

**Congress of the United States**  
**U.S. House of Representatives**  
**Committee on Small Business**  
2361 Rayburn House Office Building  
Washington, DC 20515-6515

**Memorandum**

To: Members, Subcommittee on Healthcare and Technology  
From: Committee Staff  
Date: February 13, 2012  
Re: Hearing: "Broadband: A Catalyst for Small Business Growth"

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The Subcommittee on Healthcare and Technology will meet for a hearing titled, "Broadband: A Catalyst for Small Business Growth." The hearing is scheduled to begin at 1:00 p.m. on February 15, 2012 in Room 2360 of the Rayburn House Office Building. The purpose of the hearing is to examine the growth and importance of broadband to small businesses, including the role of the federal government in providing access to rural America.

**I. Overview**

Broadband has the potential to transform the way small businesses operate and compete in the 21<sup>st</sup> century. Along with basic email services, the Internet provides a number of tools to help small firms increase their productivity, efficiency, and overall success. Social media, teleworking, cloud data storage, and global video conferencing are a few examples of opportunities provided by the Internet. The Federal Communications Commission (FCC) estimates that 97 percent of small businesses use some form of broadband applications to strengthen their operations.<sup>1</sup>

One of the most important tools the Internet offers to businesses is the ability to access to the global electronic marketplace. From 1998 to 2009, electronic commerce in the United States, also known as online sales, grew from \$4.9 billion to \$145.2 billion, or by 35.9 percent annually.<sup>2</sup> Moreover, broadband has led to a boom of entrepreneurship in new Internet technologies, such as websites and applications, which can hopefully grow into medium and large businesses.

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<sup>1</sup> FCC, NATIONAL BROADBAND PLAN 16 (2010), *available at* <http://download.broadband.gov/plan/national-broadband-plan.pdf> (herein after "Broadband Plan").

<sup>2</sup> BUREAU OF THE CENSUS, UNITED STATES DEPARTMENT OF COMMERCE, RETAIL SALES AND E-COMMERCE-TABLE 1055, *available at* [http://www.census.gov/compendia/statab/cats/wholesale\\_retail\\_trade/online\\_retail\\_sales.html](http://www.census.gov/compendia/statab/cats/wholesale_retail_trade/online_retail_sales.html).

Upon understanding the benefits of broadband, small businesses are concerned with the speed, price and choice of Internet provider.<sup>3</sup> A recent survey by the Small Business Administration (SBA), showed almost half (48 percent) of rural businesses and more than one-third (37 percent) of urban businesses are not satisfied with their current Internet speed.<sup>4</sup> In addition, the survey also stated small businesses desire more choice among broadband services.<sup>5</sup>

The development and adaption of Internet technology continues to grow at a rapid pace. To keep up with the growing demand, private sector carriers have been aggressively building out their broadband infrastructure to provide more coverage at faster speeds. One of the key issues is how to economically provide coverage to rural, including unserved, areas because these areas are a less attractive market to private Internet service providers. The federal government has a number of programs in place that provide incentives for the development of broadband in these areas; however, it is important to enact regulatory policies that do not diminish the incentive for such private sector investment, as this will benefit neither small businesses nor the economy that will rely on them for growth needed to create jobs.

## II. Developments in Broadband

The term “broadband” is generally defined as high-speed Internet access that is significantly faster than the traditional phone “dial-up” services, or 56 kilobits per second (kbps).<sup>6</sup> The dial-up service was the first Internet option that was utilized through the existing telephone line. Then during the mid-1990s telecommunication companies began offering higher speeds through cable modems and digital subscriber line (DSL). Just as the advancement of technology outpaced the dial-up services, many small businesses requested a faster and more reliable alternative to DSL.<sup>7</sup> Therefore, private Internet service providers have adopted fiber optic cable for broadband service, which generally has sufficient capacity to transmit all the data needed by small businesses. However, the cost of wiring communities, particularly remote locations, with fiber optics is expensive. As a result, some providers utilize wireless transmission. Wireless technologies are provided by cellular carriers directly to consumer smart phones, tablets, or other devices through licensed or unlicensed frequencies.<sup>8</sup> Wireless Internet delivery (either from

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<sup>3</sup> SMALL BUSINESS ADMINISTRATION, OFFICE OF ADVOCACY, THE IMPACT OF BROADBAND SPEED AND PRICE ON SMALL BUSINESS *at 17* (2010,) available at [http://www.sba.gov/sites/default/files/rs373tot\\_0.pdf](http://www.sba.gov/sites/default/files/rs373tot_0.pdf). (hereinafter “Broadband Speed Report”).

<sup>4</sup> *Id.* at 41.

<sup>5</sup> *Id.* at 42.

<sup>6</sup> FCC, GUIDE GETTING BROADBAND, available at <http://www.fcc.gov/guides/getting-broadband>.

<sup>7</sup> Broadband Speed Report, *supra* note 3, at 42. Note. In many instances businesses could not get DSL due to the type of equipment that was on their telephone lines and the distance from the customer to the telephone company central office.

<sup>8</sup> Broadband Speed Report, *supra* note 3, at 13.

satellites or terrestrial services) continues to grow at a rapid pace; Cisco projects that wireless data traffic will grow 20 times from 2010 to 2015.<sup>9</sup>

The speed and capabilities of broadband can vary greatly depending upon the type of service. According to the National Telecommunications and Information Administration (NTIA), 98.3 percent of the United States population has access to broadband speeds of at least 768 kbps download/200 kbps upload; and 95.5 percent has access to at least 3 megabits per second (mbps) download/768 kbps upload.<sup>10</sup> The FCC has established a benchmark minimum speed for broadband as 4 mbps download and 1 mbps upload.<sup>11</sup> The chart below provides an example of download speeds for business applications.<sup>12</sup>

Typical Applications and Their Performance for Various Download/Upload Broadband Speeds (Single User)

Applications	56 Kbps/ 56 Kbps (Dial-up, maximum speed)	256 Kbps/ 256 Kbps (DSL, Cable, Cable)	768 Kbps/ 384 Kbps (DSL, Cable, Satellite)	1 Mbps/ 384 Kbps (DSL, Cable, Satellite)	3 Mbps/ 768 Kbps (DSL, Cable, Satellite)	7 Mbps/ 768 Kbps (DSL, Cable, Fiber)	10 Mbps/ 1 Mbps (DSL, Cable, Fiber)	15 Mbps/ 2 Mbps (Cable, Fiber)	20 Mbps/ 2 Mbps (Cable, Fiber)	25 Mbps/ 5 Mbps (Cable, Fiber)	50 Mbps/ 10 Mbps (Cable, Fiber)	100 Mbps/ 10 Mbps (Fiber)
Simple text e-mail without attachments (50 KB)	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Web browsing	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
E-mail with large attachments or graphics (500 KB)	Bad	OK	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Download small files (e.g., a 50-page text document with limited graphics) (1 MB) <sup>1</sup>	Bad	Bad	OK (11 sec.)	Good (8 sec.)	Good (3 sec.)	Good (2 sec.)	Good (1 sec.)	Good (1 sec.)	Good (1 sec.)	Good (1 sec.)	Good (1 sec.)	Good (1 sec.)
Download large files (e.g., a 100-page text document with graphics) (2 MB) <sup>2</sup>	Bad	Bad	OK (21 sec.)	Good (16 sec.)	Good (6 sec.)	Good (3 sec.)	Good (2 sec.)	Good (2 sec.)	Good (1 sec.)	Good (1 sec.)	Good (1 sec.)	Good (1 sec.)
Online trading, e-business	Bad	Bad	OK	Good	Good	Good	Good	Good	Good	Good	Good	Good
Online meeting presentation and document sharing	Bad	Bad	OK	Good	Good	Good	Good	Good	Good	Good	Good	Good
Videoconferencing streaming at 384 Kbps (desktop/single user) <sup>3</sup>	Bad	Bad	OK	OK	Good	Good	Good	Good	Good	Good	Good	Good

### III. Federal Role in Expanding Broadband

The NTIA is the primary agency responsible for developing telecommunications and information policy aimed at expanding broadband access and adoption in the United States.<sup>13</sup> The Rural

<sup>9</sup> CISCO SYSTEMS, VISUAL NETWORKING INDEX FORECAST, available at

[http://www.cisco.com/en/US/netsol/ns827/networking\\_solutions\\_sub\\_solution.html#%7Eforecast](http://www.cisco.com/en/US/netsol/ns827/networking_solutions_sub_solution.html#%7Eforecast).

<sup>10</sup> NTIA, NATIONAL BROADBAND MAP, available at <http://www.broadbandmap.gov/summarize/nationwide>.

<sup>11</sup> Connect America Fund: A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High Cost Universal Service Support, WC Docket Nos. 10-90, 07-135, 05-337, 03-109; GN Docket No. 09-51; CC Docket Nos. 01-92, 96-45; WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, slip op. at ¶¶ 1-4 (FCC 11-161) (Nov. 18, 2011), summarized at 76 Fed. Reg. 73,830 (Nov. 29, 2011) (hereinafter "USF/ICC Transformation Order"). The slip opinion is available at [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2012/db0206/FCC-11-161A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0206/FCC-11-161A1.pdf).

Technically, the FCC did not adopt a definition of broadband; rather the Commission determined that carriers would not be eligible for assistance from the Connect America Fund unless they provided 4 Mbps downstream and 1 Mbps upstream. Downstream refers to the speed at which someone can download something to a computer or other web-enabled device (such as a smart phone) and upstream refers to speeds at a computer or other web-enabled device can transmit data to the Internet.

<sup>12</sup> Broadband Speed Report, *supra* note 3, at 17.

<sup>13</sup> NTIA, ABOUT NTIA, available at <http://www.ntia.doc.gov/about>.

Utility Service (RUS) within the United States Department of Agriculture is the primary agency for financing rural broadband development. RUS administers two funding programs to expand broadband: the Rural Broadband Access Loan and Loan Guarantee program; and the Community Connect Broadband grants.<sup>14</sup> Finally, the FCC is the independent agency tasked with regulating interstate and international communications by wire, satellite, and cable.<sup>15</sup> Wireless spectrum is managed by the FCC for commercial use, and by the NTIA for government use.<sup>16</sup> The role of these three agencies to promote deployment of broadband was enhanced with the enactment of the American Recovery and Reinvestment Act (ARRA).

## **ARRA**

On February 17, 2009, President Obama signed the ARRA.<sup>17</sup> ARRA provided \$7.2 billion for federal grants and loans through the RUS and NTIA, and directed the FCC to develop a national broadband plan.<sup>18</sup> Of the \$7.2 billion, the RUS received \$2.5 billion to administer grants and loans through the Broadband Initiatives Program (BIP). The remaining \$4.7 was appropriated for the NTIA to issue federal grants through the Broadband Technology Opportunity Program (BTOP).<sup>19</sup> The purpose of the programs is to support the deployment of broadband infrastructure, enhance and expand public computer centers, encourage sustainable adoption of broadband services, and to develop a broadband map.

The RUS BIP program provided financing for 320 projects, totaling \$3.53 billion.<sup>20</sup> The list of projects included: 285 last mile projects, 12 middle mile projects, 4 satellite awards, and 19 technical assistance grants.<sup>21</sup> RUS estimated the infrastructure projects funded will provide broadband service to 2.8 million households, reaching nearly 7 million people, 364,000 businesses, and 32,000 anchor institutions across more than 300,000 square miles.<sup>22</sup> In addition, RUS asserts the projects will create more than 25,000 immediate and direct jobs.<sup>23</sup>

The NTIA BTOP program provided financing for 233 projects, totaling \$3.94 billion.<sup>24</sup> NTIA states the funding will go towards the construction or upgrade of approximately 120,000 miles of

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<sup>14</sup> RURAL DEVELOPMENT, UNITED STATES DEPARTMENT OF AGRICULTURE, ABOUT RURAL DEVELOPMENT, *available at* <http://www.rurdev.usda.gov/AboutRD.html>.

<sup>15</sup> FCC, ABOUT US, *available at* <http://transition.fcc.gov/aboutus.html>.

<sup>16</sup> NTIA, OFFICE OF SPECTRUM MANAGEMENT, *available at*: <http://www.ntia.doc.gov/office/OSM>.

<sup>17</sup> Pub. L. No. 111-5, 123 Stat. 115 (2009).

<sup>18</sup> *Id.* at 123 Stat. 516.

<sup>19</sup> The BTOP program was created in ARRA, Div. B., Tit. VI, § 6001, 123 Stat. at 512 (codified, as amended, at 47 U.S.C. § 1305).

<sup>20</sup> RUS, QUARTERLY REPORT ON BROADBAND INITIATIVES PROGRAM 2, (DEC. 2010), *available at* [http://www.rurdev.usda.gov/supportdocuments/BIPQuarterlyReport\\_12-10.pdf](http://www.rurdev.usda.gov/supportdocuments/BIPQuarterlyReport_12-10.pdf)

<sup>21</sup> *Id.* at 2.

<sup>22</sup> *Id.* at 6-9.

<sup>23</sup> RUS, ADVANCING BROADBAND: A FOUNDATION OR STRONG RURAL COMMUNITIES – BIP PROGRAM AWARDS REPORT 3 (JAN 2011), *available at* [http://www.rurdev.usda.gov/supportdocuments/RBBreport\\_V5forweb.pdf](http://www.rurdev.usda.gov/supportdocuments/RBBreport_V5forweb.pdf).

<sup>24</sup> NTIA, THE BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM: EXPANDING BROADBAND ACCESS AND ADOPTION IN COMMUNITIES ACROSS AMERICA 3 (2010), *available at* [http://www.ntia.doc.gov/files/ntia/publications/ntia\\_report\\_on\\_btop\\_12142010\\_0.pdf](http://www.ntia.doc.gov/files/ntia/publications/ntia_report_on_btop_12142010_0.pdf).

broadband networks on multiple networks, including fiber wire and wireless.<sup>25</sup> NTIA estimates that the BTOP investment will add approximately 70,000 miles of new broadband facilities,<sup>26</sup> and will serve as a catalyst for –“millions of dollars in additional private sector investment.”<sup>27</sup>

With the administration of the grants and loans completed, both agencies have increased their focus on oversight of the projects. Many of the projects were awarded without a full assessment of the current network capabilities and needs.

### ***National Broadband Plan (NBP)***

On March 17, 2010, the FCC released the National Broadband Plan outlining the strategy needed to provide broadband to everybody in the United States.<sup>28</sup> The 360 page plan provides detailed policy recommendations and outlines long-term general goals including: supplying the nation with broadband access; ensuring affordable access to robust Internet service; and making the United State the leader in mobile innovation, with the fastest and most extensive network.<sup>29</sup> These general goals are supported by 208 specific recommendations.

### ***Universal Service Fund Reform***

The Universal Service Fund (USF), generally, is the money collected from telecommunications companies with the mission of providing universal telecommunication service through four programs: High Cost, Low Income, Rural Health Care, and Schools and Libraries.<sup>30</sup> From 1998 to 2010, the USF provided over \$43 billion to the High Cost program; over \$9.8 billion for the Low Income program; over \$426 million for the Rural Health Care program; and over \$29 billion for the Schools and Libraries program.<sup>31</sup> The NBP outlined 14 specific policy recommendations aimed at reforming the USF to expand broadband coverage.<sup>32</sup>

On November 18, 2011, the FCC announced the comprehensive reform of the Universal Service Fund (USF) and the intercarrier compensation system<sup>33</sup> to “ensure that robust, affordable voice and broadband service, both fixed and mobile, are available to Americans throughout the nation.”<sup>34</sup> The 751-page proposed order contains many of the same recommendations stated in the NBP, including the creation of the Connect America Fund.<sup>35</sup> The principal goals of the

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<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> NTIA, CONNECTING AMERICA’S COMMUNITIES at 4 available at [http://www.ntia.doc.gov/files/ntia/publications/ntia\\_report\\_on\\_btop\\_12142010\\_0.pdf](http://www.ntia.doc.gov/files/ntia/publications/ntia_report_on_btop_12142010_0.pdf).

<sup>28</sup> Broadband Plan, *supra* note 1.

<sup>29</sup> *Id.* at Exec. Summary at xiv-xv.

<sup>30</sup> <http://www.usac.org/about/universal-service/fund-facts/fund-facts.aspx>.

<sup>31</sup> *Id.*

<sup>32</sup> Broadband Plan, *supra* note 1, at 140-151.

<sup>33</sup> Intercarrier compensation is referred to as the monetary compensation that is transferred between carriers while connecting calls through multiple networks.

<sup>34</sup> USF/ICC Transformation Order, *supra* note 11, slip op. at ¶ 4.

<sup>35</sup> *Id.* at ¶ 20.

comprehensive reform are: 1) preserve and advance universal availability of voice services; 2) ensure universal availability of modern networks capable of providing voice and broadband services to homes, businesses, and community anchor institutions; 3) ensure universal availability of modern networks capable of providing advanced mobile voice and broadband service; 4) ensure that rates for broadband services and rates for voice services are reasonably comparable in all regional of the nation; and 5) minimize the universal service contribution on consumers and businesses.<sup>36</sup>

### *Spectrum*

Electromagnetic spectrum is the infrastructure for wireless broadband to transmit data on mobile devices, such as smart phones and tablets. The rapid growth in mobile wireless technology and capabilities has enhanced the need for more spectrum. The NBP outlines a number of proposals to increase spectrum, including making available 500 megahertz for mobile broadband.<sup>37</sup>

Increasing the amount of spectrum available will allow mobile wireless providers to continue to expand their network capabilities to keep up with the rapid growth in demand.

### **IV. Conclusion**

Broadband is an essential tool for small businesses and their ability to compete in the global economy. This hearing will provide an opportunity for members of the Committee to hear directly from small business broadband providers and users on the importance of providing access across the country, while also examining the impact of current federal initiatives.

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<sup>36</sup> *Id* at ¶ 17.

<sup>37</sup> Broadband Plan, *supra* note 1, at 75.