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Broadband Internet Access and the Digital Divide: Federal Assistance Programs

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Broadband Internet Access and the Digital Divide: Federal Assistance Programs

Summary

The "digital divide" is a term that has been used to characterize a gap between "information haves and have-nots," or in other words, between those Americans who use or have access to telecommunications technologies (e.g., telephones, computers, the Internet) and those who do not. One important subset of the digital divide debate concerns high-speed Internet access, also known as *broadband*. Broadband is provided by a series of technologies (e.g. cable, telephone wire, satellite, wireless) that give users the ability to send and receive data at volumes and speeds far greater than current Internet access over traditional telephone lines.

Broadband technologies are currently being deployed by the private sector throughout the United States. While the numbers of new broadband subscribers continue to grow, studies conducted by the Federal Communications Commission (FCC), the Department of Commerce (DOC), and the Department of Agriculture (USDA) suggest that the rate of broadband deployment in urban and high income areas may be outpacing deployment in rural and low-income areas.

Some policymakers, believing that disparities in broadband access across American society could have adverse economic and social consequences on those left behind, assert that the federal government should play a more active role to avoid a "digital divide" in broadband access. One approach is for the federal government to provide financial assistance to support broadband deployment in underserved areas. Others, however, believe that federal assistance for broadband deployment is not appropriate. Some opponents question the reality of the "digital divide," and argue that federal intervention in the broadband marketplace would be premature and, in some cases, counterproductive.

Legislation introduced into the 107th Congress sought to provide federal financial assistance for broadband deployment in the form of grants, loans, subsidies, and tax credits. Similar legislation has been introduced into the 108th Congress. In assessing this legislation, several policy issues arise. For example, is the current status of broadband deployment data an adequate basis on which to base policy decisions? Given the early stages of broadband deployment, is federal assistance premature, or do the risks of delaying assistance to underserved areas outweigh the benefits of avoiding federal intervention in the marketplace? And finally, if one assumes that governmental action is necessary to spur broadband deployment in underserved areas, which specific approaches, either separately or in combination, are likely to be most effective?

This report will be updated as events warrant.

Contents

Background 1
Broadband in Rural and Low-Income Areas 2
Federal Role 4
Federal Telecommunications Development Programs 6
The Universal Service Concept and the FCC 6
Universal Service and the Telecommunications Act of 1996 7
Universal Service and Broadband 9
Rural Utilities Service 10
Rural Broadband Access Loan and Loan Guarantee Program ... 10
Community Connect Broadband Grants 11
Department of Commerce 12
Legislation in the 107th Congress 12
Legislation in the 108th Congress 17
Policy Issues 19
Is Broadband Deployment Data Adequate? 19
Is Federal Assistance for Broadband Deployment Premature or Inappropriate? 20
Which Approach is Best? 20

List of Tables

Table 1. Selected Federal Domestic Assistance Programs Related to Telecommunications Development 22

Broadband Internet Access and the Digital Divide: Federal Assistance Programs

Background

The "digital divide" is a term used to describe a perceived gap between perceived "information haves and have-nots," or in other words, between those Americans who use or have access to telecommunications technologies (e.g., telephones, computers, the Internet) and those who do not.[1] Whether or not individuals or communities fall into the "information haves" category depends on a number of factors, ranging from the presence of computers in the home, to training and education, to the availability of affordable Internet access. A widely cited series of reports issued by the Department of Commerce[2] during the Clinton Administration argued that a "digital divide" exists, with many rural citizens, certain minority groups, and low-income Americans tending to have less access to telecommunications technology than other Americans.[3]

In February 2002, the Bush Administration's Department of Commerce released its first survey report on Internet use, entitled *A Nation Online: How Americans Are Expanding Their Use of the Internet.*[4] While acknowledging a disparity in usage between "information haves and have nots," the report focused on the increasing rates of Internet usage among traditionally underserved groups:

> In every income bracket, at every level of education, in every age group, for people of every race and among people of Hispanic origin, among both men and women, many more people use computers and the Internet now than did so in the recent past. Some people are still more likely to be Internet users than others. Individuals living in low-income households or having little education, still trail the national average. However, broad measures of Internet use in the United States suggest that over time Internet use has become more equitable.[5]

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[1] The term "digital divide" can also refer to international disparities in access to information technology. This report focuses on domestic issues only.

[2] See: U.S. Department of Commerce, *Falling Through the Net: Toward Digital Inclusion*, released October 2000.

[3] Not all observers agree that a "digital divide" exists. See, for example: Thierer, Adam D., *Divided Over the Digital Divide*, Heritage Foundation, March 1, 2000. [http://www.heritage.org/Press/Commentary/ED030100.cfm]

[4] Department of Commerce, *A Nation Online: How Americans Are Expanding Their Use of the Internet*, February 2002. Based on a September 2001 Census Bureau survey of 57,000 households. See: [http://www.ntia.doc.gov/ntiahome/dn/index.html]

[5] *A Nation Online*, pp. 10-11.

One important subset of the digital divide debate concerns high speed Internet access, also known as *broadband.* Broadband is provided by a series of technologies (e.g. cable, telephone wire, satellite, wireless) that give users the ability to send and receive data at volumes and speeds far greater than current Internet access over traditional telephone lines.[6] In addition to offering speed, broadband access provides a continuous, "always on" connection (no need to dial-up) and a "two-way" capability, that is, the ability to both receive (download) and transmit (upload) data at high speeds.

According to the latest FCC data on the deployment of high-speed Internet connections (released December 22, 2003), as of June 30, 2003 there were 23.5 million high speed lines connecting homes and businesses to the Internet in the United States, a growth rate of 18% during the first half of 2003.[7] Of the 23.5 million high speed lines reported by the FCC, 20.6 million serve homes and small businesses. While broadband *adoption* rates remain relatively low, broadband *availability* is much higher. According to J.P. Morgan and McKinsey & Co., 73% of households have cable modem service available, and 45% of households have access to DSL. Combined, availability of at least one broadband provider is estimated to be almost 85%. However, only 12% of households with available access to broadband have chosen to subscribe.[8]

More recent data exist for broadband subscriptions over telephone lines, cable, and satellite, currently the principal competing broadband technologies. According to *Telecommunications Reports*, as of September 30, 2003, about 28.9% of online customers were using DSL, cable modem, or high-speed satellite service. The breakdown is as follows: 13.6 million using cable modem, 9.3 million using DSL, and 216,000 using satellite.[9]

Broadband in Rural and Low-Income Areas. While the number of new broadband subscribers continues to grow, the rate of broadband deployment in urban and high income areas appears to be outpacing deployment in rural and low-income areas. In response to a request by ten Senators, the Departments of Commerce and Agriculture released a report on April 26, 2000, concluding that rural areas lag behind urban areas in access to broadband technology. The report found that less than 5% of towns of 10,000 or less have access to broadband, while broadband over cable has been deployed in more than 65% of all cities with populations over

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[6] For further information on different types of broadband technologies, including their respective strengths and limitations, see: CRS Issue Brief IB10045, *Broadband Internet Access: Background and Issues.*

[7] FCC, *High-Speed Services for Internet Access: Status as of June 30, 2003,* December 22, 2003. Available at: [http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/hspd1203.pdf]

[8] Remarks of Michael Powell, Chairman, FCC before the National Summit on Broadband Deployment, October 25, 2001 [http://www.fcc.gov/Speeches/Powell/2001/spmkp110.html]

[9] *TR's Online Census, Third Quarter 2003*, p. 1.

250,000, and broadband over the telephone network has been deployed in 56% of all cities with populations over 100,000.[10]

The FCC's *Third Report* found that while broadband is being deployed throughout the United States in a reasonable and timely fashion overall, "certain factors – such as population density and income – continue to be highly correlated with the availability of high-speed services."[11] As of June 30, 2003, the FCC found at least one high-speed subscriber in 91% of all zip codes in the United States. High-speed subscribers were reported in 99% of the most densely populated zip codes, as opposed to 69% of zip codes with the lowest population densities. Similarly, for zip codes ranked by median family income, high-speed subscribers were reported present in 98% of the top one-tenth of zip codes, as compared to 78% of the bottom one-tenth of zip codes.[12]

Similarly, the February 2002 report from the Department of Commerce, *A Nation Online: How Americans Are Expanding Their Use of the Internet*, found that 12.2% of Internet users in rural areas had high-speed connections, as opposed to 21.2% of Internet users in urban areas. The report's survey also found, not surprisingly, that individuals in high-income households have higher broadband subscribership rates than individuals in lower income households.[13]

Finally, a study released in February 2004 by the Pew Internet & American Life Project found that while broadband adoption is growing in urban, suburban, and rural areas, broadband users make up larger percentages of urban and suburban users than rural users. Between 2000 and 2003, the study found that while the number of home broadband users grew from 8% to 36% of the online population in urban communities, and from 7% to 32% in suburban communities, the number of home broadband users in rural communities grew from 3% to 19%.[14]

Some policymakers believe that disparities in broadband access across American society could have adverse consequences on those left behind. While a minority of American homes today subscribe to broadband, many believe that advanced Internet applications of the future – high quality video, for example – and the resulting ability for businesses and consumers to engage in e-commerce, may increasingly depend on high speed broadband connections to the Internet. Thus, some say, communities and individuals without access to broadband could be at risk to the extent that e-commerce becomes a critical factor in determining future economic development and prosperity.

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[10] See: U.S. Depts. of Commerce and Agriculture, *Advanced Telecommunications in Rural America: The Challenge of Bringing Broadband Service to All Americans*, April 2000, 80 pages. Available at: [http://www.ntia.doc.gov/reports/ruralbb42600.pdf]

[11] FCC, *Third Report*, p. 5.

[12] FCC, *High-Speed Services for Internet Access: Status as of June 31, 2003*, p. 4-5.

[13] *A Nation Online*, pp. 40-41.

[14] Pew Internet &American Life Project, *Rural Areas and the Internet*, p. 14. Available at: [http://www.pewinternet.org/reports/pdfs/PIP_Rural_Report.pdf]

Federal Role. The Telecommunications Act of 1996 (P.L. 104-104) addresses the issue of whether the federal government should intervene to prevent a "digital divide" in broadband access. Section 706 requires the FCC to determine whether "advanced telecommunications capability [i.e., broadband or high-speed access] is being deployed to all Americans in a reasonable and timely fashion." If this is not the case, the Act directs the FCC to "take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market."

On January 28, 1999, the FCC adopted its first report (FCC 99-5) pursuant to Section 706. The report concluded that "the consumer broadband market is in the early stages of development, and that, while it is too early to reach definitive conclusions, aggregate data suggests that broadband is being deployed in a reasonable and timely fashion."[15] The FCC announced that it would continue to monitor closely the deployment of broadband capability in annual reports and that, where necessary, it would "not hesitate to reduce barriers to competition and infrastructure investment to ensure that market conditions are conducive to investment, innovation, and meeting the needs of all consumers."

The FCC's second Section 706 report was adopted on August 3, 2000. Based on more extensive data than the first report, the FCC similarly concluded that notwithstanding risks faced by some vulnerable populations, broadband is being deployed in a reasonable and timely fashion overall:

> Recognizing that the development of advanced services infrastructure remains in its early stages, we conclude that, overall, deployment of advanced telecommunications capability is proceeding in a reasonable and timely fashion. Specifically, competition is emerging, rapid build-out of necessary infrastructure continues, and extensive investment is pouring into this segment of the economy.[16]

The FCC's third Section 706 report was adopted on February 6, 2002. Again, the FCC concluded that "the deployment of advanced telecommunications capability to all Americans is reasonable and timely."[17] The FCC added:

> We are encouraged by the expansion of advanced services to many regions of the nation, and growing number of subscribers. We also conclude that investment in infrastructure for most advanced services markets remains strong, even though the pace of investment trends has generally slowed. This may be due in part to the general economic slowdown in the nation. In addition, we find that emerging technologies continue to stimulate competition and create new alternatives and choices for consumers.[18]

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[15] FCC News Release, "FCC Issues Report on the Deployment of Advanced Telecommunications Capability to All Americans," January 28, 1999. [http://www.fcc.gov/Bureaus/Common_Carrier/News_Releases/1999/nrcc9004.html]

[16] *Deployment of Advanced Telecommunications Capability: Second Report*, p. 6.

[17] *Third Report*, p. 5.

[18] *Ibid.*, p. 5-6.

While the FCC is currently implementing or actively considering some regulatory activities related to broadband,[19] no major regulatory intervention pursuant to Section 706 of the Telecommunications Act of 1996 has been deemed necessary by the FCC at this time. Meanwhile, the National Telecommunications and Information Administration (NTIA) at the Department of Commerce (DOC) was tasked with developing the Bush Administration's broadband policy.[20] While the Administration's official broadband policy has not yet been formally unveiled, statements from Administration officials indicate that much of the policy will focus on removing regulatory roadblocks to investment in broadband deployment.[21] On June 13, 2002, in a speech at the 21st Century High Tech Forum, President Bush declared that the nation must be aggressive about the expansion of broadband, and cited ongoing activities at the FCC as important in eliminating hurdles and barriers to get broadband implemented.

The Bush Administration has also emphasized the importance of encouraging demand for broadband services. On September 23, 2002, the DOC's Office of Technology Policy released a report, *Understanding Broadband Demand: A Review of Critical Issues*,[22] which argues that national governments can accelerate broadband demand by taking a number of steps, including: protecting intellectual property, supporting business investment, developing e-government applications, promoting efficient radio spectrum management, and others. Similarly, the President's Council of Advisers on Science & Technology (PCAST) was tasked with studying "demand-side" broadband issues and suggesting policies to stimulate broadband deployment and economic recovery. The PCAST report, *Building Out Broadband*, released in December 2002, concludes that while government should not intervene in the telecommunications marketplace, it should apply existing policies and work with the private sector to promote broadband applications and usage. Specific initiatives include increasing e-government broadband applications (including homeland security); promoting telework, distance learning, and telemedicine; pursuing broadband-friendly spectrum policies, and ensuring access to public rights of way for broadband infrastructure.[23] Meanwhile, "high-tech" organizations such as TechNet,[24]

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[19] See Section VI of the *Third Report*, "Actions to Accelerate the Deployment of Advanced Telecommunications," pp. 54-66.

[20] See speech by Nancy Victory, Assistant Secretary for Communications and Information, before the National Summit on Broadband Deployment, October 25, 2001, [http://www.ntia.doc.gov/ntiahome/speeches/2001/broadband_102501.htm]

[21] Address by Nancy Victory, NTIA Administrator, before the Alliance for Public Technology Broadband Symposium, February 8, 2002, [http://www.ntia.doc.gov/ntiahome/speeches/2002/apt_020802.htm]

[22] Available at: [http://www.ta.doc.gov/reports/TechPolicy/Broadband_020921.pdf]

[23] President's Council of Advisors on Science and Technology, Office of Science and Technology Policy, *Building Out Broadband*, December 2002, 14 p. Available at: [http://www.ostp.gov/PCAST/FINAL%20Broadband%20Report%20With%20Letters.pdf]

[24] TechNet represents over 300 senior executives from companies in the fields of information technology, biotechnology, venture capital, investment banking, and law. TechNet's policy document, "A National Imperative: Universal Availability of Broadband

(continued...)

the Computer Systems Policy Project (CSPP)[25], and the Semiconductor Industry Association (SIA)[26] have called on the federal government to adopt policies toward a goal of 100 Mbs to 100 million homes by the end of the decade.

Some policymakers in Congress assert that the federal government should play a more active role to avoid a "digital divide" in broadband access, and that legislation is necessary to ensure fair competition and timely broadband deployment. To accomplish this goal, the Congress considered a number of legislative approaches in the 107th Congress. First, Congress considered whether to ease certain legal restrictions and requirements, imposed by the Telecommunications Act of 1996, on incumbent telephone companies that provide high-speed data (broadband) access. For more information on this legislation (e.g. H.R. 1542 in the 107th Congress, popularly referred to as "Tauzin-Dingell"), see CRS Issue Brief IB10045, *Broadband Internet Access: Background and Issues.*

Another approach involves federal assistance to support broadband deployment in underserved areas. Numerous bills have been introduced into the 107th and 108th Congress seeking to provide federal financial assistance for broadband deployment in the form of grants, loans, subsidies, and/or tax credits.

Federal Telecommunications Development Programs

Table 1 (at the end of this report) shows selected federal domestic assistance programs throughout the federal government that can be associated with telecommunications development. Many (if not most) of these programs can be related, if not necessarily to the deployment of broadband technologies in particular, then to telecommunications and the "digital divide" issue generally.

The Universal Service Concept and the FCC.[27] Since its creation in 1934 the Federal Communications Commission (FCC) has been tasked with "... mak[ing] available, so far as possible, to all the people of the United States, ... a rapid, efficient, Nation-wide, and world-wide wire and radio communications service with adequate facilities at reasonable charges...."[28] This mandate led to the development of what has come to be known as the universal service concept.

The universal service concept, as originally designed, called for the establishment of policies to ensure that telecommunications services are available to

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[24] (...continued)
by 2010," is available at: [http://www.technet.org/news/newsreleases/2002-01-15.64.pdf]

[25] CSPP is composed of nine CEOs from computer hardware and information technology companies. See: "A Vision for 21st Century Wired & Wireless Broadband: Building the Foundation of the Networked World," [http://www.cspp.org/reports/networkedworld.pdf]

[26] See: Semiconductor Industry Association, "Removing Barriers to Broadband Deployment," [http://sia-online.org/downloads/Broadband_Combined.pdf]

[27] The section on universal service was prepared by Angele Gilroy, Specialist in Telecommunications Policy, Resources, Science and Industry Division.

[28] Communications Act of 1934, As Amended, Title I sec.1[47 U.S.C. 151].

all Americans, including those in rural, insular and high cost areas, by ensuring that rates remain affordable. Over the years this concept fostered the development of various FCC policies and programs to meet this goal. The FCC offers universal service support through a number of direct mechanisms that target both providers of and subscribers to telecommunications services.[29]

The development of the federal universal service high cost fund is an example of provider-targeted support. Under the high cost fund, eligible telecommunications carriers, usually those serving rural, insular and high cost areas, are able to obtain funds to help offset the higher than average costs of providing telephone service.[30] This mechanism has been particularly important to rural America where the lack of subscriber density leads to significant costs. FCC universal service policies have also been expanded to target individual users. Such federal programs include two income-based programs, Link Up and Lifeline, established in the mid-1980s to assist economically needy individuals. The Link Up program assists low-income subscribers pay the costs associated with the initiation of telephone service and the Lifeline program assists low-income subscribers pay the recurring monthly service charges. Funding to assist carriers providing service to individuals with speech and/or hearing disabilities is also provided through the Telecommunications Relay Service Fund. Effective January 1, 1998, schools, libraries, and rural health care providers also qualified for universal service support.

Universal Service and the Telecommunications Act of 1996. Passage of the Telecommunications Act of 1996 (P.L.104-104) codified the long-standing commitment by U.S. policymakers to ensure universal service in the provision of telecommunications services.

The Schools and Libraries, and Rural Health Care Programs. Congress, through the 1996 Act, not only codified, but also expanded the concept of universal service to include, among other principles, that elementary and secondary schools and classrooms, libraries, and rural health care providers have access to telecommunications services for specific purposes at discounted rates. (See Sections 254(b)(6) and 254(h)of the 1996 Telecommunications Act, 47 USC 254.)

1. The Schools and Libraries Program. Under universal service provisions contained in the 1996 Act, elementary and secondary schools and classrooms and libraries are designated as beneficiaries of universal service discounts. Universal service principles detailed in Section 254(b)(6) state that "Elementary and secondary schools and classrooms ... and libraries should have access to advanced telecommunications services..." The Act further requires in Section 254(h)(1)(B) that services within the definition of universal service be provided to elementary and secondary schools and libraries for education purposes at discounts, that is at "rates less than the amounts charged for similar services to other parties."

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[29] Many states participate in or have programs that mirror FCC universal service mechanisms to help promote universal service goals within their states.

[30] Additional FCC policies such as rate averaging and pooling have also been implemented to assist high cost carriers.

The FCC established the Schools and Libraries Division within the Universal Service Administrative Company (USAC) to administer the schools and libraries or "E (education)-rate" program to comply with these provisions. Under this program, eligible schools and libraries receive discounts ranging from 20 to 90 percent for telecommunications services depending on the poverty level of the school's (or school district's) population and its location in a high cost telecommunications area. Three categories of services are eligible for discounts: internal connections (e.g. wiring, routers and servers); Internet access; and telecommunications and dedicated services, with the third category receiving funding priority. According to data released by program administrators, $10.4 billion in funding has been committed over the first five years of the program with funding released to all states, the District of Columbia and all territories. Funding commitments for the sixth year, funding Year 2003, totaled $2.1 billion as of February 27, 2004.[31]

2. The Rural Health Care Program. Section 254(h) of the 1996 Act requires that public and non-profit rural health care providers have access to telecommunications services necessary for the provision of health care services at rates comparable to those paid for similar services in urban areas. Subsection 254(h)(1) further specifies that "to the extent technically feasible and economically reasonable" health care providers should have access to advanced telecommunications and information services. The FCC established the Rural Health Care Division (RHCD) within the USAC to administer the universal support program to comply with these provisions. Under FCC established rules only public or non-profit health care providers are eligible to receive funding. Eligible health care providers, with the exception of those requesting only access to the Internet, must also be located in a rural area.[32] The funding ceiling, or cap, for this support was established at $400 million annually. The funding level for Year One of the program (January 1998 - June 30, 1999) was set at $100 million. Due to less than anticipated demand, the FCC established a $12 million funding level for the second year (July 1, 1999 to June 30, 2000) of the program but has returned to a $400 million cap for the three most recent years. As of March 11,2004, covering the first 6 years of the program, a total of $72.1 million has been committed to 1,988 health care providers. The primary use of the funding is to provide reduced rates for telecommunications services necessary for the provision of health care.[33]

The Telecommunications Development Fund. Section 714 of the 1996 Act created the Telecommunications Development Fund (TDF). The TDF is a private,

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[31] For information on the status, funding and implementation of the program see CRS Issue Brief IB98040, *Telecommunications Discounts for Schools and Libraries: The "E-Rate" Program and Controversies,* by Angele A. Gilroy.

[32] Any health care provider that does not have toll-free access to the Internet can receive the lesser of $180 in toll charges per month or the toll charges incurred for 30 hours of access to the Internet per month. To obtain this support the health care provider does not have to be located in a rural area, but must show that it lacks toll-free Internet access and that it is an eligible health care provider.

[33] For additional information on this program including funding commitments see the RHCD web site: [http://www.rhc.universalservice.org]

non-governmental, venture capital corporation overseen by a seven-member board of directors and fund management. The purpose of the TDF is threefold: to promote access to capital for small businesses in order to enhance competition in the telecommunications industry; to stimulate new technology development and promote employment and training; and to support universal service and enhance the delivery of telecommunications services to rural and underserved areas. The TDF is authorized to provide financing to eligible small businesses in the telecommunications industry through loans and investment capital. At this time the TDF is focusing on providing financing in the form of equity investments ranging from $375,000 to $1 million per investment.[34] Initial funding for the program is derived from the interest earned from the upfront payments bidders submit to participate in FCC auctions. The availability of funds for future investments is dependent on earning a successful return on the Fund's portfolio. As of March 11, 2004, the TDF had $50 million under management of which approximately $13-15million is committed to thirteen portfolio companies.[35]

Universal Service and Broadband. One of the policy debates surrounding universal service is whether access to advanced telecommunications services (i.e. broadband) should be incorporated into universal service objectives. The term universal service, when applied to telecommunications, refers to the ability to make available a basket of telecommunications services to the public, across the nation, at a reasonable price. As directed in the 1996 Telecommunications Act [Section 254(c)] a federal-state Joint Board was tasked with defining the services which should be included in the basket of services to be eligible for federal universal service support; in effect using and defining the term "universal service" for the first time. The Joint Board's recommendation, which was subsequently adopted by the FCC in May 1997, included the following in its universal services package: voice grade access to and some usage of the public switched network; single line service; dual tone signaling; access to directory assistance; emergency service such as 911; operator services; access and interexchange (long distance) service.

Some policy makers expressed concern that the FCC-adopted definition is too limited and does not take into consideration the importance and growing acceptance of advanced services such as broadband and Internet access. They point to a number of provisions contained in the Universal Service section of the 1996 Act to support their claim. Universal service principles contained in Section 254(b)(2) state that "Access to advanced telecommunications services should be provided to all regions of the Nation." The subsequent principle (b)(3) calls for consumers in all regions of the Nation including "low-income" and those in "rural, insular, and high cost areas" to have access to telecommunications and information services including "advanced services" at a comparable level and a comparable rate charged for similar services in urban areas. Such provisions, they state, dictate that the FCC expand its universal service definition.

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[34] The TDF also provides management and technical assistance to the companies in which it invests.

[35] For additional information on this program see the TDF web site at: [http://www.tdfund.com]

Others caution that a more modest approach is appropriate given the "universal mandate" associated with this definition and the uncertainty and costs associated with mandating nationwide deployment of such advanced services as a universal service policy goal. Furthermore they state the 1996 Act does take into consideration the changing nature of the telecommunications sector and allows for the universal service definition to be modified if future conditions warrant. Section 254(c)of the Act states that "universal service is an evolving level of telecommunications services" and the FCC is tasked with "periodically" reevaluating this definition "taking into account advances in telecommunications and information technologies and services." Furthermore, the Joint Board is given specific authority to recommend "from time to time" to the FCC modification in the definition of the services to be included for federal universal service support. The Joint Board, in July 2002, concluded such an inquiry and recommended that at this time no changes be made in the current list of services eligible for universal service support. The FCC, in a July 10, 2003 order (FCC 03-170) adopted the Joint Board's recommendation thereby leaving unchanged the list of services supported by Federal universal service.

Rural Utilities Service. The Rural Electrification Administration (REA), subsequently renamed the Rural Utilities Service (RUS), was established by the Roosevelt Administration in 1935. Initially, it was established to provide credit assistance for the development of rural electric systems. In 1949, the mission of REA was expanded to include rural telephone providers. Congress further amended the Rural Electrification Act in 1971 to establish within REA a Rural Telephone Account and the Rural Telephone Bank (RTB). The RTB is described as a public-private partnership intended to provide additional sources of capital that will supplement loans made directly by RUS. Another program, the Distance Learning and Telemedicine Program, specifically addresses the needs engendered by passage of the Telecommunications Act of 1996 (P.L. 104-104). Its passage has contributed to an increase in demand for telecommunications loans. Currently, the RUS implements two programs specifically targeted at providing assistance for broadband deployment in rural areas: the Rural Broadband Access Loan and Loan Guarantee Program and Community Connect Broadband Grants.

Rural Broadband Access Loan and Loan Guarantee Program. The Farm Security and Rural Investment Act of 2002 (P.L. 107-171) authorized a loan and loan guarantee program to eligible entities for facilities and equipment providing broadband service in rural communities. Section 6103 makes available, from the funds of the Commodity Credit Corporation (CCC), a total of $100 million through FY2007 ($20 million for each of fiscal years 2002 through 2005, and $10 million for each of fiscal years 2006 and 2007). P.L. 107-171 also authorizes any other funds appropriated for the broadband loan program. On January 30, 2003, the RUS published in the *Federal Register* amended regulations establishing the Rural Broadband Access Loan and Loan Guarantee Program, as authorized by P.L. 107-171.[36] For FY2003, loans totaling $1.455 billion were made available. Of this total, $1.295 billion was for direct cost-of-money loans, $80 million for direct 4-percent

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[36] Rural Utilities Service, USDA, "Rural Broadband Access Loans and Loan Guarantees," *Federal Register*, Vol. 68, No. 20, January 30, 2003, pp. 4684-4692.

loans, and $80 million for loan guarantees.[37] For FY2003, the RUS received over 80 applications requesting loans totaling $1 billion.

In its FY2004 budget request, the Administration proposed cancelling the mandatory $20 million from the Commodity Credit Corporation (as provided in P.L. 107-171), while providing $9.1 million in discretionary funding through the FY2004 appropriations process. The $9.1 million in discretionary budget authority would support almost $200 million in loans during FY2004. In addition, the Administration proposed $2 million for broadband grants in FY2004. The FY2004 House Agriculture Appropriations bill, passed by the House on July 14, 2003 (H.R. 2673; H.Rept. 108-193) also cancels the mandatory $20 million from the Commodity Credit Corporation, while providing $9.1 million in loan subsidies and $8 million for broadband grants. The Senate Agriculture Appropriations bill, as passed by the Senate on November 6, 2003, while also blocking the $20 million from the Commodity Credit Corporation, provides $15.1 million in loan subsidies and $10 million in broadband grants. The Conference Agreement on the FY2004 Consolidated Appropriations Act (H.R. 2673; H.Rept. 108-401) provides $13.1 million in loan subsidies (which will support a loan level of $602 million) and $9 million for broadband grants. The FY2004 Consolidated Appropriations Act was signed into law on January 23, 2004 (P.L. 108-199).

For FY2004, $38.8 million (mandatory budget authority) is carried over from prior years and is available to support a direct and guaranteed loan level of $1.6 billion. Additionally, the $13.1 million of discretionary budget authority (appropriated for FY2004) supports a loan level of $600 million. Therefore, the total loan level available for FY2004 is about $2.2 billion.

The Administration's FY2005 budget proposal requests $9.9 million in discretionary authority, which would support about $331 million in loan levels. The mandatory funding provided by the Farm Bill for 2004 and 2005, a total of $40 million, would be rescinded.

Community Connect Broadband Grants. Complementing the broadband loan program, the RUS has established a broadband pilot grant program which issues grants to applicants proposing to provide broadband service on a "community-oriented connectivity" basis to rural communities of under 20,000 inhabitants. The program targets rural, economically-challenged communities by providing support for broadband service to schools, libraries, education centers, health care providers, law enforcement agencies, public safety organizations, residents and businesses. In the program's initial year, FY2002, $20 million was made available; RUS received more than 300 applications requesting a total of $185 million. On May 15, 2003, RUS announced 40 awards totaling $20 million for the FY2002 program. On July 18, 2003, RUS announced the availability of $10 million for the FY2003 program; 34 FY2003 grant awards totaling $11.3 million were announced on September 24, 2003.

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[37] Rural Utilities Service, USDA, "Rural Broadband Access Loans and Loan Guarantees Program," *Federal Register*, Vol. 68, No. 20, January 30, 2003, pp. 4753-4755.

The FY2004 Consolidated Appropriations Act (P.L. 108-199) provides $9 million for broadband grants in FY2004. The Administration's FY2005 budget proposal requests no funding for broadband grants.

Department of Commerce. The Technology Opportunities Program (TOP), formerly the Telecommunications and Information Infrastructure Assistance Program (TIAPP), is administered by the National Telecommunications and Information Administration (NTIA) at the Department of Commerce. TOP gives grants for model projects demonstrating innovative uses of advanced telecommunications technologies, especially in rural and underserved communities. Matching grants are awarded to state, local and tribal governments, health care providers, schools, libraries, police departments, and community-based non-profit organizations. Applications include distance learning, telemedicine, and economic development.

Since 1994, TOP has awarded 583 grants, totaling $218.9 million and leveraging $297 million in local matching funds. As broadband technologies become increasingly developed and deployed, it is likely that an increasing number of TOP grants will be related to broadband deployment.

In its FY2003 budget submission, the Administration proposed to terminate the TOP program. The FY2003 Omnibus Appropriations (P.L. 108-7) provides $15.5 million for TOP. In its FY2004 budget submission, the Administration again proposed to terminate the TOP program. The FY2004 Consolidated Appropriations Act (P.L. 108-199) provides $15 million for TOP in FY2004. The Administration's FY2005 budget again proposes the termination of TOP.

Legislation in the 107th Congress

A number of bills were introduced in the 107th Congress which sought to provide financial support for broadband deployment, especially in rural and/or low-income areas. Some provisions would have authorized funding for loans and grants, while others would have established targeted tax credits for companies investing in broadband facilities.[38]

The Senate version of the farm bill – S. 1731 (Harkin) – contained language authorizing the Secretary of Agriculture to provide grants and loans to eligible entities providing broadband service in rural areas. Subsequently, the final farm bill conference agreement (H.Rept.107-424; H.R. 2646/S. 1731, the Farm Security and Rural Investment Act of 2002) authorizes the Secretary of Agriculture to make loans and loan guarantees to eligible entities for facilities and equipment providing broadband service in rural communities. Section 6103 makes available, from the funds of the Commodity Credit Corporation, a total of $100 million through FY2007 ($20 million for each of fiscal years 2002 through 2005, and $10 million for each of

[38] For information on broadband legislation which addresses regulatory issues such as lifting data transmission restrictions on Bell Operating Companies, and "open access" of cable systems, please see the CRS Issue Brief IB10045, *Broadband Internet Access: Background and Issues*.

fiscal years 2006 and 2007). The Farm Bill was signed into law (P.L. 107-171) on May 13, 2002.

Meanwhile, a broadband tax credit provision was added to the Senate Finance Committee version of the economic stimulus bill, H.R. 3090 (Economic Security and Recovery Act of 2001). Modeled on S. 88 (the Broadband Internet Access Act introduced by Senator Rockefeller), section 902 of H.R. 3090 would have provided a 10% credit for deploying "current generation" broadband equipment in rural and underserved areas and a 20% credit for "next generation" broadband equipment deployment for rural and underserved areas and for all residential broadband subscribers. Ultimately, H.R. 3090 was not passed by the Senate.

Subsequently, similar broadband tax credit language was considered as a possible amendment to the Senate energy bill (S. 517). In the end, this amendment was not included in the final version of the energy bill passed by the Senate on April 25, 2002.[39]

The Broadband Telecommunications Act of 2002 (S. 2430) was introduced by Senator Hollings on May 2, 2002. S. 2448 would provide financial assistance for an array of programs and initiatives to encourage broadband deployment, particularly in rural and underserved areas. Specifically, the bill would establish a Broadband Deployment and Demand Trust Fund financed by monies from the telephone excise tax. For each of years FY2003 through FY2007, expenditures from the Trust Fund would be used for a number of purposes, including: grants and loans for broadband deployment; pilot projects for wireless and other non-wireline broadband technologies; block grants to States and local governments to encourage and support broadband deployment; grants to the National Institute of Standards and Technology (NIST), NTIA, the National Science Board, and universities to conduct research on next-generation broadband technologies; grants to connect underrepresented colleges and communities to the Internet; grants for digital television conversion by public broadcasters; and grants for programs aimed at stimulating broadband demand, such as digitizing library and museum collections, developing consumer applications, and developing e-government initiatives. In total, S. 2448 would authorize expenditures of up to $10.87 billion through FY2007 ($2.17 billion per year, FY2003 – FY2007).

The following is a complete listing of bills introduced in the 107th Congress which sought to provide some form of financial assistance to encourage broadband deployment:

H.R. 267 (English)

Broadband Internet Access Act of 2001. Provides tax credits for five years to companies investing in broadband equipment. Provides a 10% tax credit for "current generation" broadband service (defined as download speeds of at least 1.5 million bits per second) for rural and low-income areas, and a 20% tax credit for "next generation" broadband service (defined as download speeds of at least 22 million bits

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[39] See Senate debate on Broadband Tax Credit Legislation, *Congressional Record*, April 25, 2002, pp. S3399-S3404.

per second). Introduced January 30, 2001; referred to Committee on Ways and Means.

H.R. 1415 (Rangel)

Technology Bond Initiative of 2001. Provides an income tax credit to holders of bonds financing the deployment of broadband technologies. Introduced April 4, 2001; referred to Committee on Ways and Means.

H.R. 1416 (LaFalce)

Broadband Expansion Grant Initiative of 2001. Authorizes $100 million in grants and loan guarantees from the Department of Commerce for deployment by the private sector of broadband telecommunications networks and capabilities to underserved rural areas. Introduced April 4, 2001; referred to Committee on Energy and Commerce.

H.R. 1693 (Hall)

Science Education for the 21st Century Act. Authorizes $10 million in each of fiscal years 2002 through 2004 for federal agencies participating in the Next Generation Internet program to conduct broadband demonstration projects in elementary and secondary schools. Directs the National Science Foundation to conduct a study of broadband network access in schools and libraries. Introduced May 3, 2001; referred to Committees on Science and on Education and Workforce.

H.R. 1697 (Conyers)

Broadband Competition and Incentives Act of 2001. Authorizes $3 billion for a loan program administered by the Department of Justice to finance broadband deployment in rural and low-income areas. Introduced May 3, 2001; referred to Committees on Judiciary and on Energy and Commerce.

H.R. 2038 (Stupak)

Rural Broadband Enhancement Act. Gives new authority to the Rural Utilities Service in consultation with the National Telecommunications and Information Administration to make low interest loans to companies that are deploying broadband technology in rural areas. Introduced May 25, 2001; referred to Committee on Energy and Commerce and Committee on Agriculture.

H.R. 2139 (Smith)

Rural America Broadband Deployment Act. Authorizes the Secretary of Agriculture to make loans for the development of broadband services in rural areas. Introduced June 12, 2001; referred to Committee on Agriculture and Committee on Energy and Commerce.

H.R. 2401 (McHugh)

Rural America Digital Accessibility Act. Provides for grants, loans, research, and tax credits to promote broadband deployment in underserved rural areas. Introduced June 28, 2001; referred to Committee on Energy and Commerce, Committee on Ways and Means, and Committee on Science.

H.R. 2597 (McInnis)

Broadband Deployment and Telework Incentive Act. Allows taxpayer deductions for purchase of broadband equipment and provides tax credits to providers of next generation broadband service to rural and urban subscribers. Introduced July 23, 2001; referred to Committee on Ways and Means.

H.R. 2669 (Moran)

Rural Telecommunications Enhancement Act. Authorizes the Secretary of Agriculture to make loans and grants to improve access to telecommunications and Internet services in rural areas. Introduced July 27, 2001; referred to Committee on Agriculture and Committee on Energy and Commerce.

H.R. 2847 (Boswell)

Rural America Technology Enhancement Act of 2001. Provides: tax credits for broadband facilities development; rural area broadband support through the FCC's universal service fund; and loans from the USDA Rural Utilities Service. Introduced September 6, 2001; referred to Committees on Agriculture; Ways and Means; Energy and Commerce; and Education and the Workforce.

H.R. 3090 (Thomas, Bill)

Economic Security and Recover Act of 2001. Section 902 (added by Senate Finance Committee) provides a 10% tax credit for "current generation" broadband service (defined as download speeds of at least 1 million bits per second) for rural and low-income areas, and a 20% tax credit for "next generation" broadband service (defined as download speeds of at least 22 million bits per second). Introduced October 11, 2001. Passed House October 24, 2001. Reported by Senate Finance Committee with an amendment in the nature of a substitute, November 9, 2001.

H.R. 4641 (Markey)

Wireless Technology Investment and Digital Dividends Act of 2002. Establishes a Broadband Infrastructure Investments Program, funded by a trust fund financed by revenues from spectrum auctions. Program would make grants to nonprofit organizations, States, or local governments for broadband deployment in underserved rural areas and low-income housing and community centers. Introduced May 2, 2002; referred to Committee on Energy and Commerce.

H.R. 4664 (Smith, Nick)

National Science Foundation Authorization Act of 2002. Directs the National Science Foundation to conduct a study of broadband network access for schools and libraries. Passed House June 5, 2002; passed Senate November 14, 2002. Signed by President, December 19, 2002.

S. 88 (Rockefeller)

Broadband Internet Access Act of 2001. Provides tax credits for five years to companies investing in broadband equipment. Provides a 10% tax credit for "current generation" broadband service (defined as download speeds of at least 1.5 million bits per second) for rural and low-income areas, and a 20% tax credit for "next generation" broadband service (defined as download speeds of at least 22 million bits per second). Introduced January 22, 2001; referred to Committee on Finance.

S. 150 (Kerry)

Broadband Deployment Act of 2001. Provides tax credits for five years to companies investing in broadband equipment to serve low-income areas. Provides a 10% tax credit for broadband service delivering a minimum download speed of 1.5 million bits per second. Introduced January 23, 2001; referred to Committee on Finance.

S. 426 (Clinton)

Technology Bond Initiative of 2001. Provides an income tax credit to holders of bonds financing the deployment of broadband technologies. Introduced March 1, 2001; referred to Committee on Finance.

S. 428 (Clinton)

Broadband Expansion Grant Initiative of 2001. Authorizes $100 million in grants and loan guarantees from the Department of Commerce for deployment by the private sector of broadband telecommunications networks and capabilities to underserved rural areas. Introduced March 1, 2001; referred to Committee on Commerce, Science, and Transportation.

S. 430 (Clinton)

Broadband Rural Research Investment Act of 2001. Authorizes $25 million for the National Science Foundation to fund research on broadband services in rural and other remote areas. Introduced March 1, 2001; referred to Committee on Finance.

S. 966 (Dorgan)

Rural Broadband Enhancement Act. Gives new authority to the Rural Utilities Service in consultation with the National Telecommunications and Information Administration to make low interest loans to companies that are deploying broadband technology in rural areas. Introduced May 25, 2001; referred to Committee on Commerce, Science, and Transportation.

S. 1571 (Lugar)

Farm and Ranch Equity Act of 2001. Section 602 would authorize the Secretary of Agriculture to make loans and grants to entities providing broadband service to rural areas. Introduced October 18, 2001; referred to Committee on Agriculture, Nutrition, and Forestry.

S. 1731 (Harkin)/P.L. 107-171

Agriculture, Conservation, and Rural Enhancement Act of 2001. Title VI (Section 605) would authorize the Secretary of Agriculture to make loans and grants to entities providing broadband service to rural areas. Introduced November 27, 2001; referred to Committee on Agriculture, Nutrition, and Forestry. Committee report (S.Rept. 107-117) filed December 7, 2001. Incorporated into H.R. 2646 as an amendment and passed by Senate, February 13, 2002. Conference report (H.Rept. 107-424) filed in House May 1, 2002. Signed into law May 13, 2002.

S. 2448 (Hollings)

Broadband Telecommunications Act of 2002. Provides loans and grants to encourage broadband deployment in rural and underserved areas. Also provides

grants to foster broadband demand and technology development. Introduced May 2, 2002; referred to Committee on Commerce, Science and Transportation.

S. 2582 (Lieberman)
National Broadband Strategy Act of 2002. Requires the President to submit a report to Congress setting forth a comprehensive strategy for the nationwide deployment of high speed broadband Internet telecommunications services. Introduced June 5, 2002; referred to Committee on Commerce, Science, and Transportation.

Legislation in the 108th Congress

Many of the legislative proposals related to providing financial assistance for broadband deployment have been reintroduced into the 108th Congress. In the Jobs and Growth Tax Relief Reconciliation Act of 2003 (H.R. 2/P.L. 108-27), the Senate inserted a provision allowing the expensing of broadband Internet access expenditures. However, this provision was not retained during the House/Senate Conference. The broadband expensing provision was subsequently attached to S. 1637, the Jumpstart Our Business Strength (JOBS) Act. The following is a complete listing of bills. Also included are bills which would allocate additional spectrum for use by wireless broadband applications:

H.R. 138 (McHugh)
Rural America Digital Accessibility Act. Provides for grants, loans, research, and tax credits to promote broadband deployment in underserved rural areas. Introduced January 7, 2003; referred to Committee on Energy and Commerce, Committee on Ways and Means, and Committee on Science.

H.R. 340 (Issa)
Jumpstart Broadband Act. Requires the FCC to allocate additional spectrum for unlicensed use by wireless broadband devices. Introduced January 27, 2003; referred to Committee on Energy and Commerce.

H.R. 363 (Honda)
Jumpstart Broadband Act. Requires the FCC to allocate additional spectrum for unlicensed use by wireless broadband devices. Introduced January 27, 2003; referred to Committee on Energy and Commerce.

H.R. 768 (English)
Amends the Internal Revenue Code of 1986 to provide a broadband Internet access tax credit. Provides tax credits for five years to companies investing in broadband equipment. Provides a 10% tax credit for "current generation" broadband service (defined as download speeds of at least 1 million bits per second) for rural and low-income areas (both residential and business subscribers), and a 20% tax credit for "next generation" broadband service (defined as download speeds of at least 22 million bits per second) for all residential subscribers and business subscribers in rural and underserved areas. Introduced February 13, 2003; referred to Committee on Ways and Means.

H.R. 769 (English)

Amends the Internal Revenue Code of 1986 to allow the expensing of broadband Internet access expenditures. Introduced February 13, 2003; referred to Committee on Ways and Means.

H.R. 1396 (Markey)

Spectrum Commons and Digital Dividends Act of 2003. Uses proceeds of spectrum auctions to establish a Public Broadband Infrastructure Investments Program at the National Telecommunications and Information Administration. Introduced March 20, 2003; referred to Committee on Energy and Commerce.

H.R. 3089 (Andrews)

Greater Access to E-Governance Act. Establishes grant program at the Department of Commerce to provide funds to State and local governments to enable them to deploy broadband computer networks for the conduct of electronic governance transactions by citizens in local schools and libraries. Introduced September 16, 2003; referred to Committee on Energy and Commerce.

S. 159 (Boxer)

Jumpstart Broadband Act. Requires the FCC to allocate additional spectrum for unlicensed use by wireless broadband devices. Introduced January 14, 2003; referred to Committee on Commerce, Science and Transportation.

S. 160 (Burns)

Amends the Internal Revenue Code of 1986 to allow the expensing of broadband Internet access expenditures. Introduced January 14, 2002; referred to Committee on Finance.

S. 305 (Kerry)

Amends the Internal Revenue Code of 1986 to include in the criteria for selecting any project for the low-income housing credit whether such project has high-speed Internet infrastructure. Introduced February 5, 2003; referred to Committee on Finance.

S. 414 (Daschle)

Economic Recovery Act of 2003. Provides a 10% tax credit for "current generation" broadband service (defined as download speeds of at least 1.0 million bits per second) for rural and low-income areas, and a 20% tax credit for "next generation" broadband service (defined as download speeds of at least 22 million bits per second). Introduced February 14, 2003; placed on Senate Legislative Calendar.

S. 905 (Rockefeller)

Provides tax credits for five years to companies investing in broadband equipment. Provides a 10% tax credit for "current generation" broadband service (defined as download speeds of at least 1.0 million bits per second) for rural and low-income areas, and a 20% tax credit for "next generation" broadband service (defined as download speeds of at least 22 million bits per second). Introduced April 11, 2003; referred to Committee on Finance.

S. 1637 (Frist)

Jumpstart Our Business Strength Act. Allows the expensing of broadband Internet access expenditures. Introduced September 18, 2003; referred to Committee on Finance. Reported by Committee on Finance (S.Rept. 108-192) on November 7, 2003; placed on Senate Legislative Calendar.

S. 1796 (Coleman)

Rural Renaissance Act. Establishes a Rural Renaissance Corporation which would fund a variety of types of rural revitalization projects, including a project to expand broadband technology. Introduced October 29, 2003; referred to Committee on Finance.

Policy Issues

As summarized above, legislation introduced into the 107th and 108th Congress seeks to provide federal financial assistance for broadband deployment in rural and underserved areas. In assessing this legislation, several policy issues arise.

Is Broadband Deployment Data Adequate? Obtaining an accurate snapshot of the status of broadband deployment is problematic. Anecdotes abound of rural and low-income areas which do not have adequate Internet access, as well as those which are receiving access to high-speed, state-of-the-art connections. Rapidly evolving technologies, the constant flux of the telecommunications industry, the uncertainty of consumer wants and needs, and the sheer diversity and size of the nation's economy and geography make the status of broadband deployment very difficult to characterize. The FCC has begun the process of periodically collecting deployment data from the private sector. In using these data as the basis of the Second Report, the FCC acknowledges that broadband deployment data collection and analysis remain a work in progress. According to former FCC Commissioner Tristani, "[t]he data on which the Report relies suffer from several weaknesses that undermine our ability to draw well-supported conclusions and to identify with specificity at-risk communities."[40]

The FCC is working to refine the data used in future Reports in order to provide an increasingly accurate portrayal. Meanwhile, other studies have been released or are forthcoming which could shed further light on broadband deployment. The General Accounting Office (GAO) released a report in October 2000 which examined how competition is developing in the market for Internet access services, including the development of consumer choice of Internet access.[41]

Some argue that because the overall status of broadband deployment is not yet adequately understood, government intervention is not appropriate at this time. On the other hand, advocates of federal assistance for broadband deployment maintain

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[40] Separate Statement of Commissioner Gloria Tristani, *Deployment of Advanced Telecommunications Capability: Second Report.* [http://www.fcc.gov/Speeches/Tristani/Statements/2000/stgt043.html]

[41] General Accounting Office, *Technological and Regulatory Factors Affecting Consumer Choice of Internet Providers*, GAO-01-93, October 2000, 68 p.

that the available data indicate clearly enough that rural and low-income areas are being underserved, and that the risk of delaying assistance to these areas outweighs the benefit of waiting for more complete data.

Is Federal Assistance for Broadband Deployment Premature or Inappropriate? Related to the data issue is the argument that government intervention in the broadband marketplace would be premature or inappropriate. The FCC currently does not favor significant regulatory intervention, arguing that broadband deployment is in its early stages, that critical applications and attractive content for broadband have not yet emerged, and that even in areas where broadband access is available, it is not yet apparent that most consumers are willing to pay the average fee of $50 per month for this new service. Some argue that financial assistance for broadband deployment could distort private sector investment decisions in a dynamic and rapidly evolving marketplace, and question whether federal tax dollars should support a technology that has not yet matured, and whose societal benefits have not yet been demonstrated.[42]

On the other hand, proponents of financial assistance counter that the available data show, in general, that the private sector will invest in areas where it expects the greatest return – areas of high population density and income. Without some governmental assistance in underserved areas, they argue, it is reasonable to conclude that broadband deployment will lag behind in many rural and low income areas. Proponents of a more federal support for broadband deployment also argue that broadband is an important contributor to future economic growth. Because the federal government has not adopted an aggressive broadband policy, they assert, the U.S. is lagging behind other countries in broadband deployment. An October 2003 report released by the FCC found the U.S. ranking sixth in broadband subscribers per 100 people, trailing South Korea, Canada, Belgium, Denmark, and Sweden.[43]

Which Approach is Best? If one assumes that governmental action is appropriate to spur broadband deployment in underserved areas, which specific approaches, either separately or in combination, would likely be most effective? Targeted grants and loans from several existing federal programs have been proposed, as well as tax credits for companies deploying broadband systems in rural

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[42] See: Leighton, Wayne A., *Broadband Deployment and the Digital Divide: A Primer*, a Cato Institute Policy Analysis, No. 410, August 7, 2001, 34 pp. Available at: [http://www.cato.org/pubs/pas/pa410.pdf]. Also see: Thierer, Adam, *Broadband Tax Credits, the High-Tech Pork Barrel Begins*, Cato Institute, July 13, 2001, available at: [http://www.cato.org/tech/tk/010713-tk.html].

[43] See: Federal Communications Commission, *Broadband Internet Access in OECD Countries: A Comparative Analysis*, Staff Report of the Office of Strategic Planning and Policy Analysis and International Bureau, 23 pages. In 2001, an OECD study found the U.S. ranking fourth in broadband subscribership per 100 inhabitants (after Korea, Sweden, and Canada). See: Organization for Economic Cooperation and Development, Directorate for Science, Technology and Industry, *The Development of Broadband Access in OECD Countries*, October 29, 2001, 63 pages. For a comparison of government broadband policies, also see: OECD, Directorate for Science, Technology and Industry, *Broadband Infrastructure Deployment: The Role of Government Assistance*, May 22, 2002, 42 pages.

and low-income areas. How might the impact of federal assistance compare with the effects of regulatory or deregulatory actions?[44] And finally, how might any federal assistance programs best compliment existing "digital divide" initiatives by the states, localities, and private sector?[45]

[44] See CRS Issue Brief IB10045 for a detailed discussion of these issues.

[45] For more information on state, local, and private sector initiatives, see: [http://www.digitaldividenetwork.org]

Table 1. Selected Federal Domestic Assistance Programs Related to Telecommunications Development [46]

Program	Agency	Description	FY2004 funding	Web Links for More Information [http://www.cfda.gov/public/]: Go to "All Programs Listed Numerically" and search by program
Technology Opportunities Program	National Telecommunications and Information Administration, Dept. of Commerce	Provides grants for model projects demonstrating innovative uses of advanced telecommunications technologies, especially in rural and underserved communities	$12.9 million	[http://www.ntia.doc.gov/otiahome/top/index.html]
Public Telecommunications Facilities – Planning and Construction	National Telecommunications and Information Administration, Dept. of Commerce	Assists in planning, acquisition, installation and modernization of public telecommunications facilities	$19.75 million	[http://www.ntia.doc.gov/otiahome/ptfp/index.html]

[46] Prepared by CRS based on information from budget documents, agency websites, and the Catalog of Federal Domestic Assistance, updated January 2004.

Program	Agency	Description	FY2004 funding	Web Links for More Information [http://www.cfda.gov/public/]: Go to "All Programs Listed Numerically" and search by program
Grants for Public Works and Economic Development Facilities	Economic Development Administration, Dept. of Commerce	Provides grants to economically distressed areas for construction of public facilities and infrastructure, including broadband deployment and other types of telecommunications enabling projects	$203.7 million	[http://www.doc.gov/eda/]
Rural Telephone Loans and Loan Guarantees	Rural Utilities Service, U.S. Dept. of Agriculture	Provides long-term direct and guaranteed loans to qualified organizations for the purpose of financing the improvement, expansion, construction, acquisition, and operation of telephone lines, facilities, or systems to furnish and improve telecommunications service in rural areas	$145 million (hardship loans); $250 million (cost of money loans); $120 million (FFB Treasury loans)	[http://www.usda.gov/rus/telecom/index.htm]
Rural Telephone Bank Loans	Rural Utilities Service, U.S. Dept. of Agriculture	Provides supplemental financing to extend and improve telecommunications services in rural areas	$173 million	[http://www.usda.gov/rus/telecom/rtb/index_rtb.htm]

Program	Agency	Description	FY2004 funding	Web Links for More Information [http://www.cfda.gov/public/]: Go to "All Programs Listed Numerically" and search by program
Distance Learning and Telemedicine Loans and Grants	Rural Utilities Service, U.S. Dept. of Agriculture	Provides seed money for loans and grants to rural community facilities (e.g., schools, libraries, hospitals) for advanced telecommunications systems that can provide health care and educational benefits to rural areas	$300 million (loans) $39 million (grants)	[http://www.usda.gov/rus/telecom/dlt/dlt.htm]
Rural Broadband Access Loan and Loan Guarantee Program	Rural Utilities Service, U.S. Dept. of Agriculture	Provides loan and loan guarantees for facilities and equipment providing broadband service in rural communities	$602 million	[http://www.usda.gov/rus/telecom/broadband.htm]
Community Connect Broadband Grants	Rural Utilities Service, U.S. Dept. of Agriculture	Provides grants to applicants proposing to provide broadband service on a "community-oriented connectivity" basis to rural communities of under 20,000 inhabitants.	$9 million	[http://www.usda.gov/rus/telecom/initiatives/index_initiatives.htm#broadband]
Community Technology Centers Program	Office of Vocational and Adult Education Dept. of Education	Provides access to computers and technology, particularly educational technology, to adults and children in low-income communities in both urban and rural areas who otherwise would lack that access	$32.4 million (FY2003)	[http://www.ed.gov/fund/grant/apply/AdultEd/CTC/index.html]

Program	Agency	Description	FY2004 funding	Web Links for More Information [http://www.cfda.gov/public/]: Go to "All Programs Listed Numerically" and search by program
Education Technology State Grants	Office of Elementary and Secondary Education, Dept. of Education	Grants to State Education Agencies for development of information technology to improve teaching and learning in schools	$696 million (FY2003)	[http://www.ed.gov/Technology/TLCF/]
Star Schools	Office of Assistant Secretary for Educational Research and Improvement, Dept. of Education	Grants to telecommunication partnerships for telecommunications facilities and equipment, educational and instructional programming	$27.3 million (FY2003)	http://www.ed.gov/programs/starschools/index.html/
Ready to Teach	Office of Assistant Secretary for Educational Research and Improvement, Dept. of Education	Grants to carry out a national telecommunication-based program to improve the teaching in core curriculum areas.	$14.4 million (FY2003)	[http://www.ed.gov/programs/readyteach/index.html]
Regional Technical Support and Professional Development Consortia for Technology	Office of Elementary and Secondary Education, Dept. of Education	Helps states, schools, districts, adult literacy centers, pre-service providers, and other educational institutions to use advanced technologies to improve teaching and student achievement	$9.9 million (FY2003)	[http://www.ed.gov/programs/rtec/index.html]
Special Education – Technology and Media Services for Individuals with Disabilities	Office of Special Education and Rehabilitative Services, Dept. of Education	Supports development and application of technology and education media activities for disabled children and adults	$37.9 million (FY2003)	[http://www.ed.gov/about/offices/list/osers/index.html?src=mr/]

Program	Agency	Description	FY2004 funding	Web Links for More Information [http://www.cfda.gov/public/]: Go to "All Programs Listed Numerically" and search by program
Medical Library Assistance	National Library of Medicine, National Institutes of Health, Department of Health and Human Services	Provides funds to train professional personnel; strengthen library and information services; facilitate access to and delivery of health science information; plan and develop advanced information networks; support certain kinds of biomedical publications; and conduct research in medical informatics and related sciences	$44.6 million (FY2003)	[http://www.nlm.nih.gov/ep/extramural.html]
State Library Program	Office of Library Services, Institute of Museum and Library Services, National Foundation on the Arts and the Humanities	Grants to state library administrative agencies for promotion of library services that provide all users access to information through State, regional, and international electronic networks	$157.6 million	[http://www.imls.gov/grants/library/lib_gsla.asp#po]
Native American Library Services	Office of Library Services, Institute of Museum and Library Services, National Foundation on the Arts and the Humanities	Supports library services including electronically linking libraries to networks	$3.21 million	[http://www.imls.gov/grants/library/lib_nat.asp]

Program	Agency	Description	FY2004 funding	Web Links for More Information [http://www.cfda.gov/public/]: Go to "All Programs Listed Numerically" and search by program
Denali Commission Program	Denali Commission	Provides grants through a federal and state partnership designed to provide critical infrastructure and utilities throughout Alaska, particularly in distressed communities	$35 million	[http://www.denali.gov]