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The National Telecommunications and Information Administration (NTIA): Issues for the 113th Congress

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Summary

The National Telecommunications and Information Administration (NTIA), a bureau of the Department of Commerce, is the executive branch's principal advisory office on domestic and international telecommunications and information policies. Its mandate is to provide greater access for all Americans to telecommunications services, support U.S. efforts to open foreign markets, advise on international telecommunications negotiations, and fund research for new technologies and their applications. NTIA also manages the distribution of funds for several key grant programs. Its role in managing radio frequency spectrum allocated for federal use includes addressing policies for sharing, and monitoring and resolving questions regarding usage, including causes of interference. It is responsible for identifying federal spectrum that can be transferred to commercial use through the auction of spectrum licenses, conducted by the Federal Communications Commission. Many of the NTIA's responsibilities are shared with other agencies.

With the passage of the Middle Class Tax Relief and Job Creation Act of 2012 (P.L. 112-96), in February 2012, Congress has given the NTIA new responsibilities in spectrum management and the support of public safety initiatives. The 113th Congress may wish to review the NTIA's performance in meeting its obligations under the act. Policy makers may also wish to consider if some of the NTIA's shared obligations might be effectively and efficiently transferred to its partners, allowing the NTIA to focus on communications policies that are considered by many to be key to future economic growth and development.

For purposes of oversight, Congress may—for example—choose to examine the efficacy of the NTIA's spectrum management activities, and to evaluate the agency's compliance with the Spectrum Act (P.L. 112-96, Title VI). Oversight might cover requirements of the act regarding the transfer of spectrum from federal to commercial use and the act's provisions for public safety. In particular, the NTIA appears to be impeding the progress of the First Responder Network Authority (FirstNet) by restricting access to funds appropriated by Congress in the Spectrum Act, as well as other actions that have delayed hiring and procurement.

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Introduction

The National Telecommunications and Information Administration (NTIA) is a bureau in the U.S. Department of Commerce (DOC). The NTIA frequently works with other executive branch agencies to develop and present the Administration's position on key policy matters. It represents the executive branch in both domestic and international telecommunications and information policy activities. Policy areas in which the NTIA acts as the representative of the Administration include international negotiations regarding global agreements on the Internet and spectrum management, and domestic use of spectrum resources by federal agencies. In recent years, one of the responsibilities of the NTIA has been to oversee the transfer of some radio frequencies from the federal domain to the commercial domain. Many of these frequencies have subsequently been auctioned to the commercial sector and the proceeds paid into the U.S. Treasury.

In 2013, the NTIA focused on "supporting the innovation economy of the future – one that produces new and better jobs and positions the United States to remain competitive in the 21st century." Notable programs to contribute this goal included promoting the deployment of broadband infrastructure, advocating a multi-stakeholder approach to Internet policy making, and supporting the push to make more spectrum available for wireless technologies.[1]

As part of President Obama's Wireless Initiative, the NTIA is charged with identifying electromagnetic spectrum that might be transferred from the federal sector to commercial wireless use.[2] This spectrum might be auctioned as licenses for exclusive commercial use, made available for sharing between federal and commercial users, or repurposed in some other way that meets the stated goal of the Wireless Initiative to add 500 MHz of spectrum for wireless broadband.[3] Congress also has required the NTIA to take actions to release spectrum from federal to commercial use and to ensure the efficient use of federal spectrum.[4]

The NTIA administers some grants programs created by Congress, including the Broadband Technology Opportunities Program (BTOP).[5] BTOP grant programs are in the final stages of completion. As required by the Middle Class Tax Relief and Job Creation Act of 2012 (P.L. 112-96), the NTIA is commencing a $135 million grant program to help states plan for participation in a new, nationwide public safety broadband network. To deploy the new network, the act established the First Responder Network Authority, or FirstNet, as an independent agency within the NTIA and assigned to the agency various responsibilities to support FirstNet. FirstNet is funded through the Public Safety Trust Fund, established by Congress to receive revenues from

[1] NTIA blog, "BTIA's Year in Review and 2014 Forecast," http://www.ntia.doc.gov/blog/2013/ntia-s-year-review-and-2014-forecast.

[2] The White House, Office of the Press Secretary, "Presidential Memorandum: Unleashing the Wireless Broadband Revolution," June 28, 2010, http://www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution, and "President Obama Details Plan to Win the Future Through Expanded Wireless Access," Fact Sheet, February 10, 2011, http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access.

[3] Spectrum is segmented into bands of radio frequencies and typically measured in cycles per second, or hertz. Standard abbreviations for measuring frequencies include kHz—kilohertz or thousands of hertz; MHz—megahertz, or millions of hertz; and GHz—gigahertz, or billions of hertz.

[4] P.L. 112-96, Sections 6401, 6410, and 6701.

[5] For a discussion of BTOP grants, see CRS Report R41775, *Background and Issues for Congressional Oversight of ARRA Broadband Awards*, by Lennard G. Kruger.

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auctions of certain spectrum licenses. FirstNet received an advance of nearly $2 billion from the U.S. Treasury against expected proceeds of sales of spectrum licenses. Another $5 billion in funding is expected from the Public Safety Trust Fund as auction revenues are deposited in the account.

Fiscal Year Appropriations and Budget Requests

The President's budget request for the NTIA for FY2014 was $52.1 million for salaries and expenses. The Consolidated and Further Continuing Appropriations Act, 2013 provided $45.1 million for salaries and expenses for FY2013; no funding was appropriated for separate programs.

Table 1. NTIA: Fiscal Year Appropriations 2007-2013

(in millions of dollars)

Funding	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013[a]
NTIA Total	$36.3	$39.2	$40.0	$41.6	$45.6	$45.1
Administration, salaries and expenses	$17.5	$19.2	$20.0	$41.6	$45.6	$45.1
PTFPC	$18.8	$20.0	$20.0	0	0	0

Source: Annual Reports, Department of Commerce and Congressional Appropriations, as Enacted. Appropriations for ongoing grant programs are not included.

a. Includes deduction for rescission but not sequestration.

In FY2010, the Public Telecommunications Facilities Program (PTFP) represented half of the NTIA's budget appropriations. In FY2011, the total enacted budget appropriations amount for the NTIA increased by 4% to $41.6 million; funding for the PTFP was transferred to administrative expenses and salaries. According to the NTIA, the initial increase of $21.6 million from FY2010 to FY2011 in funding for salaries and expenses was largely attributable to the costs of administration of a $4.7 billion program for broadband deployment, as required by the American Recovery and Reinvestment Act of 2009 (P.L. 111-5).[6] In FY2012 requests for funding to administer grant programs totaled $32.3 million, 70% of the fiscal year budget request.[7] For FY2013, $25.8 million in funding was designated to administer the remaining broadband grant programs, primarily BTOP. The FY2014 request for broadband grant program oversight was for $24.7 million, roughly 40% of the total budget request.

The NTIA also receives funding from sources such as fees charged to federal agencies for spectrum management services. Reimbursable funding for FY2014 is estimated at $37.5 million, of which spectrum management fees from federal agencies are projected to be $28.9 million;[8]

[6] This amount was later reduced by Congress to $4.4 billion.

[7] U.S. Department of Commerce, National Telecommunications and Information Administration, FY2013 Budget as Presented to Congress, February 2012.

[8] U.S. Department of Commerce, National Telecommunications and Information Administration, FY2014 Budget as Presented to Congress, April 2013.

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these fees were estimated at $28.7 million for FY2013.[9] The balance is attributable to reimbursable projects in telecommunications technology research.

The FY2014 budget request includes $7.5 million and staff increases of eight FTEs for a new program to develop a spectrum monitoring system and assess technologies for sharing radio frequency spectrum. The program would encompass pilot projects over a period of two years in ten major metropolitan areas.

Both Congress and the Administration have required the NTIA to take new actions in identifying and releasing additional radio frequency spectrum for wireless broadband use. To meet these obligations, funding of $1.25 million and five FTEs are requested for the Office of Spectrum Management for Wireless Broadband Access, a new line item.

Increases in staffing for some programs are offset in part by a reduction of four FTEs to administer broadband programs, and a reduction of 7 FTEs at the Institute of Telecommunication Sciences (ITS). Total FTEs for both directly funded and reimbursable programs is estimated at 309 FTEs, compared to 302 FTEs for FY2013 (under the Continuing Resolution) and 257 FTEs in FY2012.

Programs

The NTIA fulfills many responsibilities for different constituencies. As the agency responsible for managing spectrum used by federal agencies, the NTIA often works in consultation with the Federal Communications Commission (FCC) on matters concerning spectrum access, technology, and policy. The FCC regulates private sector, state, local, and tribal spectrum use. Because many spectrum issues are international in scope and negotiated through treaty-making, the NTIA and the FCC collaborate with the Department of State in representing American interests. The NTIA also participates in interagency efforts to develop Internet policy.[10] The NTIA and the National Institute of Standards (NIST) have adjoining facilities on the Department of Commerce campus in Boulder, CO, where they collaborate on research projects with each other and with other federal agencies, such as the FCC.

The NTIA worked with the Rural Utilities Service in coordinating grants made through BTOP. The NTIA collaborates with NIST, the FCC, and the Department of Homeland Security (DHS) in providing expertise and guidance to grant recipients using BTOP funds to build new wireless networks for broadband communications.

As described by the NTIA,[11] its policies and programs are administered through

- The Office of Spectrum Management (OSM), which formulates and establishes plans and policies that ensure the effective, efficient, and equitable use of the spectrum both nationally and internationally. Through the development of long

[9] U.S. Department of Commerce, National Telecommunications and Information Administration, FY2013 Budget as Presented to Congress, February 2012.

[10] For background information on NTIA's role in U.S. Internet policy, see CRS Report 97-868, *Internet Domain Names: Background and Policy Issues*, by Lennard G. Kruger.

[11] See http://www.ntia.doc.gov/about.

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range spectrum plans, the OSM works to address future federal government spectrum requirements, including public safety operations and the coordination and registration of federal government satellite networks. The OSM also handles the frequency assignment needs of the federal agencies and provides spectrum certification for new federal agency radio communication systems.

- The Office of Policy Analysis and Development (OPAD), which is the domestic policy division of the NTIA. OPAD supports the NTIA's role as principal adviser to the Executive Branch and the Secretary of Commerce on telecommunications and information policies by conducting research and analysis and preparing policy recommendations.
- The Office of International Affairs (OIA), which develops and implements policies to enhance U.S. companies' ability to compete globally in the information technology and communications (ICT) sectors. In consultation with other U.S. agencies and the U.S. private sector, OIA participates in international and regional fora to promote policies that open ICT markets and encourage competition.
- The Institute for Telecommunication Sciences (ITS), which is the research and engineering laboratory of the NTIA. ITS provides technical support to the NTIA in advancing telecommunications and information infrastructure development, enhancing domestic competition, improving U.S. telecommunications trade opportunities, and promoting more efficient and effective use of the radio spectrum.
- The Office of Telecommunications and Information Applications (OTIA), which administers grant programs that further the deployment and use of technology in America, and the advancement of other national priorities. In the past, the OTIA has awarded grants from the Public Telecommunications Facilities Program, which was terminated by Congress in FY2011. The program supported new construction for public broadcasting stations and other organizations.
- The Office of Public Safety Communications, which was created by the NTIA at the end of 2012, to administer some provisions of the Middle Class Tax Relief and Job Creation Act of 2012, Title VI, also known as the Spectrum Act.

For budget purposes, the category of salaries and expenses is organized into four sub-activities: Domestic and International Policies; Spectrum Management; Telecommunication Sciences Research; and Broadband Programs.

Termination of the Public Telecommunications Facilities Program

Effective FY2011, Congress terminated grant funding for the Public Telecommunications Facilities Program (PTFP). In FY2010, the program received $20 million in funding to support broadcast and non-broadcast projects. Approximately half of the grant monies went to public radio and television stations to replace equipment. Another 25% of grant funds were awarded to bring radio and television services to unserved or underserved communities. Other awards included grants to 16 public television and radio stations to cover costs of converting from analog to digital broadcasting. These grants helped the Public Broadcasting Service to maintain and

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improve its critical role in the current Emergency Alert system (EAS) and new initiatives for Wireless Emergency Alerts (also known as commercial mobile alerts).[12] For example, the satellite communications network that supports EAS is operated by the National Public Radio, public television stations provide back-up for Wireless Emergency Alerts to mobile devices, and public television and radio stations provide emergency alerts and information to otherwise unserved communities.

Spectrum Act

The most recent legislative action to provide more spectrum for commercial services was included in provisions of Title VI of the Middle Class Tax Relief and Job Creation Act of 2012 (P.L. 112-96).[13] Title VI is generally referred to as the Spectrum Act, or the Public Safety and Spectrum Act.

Public Safety

The Spectrum Act has given the NTIA responsibilities to create and support the First Responder Network Authority (FirstNet) in planning, building and managing a new, nationwide, broadband network for public safety communications.[14] The NTIA will also be responsible for managing the Public Safety Trust Fund, created by the act, which remains in effect through FY2022.

The NTIA has created an Office of Public Safety Communications to oversee the State and Local Implementation Fund grant process. The Office will manage service-level agreements for the agency to supply administrative, technical, staffing, and other resources, as requested, to FirstNet.

FirstNet appears to be an autonomous organization, with broad powers to carry out its mandate, within the requirements established by the law. It has for example sole power to select the program's manager and its agents, consultants, and other experts subject to the requirement that they be chosen "in a fair, transparent, and objective manner."[15] In managing proposals and contracts, it is to "take such other actions as may be necessary" to accomplish the network build-out.[16]

The NTIA, however, has asserted its power as the supervising government agency in its requirements for the conduct of business.[17] It has for example required that federal policies be applied to hiring and procurement. Yet, nowhere in the act is NTIA instructed to establish FirstNet as a federal agency. The law does, however, make it clear in numerous provisions that a key role

[12] Background information on FEMA and FCC websites, such as http://www.fema.gov/emergency-alert-system-eas.

[13] Provisions in Title VI of the act are discussed in CRS Report R43256, *Spectrum Policy: Provisions in the 2012 Spectrum Act*, by Linda K. Moore.

[14] Actions taken by the NTIA in establishing and assisting FirstNet are documented in the U.S. Department of Commerce, National Telecommunications and Information Administration, "FY 2014 Budget as Presented to Congress," April 2013, page 65, http://www.osec.doc.gov/bmi/budget/FY14CJ/NTIA_FY_2014_CJ_Final_508_Compliant.pdf.

[15] P.L. 112-96, Section 6205 (b) (1).

[16] P.L. 112-96, Section 6206 (b) (4) (D).

[17] Hearing, House Committee on Energy and Commerce, Subcommittee on Communications and Technology, "Oversight of the First Responder Network Authority (FirstNet) and Emergency Communications," March 14, 2013.

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for the NTIA is to assist FirstNet to become a self-funding entity, independent of government subsidies. The decision to require FirstNet to follow federal procurement rules appears inconsistent with the intent of Congress and might be described as setting a course for FirstNet to become "another Amtrak."[18] Another current practice of the NTIA, which appears to exceed its authority as intended by Congress, is to provide funding in small increments. Congress appropriated a total of $7 billion to FirstNet, with an immediate transfer from the Treasury of $2 billion to fund start-up costs. The NTIA appears to be pro-rating the funds, providing funding for a few months at a time for operating costs. This allowance hinders investments for forward planning, such as the establishment of regional centers for state outreach programs.[19]

The act also re-establishes the federal 9-1-1 Implementation Coordination Office (ICO) to plan for next-generation systems (NG 9-1-1) and to administer a grant program.[20] ICO is to be jointly administered by the NTIA and the National Highway Traffic Safety Administration (NHTSA). ICO is to provide matching grants for improvements in the implementation of 911 emergency services, and other purposes, from a grant program authorized at $115 million. Based on the act's prioritized plan for funding programs with spectrum license auction revenue, the funds for the grant program will be made available only after $27.635 billion of available auction revenue has been applied to other purposes. ICO, in consultation with NHTSA and DHS, is to report on costs for requirements and specifications of NG 9-1-1 services, including an analysis of costs, and assessments and analyses of technical uses.

Public Safety Trust Fund and FirstNet

The NTIA is to assure that some of the auction revenues designated for the Public Safety Trust Fund are placed in the Network Construction Fund, which is to be established as an account in the Treasury. The fund is to be used by FirstNet for expenditures on construction, maintenance, and related expenses to build the nationwide network required in the act, and by the NTIA for grants to those states that qualify to build their own radio access network links to FirstNet. The NTIA is also to facilitate payments to states that participate in the deployment of the network. The FY2014 budget estimate shows that $1.908 billion is to be available in the Public Safety Trust Fund, of which $1.902 billion is to be obligated for purchases of goods and services from government accounts.[21] For FY2014, $257 million is designated for the Network Construction Fund.[22]

The act established a State and Local Implementation Fund and required the NTIA, in consultation with FirstNet, to establish grant program requirements. Grants from this fund will be available to all 56 states and territories to support planning, consultation, data collection,

[18] Term frequently used by policy makers to denote over-dependence on federal subsidies, as in the case of financial support for the National Railroad Passenger Corp, or Amtrak. See also CRS Report R42889, *Issues in the Reauthorization of Amtrak*, by David Randall Peterman and John Frittelli.

[19] Spectrum Act provisions for FirstNet are covered in CRS Report R42543, *The First Responder Network and Next-Generation Communications for Public Safety: Issues for Congress*, by Linda K. Moore.

[20] Previous legislation for NG9-1-1 is discussed in CRS Report R41208, *Emergency Communications: Broadband and the Future of 911* , by Linda K. Moore.

[21] U.S. Department of Commerce, National Telecommunications and Information Administration, FY2014 Budget as Presented to Congress, April 2013; Public Safety Trust Fund, Exhibit 16.

[22] U.S. Department of Commerce, National Telecommunications and Information Administration, FY2014 Budget as Presented to Congress, April 2013; Network Construction Fund, Exhibit 6.

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education, and outreach activities. Expenditures by the NTIA from the State and Local Implementation Fund were reported at $300,000 for FY2012 for administrative costs. Disbursements for administrative costs and grants funding are estimated at $124,958,000 (base) for FY2013 and $9,700,000 for FY2014.[23] Grants totaling over $116 million were awarded to 54 states and territories in FY2013.[24]

BTOP Grants and FirstNet

Grants under the BTOP program included seven projects to develop broadband communications for public safety. After the passage of the Spectrum Act, the NTIA partly suspended funding to these projects in order to allow the FirstNet board of directors time to evaluate how the projects might be coordinated with plans for a nationwide network. Furthermore, FirstNet was assigned the sole, national license for public safety broadband; under the Spectrum Act separate lease agreements are required for spectrum access. In February 2013, the board agreed to move forward with negotiations on leasing agreements.[25] Agreements have been reached with four of the BTOP grant recipients,[26] making them eligible to receive the balance of their grants.

Spectrum Reallocation

The Spectrum Act updated existing and specified new procedures for spectrum to be reallocated from federal government to commercial use. Under the act, the NTIA is required to work with the FCC to identify specific bands for release to commercial use.

The act also addressed how spectrum resources might be repurposed from federal to commercial use through auction or sharing, and how the cost of such reassignment would be defined and compensated, among other provisions. Although spectrum sharing to facilitate the transition from federal to commercial use is supported in the act's provisions, the NTIA has been required to give priority to reallocation options that assign spectrum for exclusive, non-federal uses through competitive bidding.

The act has required the establishment of a Technical Panel within the NTIA to review transition plans that each federal agency must prepare in accordance with provisions in the act. The Technical Panel is required to have three members qualified as a radio engineer or technical expert. The Director of the Office of Management and Budget, the Assistant Secretary of Commerce for Communications and Information, and the Chairman of the FCC have been required to appoint one member each. A discussion and interpretation of provisions of the act as regards the technical panel and related procedural requirements such as dispute resolution have been published by the NTIA as part of the rulemaking process.[27]

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[23] U.S. Department of Commerce, National Telecommunications and Information Administration, FY2014 Budget as Presented to Congress, April 2013; State and Local Implementation Fund, Exhibit 10.

[24] NTIA Press release, "More than $116 Million Awarded to Assist States in FirstNet Planning," September 26, 2013, http://www.ntia.doc.gov/press-release/2013/more-116-million-awarded-assist-states-firstnet-planning.

[25] NTIA Press Release, "FirstNet Board Director Sue Swenson Provides Update on Status of BTOP Negotiations," March 28, 2013, http://www.ntia.doc.gov/press-release/2013/firstnet-board-member-sue-swenson-provides-update-status-btop-negotiations-0.

[26] Locations are Adams County, CO; Los Angeles, CA; northern New Jersey; and New Mexico.

[27] NTIA, Notice of Proposed Rulemaking, July 17, 2012, and replies, docket no. 110627357-2209-03 at
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Spectrum Policy

The Administration and Congress have taken steps to increase the amount of radio frequency spectrum available for mobile services such as access to the Internet. The increasingly popular smart phones and tablets require greater spectrum capacity (broadband) than the services of earlier generations of cell phones. Proposals from policy makers to use federal spectrum to provide commercial mobile broadband services include

- Clearing federal users from designated frequencies for transfer to the commercial sector through a competitive bidding system.
- Sharing federal frequencies with specific commercial users.
- Improving the efficiency of federal spectrum use and management.[28]
- Using emerging technologies for network management to allow multiple users to share spectrum as needed.

The NTIA supports the Administration's policy goal of increasing spectrum capacity for mobile broadband by 500 MHz.[29] To this purpose, the NTIA, with input from the Policy and Plans Steering Group (PPSG),[30] has produced a 10-year plan and timetable that identifies bands of spectrum that might be available for commercial wireless broadband service. As part of its planning efforts, the NTIA prepared a "Fast Track Evaluation" of spectrum that might be made available in the near future.[31] Specific recommendations were to make available 15 MHz of spectrum from frequencies between 1695 MHz and 1710 MHz, and 100 MHz of spectrum within bands from 3550 MHz to 3650 MHz. The fast track evaluation also recommended studying two 20 MHz bands to be identified within 4200-4400 MHz for possible repurposing, and placement for consideration of this proposal on the agenda of the World Radio Conference (WRC-2015) scheduled for 2015-2016. The World Radio Conference, held approximately every four years, is the primary forum for negotiating international treaties on spectrum use.

Many decisions regarding the use of federal spectrum are made through the Interdepartmental Radio Access Committee, IRAC.[32] IRAC membership comprises representatives of all branches of the U.S. military and a number of federal department agencies affected by spectrum

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http://www.ntia.doc.gov/federal-register-notice/2012/technical-panel-and-dispute-resolution-board-nprm.

[28] The Government Accountability Office (GAO) issued a report: *Spectrum Management: NTIA Planning and Processes Need Strengthening to Promote the Efficient Use of Spectrum by Federal Agencies,* April 2011, GAO-11-352.

[29] Broadband refers here to the capacity of the radio frequency channel. A broadband channel can quickly transmit live video, complex graphics, and other data-rich information as well as voice and text messages, whereas a narrowband channel might be limited to handling voice, text, and some graphics.

[30] Created in response to Department of Commerce recommendations to improve spectrum efficiency through better management, see http://www.ntia.doc.gov/legacy/reports/specpolini/factsheetspecpolini_06242004.htm.

[31] NTIA, An Assessment of Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHZ, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHZ Bands (President's Spectrum Plan Report), November 15, 2010, at http://www.ntia.doc.gov/report/2010/assessment-near-term-viability-accommodating-wireless-broadband-systems-1675-1710-mhz-17.

[32] See http://www.ntia.doc.gov/category/irac.

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management decisions.[33] The NTIA is advised regarding broader spectrum policy issues by the Commerce Spectrum Advisory Committee (CSMAC), a Federal Advisory Committee. The committee was created in 2004 and is comprised of experts from outside the federal government.[34] The Office of Management and Budget also influences agency spectrum management through budget planning and recommendations.

Reallocating Federal Spectrum

Working through the PPSG, the NTIA studied federal spectrum use by more than 20 agencies with over 3,100 separate frequency assignments in the 1755-1850 MHz band.[35] After evaluating the multiple steps involved in transferring current uses and users to other frequency locations, the NTIA concluded that it would cost $18 billion to clear federal users from all 95 MHz of the band. Based on this assessment, the report included recommendations for seeking ways for federal and commercial users to share many of the frequencies, although some frequencies were identified to be cleared for auction to the private sector. At a hearing of the House Committee on Energy and Commerce, Subcommittee on Communications and Technology, [36] the GAO provided testimony regarding its preliminary findings on spectrum sharing[37] and followed up with a report.[38] Both the hearing and the report indicated that spectrum sharing technology and policies were largely undeveloped. Some of the options to encourage sharing spectrum, as identified by the GAO, include considering spectrum usage fees to provide economic incentive for more efficient use and sharing; identifying more spectrum that could be made available for unlicensed use; encouraging research and development of technologies that can better enable sharing; and improving and expediting regulatory processes related to sharing. Given the challenges for implementing spectrum sharing policies, the GAO found that further study by the NTIA and the FCC was needed.

In a letter to the FCC in July 2013, the Department of Defense (DOD) offered to release frequencies between 1755-1780 MHz, based on sharing spectrum throughout the band in order to control the cost of relocation. DOD would retain access to the 1780-1850 MHz band and the 2025-2110 MHz band for relocation purposes. [39] DOD estimated that relocation of its users in the 1755-1850 MHz to clear spectrum would cost $12 billion if the bands were fully cleared. If frequencies in the 1755-1850 MHz band were shared, relocation costs would be $3.5 billion, according to DOD. [40] The NTIA wrote to the FCC on November 25, endorsing, in general, the DOD proposal for releasing frequencies at 1755 -1850 MHz, as transmitted to the FCC.[41]

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[33] Members are listed at http://www.ntia.doc.gov/page/irac-functions-and-responsibilities.

[34] See http://www.ntia.doc.gov/category/csmac.

[35] U.S. Department of Commerce, *An Assessment of the Viability of Accommodating Wireless Broadband in the 1755-1850 MHz Band,* March 2012, at http://www.ntia.doc.gov/report/2012/assessment-viability-accommodating-wireless-broadband-1755-1850-mhz-band.

[36] Hearing, House of Representatives, Committee on Energy and Commerce, Subcommittee on Communications and Technology, "Creating Opportunities Through Improved Government Spectrum Efficiency," September 13, 2012.

[37] GAO, *Spectrum Management: Federal Government's Use of Spectrum and Preliminary Information on Spectrum Sharing*, September 13, 2012, GAO-12-1018T at http://www.gao.gov/products/GAO-12-1018T .

[38] GAO, *Spectrum Management: Incentives, Opportunities, and Testing Needed to Enhance Spectrum Sharing*, November 14, 2012, GAO-13-7 at http://gao.gov/products/GAO-13-7.

[39] "In Switch, US Military Offers to Share Airwaves with Industry," by Alina Selyukh, Reuters, July 23, 2013, http://www.reuters.com/article/2013/07/23/usa-defense-spectrum-idUSL1N0FT0KG20130723.

[40] "Senators Seek Specific Spectrum Relocation Proposal from DOD," by Adam Mazmanian, FCW, August 5, 2013,
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The NTIA assumptions for the estimates of the cost of relocating federal agencies from the 1755-1850 MHz band were challenged in a congressional hearing, leading to a request to the GAO to examine the process. In particular, the NTIA was criticized during the hearing by some committee members for not separately evaluating the 1755-1780 MHz band, which might be auctioned separately with another spectrum band already available for commercial use.

GAO Cost Estimates for Spectrum Reallocation

In a hearing before the Senate Committee on Armed Services, Subcommittee on Strategic Forces,[42] the GAO presented preliminary findings on DOD estimates of reallocation costs from some radio frequencies.[43] The GAO evaluated DOD relocation cost estimates for frequencies at 1755 MHz-1850 MHz and reported that the "preliminary cost estimate substantially or partially met GAO's identified best practices." In particular, the GAO noted the variable nature of a number of assumptions for costs and revenues, such as the characteristics of the spectrum to which services would be relocated, the availability of new technology, and market demand for spectrum.

Internet Policy

Working with other stakeholders the NTIA leads and participates in interagency efforts to develop Internet policy. In addition, the NTIA works with other governments and international organizations to discuss and reach consensus on relevant Internet policy issues.

Along with the Executive Office of the President, the Office of the Secretary of Commerce, and department bureaus NIST and the International Trade Administration (ITA), the NTIA plays a role in the Internet Policy Task Force, created in 2010 by the Secretary of Commerce.[44] One of the NTIA's functions on the Task Force is to assist in the establishment of a code of conduct on mobile application transparency.[45]

The NTIA is the lead Executive Branch agency on issues relating to the Domain Name System (DNS) and supports a multi-stakeholder approach to the coordination of the DNS to ensure the long-term viability of the Internet as a force for innovation and economic growth.[46]

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http://fcw.com/articles/2013/08/05/defense-spectrum.aspx.

[41] Letter at http://www.ntia.doc.gov/files/ntia/publications/ntia_aws-3_ltr_11252013_.pdf.

[42] Hearing, Senate, Committee on Armed Services, Subcommittee on Strategic Forces, "Oversight: Military Space Programs and Views on DoD Usage of the Electromagnetic Spectrum," April 24, 2013.

[43] GAO, Spectrum Management: Preliminary Findings on Federal Relocation Costs and Auction Revenues, April 24, 2013, GAO-13-563T at http://www.gao.gov/products/GAO-13-563T.

[44] See The Department of Commerce, Internet Policy Task Force, *Commercial Data Privacy and Innovation in the Internet Economy: A Dynamic Policy Framework*, http://www.commerce.gov/sites/default/files/documents/2010/december/iptf-privacy-green-paper.pdf.

[45] Up-to-date details can be found at http://www.ntia.doc.gov/other-publication/2013/privacy-multistakeholder-process-mobile-application-transparency.

[46] See CRS Report R42351, *Internet Governance and the Domain Name System: Issues for Congress*, by Lennard G. Kruger.

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Research

The Institute for Telecommunication Sciences, located in Boulder, CO, is the research and engineering arm of the NTIA. ITS provides core telecommunications research and engineering services to promote: enhanced domestic competition and new technology deployment; advanced telecommunications and information services; foreign trade opportunities for American telecommunication firms; and more efficient use of spectrum.

Issues for the 113th Congress

Principal activities for FY2014 as cited by the NTIA[47] are

- Evaluate options for repurposing federal spectrum for commercial wireless broadband use. This includes new expenditures to develop a spectrum monitoring system.
- Oversee the activities of FirstNet.
- Lead the formation of domestic and international Internet policies such as for data privacy and the free flow of information globally.
- Monitor broadband grants awarded under the American Recovery and Reinvestment Act of 2009.

Many of the NTIA's functions are performed in conjunction with other agencies. The NTIA's role as liaison may lead to overlapping responsibilities, leading to duplication of effort across departments and agencies. At the same time, rapid advances in communications technology have changed the mission of the NTIA in areas such as spectrum policy. As an example, policy makers may wish to consider if some of the NTIA's shared obligations might be effectively and efficiently transferred to its partners, allowing the NTIA to focus on communications policies that are considered by many to be key to future economic growth and development. As it reviews communications and spectrum policy, the 113th Congress may also choose to consider if the current structure of the NTIA might be better aligned to its new responsibilities.

For purposes of oversight, Congress may—for example—choose to examine the efficacy of the NTIA's spectrum management activities, and to evaluate the agency's compliance with the Spectrum Act (P.L. 112-96, Title VI). Oversight might cover requirements of the act regarding the transfer of spectrum from federal to commercial use and the act's provisions for public safety.

[47] *The President's Budget for Fiscal Year 2014*, Appendix.

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