OSTP): History and Overview*, by (name redacted) and (name redacted)

Background

Congress established the Office of Science and Technology Policy as an office within the EOP to, among other things, "serve as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal Government."[1] Within the context of its organic statute, OSTP currently defines its mission as having three components:

> Provide the President and his senior staff with accurate, relevant, and timely scientific and technical advice on all matters of consequence.
>
> Ensure that the policies of the Executive Branch are informed by sound science.
>
> Ensure that the scientific and technical work of the Executive Branch is properly coordinated so as to provide the greatest benefit to society.[2]

To this end, OSTP has established the following strategic goals and objectives:

> Ensure that federal investments in science and technology are making the greatest possible contribution to economic prosperity, public health, environmental quality, and national security.
>
> Energize and nurture the processes by which government programs in science and technology are resourced, evaluated, and coordinated.
>
> Sustain the core professional and scientific relationships with government officials, academics, and industry representatives that are required to understand the depth and breadth of the Nation's scientific and technical enterprise, evaluate scientific advances, and identify potential policy proposals.

[1] P.L. 94-282.

[2] OSTP, "About OSTP," http://www.whitehouse.gov/administration/eop/ostp/about.

> Generate a core workforce of world-class expertise capable of providing policy-relevant advice, analysis, and judgment for the President and his senior staff regarding the scientific and technical aspects of the major policies, plans, and programs of the Federal government.[3]

OSTP also has several roles not articulated in these formal statements. These include serving as a sounding board and conduit of information for agency executives seeking to understand, clarify, and help shape science and technology-related policy objectives and priorities and helping to resolve interagency conflicts over areas of S&T responsibility and leadership.

OSTP also plays a managerial and executive role with respect to other White House science and technology entities. OSTP manages the NSTC and exercises policy and programmatic oversight of PCAST.

Policy Issues

Congressional oversight of OSTP and influence over its activities are ongoing processes. The 114th Congress may opt to consider a variety of issues and legislative options related to OSTP. These include:

- the compliance of OSTP with statutory restrictions on its use of appropriated funds for certain activities involving China;
- the reporting structure of the Office of the U.S. Chief Technology Officer;
- the role of OSTP in ensuring scientific integrity in federally funded and supported research, including the communication of scientific and technical information by federal scientists and engineers;
- efforts by OSTP to effect change in federal policies regarding public access to the results of federally funded research and development (R&D); and
- efforts by OSTP to consolidate federal science, technology, engineering, and mathematics (STEM) education initiatives and activities.

The following sections address each of these issues, along with Obama Administration efforts and policy options for Congress.

Restrictions on OSTP Engagement with China

Congress has for several years restricted OSTP from engaging in certain activities with China or any Chinese-owned company by prohibiting the use of appropriated funds for these activities. OSTP may proceed with such activities only if it certifies they pose no risk of transferring technology or information with security implications to China and will not knowingly involve interaction with officials who have been determined by the United States to have direct involvement with violations of human rights. This certification must be submitted to the House and Senate Committees on Appropriations at least 30 days prior to such activities.

[3] Ibid.

Some Members of Congress have raised concerns regarding interactions between certain U.S. science and technology officials and the government of China. In part based on these concerns, Congress has sought to restrict OSTP from engaging in certain activities by prohibiting the use of appropriated funds for those activities.

Section 1340(a) of the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (P.L. 112-10) prohibited OSTP from expending funds made available under Division B of the act

> to develop, design, plan, promulgate, implement, or execute a bilateral policy, program, order, or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with China or any Chinese-owned company unless such activities are specifically authorized by a law enacted after the date of enactment of this division.[4]

The appropriations acts since FY2011 that funded OSTP all included similar restrictions.

The Department of Justice (DOJ) and OSTP have asserted that the President's constitutional authority to conduct foreign diplomacy precludes Congress from proscribing the use of funds for such specific activities. OSTP expended a portion of its FY2011 appropriation to engage in activities with China that Section 1340(a) sought to proscribe. OSTP has asserted that "certain applications of Section 1340 ... would infringe upon the President's constitutional authority to conduct foreign diplomacy."[5] Subsequently, DOJ issued a supporting opinion on the constitutionality of the application of Section 1340 to OSTP's activities, stating, in part,

> Section 1340(a) of the Department of Defense and Full-Year Continuing Appropriations Act, 2011 is unconstitutional as applied to certain activities undertaken pursuant to the President's constitutional authority to conduct the foreign relations of the United States.
>
> Most, if not all, of the activities of the Office of Science and Technology Policy that we have been asked to consider fall within the President's exclusive power to conduct diplomacy, and OSTP's officers and employees therefore may engage in those activities as agents designated by the President for the conduct of diplomacy, notwithstanding section 1340(a).
>
> The plain terms of section 1340(a) do not apply to OSTP's use of funds to perform its functions as a member of the Committee on Foreign Investment in the United States.[6]

The Government Accountability Office (GAO)—in response to a request from the Chairman of the Subcommittee on Commerce, Justice, Science, and Related Agencies of the House Committee on Appropriations, Representative Frank Wolf—concluded that OSTP's use of appropriations violated the prohibition in Section 1340. GAO stated that it did not attempt to opine on or adjudicate the constitutionality of a duly enacted statute, but viewed legislation that was passed

[4] Division B, Title III, Section 1340(a), P.L. 112-10.

[5] Response of John Holdren, Director, OSTP, *Questions for the Record, Office of Science and Technology Policy*, Hearing on May 4, 2011, available in *Commerce, Justice, Science, and Related Agencies Appropriations for 2012*, committee print, prepared by U.S. Government Publishing Office, 112th Cong., 1st sess., May 4, 2011 (Washington: GPO, 2011), pp. 316-328.

[6] U.S. Department of Justice, *Unconstitutional Restrictions on Activities of the Office of Science and Technology Policy in Section 1340(A) of the Department of Defense and Full-Year Continuing Appropriations Act, 2011*, Memorandum Opinion for the General Counsel, Office of Science and Technology Policy, Washington, DC, September 19, 2011, http://www.justice.gov/sites/default/files/olc/opinions/2011/09/31/conduct-diplomacy_0.pdf.

by Congress and signed by the President as heavily presumed to be constitutional.[7] Citing the GAO conclusion, Chairman Wolf sent a letter to Attorney General Eric Holder stating his expectation that the Attorney General would "ensure comprehensive enforcement of section 1340" of P.L. 112-10 and "hold [OSTP Director] Dr. Holdren to full account for his violation of the Anti-Deficiency Act."[8]

Congress subsequently reduced OSTP's FY2012 appropriations by nearly one-third (32.3%). Further, statutory language in OSTP's FY2012 appropriations act (P.L. 112-55)[9] and language in the accompanying report (H.Rept. 112-284) prohibited OSTP from using appropriated funds to support activities that would carry the risk of transferring sensitive technology to China. In contrast with the FY2011 language, Section 539 of P.L. 112-55 allowed OSTP to proceed with activities that it certified pose no risk of transferring technology, data, or other information with national security or economic security implications to China or a Chinese-owned company.[10]

P.L. 113-6, the Consolidated and Further Continuing Appropriations Act, 2013, restored OSTP funding levels and continued the statutory language prohibiting expenditure of OSTP funds.[11] The act retained the prior clarification that this prohibition shall not apply to activities that OSTP certifies have no risk but added a requirement that OSTP certify that such activities

> will not involve knowing interactions with officials who have been determined by the United States to have direct involvement with violations of human rights.

OSTP must submit any such certification to Congress at least 30 days prior to the activity. These requirements reportedly reflected an existing agreement between Congress and OSTP.[12] P.L. 113-76, the Consolidated Appropriations Act, 2014, reaffirmed and extended the above requirements for FY2014.[13] P.L. 113-235, the Consolidated and Further Continuing Appropriations Act, 2015, continued this restriction through FY2015.[14]

Reporting Structure of the U.S. Chief Technology Officer

The position of U.S. chief technology officer (CTO) was created by President Obama. The absence of a statutory foundation for the position has contributed to ambiguity in the CTO's responsibilities, authorities, and reporting structure.

In November 2007, Senator Barack Obama announced his intention, if elected President, to appoint a federal chief technology officer CTO. In April 2009, President Obama announced Aneesh Chopra as the first U.S. Chief Technology Officer (CTO), stating that his role would go

[7] Ibid., p. 4.

[8] Letter from Rep. Frank R. Wolf, Chairman, Subcommittee on Commerce, Justice, Science, and Related Agencies, Committee on Appropriations, to the Hon. Eric H. Holder, Jr., Attorney General, U.S. Department of Justice, October 13, 2011.

[9] Division B, Title V, Section 539, P.L. 112-55.

[10] Such certification was to be submitted to the House and Senate committees at least 14 days prior to the activity in question. P.L. 113-6 extended this period to 30 days for FY2013.

[11] Consolidated and Further Continuing Appropriations Act, 2013, P.L. 113-6, Division B, Section 535.

[12] H.Rept. 112-463, p. 61.

[13] Consolidated Appropriations Act, 2014, P.L. 113-76, Division B, Title V, Section 532.

[14] Consolidated and Further Continuing Appropriations Act, 2015, P.L. 113-235, Division B, Section 532.

beyond that performed traditionally by CTOs, to include promoting technological innovation to help the United States create jobs, reducing health care costs, protecting the homeland, and addressing other national goals. In appointing Chopra's successor, Todd Park, the President described his role as helping to "harness the power of data, technology, and innovation" across the federal government.[15] OSTP Director Holdren described the role of Park's successor, Megan Smith, as guiding "the Administration's information-technology policy and initiatives, continuing the work of her predecessors to accelerate attainment of the benefits of advanced information and communications technologies across every sector of the economy and aspect of human well-being."[16]

A current issue facing Congress is ambiguity surrounding the formal reporting structure of the CTO, a position shown on at least some iterations of OSTP organizational charts as being a part of OSTP. This issue arose during congressional efforts to obtain testimony from the then-CTO, Todd Park, on his role in the implementation of the *healthcare.gov* website.

Among the factors contributing to the lack of clarity in reporting responsibilities is the absence of specific statutory authority for the CTO position and the lack of a formal position description laying out the authorities and responsibilities of the CTO. In addition, both the first CTO, Aneesh Chopra, and his successor, Todd Park, held multiple titles. Chopra was appointed to serve as CTO, Assistant to the President, and OSTP associate director for technology; Park was appointed CTO and Assistant to the President. In response to questions for the record submitted by the House Committee on Science, Space, and Technology's Subcommittee on Oversight, Mr. Park asserted that these different roles involved different reporting relationships:

> [As an Assistant to the President,] I took general direction from the White House Office of the Chief of Staff and specific direction from different individuals with whom I would work on each of the technology and innovation initiatives in which I was involved ... As U.S. CTO and part of OSTP's leadership, I focused on technology and innovation policy, consistent with OSTP's mission. As an Assistant to the President, I held the same rank as Dr. Holdren, and therefore operated as his peer and as a partner, though Dr. Holdren holds overall management responsibility for the operations of OSTP.[17]

Congress may wish to clarify the roles, responsibilities, and reporting structure of the U.S. Chief Technology Officer in statute or through its OSTP oversight authorities. Several attempts have been made to establish the CTO position in statute. H.R. 1261 (112th Congress) and H.R. 1910 (111th Congress) sought to establish the Office of the Federal Chief Technology Officer as a separate office in the Executive Office of the President. In addition, an amendment (H.Amdt. 658) was offered to the National Defense Authorization Act for Fiscal Year 2011 (H.R. 5136), which included, among other things, Subtitle B, "Federal Chief Technology Officer."

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[15] The White House, "White House Announces New Chief Technology Officer," press release, March 9, 2012, http://www.whitehouse.gov/blog/2014/08/28/president-obama-asks-todd-park-continue-administration-service-new-role-after-return.

[16] The White House, *The White House Blog*, "President Obama Names Megan Smith U.S. CTO, Alexander Macgillivray Deputy U.S. CTO," September 4, 2014, http://www.whitehouse.gov/blog/2014/09/04/president-obama-names-megan-smith-us-cto-alexander-macgillivray-deputy-us-cto.

[17] U.S. Congress, House Committee on Science, Space, and Technology, Subcommittee on Oversight, *The Role of the White House Chief Technology Officer in the HealthCare.gov Website Debacle*, Responses to Questions for the Record, prepared by Todd Park, former Chief Technology Officer, Office of Science and Technology Policy, 113th Cong., 2nd sess., November 19, 2014.

If Congress chooses to establish the CTO position through statute, there are several questions it may wish to consider, including: What mission, duties, and authorities should be given to the CTO? Should one person serve as both CTO and OSTP associate director for technology? Should the CTO be placed in the Executive Office of the President or elsewhere in the executive branch? If in the EOP, should the CTO directly report to the President, or instead be part of another EOP agency? Should the appointment of the CTO be subject to Senate confirmation? Should the CTO be a stand-alone position or should he or she head an office or agency with its own staff? How should the work of the CTO differ from, overlap with, and/or complement the duties and authorities of offices in the Executive Office of the President, and other executive branch agencies? What should be the relationship between the President's CTO and the existing CTOs and CIOs of individual departments and agencies?

OSTP Role in Ensuring Scientific Integrity

OSTP plays a role in ensuring the scientific integrity of research conducted and supported by the federal government, as well as in the communication of scientific and technical information developed and analyzed by federal scientists and engineers. For example, OSTP, as part of a process managed by the Office of Management and Budget (OMB), reviews executive branch S&T-related testimony to Congress.[18] OMB has taken actions relating to scientific integrity during both the George W. Bush Administration and the Obama Administration.

George W. Bush Administration

During the George W. Bush Administration, advocacy groups charged that the Administration's political agenda adversely affected the integrity of science, especially science related to the environment, public health, and national security.[19] These groups contended that Administration officials restricted the ability of federal scientists and engineers to provide information, instructed them to change their research reports, or modified the congressional testimony of federal scientific and technical agency leadership that did not support the Administration's views. OSTP Director Marburger stated that such allegations were "sweeping generalizations based on a patchwork of disjointed facts and accusations that reach conclusions that are wrong and misleading."[20]

Policymakers responded to these concerns in several ways. In the America COMPETES Act (P.L. 110-69, Section 1009), Congress directed OSTP to develop an overarching set of principles to ensure the communication and open exchange of data by federal scientists and engineers. On May 28, 2008, in response to this requirement, OSTP sent a memorandum to federal agencies that

[18] The review process is governed by OMB Circular No. A-19.

[19] See, for example, Union of Concerned Scientists, *Scientific Integrity in Policymaking: An Investigation into the Bush Administration's Misuse of Science*, March 2004, http://www.ucsusa.org/assets/documents/scientific_integrity/rsi_final_fullreport_1.pdf; Union of Concerned Scientists, *Federal Science and the Public Good: Securing the Integrity of Science in Policy Making*, February 2008, http://ucsusa.org/scientific_integrity/solutions/big_picture_solutions/federal-science-and-the.html; and Rena Steinzor, Wendy Wagner, and Matthew Shudtz, *Saving Science from Politics: Nine Essential Reforms of the Legal System*, Center for Progressive Reform, July 2008, http://www.progressivereform.org/articles/SavingScience805.pdf.

[20] See, for example, OSTP, "Statement by President Bush's Science Advisor and Director of the Office of Science and Technology Policy John H. Marburger III on Union of Concerned Scientists Document and Press Release," press release, July 8, 2004.

sponsor research. The memorandum provides guidance and what OSTP termed the "Core Principle for Communication of the Results of Scientific Research Conducted by Scientists Employed by Federal Civilian Agencies." It states:

> Robust and open communication of scientific information is critical not only for advancing science, but also for ensuring that society is informed and provided with objective and factual information to make sound decisions. Accordingly, the Federal government is committed to a culture of scientific openness that fosters and protects the open exchange of ideas, data and information to the scientific community, policymakers, and the public.[21]

The memorandum also indicated that the National Aeronautics and Space Administration's (NASA's) science communications policy should be a model for other federal agencies:[22] NASA policy states that, "In keeping with the desire for a culture of openness, NASA employees may, consistent with this policy, speak to the press and the public about their work," with exceptions for privileged and other controlled information.[23]

Obama Administration

Shortly after taking office, President Obama issued a memorandum for the heads of executive departments and agencies on the subject of scientific integrity. In the memorandum, the President articulated his view of the importance of ensuring scientific integrity; identified several overarching principles; charged the OSTP Director with ensuring "the highest level of scientific integrity in all aspects of the executive branch's involvement with scientific and technological processes"; required the Director to confer with heads of executive departments and agencies, the OMB, and other offices within the EOP in the development of a plan to achieve the identified principles; and directed the OSTP Director to develop recommendations for presidential action to guarantee scientific integrity throughout the executive branch.[24]

OSTP Director Holdren subsequently issued a memorandum to the heads of executive departments and agencies providing further guidance on implementing the Administration's policies on scientific integrity. Director Holdren's memorandum provided principles in four broad areas: foundations of scientific integrity, public communications, use of federal advisory committees, and professional development of government scientists and engineers.[25]

OSTP reviewed the guidelines developed by each agency to ensure consistency with the guidance provided in President Obama's original memorandum.[26] According to OSTP, some departments decided to develop policies that will apply broadly to a number of their component agencies.

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[21] OSTP, "Principles for the Release of Scientific Research Results," Memorandum, May 28, 2008, http://www.whitehouse.gov/galleries/default-file/Research%20Results.pdf. Note that this memorandum addresses the communication of scientific data and information, not science and technology policy.

[22] NASA's policy is available at http://www.nasa.gov/pdf/145687main_information_policy.pdf.

[23] 14 C.F.R. 1213.102.

[24] President Barack Obama, "Memorandum for the Heads of Executive Departments and Agencies, Subject: Scientific Integrity," Washington, DC, March 9, 2009, http://www.whitehouse.gov/the_press_office/Memorandum-for-the-Heads-of-Executive-Departments-and-Agencies-3-9-09/.

[25] John Holdren, "Memorandum for the Heads of Executive Departments and Agencies, Subject: Scientific Integrity," Office of Science and Technology Policy, Executive Office of the President, Washington, DC, December 17, 2010, http://www.whitehouse.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf.

[26] Telephone conversation between CRS and Rachael Leonard, OSTP General Counsel, August 12, 2011.

OSTP has also stated that individual agencies covered by their departments' policies may develop their own policies with additional elements specific to their missions.[27] At least 19 federal agencies have released final policies; four others have released draft policies and are in the process of finalizing them for release.[28] The agencies' policies have met with mixed reviews. An analysis published by the Union of Concerned Scientists, a not-for-profit advocacy group, lauded the policies of some agencies for their active support for "a culture of scientific integrity," while criticizing the policies of other agencies as inadequate.[29]

The Obama Administration also acted to address the concerns of some policy advocacy groups that Executive Order 13422[30] might be used by OMB to conduct political reviews of scientific documents. On January 30, 2009, President Obama issued Executive Order 13487[31] rescinding orders, rules, regulations, guidelines, and policies implementing or enforcing Executive Order 13422.

S&T policy advocacy groups also proposed other measures, such as the executive branch changing its scientific communication policy.[32] One proposal called for the issuance of an executive order requiring federal agency leadership to monitor scientific integrity within their agencies and submit an annual report to OSTP with their observations and actions.

Other proposals included enhancing whistleblower protections, including strengthening the Office of Special Counsel;[33] requiring that scientific studies used to inform regulatory policy be disclosed and docketed prior to the decision-making process; reforming agency communication and media policies;[34] and providing the public with the scientific results or analysis used in policymaking and including a minority report if there are significant dissenting scientific evidence or opinions.[35]

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[27] Rick Weiss, *Scientific Integrity Policies Submitted to OSTP*, Office of Science and Technology Policy, Executive Office of the President, Washington, DC, April 21, 2011, http://www.whitehouse.gov/blog/2011/08/11/scientific-integrity-policies-submitted-ostp.

[28] OSTP, "Scientific Integrity," accessed on February 24, 2015, http://www.whitehouse.gov/administration/eop/ostp/library/scientificintegrity.

[29] Francesca T. Grifo, Senior Scientist and Science Policy Fellow, *Federal Agency Scientific Integrity Policies: A Comparative Analysis*, Union of Concerned Scientists, March 2013, http://www.ucsusa.org/assets/documents/scientific_integrity/SI-policies-comparative-analysis.pdf.

[30] Executive Order 13422, "Further Amendment to Executive Order 12866 on Regulatory Planning and Review," 72 *Federal Register* 2763-2765, January 23, 2007.

[31] Executive Order 13497, "Revocation of Certain Executive Orders Concerning Regulatory Planning and Review," 74 *Federal Register* 6113, February 4, 2009.

[32] Union of Concerned Scientists, *Federal Science and the Public Good: Securing the Integrity of Science in Policy Making*, February 2008, http://ucsusa.org/scientific_integrity/solutions/big_picture_solutions/federal-science-and-the.html; and Rena Steinzor, Wendy Wagner, and Matthew Shudtz, *Saving Science from Politics: Nine Essential Reforms of the Legal System*, Center for Progressive Reform, July 2008, http://www.progressivereform.org/articles/SavingScience805.pdf.

[33] The Office of Special Counsel (OSC) is an independent agency that receives allegations of prohibited personnel practices and investigates such allegations. The OSC may also conduct investigations of possible prohibited personnel practices on its own initiative, absent any allegation.

[34] For a discussion of this issue on an agency-specific basis, see Union of Concerned Scientists, *Freedom to Speak? A Report Card on Federal Agency Media Policies*, 2008, http://www.ucsusa.org/assets/documents/scientific_integrity/Freedom-to-Speak.pdf.

[35] Union of Concerned Scientists, *Federal Science and the Public Good: Securing the Integrity of Science in Policy Making*, February 2008, http://ucsusa.org/scientific_integrity/solutions/big_picture_solutions/federal-science-and-(continued...)

Some organizations have suggested that the Obama Administration also address the use of science in regulatory policy, including explicitly differentiating between questions that involve scientific judgments and questions that involve judgments about economics, ethics, and other matters of policy; and develop guidelines on when to consult advisory panels on scientific questions, how to appoint them, how they should operate, and how to deal with conflicts of interest.[36]

There are some policymakers who have asserted that the Obama Administration has failed to protect scientific integrity. For example, in a letter to the OSTP Director, several Members of Congress alleged scientific misconduct by the Department of the Interior, the Environmental Protection Agency, the Department of Energy, and the Nuclear Regulatory Commission.[37] Concerns raised in the letter related to data quality, integrity of methodologies and collection of information, agency misrepresentation of the weight of what were asserted as scientific facts, misrepresentation of scientific conclusions in federal courts, and failure to rigorously apply the scientific method.

Congress might opt to influence the direction of the existing executive branch activities, provide oversight of the implementation of these activities, or establish alternative reporting mechanisms for issues related to scientific integrity. Congress might establish guidance regarding how agencies should craft and implement scientific integrity policies. Alternatively, Congress might leave establishing and implementing such policies to agency discretion, and require regular reporting from agencies regarding scientific integrity issues and the effectiveness of policy enforcement. Finally, Congress could further empower agency Inspectors General to address issues of scientific integrity or establish alternative reporting mechanisms, such as a federal ombudsman, to receive complaints regarding scientific integrity issues.

Public Access to Published Results of Federally Funded R&D

In "open access" or "public access" publishing, the entity that holds the copyright to an article grants all users unlimited, free access to the article. In traditional scientific publishing, subscriptions generally fund the costs of journal publication and distribution; in some cases, authors may also pay fees. This contrasts with open access publishers, which typically fund the costs of journal publication and distribution through author fees and give readers free online access to the full text of articles. Some traditional publishers have implemented a hybrid model in which authors may choose to provide their articles free to readers in exchange for increased author fees.

Since 2008, Congress has authorized the National Institutes of Health (NIH) to require recipients of NIH grants to submit an electronic version of their final, peer-reviewed articles to NIH. The NIH places these articles in a public repository no later than 12 months after publication. This

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the.html; and Rena Steinzor, Wendy Wagner, and Matthew Shudtz, *Saving Science from Politics: Nine Essential Reforms of the Legal System*, Center for Progressive Reform, July 2008, http://www.progressivereform.org/articles/SavingScience805.pdf.

[36] Bipartisan Policy Center, *Science for Policy Project*, Interim Report, March 10, 2009.

[37] Letter from Sen. David Vitter, Sen. James Inhofe, and Rep. Darrell Issa to John Holdren, Director, Office of Science and Technology Policy, October 18, 2011.

congressionally authorized policy has raised issues regarding protection of intellectual property and government competition with the private publishing industry.

Supporters of federal open access publishing policies have a variety of motivations, including the rising cost of traditional journal subscriptions; beliefs regarding improved scientific collaboration and free information access; and a desire for the public to have access to the results of taxpayer-funded R&D. Proponents of open access policies urge increased federal support for open access publishing.

In contrast, traditional publishers and some scholarly associations object to federal open access policies because they believe it may weaken the publishing industry, erode publishing revenues, and consequently restrict the activities of associations whose main source of income is publishing. Opponents of federal open access publishing policies also cite other potential negative consequences, such as uncertain long-term maintenance of electronic archives; increased publication costs for researchers; and the perceptions of the academic community and the academic reward system, which appear to give more status to articles published in traditional journals.

The America COMPETES Reauthorization Act of 2010 (P.L. 111-358)[38] required the OSTP Director to establish a working group to coordinate agency policies "related to the dissemination and long-term stewardship of the results of unclassified research, including digital data and peer-reviewed scholarly publications, supported wholly, or in part, by funding from the Federal science agencies" and report to Congress on these efforts.[39] OSTP issued a public request for information seeking perspectives on various facets of the public access issue. Respondents generally supported increasing public access to such research results.[40]

In February 2013, the OSTP Director affirmed the Obama Administration's commitment "to ensuring that … the direct results of federally funded scientific research are made available to and useful for the public, industry, and the scientific community. Such results include peer-reviewed publications and digital data." The Director instructed federal agencies that fund more than $100 million of R&D per year to develop plans to make the published results of federally funded research freely available to the public and provided a guideline of doing so within one year of publication.[41]

OSTP identified 20 agencies from which it expected draft public access plans. OSTP and OMB have reviewed the plans that were submitted and provided feedback to those agencies. Two agency plans have received final approval.[42] Once a plan is approved, each agency will determine

[38] For more information on the America COMPETES Act and the America COMPETES Reauthorization Act of 2010, see CRS Report R43880, *The America COMPETES Acts: An Overview*, by (name redacted).

[39] Section 103(a), P.L. 111-358.

[40] National Science and Technology Council, *Interagency Public Access Coordination,* March 2012, http://www.whitehouse.gov/sites/default/files/microsites/ostp/public_access-final.pdf.

[41] John P. Holdren, "Increasing Access to the Results of Federally Funded Scientific Research" Memorandum for the Heads of Executive Departments and Agencies, February 22, 2013, http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf.

[42] OSTP, Letter to House and Senate Appropriations Committees, November 13, 2014.

its own release date.[43] The Department of Energy released its final public access plan in July 2014,[44] and NASA released its in November 2014.[45]

Congress has supported OSTP efforts in this area with select statutory and report language. Section 525 of Division G of P.L. 113-235, the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2015, directs entities receiving funding through that act to implement public access plans if they had R&D expenditures in excess of $100 million.[46] The statute mandates that these policies shall establish "free online public access to such final peer-reviewed manuscripts or published versions not later than 12 months after the official date of publication" and require that "a machine-readable version of the author's final peer-reviewed manuscripts that have been accepted for publication in peer-reviewed journals describing research supported, in whole or in part, from funding by the Federal Government" be submitted "to the agency, agency bureau, or designated entity acting on behalf of the agency." This provision is similar in effect to the requirement called for in the OSTP memorandum, but it specifies the period of embargo rather than leaving it to agency discretion.

The reports accompanying other FY2015 appropriations acts contain language expressing support for implementing the OSTP efforts at the Department of Homeland Security,[47] Department of Veterans Affairs,[48] Department of State, United States Agency for International Development (USAID),[49] and Environmental Protection Agency.[50] The report accompanying P.L. 113-235 also directed NIH to report to Congress on its activities to meet the requirements of the OSTP memorandum.

Congress provided similar support in FY2014. Section 527 of Division H of P.L. 113-76, the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2014, directed entities receiving funding through that act to implement public access plans if they had R&D expenditures in excess of $100 million.[51] Also, the report accompanying P.L. 113-76, the Consolidated Appropriations Act, 2014, encouraged the EPA to comply with the OSTP memorandum and directed the Department of Agriculture to report to Congress on its activities to meet the requirements of the memorandum. The report accompanying FY2014 appropriations for the Department of Homeland Security contained language expressing support for implementing the OSTP efforts.[52]

[43] Personal communication between the Office of Science and Technology Policy and CRS, October 24, 2013.

[44] Department of Energy, *Public Access Plan*, July 24, 2014, http://energy.gov/sites/prod/files/2014/08/f18/DOE_Public_Access%20Plan_FINAL.pdf.

[45] National Aeronautics and Space Administration, *NASA Plan: Increasing Access to the Results of Scientific Research (Digital Scientific Data and Peer-Reviewed Publications)*, November 21, 2014, http://science.nasa.gov/media/medialibrary/2014/12/05/NASA_Plan_for_increasing_access_to_results_of_federally_funded_research.pdf.

[46] Section 525, Title V, Division G, P.L. 113-235, Consolidated and Further Continuing Appropriations Act, 2015.

[47] Both H.Rept. 113-481 and S.Rept. 113-198 contain such statements.

[48] H.Rept. 113-416.

[49] H.Rept. 113-499.

[50] Explanatory statement for P.L. 113-235.

[51] Section 527, Title V, Division H, P.L. 113-76, Consolidated Appropriations Act, 2014.

[52] H.Rept. 113-91.

STEM Education Reorganization

Congress and the Administration attempted in recent years to address governance concerns about federal science, technology, engineering, and mathematics (STEM) education programs.[53] OSTP has been a focus of these efforts due, in part, to the OSTP Director's role as manager of the National Science and Technology Council.

The America COMPETES Reauthorization Act of 2010 (P.L. 111-358) directed OSTP to establish an NSTC committee "to coordinate Federal programs and activities in support of STEM education." The act charged the committee—established by the NSTC as the Committee on Science, Technology, Engineering, and Math Education (CoSTEM)—with, among other things, conducting a review of STEM education activities and programs to identify potential duplication of efforts, developing a five-year STEM education strategic plan, and establishing an inventory of federally sponsored STEM education programs and activities.

In addition, P.L. 111-358 assigned the OSTP Director responsibility for ensuring that the strategic plan is developed and executed and that the objectives of the plan are met. The act also required the OSTP Director to submit an annual report to Congress at the time of submission of the President's budget request. This report is to include, among other things, a description of the STEM education programs and activities for the previous and current fiscal years, the levels of funding for each program and activity, and an evaluation of duplication and fragmentation of the programs and activities.

In December 2011, CoSTEM published a detailed inventory of federal STEM education "investments."[54] The inventory included a description of federal STEM education programs (e.g., their purposes, objectives, and funding agencies) and a list of federal STEM education investments, by agency, with FY2008 to FY2010 funding levels. In February 2012, CoSTEM published a progress report on its efforts to coordinate federal STEM education investments.[55] In April 2012, CoSTEM published the 2010 Federal STEM Education Inventory Data Set.[56] In March 2014, OSTP published an update on the Administration's efforts to coordinate federal investments in STEM education.[57]

[53] For more information on federal STEM education efforts, see CRS Report R42642, *Science, Technology, Engineering, and Mathematics (STEM) Education: A Primer*, by (name redacted) and (name redacted).

[54] In this context, an investment is "a funded STEM education activity that has a dedicated budget of more than $300,000 in FY2010 and staff to manage the budget." It does not include general purpose education programs, like most of the programs at the Department of Education, which may be used for STEM or other purposes by schools and districts. Executive Office of the President, National Science and Technology Council, Committee on STEM Education, Federal Inventory of STEM Education Fast-Track Action Committee, *The Federal Science, Technology, Engineering, and Mathematics (STEM) Education Portfolio*, December, 2011, p. 5, http://www.whitehouse.gov/sites/default/files/microsites/ostp/costem__federal_stem_education_portfolio_report.pdf.

[55] EOP, NSTC, Committee on STEM Education, Federal Coordination in STEM Education Task Force, February 2012, http://www.whitehouse.gov/sites/default/files/microsites/ostp/nstc_federal_stem_education_coordination_report.pdf.

[56] Available at http://www.whitehouse.gov/sites/default/files/microsites/ostp/2010%20Federal%20STEM%20Education%20Inventory%20Data%20Set.xls.

[57] EOP, OSTP, *Progress Report on Coordinating Federal Science, Technology, Engineering, and Mathematics (STEM) Education*, March 2014, http://www.whitehouse.gov/sites/default/files/microsites/ostp/STEM-ED_FY15_Final.pdf.

113th Congress

In March 2013, the explanatory statement for the FY2013 Consolidated and Further Continuing Appropriations Act (P.L. 113-6) required OSTP to produce a federal STEM education strategic plan by May 10, 2013. Shortly thereafter, in its FY2014 budget request (released in April 2013), the Administration proposed a reorganization of the federal STEM education effort. The proposed reorganization would have eliminated or consolidated about half of the federal STEM education effort, while increasing total FY2014 funding for federal STEM education activities by about 6% over FY2012 levels. The Department of Education, National Science Foundation, and Smithsonian Institution would have become lead agencies for K-12, postsecondary, and informal STEM education, respectively. Some other federal STEM education programs, including those at the lead agencies, would have been consolidated under the plan. In May 2013, the NSTC released the federal STEM education strategic plan.[58]

In deliberations on the FY2014 Commerce, Justice, Science and Related Agencies appropriations acts, neither the House Committee on Appropriations nor the Senate Committee on Appropriations supported the proposed reorganization. (House Energy and Water Development appropriators, in contrast, accepted some portions of the reorganization within their jurisdiction.)[59] In addition, the House committee identified what it saw as flaws in the subsequent federal STEM strategic plan, including the proposed mechanism for dissemination of federal STEM education research and findings. The House committee report sought to direct OSTP to report within 180 days of passage on the resources and authorities necessary to develop a "one stop" style website containing findings from federal research on STEM education. The Senate committee report sought to defer action on such consolidation until OSTP finalizes STEM program assessments and require OSTP to work with non-federal education and outreach communities on any subsequent reorganization proposal.[60]

The joint explanatory statement accompanying P.L. 113-76, the Consolidated Appropriations Act, 2014, was critical of the proposed reorganization, stating:

> While the Congress is supportive of attempts to improve efficiency and effectiveness in Federal STEM education programs, the proposed reorganization of these programs contained in the budget request was incomplete and lacked sufficient detail. The proposal contained no clearly defined implementation plan, had no buy-in from the education community and failed to sufficiently recognize or support a number of proven, successful programs. Accordingly, the agreement does not adopt the reorganization; all STEM activities are funded in their existing programmatic structures unless explicitly noted otherwise elsewhere in this statement or through language in either the House or Senate report that is not modified or superseded by this statement.[61]

[58] EOP, OSTP, *Federal Science, Technology, Engineering, and Mathematics (STEM) Education 5-Year Strategic Plan,* May 2013, http://www.whitehouse.gov/sites/default/files/microsites/ostp/stem_stratplan_2013.pdf.

[59] H.Rept. 113-135, p. 86.

[60] H.Rept. 113-171, p. 8 and p. 59; S.Rept. 113-78, pp. 102-103. For more information, see CRS Report R43080, *Commerce, Justice, Science, and Related Agencies: FY2014 Appropriations*, coordinated by (name redacted), (name redact ed), and (name redacted)

[61] *Congressional Record*, 160: 9 (January 15, 2014) p. H515.

The joint explanatory statement further directed OSTP to reexamine other possible reorganizations of federal STEM programs after engaging in an inclusive development process and taking into consideration evaluations and other evidence of program success.

The Obama Administration's FY2015 budget request again proposed a government-wide reorganization of federal STEM education programs. According to the Office of Management and Budget, the reorganization would have consolidated or terminated 31 programs at nine agencies. Funding would have remained at each agency, but would have focused on the priorities outlined in the NSTC's 2013 federal STEM education five-year strategic plan. Congress approved portions of this proposal while prohibiting certain consolidations or terminations in report language. For more information on the FY2015 reorganization effort, see CRS Report IF00013, *The President's FY2015 Budget and STEM Education (In Focus)*, by (name redacted).

114th Congress

President Obama has proposed additional STEM education consolidations and eliminations within agencies in his FY2016 budget.[62]

Publication of the reorganization proposals has raised concerns among some STEM education stakeholders, including questions regarding the role of program assessment in the reorganization and the potential fragmentation of existing networks that connect educational activities to scientific programs. Additionally, some policymakers questioned the capacity of lead agencies to take on their new roles and have expressed support, instead, for the activities to remain with their existing agencies (e.g., NASA).[63]

Advocates for the Administration's reorganization proposals have generally asserted that the wide diversity of small STEM education programs distributed across numerous federal agencies presents a substantial barrier to coordination and efficiency. They assert that re-aligning programs and funding would improve program evaluation, reduce fragmentation, and enhance coordination. Some argue that, as a result, resources could be directed to high-priority programs, increasing effectiveness.

Activities in the 114th Congress

The 114th Congress is considering a number of bills that would directly affect the operations or priorities of OSTP or NSTC, and they are described below. A number of these bills contain common or similar provisions.

H.R. 467

The STEM Opportunities Act of 2015 (H.R. 467) would address certain issues related to STEM workforce and education. Among other provisions, it would require the OSTP Director to carry

[62] OSTP, *Investing in America's Future: Preparing Students with STEM Skills Science, Technology, Engineering, and Mathematics (STEM) Education in the 2016 Budget*, February 2015.

[63] Opening statement of Rep. Eddie Bernice Johnson, House Committee on Science, Space, and Technology, *Hearing on STEM Education: The Administration's Proposed Reorganization*, hearings, 113th Cong., 1st. sess., June 4, 2013.

out programs and activities with the purpose of ensuring that federal science agencies and institutions of higher education receiving federal R&D funding are fully engaging their entire talent pool. The bill would require the OSTP Director to require federal science agencies to establish policies regarding primary investigators who also have caregiving responsibilities; collect data on demographics, primary field, award type, budget request, funding outcome, and awarded budget for all applications for merit-reviewed R&D grants; provide guidance as necessary on policies to implement best practices to minimize implicit bias based on gender, race, or ethnicity during review of federal research grants; and develop and implement practices and policies to conduct periodic laboratory-wide culture surveys of research personnel at all levels, and provide educational opportunities for STEM research personnel to learn about current research in implicit bias in recruitment, evaluation, and promotion of research personnel at federal laboratories. The OSTP Director would report to Congress regarding a description and evaluation of such policies and practices.

H.R. 810

The National Aeronautics and Space Administration Authorization Act of 2015 (H.R. 810) would authorize NASA programs and authorize NASA appropriations for FY2015. (H.R. 2039, discussed later in this report, contains similar provisions and would authorize NASA programs and authorize NASA appropriations for FY2016 and FY2017.) Among its provisions, the bill would require the OSTP Director to consult with a variety of stakeholders, develop a strategic plan for conducting competitive, peer-reviewed research in physical and life sciences and related technologies on the International Space Station, and transmit the plan to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation. The bill would require the strategic plan to identify various criteria for the proposed research; required instrumentation; necessary capabilities to support direct, real-time communications; and an acquisition strategy for any new support capabilities.

H.R. 810 would require the OSTP Director and the NASA Administrator to conduct an analysis of the requirements for radioisotope power system material for robotic missions and the risks to those missions due to a lack of adequate material. The bill would specify the contents of the analysis and require it to be submitted to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation.

H.R. 810 would also require the OSTP Director and the NASA Administrator to provide an initial report with recommendations on carrying out a near-Earth object survey program and an associated budget. The report would contain an analysis of possible options to divert an object on a likely collision course with Earth and efforts to coordinate and cooperate with other countries on the issue.

In addition, the bill would require the OSTP Director to provide a report on the status of the orbital debris mitigation strategy required under P.L. 111-267, the National Aeronautics and Space Administration Authorization Act of 2010. H.R. 810 would also require the OSTP Director to carry out a review and assessment of the issues involved in protecting and preserving historically important Apollo Program lunar landing sites and Apollo program artifacts residing on the lunar surface. The OSTP Director would submit the results of this assessment to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation no later than one year after enactment.

H.R. 1119

The Research and Development Efficiency Act (H.R. 1119) would address certain regulatory aspects of the research process. It would require the OSTP Director to establish a working group within the NSTC to review federal regulations affecting research and research universities. The working group would recommend how to harmonize, streamline, and eliminate duplicative federal regulations and reporting requirements; minimize the regulatory burden on U.S. institutions of higher learning while maintaining accountability; and identify and update specific regulations to refocus on performance-based goals. The working group would consider input from non-federal stakeholders and report no later than one year after enactment and annually thereafter for three years to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation.

H.R. 1156

The International Science and Technology Cooperation Act of 2015 (H.R. 1156) would address international science and technology cooperation and coordination. It would require the OSTP Director to establish a body within the NSTC responsible for identifying and coordinating international science and technology cooperation. The OSTP Director would transmit a publicly available report, updated every two years, to the House Committee on Science, Space, and Technology; the House Committee on Foreign Affairs; the Senate Committee on Commerce, Science, and Transportation; and the Senate Committee on Foreign Relations. The report would contain a description of federal priorities and policies for aligning federal international science and technology cooperative research and training activities and partnerships with the foreign policy goals of the United States; ongoing and new international partnerships; summary views of stakeholder input and the means by which it was received; and the issues influencing the ability of U.S. scientists and engineers to collaborate with foreign counterparts.

H.R. 1561

The Weather Research and Forecasting Innovation Act of 2015 (H.R. 1561) would, among other provisions, require the OSTP Director to establish an Interagency Committee for Advancing Weather Services to improve coordination of relevant weather research and forecast innovation activities across the federal government. The bill would require the National Aeronautics and Space Administration, the Federal Aviation Administration, the National Oceanic and Atmospheric Administration, and the National Science Foundation to participate in the committee. The committee would identify and prioritize weather forecast needs, coordinate those needs against federal agency budgets and programs, and share information across federal agencies. In addition, the OSTP Director would take such steps as necessary to coordinate federal activities with the American weather industry, state governments, emergency managers, and academic researchers.

H.R. 1764

The United States Chief Technology Officer Act (H.R. 1764) would create the position of United States CTO as one of the OSTP associate directors. The CTO duties would include, among others, advising the President and the OSTP Director on federal information systems, technology, data, and innovation policies and initiatives; promoting innovative technological approaches across the

federal government; promoting transparency and accountability for all federal technological implementation; and providing an annual report to the President, the OSTP Director, and Congress on the current state of information systems of all federal agencies.

H.R. 1806

The America COMPETES Reauthorization Act of 2015 (H.R. 1806) would address a range of science and technology policy issues. Among its provisions, it would authorize $4.55 million in appropriations for OSTP for both FY2016 and FY2017. H.R. 1806 would also require the OSTP Director to establish a working group within the NSTC that would review federal regulations affecting research and research universities. The working group would recommend how to harmonize, streamline, and eliminate duplicative federal regulations and reporting requirements; minimize the regulatory burden on U.S. institutions of higher learning while maintaining accountability; and identify and update specific regulations to refocus on performance-based goals. The working group would consider input from non-federal stakeholders and report no later than one year from enactment and annually for the next three years to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation.

H.R. 1806 would also require the OSTP Director to establish a body within the NSTC responsible for identifying and coordinating international science and technology cooperation. The OSTP Director would transmit a publicly available report, updated every two years, to the House Committee on Science, Space, and Technology; the House Committee on Foreign Affairs; the Senate Committee on Commerce, Science, and Transportation; and the Senate Committee on Foreign Relations. The report would contain a description of federal priorities and policies for aligning federal international science and technology cooperative research and training activities and partnerships with the foreign policy goals of the United States; ongoing and new international partnerships; summary views of stakeholder input and the means by which it was received; and the issues influencing the ability of U.S. scientists and engineers to collaborate with foreign counterparts.

In addition, H.R. 1806 would require the OSTP Director to annually submit a report that lists and describes all foreign travel by OSTP staff and detailees to the House Committee on Science, Space, and Technology; the House Committee on Foreign Affairs; the Senate Committee on Commerce, Science, and Transportation; and the Senate Committee on Foreign Relations. Each report would specify the dates and purpose of the trip, OSTP participants on the trip, total OSTP costs associated with the trip, and details of all international meetings, including meeting participants and topics addressed.

H.R. 1806 would require OSTP to develop an agreement to be signed by judges of prize competitions that includes nondisclosure, conflict of interest, and judging code of conduct requirements. The OSTP would be required to report to Congress regarding the agreement no later than 30 days after its development and to report to Congress as part of its budget submission on the pilot programs identified and conducted.

H.R. 1806 would also create the position of United States CTO as one of the OSTP associate directors. The CTO duties would include, among others, advising the President and the OSTP Director on federal information systems, technology, data, and innovation policies and initiatives, promoting innovative technological approaches across the federal government, promoting transparency and accountability for all federal technological implementation, and providing an

annual report to the President, the OSTP Director, and Congress on the current state of information systems of all federal agencies.

H.R. 1898

The America Competes Reauthorization Act of 2015 (H.R. 1898) would address a range of science and technology policy issues. Among its provisions, it would require the OSTP Director to create a working group within the NSTC responsible for reviewing federal regulatory and reporting requirements that affect research in an effort to reduce regulatory burdens and to eliminate and harmonize duplicative requirements. The working group would, among other responsibilities, develop and update at least once every three years a strategic plan for streamlining federal regulations and reporting requirements that affect the conduct of U.S. research. The strategic plan would include a priority list of research-related regulations, reporting requirements, and agency guidance to be harmonized, streamlined, updated, or eliminated; and an implementation plan, including a timeline. The working group would consider input from non-federal stakeholders and report to Congress no later than one year from enactment and annually thereafter.

H.R. 1898 would require the OSTP Director to establish a body within the NSTC responsible for identifying and coordinating international science and technology cooperation. The OSTP Director would transmit a publically available report, updated every two years, to the House Committee on Science, Space, and Technology; the House Committee on Foreign Affairs; the Senate Committee on Commerce, Science, and Transportation; and the Senate Committee on Foreign Relations. The report would contain a description of federal priorities and policies for aligning federal international science and technology cooperative research and training activities and partnerships with the foreign policy goals of the United States; ongoing and new international partnerships; summary views of stakeholder input and the means by which it was received; and the issues influencing the ability of U.S. scientists and engineers to collaborate with foreign counterparts.

In addition, H.R. 1898 would require the OSTP Director to designate an OSTP associate director or other appropriate senior government official as the Coordinator for Environmental, Health, and Safety Research. The Coordinator would be responsible for oversight of the coordination, planning, and budget prioritization of research and other activities related to environmental, health, safety, and other appropriate societal concerns related to nanotechnology. The Coordinator would be responsible for ensuring that a research plan for the environmental, health, and safety research activities related to nanotechnology is developed, updated, and implemented. This research plan would be transmitted to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation within six months after enactment and would be updated at least every three years.

H.R. 1898 would also require, among other STEM education provisions, the OSTP Director to establish an OSTP associate or another appropriate senior government official as the Coordinator for STEM Education. The Coordinator would work with appropriate senior officials from other agencies represented on the NSTC Committee on STEM Education. The OSTP Director would develop guidance for federal agencies to increase opportunities and training, as appropriate, for federal scientists and engineers to participate in STEM engagement activities through their respective agencies and in their communities.

H.R. 1898 would require the OSTP Director to carry out programs and activities with the purpose of ensuring that federal science agencies and institutions of higher education receiving federal R&D funding are fully engaging their entire talent pool. The bill would require the OSTP Director to require federal science agencies to establish policies regarding primary investigators who have caregiving responsibilities; collect data on demographics, primary field, award type, budget request, funding outcome, and awarded budget for all applications for merit-reviewed R&D grants; provide guidance as necessary on policies to implement best practices to minimize implicit bias based on gender, race, or ethnicity during review of federal research grants; develop and implement practices and policies to conduct periodic laboratory-wide culture surveys of research personnel at all levels, and provide educational opportunities for STEM research personnel to learn about current research in implicit bias in recruitment, evaluation, and promotion of research personnel at federal laboratories. The OSTP Director would report to Congress regarding a description and evaluation of such policies and practices.

H.R. 2039

The National Aeronautics and Space Administration Authorization Act for 2016 and 2017 (H.R. 2039) would authorize NASA programs and authorize NASA appropriations for FY2016 and FY2017. (H.R. 810, discussed earlier in this report, contains similar provisions and would authorize NASA programs and authorize NASA appropriations for FY2015.) Among its provisions, it would require the OSTP Director to consult with a variety of stakeholders, develop a strategic plan through 2020 for conducting competitive, peer-reviewed research in physical and life sciences and related technologies on the International Space Station, and transmit it to the House Committee on Science, Space, and Technology, and the Senate Committee on Commerce, Science, and Transportation. H.R. 2039 would require the strategic plan to identify various criteria for the proposed research; required instrumentation; necessary capabilities to support direct, real-time communications; and an acquisition strategy for any new support capabilities.

H.R. 2039 would also require the OSTP Director and the NASA Administrator to conduct an analysis of the requirements for radioisotope power system material for robotic missions and the risks to those missions due to a lack of adequate material. H.R. 2039 would specify the contents of the analysis and require that it be submitted to the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation.

H.R. 2039 would also require the OSTP Director and the NASA Administrator to provide an initial report with recommendations on carrying out a near-Earth object survey program and associated budget. The initial report would contain an analysis of possible options to divert an object on a likely collision course with Earth and efforts to coordinate and cooperate with other countries on the issue.

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Concluding Observations

Congress has expressed an abiding interest in the health of the federal science and technology (S&T) enterprise and the roles that it plays in meeting federal mission needs, expanding the frontiers of human knowledge, addressing societal needs, developing the U.S. science and engineering workforce, and promoting U.S. technological leadership, innovation, and competitiveness.

For more than half a century, presidential science advisors have played a central role in U.S. S&T policy—informing Presidents on S&T issues, serving as liaisons to the S&T community, and articulating presidential priorities to federal S&T agencies and to the public. In addition, since 1976, presidential science advisors have directed and managed the Office of Science and Technology Policy.

OSTP plays an important role in coordinating and integrating the activities of federal S&T enterprise, acquiring scientific and technical advice and information from the private sector, and advising the President on related matters. Congress provides oversight of OSTP in the execution of its statutory authorities. In addition to the legislation currently under consideration, the 114th Congress may explore issues and legislative options related to the structure of OSTP, its authorities, its relationships with the NSTC and PCAST, and the portfolio of policy issues identified in this report.

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